

construction and renovation. Now there is an opportunity to influence the code development process. America's building code organizations, in 1994, formed the International Code Council, or ICC. BOCA, ICBO and SBCCI joined together and are working with the NFPA. The goal is to write a single building and fire code by the year 2000. ICC's intention is to develop a single code which can be adopted by all states and local governments without amendment. ICC hopes that even government entities who currently write their own codes or amend existing model codes will use the new model codes. Concern with the approach centers on the potential for adding obstacles to the code development process. Each new proposal must be reviewed by several organizations and different versions coordinated. Because of this, code development may be unable to keep up with developing technology. Worse, we may see an institutional ossification which prevents us from changing regulations that don't fit research facilities.

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OCCUPATIONAL HEARING LOSS AND OSHA RECORDABILITY: AN UPDATE. S. Megerson, Impact Health Services, Inc., Kansas City, MO

One of the most complicated and controversial areas of record keeping involves the determination and recording of occupational hearing loss. Current interpretations vary between federal and state OSHA offices. On February 2, 1996, OSHA published a notice of proposed rule making regarding general recording/reporting requirements and specifically addressed the issue of recordability of noise-induced hearing loss. In March 1996 the AIHA Noise Committee developed a position statement in response to OSHA's call for comments which affirmed the AIHA's earlier landmark 1987 position statement. The new position also provided additional clarifications such as the actual recording of shifts in hearing and addressed new questions such as recommendations for lining out cases at a later date. Given the increasing concern of employers regarding appropriate guidelines for recordability, a survey of federal and state OSHA program policy and a review of public comments regarding the new OSHA proposal were undertaken. The survey of OSHA offices revealed that several states, including California, Michigan, North Carolina, South Carolina, Tennessee, and Washington, currently enforce significantly more stringent criteria for hearing loss recordability than required by current federal directives. The review of public response to the 1996 call for comments indicated that several professional organizations, as represented through a formal coalition including AIHA, and a number of industries support the basic recommendations of the AIHA's Noise Committee. Other organizations recommend less stringent requirements.

It is concluded that the AIHA recommendations satisfy current federal and state requirements and provide an excellent model for good standards of practice for determining appropriateness of recording occupational hearing loss on the OSHA Form 200 (proposed 300).

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VARIABLES AFFECTING RATES OF OSHA STS IN OCCUPATIONAL HEARING CONSERVATION PROGRAMS. J. Royster, Environmental Noise Consultants, Inc. Raleigh, NC; A. Stewart, ELB Associates, Chapel Hill, NC

Managers often believe that annual rates of OSHA standard threshold shift (STS) indicate the quality and effectiveness of the hearing conservation program. In some instances the performance appraisal and resulting salary of the plant manager, safety and health personnel, or other employees may be based partly on the percent of STSs per year. Inadequate protection from noise certainly will raise STS incidence; however, STS rates can also be affected by factors other than current on-the-job protection. This study was undertaken to identify the influence of such factors on STS rates in real-world audiometric data. Audio monitoring audiometry results from over 50 different hearing conservation programs were examined to select cases of low, fluctuating, and high STS rates. Then the factors contributing to the incidence of STS were identified for individual programs. Examples of the following factors will be illustrated: the testing environment (stability of calibration, ambient noise), testing procedures (type of audiometer, earphone placement, instructions), characteristics of the workforce (the degree of pre-existing hearing loss among employees and their age distribution), as well as non-occupational noise exposure (especially gunfire). These case histories demonstrate the importance of understanding the data trends before evaluating the results. The practicing industrial hygienist can investigate the influences on STS rates in the local hearing conservation program and can caution managers not to interpret STS rates as "good" or "bad" without knowledge of the contributing causes.

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THE APPLICATION OF AUDIOMETRIC DATA BASE ANALYSIS TO SELECTED AIR FORCE BASES. J.W. Thomas, USAF, Eglin AFB, FL; M. Flynn, University of North Carolina, Chapel Hill, NC; L.H. Royster, North Carolina State University, Raleigh, NC; J. Watson, University of North Carolina, Chapel Hill, NC

This paper focuses on using Audiometric Data Base Analysis (ADBA) to evaluate the effectiveness of the hearing conservation program (HCP) at eight Air Force Bases. The primary goal is to evaluate the effectiveness of the HCP for all eight bases combined. The secondary goal was determining which groups of personnel are experiencing the most variability in their hearing threshold levels (HTLs). The primary method for evaluating the HCPs is the ADBA protocol defined in the

