

BGSU

Bowling Green State University

Hearing Conservation Program

TABLE OF CONTENTS

INTRODUCTION	3
Policy Statement	3
Forward	3
Objective	3
Applicability	4
Responsibilities.....	4
Program Enforcement.....	6
Recordkeeping	6
NOISE HAZARD ASSESSMENT	7
PPE Hazard Assessment	7
Noise Monitoring.....	7
EMPLOYEE INCLUSION	8
Audiometric Testing	8
Results of Audiometric Tests.....	9
Release from Program Requirements	10
NOISE CONTROL MEASURES	11
Engineering Controls	11
Administrative Controls.....	11
Hearing Protection.....	11
EMPLOYEE EDUCATION AND TRAINING	13
REFERENCES	14
APPENDIX A – DEFINITION OF TERMS	15
APPENDIX B – 29 CFR 1910.95 OCCUPATIONAL NOISE EXPOSURE	17

INTRODUCTION

Policy Statement

“It is Bowling Green State University’s policy to comply with the occupational safety and health standards of the Ohio Public Employees Risk Reduction Act and all applicable Federal, State, and Local rules, regulations, and directives.”

Approved: October 7, 1994
Board of Trustees

Forward

In 1970, the United States Congress established the right of workers to "safe and healthful working conditions" through the Occupational Safety and Health Act. This act created the Occupational Safety and Health Administration (OSHA). In July, 1994 the State of Ohio adopted and incorporated, by reference, many of the Federal OSHA standards through the Public Employee Risk Reduction Act, Ohio Revised Code 4167.07. This act and its subsequent rules (Ohio Administrative Code 4167-3-01) require Bowling Green State University and other state institutions to comply with all applicable OSHA standards. One of the applicable standards is 29 CFR 1910.95 “Occupational Noise Exposure.” The American Conference of Industrial Hygienist (ACGIH) have published more stringent recommendations. These recommendations have been incorporated in the following program.

Bowling Green State Universities Hearing Conservation Program has been established to comply with the Ohio Public Employee Risk Reduction Act and OSHA’s hearing conservation standard (29 CFR 1910.95).

Objective

The purpose of the University’s Hearing Conservation Program is to identify and control noise hazard areas, and to identify and protect all employees who have the potential to develop occupational noise-induced hearing loss. Whenever practical or feasible, efforts to reduce or eliminate excessive noise exposure in the workplace, by means of engineering controls or proper work practices, will occur before placing employees into BGSU’s Hearing Conservation Program. This program shall be used in conjunction with the BGSU policies and procedures involving the protection of workers in the workplace, including the Universities Personal Protective Equipment program.

Applicability

This program applies to all University employees who work in noise hazard areas or who have the potential to develop noise-induced hearing loss as a result of their occupation.

Nuisance noise is not covered by the University's Hearing Conservation Program. Nuisance noise is that noise which may be irritating or annoying to some people, but it is not loud enough to be hazardous or associated with noise-induced hearing loss as defined in 29 CFR 1910.95. Given the subjective nature of nuisance noise, concerns of nuisance noise will not be addressed by the Hearing Conservation Program.

Responsibilities

Sr. Industrial Hygienist, Environmental Health and Safety is responsible for

- identifying employees whose position contains potential noise hazards through the BGSU PPE Program;
- conducting noise surveys and dosimetry;
- coordinating the Hearing Conservation Program;
- consulting with departments to determine whether administrative and/or engineering controls are feasible and how they will be implemented;
- making recommendations on any and all matters relating to operation and administration of the Hearing Conservation Program and;
- providing appropriate hearing conservation training.

Contracted Audiologist/Physician is responsible for

- performing audiogram evaluations and identifying any anatomical factors that might interfere with the use of the protector or medical condition that might be aggravated;
- maintaining audiometric test records and;
- managing the Audiometric Testing Program.

Office of Design and Construction is responsible for

- directing and coordinating projects which are directly related to reducing noise.

Management (Department Chairpersons and Directors) is responsible for

- supplying hearing protection devices at no cost to employees and;
- providing employees with adequate training.

