CITY OF SEASIDE
HEARING CONSERVATION PLAN – SOP #82

I. PURPOSE

California Code of Regulations (CCR), Title 8, Division 1, Chapter 4, Subchapter 7, Group 15, Article 105, Sections 5095-5100, mandate the implementation of a continuing, effective hearing conservation program whenever employee noise exposures equal or exceed an 8-hour time weighted average (TWA) of 85 decibels measured on the A-scale (slow response) or, equivalently, a dose of fifty percent. This program contains provisions for appropriate hearing protection, annual audiometric tests, annual employee training and periodic environmental assessments.

II. POLICY

All departments are responsible for protecting their employees from exposure to excessive noise. This policy and procedure defines responsibilities for the prevention of occupationally induced hearing loss in agency employees.

III. DEFINITIONS

Decibel (dB) - Unit of measurement of sound level

Decibels-A-Weighted (dBA) - a unit of measurement of sound level corrected to the A-weighted scale, as defined in ANSI S1.4-1971 (R1 1976), using a reference level of 20 micropascals (0.00002 Newton per square meter)

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

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

IV. RESPONSIBILITIES

A. Administration / Department Managers

1. Implement a hearing conservation program within their area of jurisdiction and budget resources to fund such a program. The program shall include providing two types of hearing protectors for employees to choose from and annual refresher training on proper use.

2. Assign responsibility for implementation to appropriate administration/department staff.

3. Develop written Standard Operating Procedures to ensure that employees are protected against the effects of noise exposure when sound levels exceed those shown in **Appendix A** when measured on the A-scale of a standard sound level meter at slow response.

B. Human Resources Director / Risk Manager

1. Implement a hearing conservation program with administration, manager, and supervisor assistance.

2. Coordinate annual training of respective department employees as required by Cal/OSHA standards.

3. Assist supervisors in the procurement, issuance, and proper utilization of hearing protective equipment. The National Institute for Occupational Safety and Health (NIOSH) Compendium of Hearing Protection Devices can be downloaded from the NIOSH website at http://www.cdc.gov/niosh/topics/noise/hpdcomp

4. Establish and maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed the action level.

5. Assist supervisors with scheduling routine employee audiometric examinations. Each employee exposed at or above the action level is to receive an annual audiogram after obtaining the initial baseline.

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

   b) If comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined by Section 5097 (d)(8) of the CCR, the employee shall be informed of this fact, in writing, within 21 days of the determination.

6. Monitor supervisor's assessments of employee compliance with the Hearing Conservation Program and their documentation of incidences of employees not wearing protectors as required.

7. Identify the need for, and when necessary, retain qualified consultants for the following support services:

   a) Evaluation of employee noise exposures

b) Noise control

c) Assessment of hearing protective equipment relative to employee noise exposure

d) Training for administration, managers, and supervisors

e) Coordination of a periodic re-evaluation to determine noise exposures in the workplace

8. Maintain copies of employee audiometric assessment records.

C. Department Managers/Supervisors

1. Monitor subordinate program compliance to ensure proper personal protective equipment is always used when needed.

2. Document incidences of employees not wearing hearing protective equipment as required.

3. Ensure annual audiometric assessment for those employees exposed to noise in excess of 85 dBA TWA.

D. Employees

1. Comply with the requirements specified in California Code of Regulations, Title 8 and agency policies and procedures.

E. Occupational Hearing Consultant / Physician

1. Provide the following services for the Hearing Conservation Program:

a) Conduct annual hearing examinations. See Title 8, CCR, Section 5097(c)(3) for qualification requirements for person conducting the tests.

(1) Medical review of employee audiometric testing results. 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 Section 5097 (d)(8), has occurred. A properly trained technician may do this comparison.

(2) An audiologist, otolaryngologist or physician shall review problem

audiograms and shall determine whether there is a need for further evaluation.

b) Maintain original employee audiometric assessment records.

c) Evaluate the adequacy of hearing protector attenuation whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation.

d) Determination of medical effectiveness of the program.

V. MONITORING

A. When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the agency shall obtain measurements for employees who may be exposed at or above that level.

B. The monitoring requirement shall be met by personal or area monitoring that is representative of the employee's exposure.

C. All continuous, intermittent and impulsive sound levels from 80 to 130 dB shall be integrated into the computation. Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

D. Monitoring shall be repeated whenever a change in production, process, equipment or control changes noise exposures to the extent that:

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

2. The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of Cal/OSHA regulations.

E. The agency shall provide affected employees with an opportunity to observe any measurements of employee noise exposure, which are conducted pursuant to this section.

