



WASHINGTON MILITARY DEPARTMENT PROCEDURE

Safety Procedure 01-060-06

HEARING CONSERVATION

The Department recognizes the inherent danger of excessive noise levels associated with construction and maintenance activities and this procedure is designed to protect those identified employees.

1. RESPONSIBILITIES:

a. Hearing Conservation Program Administrator shall ensure:

- (1) The requirements in this Policy are met.
- (2) Noise assessments are completed.
- (3) At-risk employees receive training.
- (4) That only approved hearing protection equipment is selected and provided as indicated by completion of a Hazard Assessment Certification & PPE Selection Worksheet (MIL FORM 906) that identifies the proper type of hearing protection equipment for each identified hazard.
- (5) Coordination with Supervisors to implement the elements of this policy.
- (6) Employee training records are maintained
- (7) Hearing conservation equipment is inspected and that inspections are recorded on the Personal Protective Equipment Inspection Record (MIL FORM 908)
- (8) Equipment inspection records are retained for no less than 3 years.
- (9) At least annually evaluate overall policy implementation to determine the effectiveness of the Hearing Conservation program and that appropriate action is taken to correct defects found in the program.
- (10) Audiometric (hearing tests) results are provided to the Human Resource Office (HRO) for inclusion in the Employee Occupational Health Record (EOHR).

b. Supervisor shall ensure:

- (1) That adequate hearing protection is provided to employees while performing tasks in hazardous environments as identified in Table 1 of this policy and consistent with the results of the Hazard Assessment Certification & PPE Selection Worksheet (MIL FORM 906).
- (2) Shall ensure all wearers of hearing protection apply appropriate care and use of the equipment on a daily basis.

- (3) That each piece of hearing protection equipment is inspected monthly to verify proper maintenance. Take action to confirm that equipment is used, worn properly, and are in good working condition.
 - (4) Periodic monitoring of work environments to evaluate:
 - (a) Appropriate hearing protection equipment is selected for the hazard;
 - (b) Appropriate use of hearing protection equipment under workplace conditions;
 - (c) Hearing protection equipment maintenance; and
 - (d) Wearer feedback as to the effectiveness of the Hearing Conservation program.
 - (5) A copy of the manufacturer's manual is maintained for each make and model of hearing protection equipment being used, for reference by wearers.
 - (6) That the service life of each piece of hearing protection equipment is not exceeded. Service life and maximum use limit information may be available in the manufacturer's manual.
 - (7) Coordinate shop/Department hearing conservation activity with the Hearing Conservation Program Administrator.
 - (8) Hearing protection equipment is maintained in a clean and sanitary condition and that storage locations are convenient to the work being performed.
- c. Hearing Protection Equipment Wearers shall:
- (1) Ensure the elements of this policy are followed when conducting activity in identified noise enhanced environments.
 - (2) Attend mandatory Hearing Conservation training.
 - (3) Obtain baseline audiometric tests at the time of employment and annually thereafter.
 - (4) Participate in the worksite hazard assessment process and wear appropriate hearing protection equipment as indicated by the Hazard Assessment Certification & PPE Selection Worksheet (MIL FORM 906).
 - (5) Maintain hearing protection equipment in a serviceable and sanitary condition.
 - (6) Inspect hearing protection equipment at least monthly.
 - (7) Complete required training and inspection documentation.
 - (8) Cooperate with the Hearing Conservation Program Administrator and supervisor.

2. NOISE CONTROL:

a. Determining Noise Level:

- (1) Noise in the workplace that interferes with people speaking, even at close range.

- (2) Information from the manufacturer of equipment used in the workplace that indicates high noise levels for machines in use.
 - (3) Reports from employees of ringing in their ears or temporary hearing loss.
 - (4) Warning signals or alarms that are difficult to hear.
 - (5) Work near abrasive blasting or jack hammering operations.
 - (6) Use of tools and equipment such as the following:
 - (a) Heavy equipment or machinery
 - (b) Fuel-powered hand tools
 - (c) Compressed air-driven tools or equipment in frequent use
 - (d) Power saws, grinders or chippers
 - (e) Powder-actuated tools
- b. Monitoring Noise Level will occur utilizing only American National Standard Specification for Sound Level Meters, S1.4.1984, Type 2 requirements for sound level meters and consistent with specifications outlined in WAC 296-817-30005.
- (1) A survey of The Washington National Guard was completed on February 28, 2006 by Jeff Spann, Industrial hygiene consultant, Washington State Department of Labor & Industries.
 - (2) The following depicts the survey results of the specific equipment surveyed.