Supervisors are responsible for

- ensuring that all employees under their supervision have their work area assessed for noise hazards, using the University's Personal Protective Equipment Program's Hazard Assessment and notifying Environmental Health and Safety of changes in process, materials or equipment which may alter noise exposure;
- ensuring that noise hazard equipment/areas (greater than or equal to 85 dBA operating noise level) are properly labeled or posted;
- ensuring that all employees who are included in this Hearing Conservation Program undergo initial audiometric testing, at the designated provider, within the first two weeks of identifying them at risk of occupational noise-induced hearing loss and annually thereafter;
- enforcing the use of hearing protection at work at least 14 hours prior to initial and annual audiograms and informing employees of the need to avoid high levels of non-occupational exposure during the 14 hours prior to the audiogram examination;
- ensuring that any noise exposed employees who have terminated employment with the University undergo audiometric testing at the University designated provider prior to leaving the University;
- issuing hearing protection devices, and providing employees with the manufacturer's instructions for use, care, limitations, and warnings;
- ensuring that new employee orientation/training and annual refresher training of employees are provided. Supervisors must arrange this training with Environmental Health and Safety.

- enforcing the Hearing Conservation Program by ensuring that all subordinates comply with all facets of the BGSU Hearing Conservation Program, including proper use and care for hearing protection devices and;
- providing a copy of the Hearing Conservation Program upon their request.

Employees are responsible for

- participating in the audiometric testing program and following the instructions regarding noise exposure prior to testing;
- attending the hearing conservation training offered by Environmental Health and Safety, initially and annually thereafter and;
- properly using and caring for hearing protective devices where these devices are required and following the hearing conservation program requirements.

Program Enforcement

A violation of a University employee's responsibility must be reported to the employee's immediate supervisor for appropriate action.

Recordkeeping

BGSU will make available to affected employees, or their representatives, copies of the OSHA standard 29 CFR 1910.95. A copy is also posted on the Environmental Health and Safety web site. BGSU will also make available any informational materials pertaining to the standard that are supplied to BGSU by the Assistant Secretary of Labor for Occupational Safety and Health.

All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary of Labor for Occupational Safety and Health.

Environmental Health and Safety will maintain records of current noise levels, noise control/hearing conservation measures and trainings for at least two years.

The contracted audiologist/physician will maintain records of all audiometric tests. These shall be maintained in a manner consistent with the principle of medical confidentiality and the requirements of 29 CFR 1910.95. They shall be kept for the duration of the employees employment.

NOISE HAZARD ASSESSMENT

PPE Hazard Assessment

Noise exposed workers and/or noise hazard areas will be identified by the Hazard Assessment or Hazard Reassessment as described in the University's Personal Protective Equipment Program.

Noise Monitoring

The Sr. Industrial Hygienist will conduct workplace noise surveys and/or personal dosimetry when a potential noise hazard is identified on the Personal Protective Equipment Hazard Assessment or Reassessment or when it has been brought to the Sr. Industrial Hygienist's attention in another form. Noise surveys and/or personal dosimetry will be conducted in accordance with 29 CFR 1910.95.

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

- additional employees may be exposed at or above the action level or;
- the attenuation provided by hearing protectors being used by employees may be rendered inadequate.

BGSU will also provide affected employees or their representative with an opportunity to observe any noise measurements conducted.

Employees will be incorporated into the University's Hearing Conservation Program when the noise monitoring results indicates that the employee is exposed to noise levels exceeding 85 dB(A weighted) 8 hour time-weighted-average (TWA). The Sr. Industrial Hygienist will notify the employee and the employee's immediate supervisor within 5 days of the monitoring results.

EMPLOYEE INCLUSION

All University employees identified by noise monitoring to be at risk of developing noise-induced hearing loss shall undergo confidential audiometric testing for hearing loss.

Audiometric Testing

The employee's department or area will provide an audiometric test and consultation at no cost to the employee. Baseline audiograms shall be provided at no cost for employees upon inclusion in the Hearing Conservation Program, and annually thereafter. Annual re-testing is to determine if hearing loss is being prevented.

Immediate supervisors have two weeks, after they are notified, to have permanent employees undergo audiometric testing at a University designated provider to establish the employee's baseline audiogram.

If the employee is employed on a temporary basis, the immediate supervisor has six months to have the employee undergo audiometric testing. It is possible that a change in job status, such as termination, would prevent the immediate supervisor from obtaining a baseline audiogram. However, if an employee has a likelihood of continuing on a seasonal basis, such as student summer workers, it is recommended that a baseline audiogram be established.