F. The agency shall notify each employee exposed at or above the action level of the results of the monitoring.

VI. PROCEDURE

A. Hearing protection devices shall be worn by employees working with equipment where the sound level is above 85 dBA as reflected on the "A" scale of a noise

dosimeter (sound level analyzer). *Note: Law enforcement officers shall not wear hearing protection if in their judgment the use of such equipment would represent a hazard to themselves or general public. Hearing protective equipment shall always be worn while shooting on the range.*

B. A Permissible Exposure Limit (PEL) for exposure to continuous noise levels has been established by Cal/OSHA. It takes into consideration the time weighted average of exposure at various sound levels as follows:

DURATION (HRS/DAY)	**SOUND LEVEL (DBA)**
8	90
4	95
2	100
1	105
½	110
¼	115
	(MAX PERMITTED)

Exposure to impact noises shall not exceed the limits as follows:

SOUND LEVEL (db)	**PERMITTED NUMBER OF IMPULSES OR IMPACTS PER DAY**
140	100
130	1,000
120	10,000

*No exposure in excess of 140 decibels peak sound pressure level is permitted.

C. Impulsive or impact noise is considered to be those variations in noise levels that involve maximum at intervals of greater than one per second. When the intervals are less than one second, the noise is considered continuous.

D. In all cases when the levels listed above are exceeded, a continuing effective hearing conservation program shall be administered and enforced. Three methods to reduce exposure to noise hazards are as follows:

1. Noise reduction shall be accomplished by the use of mufflers, insulated sound enclosures, laminated vibration softeners in machinery mounts, sound reducing panels, walls and ceilings of sound absorbing materials and/or shutting off machinery.

2. Exposure reduction can be accomplished by scheduling manpower,

alternating personnel, or removing employees from the exposure until the noise source is corrected.

3. Personal protection shall be provided in the form of ear plugs or ear muffs. Enforcement of their use is a requirement for a good hearing conservation program.

VII. HEARING CONSERVATION

A. As an element of its Hearing Conservation Program, all field employees in public work, fire department, and police departments will be included in an audiometric testing program, which will:

1. Be provided at no cost to the employee.

2. Include a baseline audiogram as part of the initial physical examination and an annual updated audiogram.

3. Be conducted and evaluated by a licensed or certified audiologist, otolaryngologist or physician.

4. Be conducted with audiometric equipment, which has been calibrated and meets the requirements of Cal/OSHA regulations.

B. All audiograms will be compared to the employee's baseline to determine if the audiogram is valid and if a threshold shift of 10 dB or more at 2000, 3000, and 4000 Hz has occurred in either ear (Standard Threshold Shift). To facilitate such comparisons, the agency will supply the audiologist with a copy of the Cal/OSHA Noise Exposure regulations (if needed), the baseline and most recent audiogram for the employee.

C. If evaluation of the audiogram determines that a standard threshold shift has occurred, the agency will:

1. Inform the employee of this fact in writing within 21 days of receipt of the audiogram results.

2. Train employees not previously using hearing protection in their use and care and require that hearing protection be worn.

3. Refit and retrain employees currently using protective equipment and provide them with protective equipment providing greater attenuation as appropriate.

4. Refer the employee for a medical evaluation as appropriate.

VIII. PROTECTIVE EQUIPMENT

A. The agency will supply at no cost to employees exposed to 85 dBA or greater, or who have experienced a standard threshold shift, appropriate hearing protection. Employees will be allowed to choose from an assortment of protective equipment. Employees will be required to wear selected protective equipment when using high noise equipment.

B. Protective equipment attenuation will be evaluated for the specific noise environments per Cal/OSHA Methods for Estimating the Adequacy of Hearing Protector Attenuation.

C. Using Appendix E GISO Article 105 (b) (A-weighted dosimeter) 7 dB shall be subtracted from the Manufacturer's Noise Reduction Rating. A minimum NRR of 22 shall be required for public works and 33 for the police department employees. Police department employees are encouraged to wear both an ear muff and plug while shooting on the range.

D. Protective equipment must attenuate noise exposures to at least 90 dB unless the employee has experienced a standard threshold shift, which will require attenuation to 85 dB.

E. Protective equipment adequacy will be evaluated whenever employee exposures increase to the extent that the protective equipment may no longer provide adequate attenuation.

IX. TRAINING

A. All employees exposed to noise at or above 85 dBA time weighted average (TWA) will attend an annual training program which will include:

1. The effects of noise on hearing.

2. The purpose of protective equipment, advantages, disadvantages and attenuation of the various types. Instruction on selecting, fitting, using and caring for protective equipment.