WA National Guard noise survey 2/28/06	Noise level at operator's ear (dB)	1-hr noise dose (%)	Hours for dose to reach 50%
Brush/Limb Chipper	100.0	50	1
Backpack Blower (Deere BP40)	97.5	35.4	1.4
Mower (Deere 1445)	96.0	28.8	1.75
Mower (Z Trak 737)	100.8	55.6	0.9
Leaf Vacuum (Gravely ProVac 1050) <i>Inside Shop</i>	98.7	41.9	1.2
Tractor (Deere 650) <i>Inside Shop</i>	91.5	15.3	3.3
Gravely ProVac 1050 + Deere 650 <i>Inside Shop</i>	99.0	43.8	1.15
Leaf Vacuum (Gravely ProVac 1050) <i>Outdoors</i>	97.5	35.4	1.4
Tractor (Deere 430) <i>Outdoors</i>	95.9	28.3	1.8
Gravely ProVac 1050 + Deere 430 <i>Outdoors</i>	98.6	41.3	1.2
Chainsaw (Stihl 026)	110.0	200	0.25
Table Saw	92.0	16.5	3.05
Jointer	88.0	9.4	5.3
Radial Arm Saw (Rockwell)	99.0	43.8	1.15
Radial Arm Saw (DeWalt)	101.0	57.5	0.85
Trash Compactor	79.4	2.9	>16

3. HEARING PROTECTION:

- a. Hearing protection provides a barrier to noise and protects employees but is not considered a control of the noise hazard. Reduction of noise may reduce the need for other hearing loss prevention requirements:
 - (1) Controls that eliminate noise at the source or establish a permanent barrier to noise are typically more reliable. For example:
 - (a) Replacing noisy equipment with quiet equipment
 - (b) Using silencers and mufflers
 - (c) Installing enclosures
 - (d) Damping noisy equipment and parts
 - (2) Other controls and work practices may also be useful for reducing noise exposures. Examples include:
 - (a) Employee rotation
 - (b) Limiting use of noisy equipment
 - (c) Rescheduling work
- b. Provided Hearing Protection (PPE)
 - (1) Hearing protection will be provided at no cost to employee
 - (2) Supervisors shall make sure that employees utilize provided hearing protection correctly and:
 - (a) Make sure hearing protectors are properly chosen for fit Replaced as necessary.
 - (b) Provide employees with an appropriate selection of hearing protectors:
 - 1) The selection must include at least two distinct types (such as molded earplugs, foam earplugs, custom-molded earplugs, ear caps, or earmuffs) for each exposed employee and must be sufficient to cover:
 - a) Different levels of hearing protection needed in order to reduce all employee exposures to a level below 85 dBA TWA
 - b) Different sizes
 - c) Different working conditions.
 - d) Consider requests of the employees regarding:
 - 1. Physical comfort
 - 2. Environmental conditions
 - 3. Medical needs
 - 4. Communication requirements. NOTE: Hearing protector selection should include earplugs, ear caps and earmuffs

4. TRAINING:

- a. Employees whose noise exposure equal or exceeds 85 dBA TWA will be provide training.
- b. Training will be provided when an employee is first assigned to a position involving noise exposure that equals or exceeds 85 dBA TWA **and** at least annually thereafter.
- c. Hearing Protection Training includes:
 - (1) The effects of noise on hearing (including both occupational and non occupational exposures)
 - (2) Noise controls used in the workplace
 - (3) The purpose of hearing protectors:
 - (b) The advantages, disadvantages, and attenuation of various types
 - (c) Instructions about selecting, fitting, using, and caring for hearing protection
 - (d) The purpose and procedures for program evaluation including audiometric testing and hearing protection.
 - (4) The employees' right to access their Employee Occupational Health Record.
 - (5) A review of this policy to include initial and refresher training.