Audiograms shall be preceded by at least 14 hours without exposure to workplace noise. This requirement may be met by wearing hearing protectors, which will reduce the employee's exposure to a sound level of 80 dBA or below. The supervisor must also notify employees of the need to avoid high levels of non-occupational exposure during the 14 hours period immediately prior to the audiometric examination.

The contracted audiologist, Certified Audiometric Technician (CAT), or physician will conduct the audiometric testing and will determine the frequency of reevaluation. During the visit, employees will be counseled as to their test results and any implications of hearing changes which may have occurred.

An initial baseline audiogram will be obtained and subsequent annual audiograms will be compared to the baseline to ascertain if a significant threshold shift has occurred.

All baseline and annual testing will be performed by an audiologist or by an audiology graduate student under the direct supervision of a certified audiologist. OSHA amendment guidelines for testing procedures, equipment and calibration requirements will be followed.

The contracted audiologist shall perform an audiometric database analysis (ADBA) procedures, as defined in ANSI Standard S12.13-1991, to assess the effectiveness of hearing conservation efforts (i.e., whether hearing loss is being prevented).

Results of Audiometric Tests

A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee may obtain a retest within 30 calendar days and consider the results of the retest the annual audiogram.

Employees shall be informed in writing within 21 days when an audiogram indicates that a standard threshold shift has been determined.

Unless a physician determines that a standard threshold shift is not work related or aggravated by occupational noise exposure, BGSU will ensure that when an employee's test result indicates a standard threshold shift, the following measures are taken:

- employees that are not currently using hearing protection shall be fitted with hearing protection, trained in its use, care, and required use;
- employees already using hearing protection shall be refitted with hearing protection and retrained in the use of hearing protection. If needed, employees will be provided with hearing protection that offers greater attenuation;
- if additional testing is necessary or if the BGSU or the contracted audiologist suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors, the employee shall be referred to a clinical audiological evaluation or an otological examination, as appropriate.

An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluated the audiogram, the STS revealed by the audiogram is persistent or the hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

Release from Program Requirements

When an employee's test result indicates that a standard threshold shift is not persistent and the employee is exposed to less than an 8-hour TWA of 85 decibels, the designated provider shall:

- inform the employee of the new audiometric interpretation and;
- consider discontinuing the required use of hearing protection.

NOISE CONTROL MEASURES

Engineering Controls

In a noise hazard area, the Office of Design and Construction will conduct a feasibility study of engineering controls to reduce noise levels. When engineering controls are feasible, noise levels are to be reduced through engineering controls. Engineering controls can include barriers, vibration damping, source isolation, and sound absorbing enclosures.

Administrative Controls

In instances where engineering controls are not practical or feasible, administrative controls such as changes in work procedures, rescheduling of the noisy activity or decreasing the duration of exposure are acceptable methods of reducing employee exposure to noise.

Clearly visible warning signs must be posted at the entrances to an area where sound levels regularly exceed 85dBA. These warning signs must clearly indicate that the use of hearing protection is mandatory for entry. In situations where a piece of equipment or machinery presents a noise hazard, a sign must be affixed to the machine, in a clearly visible location, indicating that the operator must wear appropriate hearing protection. Warning signs can be obtained from Environmental Health and Safety.

Regular equipment maintenance is an important noise control measure since well-maintained equipment tends to be quieter.

Hearing Protection

Engineering and/or administrative controls are the preferred methods for reducing noise exposure. If they are not feasible or practical, hearing protection devices must be used where sound levels regularly exceed 85 dBA for an 8-hour TWA or where an individual's personal exposure may exceed the limits set in **Table 1** (according to the American Conference of Governmental Industrial Hygienists, ACGIH).

No exposure to continuous, intermittent, or impact noise of a peak C-weighted level of 140 dB shall occur. No exposure shall exceed a time weighted average of 115 for continuous noise.

For regular noise exposures between 80-85 dBA, hearing protection is optional but should be provided on request.

All employees exposed to 85dB(A) TWA noise must have available hearing protectors at no cost to them. It is the supervisor's responsibility to ensure such hearing protectors are

worn and worn correctly by employees whose noise exposure exceeds 85dB(A) TWA or by those who have experienced a significant hearing threshold shift.

