A. POLICY STATEMENT.

It is the policy of Oregon State University (OSU) to protect employee hearing and effectively manage or eliminate hazardous noise exposures. In those areas where engineering controls cannot reduce noise below harmful levels or until engineering controls can be implemented, employees will take part in a Hearing Conservation Program (HCP). Environmental Health & Safety (EH&S) has been designated to administer the overall HCP.

Employees are required to fully participate in the program outlined in this policy as a condition of employment. Employees must wear the provided ear protection devices when working in posted noise areas.

Each employee exposed to sound levels in excess of 85 dBA, in the normal responsibilities of their position, will be:

- Given a baseline audiogram prior to assignment, and a follow-up audiogram after one year, provided at no cost to the employee.
- Provided with a choice of suitable hearing protectors, fitted, and encouraged to use them.
- Wearing of ear protection is mandatory for employees working in areas where noise exposure exceeds 85 dBA (8hr TWA).
- Notified of any abnormal audiogram indicating a standard threshold shift.

Each employee exposed to 85 dbA or greater as an eight-hour time-weighted average, or who have a documented standard threshold shift, will be:

- Notified of noise exposure monitoring results when their exposure is 85 dBA or greater (8hr TWA).
- Notified of any abnormal audiogram indicating a standard threshold shift.
- Provided with annual audiograms at no cost to the employee.
- Required to wear hearing protection in environments with noise > 85 dBA, regardless of the duration of exposure.
- Provided annual training and information.

B. RESPONSIBILITIES.

1. EH&S will:

- Perform or coordinate noise exposure monitoring.
- Identify employees to be included in the HCP.
- Supervise hearing protector selection, and provide assistance for employees who have problems with hearing protector fit.
- Develop policies relating to the use of hearing protectors.
- Supervise employee training programs.
- Coordinate and supervise recordkeeping.
- Evaluate overall program at least annually.
- Review suggested options for noise control, and work with the Purchasing department to ensure noise levels are considered for new equipment purchases.

2. Supervisors will

- Monitor and ensure the wearing of hearing protection in all posted areas.
- Wear and maintain hearing protection in all posted areas.
- Check the fit and condition of hearing protection and ensure replacement when necessary.
- Ensure workers attend safety meetings/talks on hearing protection.
3. Workers will:

- Wear and maintain hearing protection in all posted areas.
- Attend safety meetings/talks on hearing protection.
- Participate in annual audiometric testing.
- Bring any hearing protection or noise related problems to the attention of management.
- Report to their supervisor any changing conditions which may impact personnel noise exposures.

4. Student Health Services- Occupational Medicine group will:

- Perform audiometric testing for employees on a fee-for-service basis.
- Keep occupational medicine records for employees in the HCP.
- Coordinate with other occupational medicine providers for employees in remote sites for testing and recordkeeping.

C. PROGRAM REQUIREMENTS

1. Noise Monitoring.

- Noise levels in some areas at OSU exceed 85 dBA. The noise exposure levels for areas and sources that have been measured are available through EH&S.
- Additional noise monitoring will be conducted whenever employee exposures are expected to change (equipment changes, plant modifications, engineering control installations, etc.). For employees having fixed working locations near steady and continuously operating noise sources, a sound level measurement made for a representative period at the employee’s position will indicate his or her exposure level. The measurement interval should be of sufficient duration to encompass a reasonable number of operating cycles for the task or machinery being considered.
- Where work activities and resulting noise levels are variable, and particularly where individuals do not have fixed working locations, employee exposure levels are most accurately determined by means of a personal noise dosimeter.
- Affected employees or employee representatives will be notified of planned monitoring by EH&S and permitted to observe. Employees will also be notified of monitoring results.
- Employees in the following areas or performing the following jobs will be included in the Hearing Conservation Program.

| Carpentry and maintenance – power tools (stationary and portable) | Forestry Operation - Chain Saws |
| Emergency power generators - maintenance | |
| Landscape – power tools | |


- Baseline and one follow-up audiometric testing will be performed for all employees working in areas with sound levels in excess of 85 dBA.
- Subsequent annual audiometric testing will be performed for employees with Time Weighted Average exposures which exceed 85 dBA.
- OSU Student Health Services (SHS) Occupational Medicine will perform audiometric evaluations unless previous arrangements have been made for equivalent testing, especially in remote sites such as experiment station and extension facilities.

- **Audiometric test questionnaire and Instructions**

- Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.
- Audiometric testing results provided by SHS will be reviewed to ensure the appropriate follow-up actions are taken. If a Standard Threshold Shift (STS) is identified (an average shift in either ear of 10 dB or more at 2,000, 3,000 or 4,000 Hz), the employee will be re-tested within 30 days, and the results of the re-test will be used as the annual audiogram.
- If STS is indicated, the employee will:
  - be notified of the threshold shift within 21 days of this determination.
  - be informed of the need for further evaluation or retesting if a medical problem is suspected.
  - be required to wear hearing protection if exposures equal or exceed 85 dBA.
3. Hearing Protection.

- Until engineering and/or administrative controls reduce the amount of noise exposure to or below the allowed limits, appropriate personal hearing protective devices are made available and issued to employees working in jobs or areas where exposure may exceed a TWA of 85 dBA. It is recognized that the use of these devices is considered a temporary solution to the problem of overexposure until feasible controls are provided. The wearing of hearing protection in the following areas or jobs is mandatory:

<table>
<thead>
<tr>
<th>Wood shops</th>
<th>Air powered tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape management – power tools</td>
<td></td>
</tr>
<tr>
<td>Gas powered hand tools</td>
<td></td>
</tr>
</tbody>
</table>

- In addition, hearing protection is mandatory for any employee who has incurred a standard threshold shift as reported by EH&S. All supervisors will properly enforce hearing protection requirements. Continuing failure of an employee to properly wear the protection provided could result in the termination of employment with the company.

