Noise Exposure

When employees are subject to sound levels exceeding those permitted by the State Division of Industrial Safety, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound exposure to permissible levels, suitable personal protective equipment will be used and employees affected will be scheduled for the hearing conservation program.

In order to prevent hearing loss which can result from prolonged exposures to excessive noise, protection against the effects of noise exposures will be provided to and/or used by all employees when sound levels exceed 85 Dba (slow response as measured on the A scale of a sound level meter or time weighted average) (see Table 1, page 6-2). When employees are subjected to sound levels exceeding those listed, administrative (limiting exposure time) or engineering controls (reducing the noise exposure level) should be utilized whenever possible to reduce noise exposure levels to within the limits specified. If such controls fail to reduce sound levels to within acceptable levels or during the time period that such controls are being implemented, personal protective equipment (ear muffs or ear plugs) will be used as specified to reduce noise exposures to at least 85 Dba. When ear plugs are used as hearing protection, they shall be properly fitted, cleaned daily, and maintained in a sanitary condition.

Table 1	
Sound Level (Dba - Slow Response) •	Maximum Exposure Without Protection (HEARING ours) ••
90	8
92	6
95	4
97	3
100	2
102	0
105	0
110	0
115	0

When noise levels exceed a given Dba level, exposure protection will be rounded off to that specified by the next higher Dba level (91 Dba = 6 hours without protection).

If noise level is constant, the period during which hearing protection will be worn follows the period of exposure without protection. If using a time weighted average, hearing protectors will be worn during periods of exposure that exceed the TWA as well as during the period specified in Table 1.

**When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect will be considered or a time weighted average taken. An example of TWA is as follows:

An employee performs several tasks during the course of his/her working day. The duration and the noise level associated with each task are listed on page 6-3 (example):

	Exposure	Noise Level
a) Operation of pneumatic hammer.	1 hr.	100 Dba
b) Operation of surface grader.	4 hrs.	91 Dba
c) Operation of street cleaner.	2 hrs.	93 Dba
d) Using sand blaster.	1/3 hrs	112 Dba
e) Operating riding mower.	2/3 hrs.	101 Dba

To be compared to the 85 Dba TWA level specified, however, these values must be converted as follows:

a)	60 min.	x 100 db = 6,000
b)	240 min.	x 91 db = 21,840
c)	120 min.	x 93 db = 11,160
d)	20 min.	x 112 db = 2,240
e)	45 min.	x 101 db = 4,040

Total exposure = 45,280 db min.

For an eight (8) hr. day (480 min.), 45,280 db min./480 min. = 94.33 db TWA. The 94.33 Dba TWA exceeds the acceptable limit of 90 Dba TWA (Table 1 above), hence this employee must wear hearing protection as specified above and will be notified regarding his/her exposure to excessive noise (85 Dba or higher).

In order to prevent permanent hearing loss which may result from exposure to noise, "a continuing, effective hearing conservation program shall be administered whenever employee noise exposures exceed an eight (8) hour time-weighted average sound level (TWA) of 85 Dba (slow scale-noise level meter) or, equivalently, a noise dose of fifty (50) percent" (dosimeter reading). The hearing conservation program includes all of the following components to fulfill the minimum requirements set forth:

- A noise exposure monitoring program.
- Employee notification.
- An audiometric testing program including baseline and annual hearing examinations.
- The availability of hearing protectors including an evaluation of their effectiveness.
- A noise exposure training program.
- A system of record keeping.

The annual hearing examination will follow a fourteen (14) hour pre-exam period of no noise exposure to determine if a change in hearing sensitivity has occurred. The employee training program explains the effects of noise on hearing, the purpose of ear protectors, and the purpose of audiometric testing procedures and results. The record keeping system will include a record of the employee's most recent noise exposure assessment, audiometric test results, and training program participation. This information shall be maintained in an active, accessible file.

Supervisors with questions about noise levels, exposure, the need for hearing protection or employee monitoring, shall contact Environment, Health and Safety.

Table 2		
Examples of Noise Producing Maintenance Operations:		
Activity (Operator's Position)	Typical Sound Level (Dba-Slow Response)	Typical Maximum Exposure Without Hearing Protection
Riveting Steel	130	None
Chainsaw	119-120	None
Sandblasting	112	None
Pneumatic Hammer	100-106	None
Pneumatic Drill	103-104	None
Power Auger	102	None
Grader	91-94	4-6 Hours
High-loader	88-90	8 Hours
Core Drill	88-90	8 Hours
Street Cleaner	92-94	4-6 Hours
Surface Planer	96-102	None-2 Hours
Circular Saw	95-96	3-4 Hours
Belt Sander	99-102	None-2 Hours
Power Miter Box	105-107	None
Grinding Wheel	96-98	2-3 Hours
Tin Cutter	101-106	None
Riding Mower	100-101	None-2 Hours
Weed Eater	100-101	None-2 Hours