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable types.

Hearing protectors must attenuate the noise level to an 8-hour TWA of 85 dBA or less.

Re-evaluation of hearing protectors shall be done whenever a workplace noise level increase renders the hearing protector's attenuation inadequate.

TABLE 1

	Duration per day	Sound Level dBA, ACGIH
Hours	24	80
	16	82
	8	85
	4	88
	2	91
	1	94
Minutes	30	97
	15	100
	7.5	103
	3.75	106
	1.88	109
	.94	112
Seconds	28.12	115
	14.06	118
	7.03	121
	3.52	124
	1.76	127
	.88	130
	.44	133
	.22	136
	.11	139

EMPLOYEE EDUCATION AND TRAINING

Employees who are required to wear hearing protection must be trained. Training will be provided initially and annually thereafter. The training will include:

- Objectives and responsibilities of BGSU's Hearing Conservation Program
- The effects of noise on hearing
- Factors effecting hearing loss
- Hearing Conservation Program
- Noise hazard assessments
- Noise exposures and monitoring results
- Audiometric testing
- Noise control measures
- Hearing protection devices (HPD's)
- Recordkeeping and employee training.

REFERENCES

1. <http://www.osha.gov/>. Occupational Safety and Health Administration.
2. American Conference of Industrial Hygienist. TLV's and BEIs Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. 2002.
3. <http://www.bgsu.edu/offices/envhs/ppe/documents/ppeprogram.pdf>. Bowling Green State University. Personal Protective Equipment.


APPENDIX A – DEFINITION OF TERMS

DEFINITION OF TERMS

Audiometry:	A method of hearing assessment which tests an individual's ability to hear sounds of different intensities and frequencies. Audiometry detects early, asymptomatic noise-induced hearing loss before the affected individual is even aware that it is happening.
Decibel:	The decibel is a logarithmic and dimensionless unit for measuring sound pressure levels.
A-weighted decibel:	The A-weighted decibel or dBA, is a type of decibel measurement, which closely represents the manner in which a human ear responds to noise.
Exchange Rate:	The increase (decrease) in sound level for which permissible exposure time is halved (doubled). The two common exchange rates are 3 dB and 5 dB. The University Noise Control and Hearing Conservation Program uses the 3 dB exchange rate since it is more conservative and provides better protection against noise-induced hearing loss.
Noise:	In general, noise is considered to be any unwanted sound. The University's Noise Control and Hearing Conservation Program targets noise levels and noise exposures, which are associated with noise-induced hearing loss (refer to the definitions for "noise-exposed" and "noise hazard area" for clarification).
Standard Threshold Shift:	A change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.
Time-Weighted Average:	The time-weighted average (TWA) represents the average (noise) exposure measured over a typical 8-hour workday.

APPENDIX B – 29 CFR 1910.95 OCCUPATIONAL NOISE EXPOSURE

Regulations (Standards - 29 CFR)
Occupational noise exposure. - 1910.95

 [Regulations \(Standards - 29 CFR\) - Table of Contents](#)

• Part Number:	1910
• Part Title:	Occupational Safety and Health Standards
• Subpart:	G
• Subpart Title:	Occupational Health and Environment Control
• Standard Number:	<u>1910.95</u>
• Title:	Occupational noise exposure.
• Appendix:	<u>A</u> , <u>B</u> , <u>C</u> , <u>D</u> , <u>E</u> , <u>F</u> , <u>G</u> , <u>H</u> , <u>I</u>

1910.95(a)

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

FIGURE G-9 - Equivalent A-Weighted Sound Level
(For Figure G-9, [Click Here](#))

Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 1.G-16.

1910.95(b)

1910.95(b)(1)

When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

1910.95(b)(2)

If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)

Duration per day, hours	Sound Level dBA slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

Footnote(1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C(1)/T(1) + C(2)/T(2) + C(n)/T(n)$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

1910.95(c)

"Hearing conservation program."

1910.95(c)(1)

The employer shall administer a continuing, effective hearing conservation program, as described in paragraphs (c) through (o) of this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.

1910.95(c)(2)

For purposes of paragraphs (c) through (n) of this section, an 8-hour time-weighted average of 85 decibels or a dose of fifty percent shall also be referred to as the action level.

