



## **Hearing Conservation Program**

# Lafayette College Hearing Conservation Program

## Department of Public Safety – Environmental, Health and Safety

Standard Operation Procedure (SOP) #14 – Revised September 2021

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### **Purpose**

The purpose of this standard operating procedure is to protect Lafayette College employees from the effects of noise exposure.

### **Scope**

Employees subjected to an 8-hour time-weighted average of 85 decibels or greater will be included in the program. OSHA has established the following noise level exposure limits.

<u>Duration/Day in Hours</u>	<u>Sound Level (dBA)</u>
8.0	90
6.0	92
4.0	95
3.0	97
2.0	100
1.5	102
1.0	105
0.5	110
.25 or less	115

If exposure exceeds the above limits, ear protection is required. Please see Attachment I for a list of Facilities Operation Equipment requiring the use of hearing protection.

### **Referenced Documents**

Occupational Safety and Health Administration (OSHA) Code of Federal Regulations (CFR) 29 Part 1910.95 Occupational Noise Exposure.

### **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.

**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 that is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.

**Baseline audiogram** - The audiogram against which future audiograms are compared.

**Criterion sound level** - A sound level of 90 decibels.

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

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Hertz (Hz) - Unit of measurement of frequency, numerically equal to cycles per second.

Medical pathology - A disorder or disease. For purposes of this regulation, a condition or disease affecting the ear, which should be treated by a physician specialist.

Noise dose - The ratio, expressed as a percentage, of (1) the time integral, over a stated time or event, of the 0.6 power of the measured SLOW exponential time-averaged, squared A-weighted sound pressure and (2) the product of the criterion duration (8 hours) and the 0.6 power of the squared sound pressure corresponding to the criterion sound level (90 dB).

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

Representative exposure - Measurements of an employee's noise dose or 8-hour time-weighted average sound level that the employers deem to be representative of the exposures of other employees in the workplace.

Sound level - Ten times the common logarithm of the ratio of the square of the measured A-weighted sound pressure to the square of the standard reference pressure of 20 micropascals. Unit: decibels (dB) for use with this regulation, SLOW time response, in accordance with ANSI S1.4-1971 (R1976), is required.

Sound level meter - An instrument for the measurement of sound level.

Time-weighted average sound level - That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

### **Responsibilities**

#### Public Safety EHS Division

- Conduct area and personal noise sampling on new equipment or when there are significant changes in machinery or processes that may result in increased noise levels.
- Review and update the Hearing Conservation Program annually.
- Assess the causes of noise in the workplace and ensure that engineering control measures to reduce noise exposure are implemented where technologically feasible.

#### Department Heads

- Ensure that new hires and transfers who are included in the scope of this program receive initial and annual training on noise exposure.
- Familiarize themselves with this SOP and OSHA's 29 CFR 1910.95 Occupational Noise Exposure standard.
- Ensure that feasible administrative or engineering controls are utilized to reduce sound levels within the scope of this program.

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- Ensure that all employees in their charge are issued and wear proper hearing protection when required by this program.
- Hold Supervisors accountable for the requirements of this SOP and 29 CFR 1910.95.

### Supervisors

- Train all new hires and transfers who are included in the scope of this program initially and annually (refer to TRAINING REQUIREMENTS).
- Request an initial determination of sound levels through Public Safety when employees report potentially hazardous noise levels.
- Provide the required ear protection for employees.
- Identify those people or functions that are subject to high noise levels.
- Schedule employees for their annual audiometric testing.

### Professional Health Services, Inc.

- Conduct annual audiometric testing and training in compliance with 29 CFR 1910.95.
  - o Establishing a baseline audiogram for each employee.
  - o Evaluating the audiogram to determine if a standard threshold shift occurred.
  - o Conducting follow-up procedures.
  - o Following audiometric test requirements.
  - o Calibrating the audiometer.

### Employees

- Participate in annual audiometric testing.
- Utilize and maintain protective equipment as described in hearing conservation training.
- Complete medical exams as applicable.
- Not trade/share earplugs.

### Training

Having well informed and educated employees is extremely important when attempting to eliminate or minimize our employees' exposure to noise at or above an 8-hour time-weighted average of 85 decibels. Because of this, all employees who have this potential exposure to noise are put through a comprehensive training program and furnished with as much information as possible on this issue.

