



Hearing Conservation

University Facilities

Internal Procedure: July 1, 2013

Effective date: July 1, 2013

Last Modified: April 2013

Approved by: Bob Wells

1.0 Program Objective

UF has adopted this policy for the prevention of employee exposure to hazardous levels of noise based on the following OSHA regulations:

§1910.95 – Occupational Noise Exposure

2.0 Purpose and Scope

UF has implemented this policy to ensure that no employee is exposed to noise levels in excess of the action levels as listed in the following regulations. UF ensures that the following engineering controls and work practices will be enforced:

- 2.1 Upon initial hiring, all employees who are exposed to action level noise will be trained in the hazards presented by excessive noise levels in the workplace, and the use and care of hearing protection devices. Training will be repeated annually for each employee and updated to reflect changes in personal protective equipment (PPE) and work processes or requirements.
- 2.2 Hearing protectors will be available upon request from UF at no cost to all employees exposed to an 8-hour time-weighted average of 85 decibels. Hearing protection will be replaced as necessary. Each employee will be properly trained in the use, care, and fitting of hearing protectors. UF will ensure that hearing protectors are worn. Employees will be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors.
- 2.3 UF will provide a continuing effective hearing conservation program when employees are exposed to sound levels greater than 85 dBs on an 8-hour time-weighted average basis.
- 2.4 When information indicates that employee exposure may equal/exceed the 8-hour time-weighted average of 85 decibels, UF will implement a monitoring program to identify employees to be included in the hearing conservation program.
- 2.5 Employees will be required to wear hearing protection in work areas 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.

- 2.6 UF will maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average 85 decibels. The program is provided at no cost to employees.
- 2.7 Audio monitoring will be implemented if it is believed noise levels in work areas are approaching or exceed action level limits. If monitoring results indicate exposures equaling or exceeding safe limits, an employee will be included in a hearing conservation program.
- 2.8 Within 6 months of an employee's first exposure at or above the action level, UF shall establish a valid baseline audiogram, against which future audiograms can be compared. When a mobile van is used, the baseline shall be established within 1 year.
- 2.9 Testing to establish a baseline audiogram will be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees will also be notified to avoid high levels of noise.
- 2.10 At least annually after obtaining the baseline audiogram, UF will obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. 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 has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination.
- 2.11 If a standard threshold shift occurs, use of hearing protection shall be re-evaluated and/or refitted and if necessary a medical evaluation may be required. The following procedures will be implemented:
 - 2.11.1 Employees' not using hearing protectors will be fitted with hearing protectors, trained in their use and care, and required to use them.
 - 2.11.2 Employees already using hearing protectors will be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
 - 2.11.3 Employees will be referred for a clinical audio logical evaluation or an ontological examination, as appropriate, if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
 - 2.11.4 Employees will be informed of the need for an ontological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.
 - 2.11.5 Audiometric evaluation and testing conducted by a licensed physician using the guidelines contained in §1910.95 (g), and is available to all employees whose work requirements equals or exceeds an 8-hour time-weighted average of 85 decibels on a regular basis at no cost to the employee. Hearing protection is available at no cost to all employees upon request from the jobsite foreman or company office.
- 2.12 UF will evaluate hearing protection for the specific noise environments in which the protector will be used.

- 2.13 An accurate record of all audio testing and monitoring will be kept at the company office and maintained as required. Evaluations will be done for suitable hearing protection from the noise levels encountered in the workplace. These records, as well as information on these OSHA regulations and appendices will be available to employees upon request.
- 2.14 Hearing protection is available at no cost to all employees upon request from the jobsite foreman or company office.

3.0 Noise Exposure Computation

3.1 Noise dose is computed using the table as follows:

- 3.1.1 When the sound level, L , is constant over the entire work shift, the noise dose, D , in percent, is given by: $D=100 C/T$ where C is the total length of the work day, in hours, and T is the reference duration corresponding to the measured sound level, L , as given in the table or by the formula shown as a footnote to that table.
- 3.1.2 When the work shift noise exposure is composed of two or more periods of noise at different levels, the total noise dose over the work day is given by: $D=100 (C1/T1 + C2/T2 + \dots + Cn/Tn)$, where Cn indicates the total time of exposure at a specific noise level, and Tn indicates the reference duration for that level as given by the table.

3.2 The 8-hour time-weighted average sound level (TWA), in decibels, may be computed from the dose, in percent, by means of the formula: $TWA=16.61 \log_{10} (D/100) + 90$. For an 8-hour work shift with the noise level constant over the entire shift, the TWA is equal to the measured sound level.

3.3 A table relating dose and TWA is given below on the next page of this section.

A-weighted sound level, L (decibel)	Reference duration, T (hour)	A-weighted sound level, L (decibel)	Reference duration, T (hour)
80	32	106	0.87
81	27.9	107	0.76
82	24.3	108	0.66
83	21.1	109	0.57
84	18.4	110	0.5
85	16	111	0.44
86	13.9	112	0.38
87	12.1	113	0.33
88	10.6	114	0.29
89	9.2	115	0.25
90	8	116	0.22
91	7.0	117	0.19
92	6.1	118	0.16
93	5.3	119	0.14
94	4.6	120	0.125
95	4	121	0.11
96	3.5	122	0.095
97	3.0	123	0.082
98	2.6	124	0.072
99	2.3	125	0.063
100	2	126	0.054
101	1.7	127	0.047
102	1.5	128	0.041
103	1.3	129	0.036
104	1.1	130	0.031
105	1		

In the above table the reference duration, T, is computed by:

$$T = 8/2^{(L-90)/5}$$

Where L is the measured A-weighted sound level.