1910.95(d)

"Monitoring."

1910.95(d)(1)

When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program.

1910.95(d)(1)(i)

The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of hearing protectors.

1910.95(d)(1)(ii)

Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the employer shall use representative personal sampling to comply with the monitoring requirements of this paragraph unless the employer can show that area sampling produces equivalent results.

1910.95(d)(2)

1910.95(d)(2)(i)

All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.

1910.95(d)(2)(ii)

Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

1910.95(d)(3)

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

1910.95(d)(3)(i)

Additional employees may be exposed at or above the action level; or

1910.95(d)(3)(ii)

The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of paragraph (j) of this section.

1910.95(e)

"Employee notification." The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.

1910.95(f)

"Observation of monitoring." The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section.

1910.95(g)

"Audiometric testing program."

1910.95(g)(1)

The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

1910.95(g)(2)

The program shall be provided at no cost to employees.

1910.95(g)(3)

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

1910.95(g)(4)

All audiograms obtained pursuant to this section shall meet the requirements of Appendix C: "Audiometric Measuring Instruments."

1910.95(g)(5)

"Baseline audiogram."

1910.95(g)(5)(i)

Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared.

1910.95(g)(5)(ii)

"Mobile test van exception." Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wearing hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.

1910.95(g)(5)(iii)

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.

1910.95(g)(5)(iv)

The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

1910.95(g)(6)

"Annual audiogram." At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

1910.95(g)(7)

"Evaluation of audiogram."

1910.95(g)(7)(i)

Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift as defined in paragraph (g)(10) of this section has occurred. This comparison may be done by a technician.

1910.95(g)(7)(ii)

If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

1910.95(g)(7)(iii)

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 following information:

1910.95(g)(7)(iii)(A)

A copy of the requirements for hearing conservation as set forth in paragraphs (c) through (n) of this section;

1910.95(g)(7)(iii)(B)

The baseline audiogram and most recent audiogram of the employee to be evaluated;

1910.95(g)(7)(iii)(C)

Measurements of background sound pressure levels in the audiometric test room as required in Appendix D: Audiometric Test Rooms.

1910.95(g)(7)(iii)(D)

Records of audiometer calibrations required by paragraph (h)(5) of this section.

1910.95(g)(8)

"Follow-up procedures."

1910.95(g)(8)(i)

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined in paragraph (g)(10) of this section has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination.

1910.95(g)(8)(ii)

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:

1910.95(g)(8)(ii)(A)

Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.

1910.95(g)(8)(ii)(B)

Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.

1910.95(g)(8)(ii)(C)

The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

1910.95(g)(8)(ii)(D)

The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

1910.95(g)(8)(iii)

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the employer:

1910.95(g)(8)(iii)(A)

Shall inform the employee of the new audiometric interpretation; and

1910.95(g)(8)(iii)(B)

May discontinue the required use of hearing protectors for that employee.

1910.95(g)(9)

"Revised baseline." An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

1910.95(g)(9)(i)

The standard threshold shift revealed by the audiogram is persistent; or

1910.95(g)(9)(ii)

The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

1910.95(g)(10)

"Standard threshold shift."

1910.95(g)(10)(i)

As used in this section, a standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

1910.95(g)(10)(ii)

In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: "Calculation and Application of Age Correction to Audiograms."

1910.95(h)

"Audiometric test requirements."

1910.95(h)(1)

Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

1910.95(h)(2)

Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969, which is incorporated by reference as specified in Sec. 1910.6.

1910.95(h)(3)

Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in Appendix C: "Audiometric Measuring Instruments."

1910.95(h)(4)

Audiometric examinations shall be administered in a room meeting the requirements listed in Appendix D: "Audiometric Test Rooms."

1910.95(h)(5)

"Audiometer calibration."

1910.95(h)(5)(i)

The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 decibels or greater require an acoustic calibration.

1910.95(h)(5)(ii)

Audiometer calibration shall be checked acoustically at least annually in accordance with Appendix E: "Acoustic Calibration of Audiometers." Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 decibels or greater require an exhaustive calibration.

1910.95(h)(5)(iii)

An exhaustive calibration shall be performed at least every two years in accordance with sections 4.1.2; 4.1.3.; 4.1.4.3; 4.2; 4.4.1; 4.4.2; 4.4.3; and 4.5 of the American National Standard Specification for Audiometers, S3.6-1969. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

1910.95(i)

"Hearing protectors."