5. TESTING:

- a. Audiometric testing as described by WAC 296-817-400 is to be conducted supervised and reviewed by one of the following licensed or certified individuals:
 - (1) An audiologist
 - (2) An otolaryngologist
 - (3) Another qualified physician.
- b. Make sure audiograms are conducted by one of the above individuals or by a technician certified by the Council of Accreditation in Occupational Hearing Conservation (CAOHC) and responsible to a qualified reviewer.
- c. Audiometric hearing tests including travel or necessary additional examinations or testing will be provided at no cost to the employee.
- d. Baseline audiograms shall be completed no more than one hundred eighty days after the employee is first assigned and annually thereafter.
 - (1) Employees are to refrain from exposure to work place noise at least fourteen hours before testing to establish a baseline audiogram.
 - (2) Hearing protectors may be used to accomplish this.

- (3) Employees should also avoid high levels of non occupational noise exposure (such as loud music, headphones, guns, power tools, motorcycles, etc.) during the fourteen-hour period immediately preceding the baseline audiometric examination.

5. PROGRAM EVALUATION

- a. Audiometric testing will be used to identify hearing loss, which may indicate program deficiencies.
- b. The following actions identify potential programming deficiencies:
 - (1) Any employee experiences measurable hearing loss indicated by a Standard Threshold Shift.
 - (2) Any employee found not wearing hearing protection during a walk-around audit.
- c. The following shall be evaluated when responding to a standard threshold shift:
 - (1) Employee noise exposure measurement.
 - (2) Noise controls in the work area.
 - (3) Refit employee as necessary with available hearing protection device.
 - (4) Employee training on noise and the use of hearing protection and conduct additional training as necessary.

6. RECORDS RETENTION:

- a. A legible copy of all employee audiograms shall be retained in the confidential Employees Occupational Health Record (EOHR).
- b. The Employee Occupational Health Record shall be maintained by the State Human Resource Office (HRO).
- c. The Employee Occupational Health Record shall include:
 - (1) Name and job classification of the employee.
 - (2) Date of the audiogram.
 - (3) The examiner's name.
 - (4) Date of the last acoustic or exhaustive calibration of the audiometer.
 - (5) Employee's most recent noise exposure assessment.
 - (6) The background sound pressure levels in audiometric test rooms.

7. DEFINITIONS

At-risk Employees –WMD maintenance and construction employees who work in > 80 dB environments.

Audiogram - A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.

Audiologist - A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech, Hearing, and Language Association, or the American Academy of Audiology, and is licensed by the state board of examiners.

Baseline audiogram - The audiogram against which future audiograms are compared. The baseline audiogram is collected when an employee is first assigned to work with noise exposure. The baseline audiogram may be revised if persistent standard threshold shift (STS) of improvement is found.

Continuous noise - Noise with peaks spaced no more than one second apart. Continuous noise is measured using sound level meters and noise dosimeters with the slow response setting.

Decibel (dB) - Unit of measurement of sound level. A-weighting, adjusting for the sensitivity of the human ear is indicated as "dBA." C-weighting, an even reading across the frequencies of human hearing is indicated as "dBC."

Noise dose - The total noise exposure received by an employee during their shift. It can be expressed as a percentage indicating the ratio of exposure received to the noise exposure received in an eight-hour exposure to constant noise at 90 dBA. It may also be expressed as the sound level that would produce the equivalent exposure during an eight-hour period (TWA_8)

Occupational hearing loss - A reduction in the ability of an individual to hear either caused or contributed to by exposure in the work environment.

Otolaryngologist - A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.

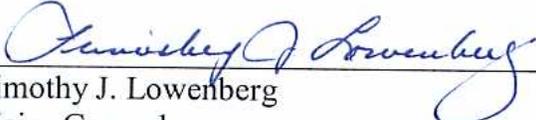
Sound level - The intensity of noise as indicated by a sound level meter.

Sound level meter - An instrument that measures sound levels.

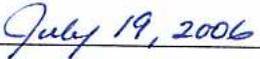
Standard Threshold Shift (STS) - A hearing level change, relative to the baseline audiogram, of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

TWA - Equivalent eight-hour time-weighted average sound level - That sound level, which if constant over an eight-hour period, would result in the same noise dose measured in an environment where the noise level varies.

This procedure will be reviewed and updated on a regular as needed basis.



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Date