Employees will be retrained at least annually to keep their knowledge current. Additionally, all new employees, as well as employees changing jobs or job functions, will be given any additional training their new position requires at the time of their new job assignment.

Department Heads and supervisors are responsible for seeing that all employees who have potential exposure to noise at or above an 8-hour time-weighted average of 85 decibels receive this training.

### Training Topics

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The topics covered in our training program include, but are not limited to the following:

- The effects of noise on hearing;
- The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and
- The purpose of audiometric testing, and an explanation of the test procedures.

### Training Methods

Lafayette utilizes the training program presented by Professional Health Services at the time of the annual audiometric testing and the Hearing Protection Fact Sheet provided by the College.

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#### **ATTACHMENT I**

##### **Equipment – Sound Level and Protection Requirements**

As described above, employees must wear ear protection if the accumulated operating time of the equipment, during an eight hour shift, exceeds the allowable exposure time as indicated on the following tables.

\*\* Ear Protection Not Required

\*\*\* Wear ear protection at all times until a sound level reading is measured to determine allowable exposure time.

Grounds		
Equipment	Sound Level (dBA)	Max Exposure Time (hours)
John Deere 1445	103-105	1
John Deere 727A Zero Turn	98-100	2
Toro Groundsmaster 7210	98-100	2
Walker Bagging Mower	101	1.5
Scag Walk-Behind Mower	***	***
Golf Carts	<85	**
Bobcat UTV	<85	**
John Deere Gator	85-90	8
Bobcat Skid Steer	95	4
Madvac Street Sweeper	95	4
JLG 60' Aerial Lift	***	***
Z-Max Fertilizer/Chemical Sprayer	95	4
John Deere 310L Backhoe	***	***
John Deere Backhoe	***	***
Troybuilt Push Mower	95	4
Jonesred Push mower	95	4
Backpack Blowers	103-105	1
Handheld Blowers	103-105	1
Husqvarna 24" Chainsaw	111	0.25
Echo Climbing 10" Chainsaw	100-102	1.5
Stihl 12" Chainsaw	100-102	1.5

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Lil Wonder Walk-Behind Blower	105	1
Honda Power Edger (Chateau)	101	1.5
Stihl String Trimmer	103-105	1

Steam Plant		
Equipment	Sound Level (dBA)	Max Exposure Time (hrs)
Background	70	**
With Air Compressor (operates rarely)	80	**
At Air Compressor (operates rarely)	84	**
Screw-Type Compressor	***	***
With Boilers and Compressors	85	**
At Boiler #2	85-88	**
Upstairs and Mid-Floor	90	8
Turbine	98	3
Watch Area	86-88	**
Other Areas	88-90	8

Custodial		
Equipment	Sound Level (dBA)	Max Exposure Time (hrs)
Nobles 15 gallon Wet-Dry Vacuum	<85	**
IPC Eagle Pump Out Vacuum	<85	**
Sanitaire Mighty Mite Vacuum (w/hose)	<85	**
Sanitaire Mighty Mite Vacuum (wo/hose)	85-90	8
Powr-Elite Enviro Clean Vacuum	<85	**
Sandia Spotter Extraction Vacuum	85-90	8
Ryobi Leaf Blowers	96-98	4
Snow Blower	94	4

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Mechanical Trades		
Equipment	Sound Level (dBA)	Exposure Time (hrs)
AEC Chiller Room	***	***
Colton Chapel Generator	96	1
Farber Generator	95	1
Farinon Mechanical Room	***	***
Fisher Field Generator	94	1
Fisher West Mechanical Room	***	***
Gates Hall Chiller	***	***
Hugel Chiller Room	***	***
Hugel Hall Air Compressors	76	**
Keefe Generator Room	***	***
Keefe Mechanical Room	***	***
Kirby Sports Generator	***	***
Kirby Sports Rooftop Chiller Area	***	***
Kunkel Generator	105	1
Kunkel Hall Mechanical Room	64-74	**
Kunkel Hall Penthouse	74-84	**
Marquis Hall Generator	100	4
Marquis Hall Mechanical Room	65-77	**
McKeen Generator	98	1
Oechsle Chiller Room	***	***
Pfenning Generator	***	***
Skillman Chiller Room	***	***
Skillman Generator	***	***
South College Fire Pump	101	1
Watson Hall Generator	99	1
Williams Art Center Fire Pump	112	0.25



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