1910.95(i)(1)

Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

1910.95(i)(2)

Employers shall ensure that hearing protectors are worn:

1910.95(i)(2)(i)

By an employee who is required by paragraph (b)(1) of this section to wear personal protective equipment; and

1910.95(i)(2)(ii)

By any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:

1910.95(i)(2)(ii)(A)

Has not yet had a baseline audiogram established pursuant to paragraph (g)(5)(ii); or

1910.95(i)(2)(ii)(B)

Has experienced a standard threshold shift.

1910.95(i)(3)

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer.

1910.95(i)(4)

The employer shall provide training in the use and care of all hearing protectors provided to employees.

1910.95(i)(5)

The employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors.

1910.95(j)

"Hearing protector attenuation."

1910.95(j)(1)

The employer shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The employer shall use one of the evaluation methods described in Appendix B: "Methods for Estimating the Adequacy of Hearing Protection Attenuation."

1910.95(j)(2)

Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels as required by paragraph (b) of this section.

1910.95(j)(3)

For employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

1910.95(j)(4)

The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary.

1910.95(k)

"Training program."

1910.95(k)(1)

The employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels, and shall ensure employee participation in such program.

1910.95(k)(2)

The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

1910.95(k)(3)

The employer shall ensure that each employee is informed of the following:

1910.95(k)(3)(i)

The effects of noise on hearing;

1910.95(k)(3)(ii)

The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and

1910.95(k)(3)(iii)

The purpose of audiometric testing, and an explanation of the test procedures.

1910.95(l)

"Access to information and training materials."

1910.95(l)(1)

The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.

1910.95(l)(2)

The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.

1910.95(l)(3)

The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

1910.95(m)

"Recordkeeping" –

1910.95(m)(1)

"Exposure measurements." The employer shall maintain an accurate record of all employee exposure measurements required by paragraph (d) of this section.

1910.95(m)(2)

"Audiometric tests."

1910.95(m)(2)(i)

The employer shall retain all employee audiometric test records obtained pursuant to paragraph (g) of this section:

1910.95(m)(2)(ii)

This record shall include:

1910.95(m)(2)(ii)(A)

Name and job classification of the employee;

1910.95(m)(2)(ii)(B)

Date of the audiogram;

1910.95(m)(2)(ii)(C)

The examiner's name;

1910.95(m)(2)(ii)(D)

Date of the last acoustic or exhaustive calibration of the audiometer; and

1910.95(m)(2)(ii)(E)

Employee's most recent noise exposure assessment.

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.

1910.95(m)(3)

"Record retention." The employer shall retain records required in this paragraph (m) for at least the following periods.

1910.95(m)(3)(i)

Noise exposure measurement records shall be retained for two years.

1910.95(m)(3)(ii)

Audiometric test records shall be retained for the duration of the affected employee's employment.

1910.95(m)(4)

"Access to records." All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary. The provisions of 29 CFR 1910.20 (a)-(e) and (g)-

1910.95(m)(4)(i)

apply to access to records under this section.

1910.95(m)(5)

"Transfer of records." If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained by this section, and the successor employer shall retain them for the remainder of the period prescribed in paragraph (m)(3) of this section.

1910.95(n)

"Appendices."

1910.95(n)(1)

Appendices A, B, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

1910.95(n)(2)

Appendices F and G to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

1910.95(o)


"Exemptions." Paragraphs (c) through (n) of this section shall not apply to employers engaged in oil and gas well drilling and servicing operations.

1910.95(p)

"Startup date." Baseline audiograms required by paragraph (g) of this section shall be completed by March 1, 1984.

[39 FR 23502, June 27, 1974, as amended at 46 FR 4161, Jan. 16, 1981; 46 FR 62845, Dec. 29, 1981; 48 FR 9776, Mar. 8, 1983; 48 FR 29687, June 28, 1983; 54 FR 24333, June 7, 1989; 61 FR 5507, Feb. 13, 1996; 61 FR 9227, March 7, 1996]

 [Next Standard \(1910.95 App A\)](#)

 [Regulations \(Standards - 29 CFR\) - Table of Contents](#)