



TOWN OF MAMMOTH LAKES

Hearing Conservation Program

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HEARING CONSERVATION PROGRAM

Pursuant to Sections 5095 – 5100, Title 8 of the California Code of Regulations (Cal/OSHA’s Occupational Noise Standard)

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PURPOSE

The primary objective of a hearing conservation program is to protect employees against noise in the work environment, which by its intensity and/or duration potentially poses a hazard to hearing. This program establishes procedures for noise control and hearing conservation in the work place for Town of Mammoth Lakes employees.

HEARING CONSERVATION REQUIREMENTS

Title 8, Section 5097, California Code of Regulations, mandates implementation of an effective hearing conservation program, whenever employee noise exposures equal or exceed an 8-hour time-weighted average (TWA) sound level of 85 decibels (dB) measured on the A-scale (slow response) or, equivalently, a dose of fifty percent. Departments determined to have specific operations, facilities and/or equipment, which expose employees at, **or above** the A action level \cong (8-hour TWA of 85 dBA) shall implement the basic provisions of this plan as follows:

- 1) *Noise measurements and exposure analysis;*
- 2) *Control of noise exposure; and*
- 3) *Audiometric testing.*

The Town departments identified in Appendix B shall adhere to the provisions of this plan. See Appendix A for definitions. Other departments may become subject to the requirements of this plan pending future sound level surveys.

NOISE MEASUREMENTS AND EXPOSURE ANALYSIS

Sound pressure levels or noise measurements shall be measured using the A-Weighting/Slow Response \cong of a standard sound level meter or noise dosimeter. The Personnel Department shall arrange for noise measurements when levels are suspected to be at or above 85 dBA; whenever employees complain of noise levels that cause temporary hearing loss or ringing in the ears (tinnitus); and/or whenever communication by speech is difficult for employees in close proximity to one another.

If sampling of the noise level in a specific area identifies an employee who should be included in the Hearing Conservation Program, additional monitoring shall be conducted to identify other employees who may be similarly exposed.

CONTROL OF NOISE EXPOSURE

When employees are subjected to sound levels exceeding those listed in *Figure 1*, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels below the permissible exposure levels (PEL) of *Figure 1*, hearing protection devices shall be provided and used to reduce sound levels below the levels of *Figure 1*. The permissible exposure levels allowed for a period of exposure time are defined as follows:

Figure 1

Permitted Duration		Permitted Duration		
Sound Level	Per Workday	Sound Level	Per Workday	(Hours)
(dBA)	(Hours)	(dBA)	(Hours)	
90	8.00	103	1.32	
91	6.96	104	1.15	
92	6.06	105	1.00	
93	5.28	106	0.86	
94	4.60	107	0.76	
95	4.00	108	0.66	
96	3.48	109	0.56	
97	3.03	110	0.50	
98	2.63	111	0.43	
99	2.30	112	0.38	
100	2.00	113	0.33	
101	1.73	114	0.28	
102	1.52	115	0.25	

ANNUAL AUDIOMETRIC TESTING

All employees exposed to a TWA of 85 dBA must be included in the Hearing Conservation Program, which includes an initial baseline audiogram and subsequent annual audiograms, at no cost to the affected employees. Required audiometric examinations will be offered to monitor the affected employees hearing. The baseline audiogram shall be compared to that of the annual audiogram to determine if a standard threshold shift has occurred.

The Personnel Department shall arrange for the Town’s current occupational health provider (or other qualified personnel or organizations) to perform the required audiometric tests, which shall be done in accordance with Cal/OSHA regulations.

HEARING PROTECTION DEVICES

Personal protective equipment for use in high noise level areas is an essential tool in implementing an effective Hearing Conservation Program where personnel exposure cannot be sufficiently reduced by administrative or engineering controls to the PEL. Hearing protectors shall be made available to the affected employees and replaced as necessary. The effectiveness of the hearing protective device depends upon the following factors, which are related to the manner in which the sound energy is transmitted through or around the device.