3. The purpose and procedures for audiometric testing.

4. Their right to access Cal/OSHA regulations and where it is posted in the workplace.

5. Any additional information pertaining to Noise Exposure Regulations, as supplied by the U.S. Department of Labor, Occupational Safety and Health Administration or the California Department of Industrial Relations.

X. RECORDKEEPING

A. The Human Resources Department will maintain accurate records of all elements of the Hearing Conservation Program.

B. Employee exposure measurements will be maintained. Additional exposure measurements will be performed whenever there is a significant change to working conditions and/or equipment used that may expose employees to noise levels that equal or exceed an 8-hour time weighted average (TWA) of 85 decibels measured on the A-scale.

C. Audiograms will be maintained for the duration of employment and will include:

1. Employee name and job classification

2. Date of audiogram

3. The examiner's name

4. Date of the last calibration of the audiometer

5. Employee's most recent noise exposure assessment

XI. REFERENCE

Title 8, California Code of Regulations, General Industry Safety Orders, Sections 5095-5100

Hearing Conservation Program
Implementation and Assessment Checklist

		YES	NO
I.	**Administration/Department Managers/Risk Manager**		
1.	Is the established policy and objectives communicated to employees?	____	____
2.	Are responsibilities defined and authority assigned?	____	____
3.	Is there one person clearly responsible for the overall activities of the program?	____	____
4.	Are the lines of communication for safety and health concerns clear and open?	____	____
II.	**Noise Hazard Assessment**		
1.	Are there areas in the workplace where continuous noise levels exceed 85 dBA?	____	____
2.	Are periodic inspections conducted by qualified staff?	____	____
3.	Are employees in high-risk areas given periodic audiometric testing to ensure an effective hearing protection system?	____	____
4.	Are employees encouraged to notify management of infractions, and receive timely appropriate responses?	____	____
5.	Are records maintained for the following:		
	a) Number of employees under surveillance?	____	____
	b) Number of employee medical records reviewed?	____	____

		YES	NO
III.	**Hazard Correction and Control**		
1.	Is appropriate hearing protection available to every employee working in noisy areas?	____	____
2.	Have engineering controls been used to reduce excessive noise levels?	____	____
3.	Are administrative controls including safety and health rules and safe work procedures established and implemented?	____	____
4.	Are noise levels being monitored and measured using a sound level meter and an octave band analyzer, and are records kept?	____	____
5.	Have work areas where noise levels make voice communication between employees difficult been identified and posted?	____	____
6.	Is there an ongoing equipment maintenance program?	____	____
IV.	**Safety and Health Training**		
1.	Is there an ongoing training program?	____	____
2.	Does the training cover the following topics:		
a)	Safe levels of noise exposure?	____	____
b)	Effects of noise on employee health?	____	____
c)	Purpose of hearing protectors; the advantages and disadvantages and attenuation of various types of devices?	____	____
d)	Instruction on the selection, use, care, limits and maintenance of hearing protective equipment?	____	____
e)	Purpose of audiometric testing and an explanation of test procedures?	____	____

		YES	NO
f)	Information on laws and/or regulations relative to safety concerns?	____	____
3.	Is training reinforced annually, or more frequently when necessary?	____	____
4.	Are new employees trained in hearing protection procedures as part of their orientation?	____	____
5.	Are trainers qualified?	____	____
6.	Is there a procedure to evaluate the effectiveness of the training program?	____	____

V. REFERENCES:

Title 8, California Code of Regulations, General Industry Safety Orders, Sections 5095-5100

National Institute for Occupational Safety and Health (NIOSH)

APPENDIX A
PERMISSIBLE NOISE EXPOSURE[1]

Permitted Duration Per Workday

Sound Level (dBA)	Hours – Minutes (Cn)	Hours (Tn)
90	8-0	8.00
91	6-58	6.96
92	6-4	6.06
93	5-17	5.28
94	4-36	4.60
95	4-0	4.00
96	3-29	3.48
97	3-2	3.03
98	2-38	2.63
99	2-18	2.30
100	2-0	2.00
101	1-44	1.73
102	1-31	1.52
103	1-19	1.32
104	1-9	1.15
105	1-0	1.00
106	0-52	0.86
107	0-46	0.76
108	0-40	0.66
109	0-34	0.56
110	0-30	0.50
111	0-26	0.43
112	0-23	0.38
113	0-20	0.33
114	0-17	0.28
115	0-15	0.25

[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: C1/T1 + C2/T2… Cn/Tn exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level.