

sort. The most admissible role that such equipment fills is to protect persons against occasional or even regularly recurring exposures of short duration. The first might be at times of unforeseen mechanical breakdowns; the second, during periodic but brief cleanup or maintenance jobs. Personal protective devices clearly do not control a contaminant; they merely protect a person against overexposures. To require a person to wear a respirator during his whole shift, day after day, is unreasonable, and an admission of failure on the part of the occupational health engineer.

For protection against dusts, fumes and gases, only those respirators should be supplied that are approved under the appropriate testing schedule of the U. S. Bureau of Mines. A procedure must be followed for issuing, cleaning, and servicing them regularly; this often is planned jointly by the nurse and safety engineer, although the day-to-day finger work may be assigned to others.

For intermittent protection against radiant heat, reflective aluminized clothing can be bought. Such garments need special care to preserve their essential shiny surface. Air-cooled jackets and suits may be had to make endurable a high convective heat load. Lead-bearing materials are available to protect against ionizing radiation. Film badges, dose meters, etc., must also be used regularly to show the person's exposure has been within safe limits.

Protection against noise-induced hearing impairment, either as ear plugs or muffs, may often present especial difficulties. First, as with air contaminants, the real answer is to reduce the noise exposure. But in plants with old machines and processes, and even in new plants, this problem may loom as insoluble. It may be overwhelmingly costly to lower the noise. So we end by making ear protection mandatory. A fair number of companies are doing this today, and probably more should. It's not a comforting solution to wear plugs 8-hours a day, year in

and year out, especially when heat makes a person hot and sweaty. But the protection is worth it — and too often there's no other answer.

Good housekeeping plays a key role in occupational health protection. Basically, it is another tool in addition to those already listed for preventing dispersion of dangerous contaminants. Dust on overhead ledges and on the floor can readily be dispersed to the in-plant atmosphere by traffic, vibration, and random air currents. Housekeeping is always important; where there are toxic materials, it's paramount.

Proper training and education are supplements to the engineering controls. Here, the nurse and safety engineer sometimes can be key figures. Perhaps by getting a workman, for example, to change his manner of weighing a toxic material, or of handling a scoop or shovel, there will be no dust exposure. The plant that can avoid costly engineering controls merely by doing the job differently is fortunate, and in some industries this will work. But the opportunity doesn't come along very often.

Finally, where can a plant that doesn't have a full-time safety director, or nurse, get help in controlling its health hazards?

Many insurance companies carrying workmen's compensation insurance provide industrial hygiene service, in a similar way to their providing periodic safety inspections. Where this exists, a plant can get much good from it.

Private consultants in environmental health are available in most parts of the country. These may be individuals or firms. One organization supported by industrial companies is the Industrial Hygiene Foundation, Pittsburgh.

1. *Accident Prevention Manual*, 6th ed. (1966) National Safety Council, 425 N. Michigan Avenue, Chicago, Illinois 60611
2. American Industrial Hygiene Association, 14125 Prevost, Detroit, Michigan 48227
3. American Conference of Governmental Industrial Hygienists, Committee on Industrial Ventilation, P. O. Box 453, Lansing, Michigan