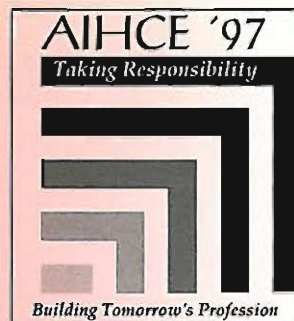
Draft American National Standard Institute (ANSI) Standard S12.13-1991 - Evaluating the Effectiveness of Hearing Conservation Programs. ADBA evaluates variability in HTLs using three different methods. The results can be used to classify the overall HCP as acceptable, marginal or unacceptable. The ADBA results revealed that the total group (6655 individuals) exhibited a program that was between marginal and unacceptable. Breaking the total group's audiometric data into smaller groups did not reveal a significantly different variability by group with the exception of gender. Females had significantly less variability in their mean HTLs when compared to males. An overall distribution of TWAs (time weighted averages) for the total group (723 work areas) showed a fairly normal distribution with the 50th percentile at 85 dBA (A frequency-weighted sound pressure level). The 10th percentile is 77 dBA and 90th percentile is 94 dBA for the total population.

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EFFECT OF NOISE AND SOLVENTS ON HEARING AND ITS IMPACT ON THE PRACTICE OF INDUSTRIAL HYGIENE T. Morata, J. Franks, NIOSH, Cincinnati, OH

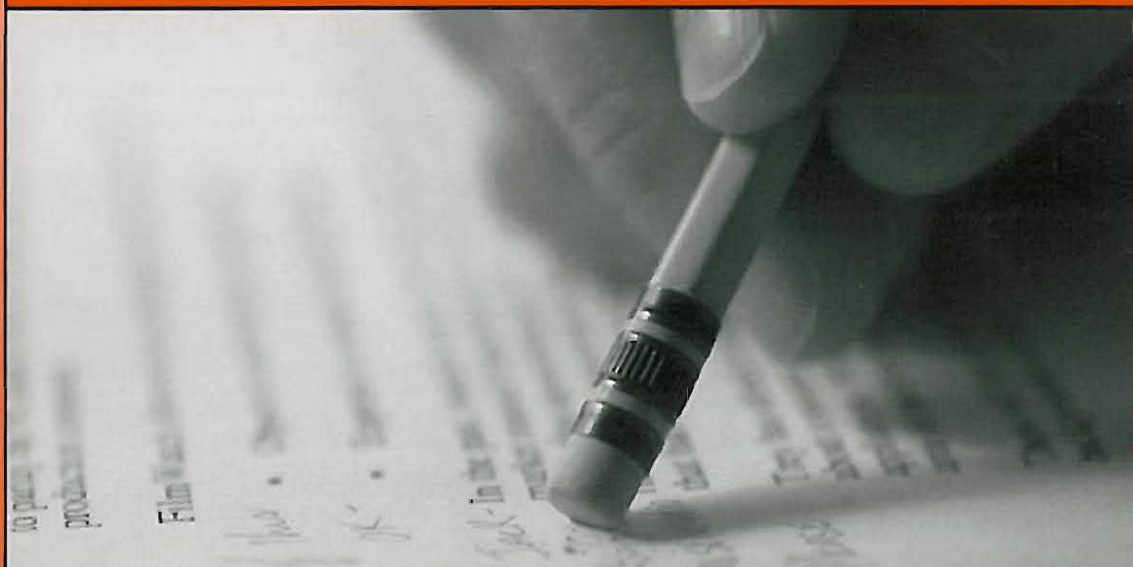
Increasing attention is being given to a holistic approach to studying the workplace as a combination of physical, chemical, biological, and organizational factors that impact workers' health and welfare. This approach includes initiatives to investigate the combined effects of occupational exposure to noise and other factors on hearing. In particular, the potential interaction between noise and chemicals poses a new challenge to investigators, industrial hygienists, and hearing conservationists. NIOSH has conducted three epidemiologic studies on the effects of solvents on hearing, alone or in combination with a noise. These cross-sectional studies were conducted at printing facilities, a paint manufacturing facility, and at an oil refinery. Audiometric thresholds were compared with ISO 1999 estimates, and the prevalence, risk ratios, and predicted probability of developing a hearing loss from different variables were calculated. In all of the investigations, solvent mixtures which had toluene as a main component were found to affect the hearing of workers exposed to low noise levels. In light of the multiplicity of chemicals that are used occupationally and evidence that they may affect hearing, it is conceivable that numerous populations are being under served with regard to hearing loss prevention. The observed effects may have serious implications for industrial hygiene, since the permissible exposure levels for chemicals do not consider their potentiation of hearing loss. Workers who are exposed to noise levels below 85 dBA time-weighted average are not required to be included in hearing conservation programs. Furthermore, methods currently used in hearing conservation (e.g., hearing protectors and noise control) may be insufficient, or even inappropriate, for workers exposed to both chemicals and noise.

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