

SAFETY AND HEALTH STANDARDS

Hearing Conservation

Effective Date:	Standard: 10.3	Document Number: KUCSH00002	Rev: 04
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10.3.1 **INTRODUCTION**

10.3.1.1 The purpose of this standard is to ensure that the health and safety of KUCC employees and contractors is not adversely affected by harmful noise.

10.3.2 **DEFINITIONS**

Decibel: A unit (dB) used to express relative difference in acoustic power

Leq: Equivalent sound level, also called average sound level

Weighting: Noise measuring instruments employ weighting filters (A and C) as "tone controls." Measurements taken with these filters are written as dB(A) and dB(C) respectively.

Exchange Rate: Relationship between an increase (or decrease) in sound level and the corresponding change in allowed exposure time

10.3.3 **REQUIREMENTS**

10.3.3.1 Workplace noise sources must be identified and characterized by a qualified person using a Sound Level Meter. When risk assessments indicate a need to describe personal noise exposures adequately, a noise integrating dosimeter is recommended.

- Industrial Hygiene monitoring instruments shall be approved equipment with 3dB exchange rate, and A-weighting and impulse noise measurement capability.

10.3.3.2 When Industrial Hygiene noise monitoring indicates that the 95-percentile value of an 8-hour Leq mean exceeds 85 dB(A), or impulse noise exceeds 140 dB(C), the area must be identified and mapped, signposted or otherwise clearly communicated to employees working in the area. Signposting, where necessary, must use appropriate wording or symbols on signs to identify the hazard.

- Posted areas require a documented Hearing Conservation Program, regular Industrial Hygiene monitoring and formal review of the practicality of engineering controls.

10.3.3.3 Audiometric testing is required for all employees and Category 1 Contractors (see Safety and Health Standard 14.1) whose potential Leq exceeds 85 dB(A) or impulse noise exposure exceeds 140 dB(C). The

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results must be discussed with the worker.

10.3.3.4 When audiometric testing is required the audiometry program must meet the following industry standards:

- All testing must be by pure tone audiometry in an audiometry booth or quiet room, with measured noise levels less than 40 dB(A).
- The initial audiogram must be taken prior to exposure to significant workplace noise. Further audiograms must be taken periodically; annually where exposures are over 85 dB(A) Leq or where continued deterioration in hearing is occurring.
- Testing must be by qualified personnel.
- Audiometers must be calibrated according to the manufacturer's guidelines. As a minimum there will be a weekly calibration and an annual quantitative check. All results must be documented and maintained according to a records retention policy.
- Audiograms must be read by qualified persons who will identify any increasing hearing loss and then determine if this is noise induced.
- Any employee whose hearing deteriorates by an average 10 dB or more from baseline at 2000, 3000 or 4000 Hertz (Standard Threshold Shift – STS) in either ear must be retested within 30 days, following removal from noise for a minimum of 48 hours, usually after a days-off period.
- If a STS occurs the employee must be retrained by the supervisor regarding the hearing conservation program, hearing protective devices and options, and the effectiveness of administrative and engineering controls.
- If the downward shift persists a physician must meet with the employee.

10.3.3.5 When employee noise exposure exceeds 85 dB(A) for an 8-hour Time Weighted Average, feasible engineering or administrative controls will be utilized to reduce employee exposure. In the event that engineering controls are not feasible, other means of control will be implemented such as administrative controls or hearing protection.

10.3.3.6 When evaluation of a noise source has been made, and an area of high exposure is indicated, an engineering review of the operation should be made to determine feasible methods of control. Methods commonly employed in controlling noisy process operations include:

- Lessening metal-to-metal contact.
- Reducing escaping high velocity air or steam.

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- Muffling motors or air compressors to reduce noise contact.
- Maintenance of equipment to reduce vibrations on bearings or shafts.
- Adding dampening material to thin shell reverberant surfaces on machines.
- Enclosing machinery in acoustically tight devices.
- Isolating machinery from the rest of the workroom by barrier walls.
- Replacing older machinery with newer and redesigned models with reduced noise levels.

10.3.3.7 Documented procedures must be developed for inspection, assessment and maintenance of the engineering controls and noisy equipment to ensure that the equipment continues to operate to design specifications.

10.3.3.8 During the installation of engineering controls or when engineering and administrative controls are not capable of reducing the noise to acceptable levels there must be a documented Hearing Protection Device program based on suitable standards, that provides training in the recognition of signs and symptoms of hazardous noise exposure, emergency procedures and preventative measures.

- Hearing Protectors must be selected with regard to the potential type and loudness of noise likely, comfort and compatibility with the work tasks.

10.3.4 **RESPONSIBILITIES**

10.3.4.1 **Managers and Superintendents** are responsible for:

- Developing procedures for inspection, assessment and maintenance of the engineering controls.
- Making certain that the control equipment continues to operate to design specifications.
- Maintaining written administrative controls where required.
- Ensuring that a qualified person evaluates the noise sources in their work area and that signs are posted where required by the KUCC Hearing Conservation Program.

10.3.4.2 **Supervisors** are responsible to:

- Implement the Hearing Protection Device program and enforce the use of Hearing Protection when required.
- Ensure employees are afforded the opportunity to participate in the audiometric testing program.

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- Notify employees of noise exposure results.
- Ensure the Annual training required by the OSHA / MSHA noise standards and the KUCC Hearing Conservation Program is completed and any employee that experiences a Standard Threshold Shift is retrained.

10.3.4.3 Medical Clinic is responsible to:

- Administer the audiometric program.
- Maintain records of audiometric testing and follow-up notifications.
- Develop and maintain the Hearing Protection Device program and assist employees to fit and select proper hearing protectors.
- Report Threshold Shifts to Health Safety Department, Managers, Superintendents and Employees

10.3.4.4 Industrial Hygiene is responsible to:

- Conduct noise monitoring and report results and recommendations to Health Safety Environmental Department, Managers, Superintendents and Supervisors.
- Maintain the written Hearing Conservation Program on the KUCC Intranet.
- Maintain the employee exposure database.

REFERENCE

OSHA 29 CFR 1910.95
 MSHA 30 CFR Part 62
 ANSI S1.4-197
 KUCC Industrial Hygiene Hearing Conservation Program
 KUCC Safety and Health Standard 9.1-Personal Protective Equipment
 KUCC Safety and Health Standard 14.1-Contract of Service, Repair and Construction Work

REVISION HISTORY:

MOC#	Description of Change	Prepared By	Date
TS00139	General review and revision of standard Updated format and Document number added.	KUCC Safety and Health Standards Committee	12/06/07