- 1) Seal Leaks: Small leaks in the seal between the hearing protector and the skin which can significantly reduce the low frequency attenuation; as the air leak becomes larger, attenuation becomes reduced at all frequencies.
- 2) Material Leaks: Leaks, which permit transmission of sound directly through the material of the device.
- 3) Device Vibration: Vibration of the hearing protective device itself caused by exposure to external sound energy.
- 4) Bone Conduction: The level of sound reaching the inner ear by bone conduction would be about 50 dB below the level of air conduction; therefore, a perfect hearing protective device worn in or over the ear cannot provide more than 50 dB reduction below the level of air conduction.

Employees required to wear hearing protection devices shall be given the opportunity to select hearing protectors from a variety of suitable types which have been selected by the Town. (E.g. ear plugs and earmuffs)

NOISE REDUCTION RATING (NRR)

Hearing protection devices must attenuate employee exposure at least to an 8-hour TWA of 90 dBA. For employees who have experienced a standard threshold shift, hearing protection devices must attenuate employee exposures to an 8-hour TWA of 85 dBA.

The following method is used to evaluate the adequacy of hearing protection devices for Town employees:

- 1) Using a QUEST M-27 Noise Logging Dosimeter:
Obtain employee A-weighted dose and convert to TWA.
- 2) Subtract 7 dB from the hearing protector's NRR.
- 3) Subtract the remainder (NRR minus 7dB) from the employee measured A-weighted TWA to obtain the estimated TWA under the hearing protector.

RECORD KEEPING

The Personnel Department shall establish a recordkeeping system, which meets the requirements of Sections 3204 and 5100, Title 8 of the California Code of Regulations. The following records shall be maintained:

- 1) Noise exposure measurements.
- 2) Audiometric test results including audiograms, name and classification of employee, date of audiogram, the name of the examiner, and the date of audiometer calibration.
- 3) Training Records.

Audiometric test results shall be placed in the employee medical file, which is maintained in the Personnel Department.

All records required shall be provided upon written request to affected employees, former employees, representatives designated by the individual employee, or a designated representative of Cal-OSHA.

TRAINING

Training sessions for employees identified for inclusion in the Hearing Conservation Program will include:

- 1) Discussion of the effects of noise on hearing: the purpose of hearing protectors.
- 2) Use and care of hearing protectors.
- 3) The purpose for and explanation of audiometric testing.
- 4) The advantages and disadvantages of different hearing protectors.
- 5) The alternation of various types and instructions on selection and fitting.

The required annual re-training will be offered for employees exposed to excessive noise levels as specified in this Hearing Conservation Program.

RESPONSIBILITIES

TOWN MANAGER AND/OR PERSONNEL AND RISK MANAGER OR DESIGNEE

- ! Coordinate implementation of the Hearing Conservation Program throughout involved departments within the Town.
- ! Authorize budgeting and expenditure of necessary resources to implement the program.
- ! Ensure that employees receive annual audiometric tests as deemed necessary by staff in the Personnel Department.
- ! Request sound level studies and analyses if specific operations, facilities and/or equipment are suspected of exceeding the 8-hour TWA threshold of 85 dBA.

DEPARTMENT DIRECTORS/MANAGERS AND SUPERVISORS

- ! Equip employees with approved hearing protection devices as prescribed by Department staff.
- ! Identify those areas and jobs where hearing protection is required.
- ! Provide corrective action as may be deemed necessary or practical to modify or replace equipment, machinery, facilities, and tools which exceed an 8-hour TWA of 90 dBA.
- ! Initiate or re-evaluate noise level studies of specific operations, facilities, and/or equipment following employee complaints of temporary hearing loss or constant tinnitus (ringing in the ears).
- ! Assist with training and educate employees about the effects of noise-induced hearing loss.
- ! Make frequent checks to ensure employees are properly using hearing protection devices. Strictly enforce the use of hearing protection devices.

