

OSH INFORMATION MEMORANDUM 89-X-79

TO: All OSH Personnel

FROM: William M. Lybrand

SUBJECT: Audiometric Testing Using Insert Phones

DATE: March 10, 1989

PURPOSE.

This memorandum establishes the compliance procedure to follow if an employer is observed using insert phones for audiometric testing.

BACKGROUND.

1. Insert Phone.

- a. Description. An insert phone for audiometric testing relocates the source of audiometric test signals from the standard outer pinna area to a point approximately 12 millimeters inside the ear canal. This arrangement may exclude external noise more effectively and also, may improve interaural isolation. It eliminates collapsed canal measurement problems and claims are also made for improved test repeatability.
- b. Potential Logistic Advantage. The major logistic advantage that is foreseen for insert-type phones is the elimination of the need for an audiometric test room or booth.
- c. Matters to Resolve. Use of these insert-type phones as opposed to the standard over-the-pinna (or supra-aural) earphones will require correction factors due to the fact that an insert-type phone providing the same acoustical output as a supra-aural phone produces a different acoustic intensity in the ear canal. Moreover, requirements to ensure proper fit and requirements for proper calibration will be necessary. Etymotic Research of Elk Grove Village, Illinois, manufacturer of an insert-type phone it designates ER-3A, claims that the American National Standards Institute (ANSI) will approve their use within one year under American National Standard Specification for Audiometers, ANSI S3.6-1969. It is anticipated that ANSI S3.6 will address the corrections, fit, and calibration questions.

2. Legal Facts.

- a. Audiometer Requirements. At Section 1910.95(h)(2), the standard for occupational noise exposure states that audiometers shall meet the specifications of,

and shall be maintained and used in accordance with, ANSI S3.6. Moreover, Appendix E of the standard only considers the standard Telephonics TDH-39 and TDH-49 supra-aural earphones in its discussion of the acoustic calibration of audiometers. No consideration is given to any other type of audiometric test source.

b. Associated Audiometric Testing Requirements.

(1) Section 1910.95(h)(4). Audiometric examinations shall be administered in a room meeting the requirements listed in Appendix D: Audiometric Test Rooms.

(2) Section 1910.95(g)(7)(iii)(C). The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the measurements of background sound pressure levels in the audiometric test room as required in Appendix D: Audiometric Test Rooms.

(3) Section 1910.95(m)(2)(ii)(F). The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

3. Reading Material. Some examples of material to read to acquire background information in insert phones follow.

a. Product information materials from manufacturers such as Etymotic Research, Elk Grove Village, Illinois.

b. Journal Articles.

(1) Wilber L. Kruger B. Killion M. "Reference thresholds for the ER-3A insert earphone." J. Acoust. Soc. Am. 1988; 83:669-76.

(2) Clemis J. Ballard W. Killion M. "Clinical use of an insert earphone." Annals of Otolaryngology, Rhinology, and Laryngology 1986; 95:520-4.

ENFORCEMENT.

1. Audiometric Measuring Instruments. Until such time as ANSI S3.6 recognizes the use of an insert phone as an acceptable method for audiometric testing and includes specifications for the method, and federal OSHA concurs by amending 29 CFR 1910.95, or by issuing a directive, any use of insert phones for the intended purpose of complying with the audiometric testing requirements in Section 1910.95 shall be considered a violation of Section 1910.95(h)(2).

2. Associated Audiometric Testing Requirements. Employers using insert phones for audiometric testing may also be violating some of the other requirements of the noise standard quoted in this memorandum under paragraph 2.b. of BACKGROUND.

Whenever employers are observed using insert phones for audiometric testing, always investigate compliance with these other requirements and issue citations for documented violations.

3. Classifying Violations. Violations of Section 1910.95(h)(2) and associated violations of Sections 1910.95(h)(4), 1910.95(g)(7)(iii)(C) or 1910.95(m)(2)(ii)(F) shall be classified as “other than serious” and cited as separate items.

EFFECTIVE DATE.

This memorandum is effective upon receipt and will remain in effect until cancelled or superseded.