Safety and Health
Fact Sheet No. 3

September 1995

NOISE

INTRODUCTION

In welding, cutting, and allied operations, noise may result from the process, the power source, or other equipment. Air carbon arc cutting and plasma arc cutting are examples of processes which are frequently noisy. Engine-driven generators may also be quite noisy. Excessive noise is a known health hazard.

DEFINITION

Scientifically, noise is composed of several frequencies and involves random changes in frequency or amplitude. Sound waves are produced when the air is mechanically disturbed. Sound is measured by its frequency (pitch-high or low) and intensity (loudness). Practically, noise is unwanted or unpleasant sound. It can get in the way of the sounds we would rather hear and often need to hear for safety reasons.

EFFECTS OF OVEREXPOSURE TO NOISE

- Loss of hearing that may be either full or partial and either temporary or permanent.
- Hearing loss may be a temporary threshold shift from which the ears may recover if removed from the noise source.
- Creates stress that can affect your physical and mental well-being.
- Causes accidents when you cannot hear instructions or warning signals.
- If a person is exposed to this same noise level for a longer period of time, the loss of hearing may become permanent.
- The time required to develop permanent hearing loss depends on individual susceptibility, noise level, and exposure duration.
- There is evidence that excessive noise affects other bodily functions and behavior as well.

HOW TO PROTECT AGAINST NOISE

- Reduce the intensity of the source.
- Shield the source where practical.
- Use engineering control methods, such as room acoustics, to control noise.
- If engineering methods fail to reduce noise to acceptable levels, wear approved personal protective devices such as ear muffs or ear plugs appropriate for the situation.
- Follow OSHA regulations which require a Hearing Conservation Program if noise levels reach 85 dB on an 8-hour, Time Weighted Average (TWA) basis.
- If noise level is questionable, have a certified safety specialist or Industrial Hygienist take measurements and make recommendations.

INFORMATION SOURCES

Occupational Safety and Health Administration (OSHA). *Code of Federal Regulations*, Title 29 Labor, Chapter XVII, Part 1901.1 to 1910.1450, Order No. 869-019-00111-5, available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

American Conference of Governmental Industrial Hygienists publication, *Threshold Limit Values (TLV®) for Chemical Substances and Physical Agents in the Workroom Environment*, available from American Conference of Governmental Industrial Hygienists (ACGIH), 1330 Kemper Meadow Drive, Cincinnati, OH 45240.

ANSI F6.1-78 (R1988). *Method for Sound Level Measurement of Manual Arc Welding and Cutting Processes*, available from American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

Mine Safety and Health Administration (MSHA). *Code of Federal Regulations*, Title 30 Mineral Resources, Parts 1-199, available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.