EMPLOYEES

- ! Wear hearing protection devices at specific operations, facilities, and/or equipment determined to be at the 8-hour TWA of 85 dBA;
- ! Replace damaged or dirty hearing protection devices as soon as possible;
- ! Report temporary hearing loss or constant tinnitus to the immediate supervisor.

PERSONNELDEPARTMENT

- ! Assist departments in their efforts to implement an effective hearing conservation program.
- ! * Record all reported Standard Threshold Shifts (STS) of 10 dB or more on the OSHA 300 log.
- ! Ensure audiometric testing is conducted by qualified persons and conducted in accordance with Section 5097 and 5100, Title 8 of the California Code of Regulations.
- ! Retain noise exposure measurement and training records for ten (10) years.
- ! Retain baseline and annual audiometric test results in the employee's medical files in accordance with Section 3204 (d) Title 8 California Code of Regulations
 - 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 the annual audiogram according to the procedure described in Sections 5095-5100, Appendix F: Title 8 of the California Code of Regulations.

APPENDIX A

DEFINITIONS

Action Level- An 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.

Attenuation- To lessen the sound pressure level.

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

A-Weighted Sound Level (dBA)- An electrically achievable filter capable of making the noise dosimeter or sound level meter respond closer to the way the human ear hears. It attenuates the frequencies below several hundred Hertz as well as the high frequencies above six thousand Hertz.

Decibel (dB)- Unit of measurement of sound level.

Dose- Cal-OSHA mandates the maximum allowable exposure to accumulated noise is 100%. A 100% dose occurs for an 8-hour time-weighted average (TWA) sound level of 90 dBA (or any equivalent exposure). The dose will double (halve) every time the TWA increases (decreases) 5 dBA, which is the Cal-OSHA criterion level.

Hearing Protector- A device inserted into or placed over the ear for the purpose of reducing air-conducted sounds, e.g. earplugs or earmuffs.

Noise- A disturbing, harmful, or unwanted sound.

Noise Induced Hearing Loss- The term used to refer to the slowly progressive inner ear hearing loss that results from exposure to continuous noise over a long time period as contrasted to acoustic trauma or physical injury to the ear.

Noise Reduction Rating (NRR)- An EPA requirement for hearing protectors showing the rated effectiveness in terms of decibels (dB) of noise attenuation. In most cases, the exposure of employees wearing the protector closely approximates the value obtained by subtracting the NRR from the A-weighted noise level. The range of NRR for existing hearing protectors is approximately 0 to 30. Higher numbers denote greater effectiveness.

Sound- Particle displacement (compression and rarefaction) of air molecules caused by external forces.

Standard Threshold Shift (STS)- A change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more.

Time Weighted Average (TWA) Sound Level- TWA represents a constant sound level averaged over eight hours that would result in the equivalent sound energy as the noise that was sampled.

APPENDIX B

DEPARTMENTS REQUIRED TO PARTICIPATE IN THE HEARING CONSERVATION PROGRAM

DEPARTMENT	JOB CLASSIFICATIONS
Airport	Airport Maintenance Coordinator Airport Maintenance and Operations Worker Airport Operations Coordinator Assistant Airport Manager Assistant Airport and Transportation Director
Parks	Parks Maintenance Lead Worker Parks Maintenance Worker Parks Manager Parks Superintendent
Police	Police Chief Police Lieutenant Police Officers Police Sergeant
Public Works	Associate Civil Engineer Building Inspector Code Compliance Officer Equipment Mechanic Engineering Assistant Public Works Director Public Works Facilities Worker Public Works Fleet Lead Worker Public Works Fleet Supervisor Public Works Inspector Public Works Lead Worker Public Works Maintenance Supervisor Public Works Maintenance Worker Senior Associate Civil Engineer Senior Building Inspector Senior Public Works Inspector