- All visitors, management or employees who may enter or pass through a hearing protection required area will also be expected to wear hearing protection.

- A variety of hearing protection options, including ear plugs and muffs, will be made available so that employees can choose the type which is most comfortable for them.

- The procedure in Appendix A will be used to ensure that selected hearing protection devices reduce noise exposures to an acceptable level.


- All work areas where noise exposures may exceed 85 dBA will be posted with noise warning signs at entrances to these areas. All employees in the HCP will wear ear protection when working in posted areas. All other employees or visitors passing through these areas will also be required to wear hearing protection.

- Tools which generate sound levels in excess of 95 dBA will be labeled. Hearing protection must be used by operator when this equipment is used. The following equipment should be labeled:

<table>
<thead>
<tr>
<th>Circular saws</th>
<th>Chop (miter) saws</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chain saws</td>
<td>Air tools – staplers, nailers, grinders</td>
</tr>
<tr>
<td>Mowers</td>
<td>Rock saws</td>
</tr>
<tr>
<td>Gas powered hand tools</td>
<td></td>
</tr>
</tbody>
</table>

5. Employee Training.

- Participation in an annual training program is required for employees exposed to noise at or above 85 dBA. The training will include information on:
  - Purpose and use of hearing protectors, advantages and disadvantages of various types.
  - Instructions in selection, fitting, use and care of hearing protectors.
  - Purpose of audiometric testing and an explanation of test procedures.
  - Contents of OR-OSHA’s Occupational Noise Exposure standard (29cfr 1910.95).
  - A copy of the noise standard and the written training and instructional materials are available to employees upon request.

- Records of training will be maintained.

6. Recordkeeping.

- Audiometric program records are maintained in the employee's personnel file and will be provided to employees upon request. Records applicable to employee monitoring and exposure records will be retained as follows:
  - Employee audiometric test records (baseline and annual audiogram, retests, test room background levels, and audiometer calibration records) are maintained for the duration of affected employees employment plus 30 years.
  - Noise exposure measurement records are maintained for 30 years.
  - Program audit records will be maintained for 3 years.

- The success of the hearing conservation program with regard to each individual employee is evaluated by comparing annual audiograms to the baseline audiogram. This procedure, among others, helps to determine the effectiveness of the hearing protection program, and, as a result, ensures the protection of employees’ hearing.
- EH&S is responsible for reviewing the recommendations of the audiologist or physician.
- OSU will make an effort to address employee concerns about hearing protection fit, comfort, or overprotection. However, it is the responsibility of the employee to bring those concerns to the attention of supervisors.
- If an employee experiences a STS, that employee’s workstation or work area will be specifically evaluated to determine if feasible engineering controls can decrease the noise levels. A checklist to be used is in Appendix B.

8. Engineering & Administrative Controls.

- OSU recognizes the desirability of controlling the existing noise levels by engineering and/or administrative controls. Therefore, the feasibility of such controls is carefully considered including possible redesign of existing machinery, the building of partial or total enclosures, and other engineering noise control procedures for reducing the existing noise levels.
- Due to the complexity of some machinery used at OSU and in view of economic limitations, some noise levels cannot be reduced to below acceptable limits. Within the limitation of work schedules and employee skills, administrative controls have also been considered. On a continuing basis, engineering and administrative controls will be considered and implemented where feasible.
- OSU also recognizes the desirability of considering noise levels prior to the purchase of new or rebuilt equipment. It is our policy to evaluate noise levels prior to equipment purchase.

Appendix A – Computation of Actual Noise Reduction Ratings (NRR)

- The degree of protection that a hearing protection device provides is referred to as the Noise Reduction Rating or NRR. Because the listed NRR is established for C-weighted noise measurements, and our measurements have been collected using an A-scale, 7 dB will be subtracted from the NRR to take this into account.
- NRRs for ear protection are established in laboratory settings under ideal conditions, and it is unlikely that the noise reduction in industrial areas will be as substantial as that recorded in the lab. Because of these differences between laboratory and “real world” performance, the following NIOSH derating scale will be used when calculating noise reduction:

<table>
<thead>
<tr>
<th>Hearing Protection Device</th>
<th>Derating scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ear muffs</td>
<td>25% reduction</td>
</tr>
<tr>
<td>Formable ear plugs</td>
<td>25% reduction</td>
</tr>
<tr>
<td>All other earplugs or semi-aural devices</td>
<td>25% reduction</td>
</tr>
</tbody>
</table>

- Using this method, a formable earplug with a NRR of 30 dB actually provides:
  - 30 dB (listed NRR) - 7 (A-scale to C-scale adjustment) = 23 dBA reduction - laboratory measurement
  - 23 dBA x 75% = 17.3 dB of "real-world" noise reduction.
- Products with the highest NRR are not always the best choice for hearing protection. Too much noise reduction, when not necessary, can lead to degradation of communication, especially in individuals who have some degree of hearing loss.
- Communication problems associated with maximum NRR devices may lead to accidents and poor employee acceptance of the hearing conservation program.
- The following general guide to protection levels will be used:

<table>
<thead>
<tr>
<th>If the device reduces the noise to:</th>
<th>Then the protection is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 85 dB</td>
<td>Insufficient</td>
</tr>
<tr>
<td>80 - 85 dB</td>
<td>Acceptable</td>
</tr>
<tr>
<td>75 - 80 dB</td>
<td>Good</td>
</tr>
<tr>
<td>70 - 75 dB</td>
<td>Acceptable</td>
</tr>
<tr>
<td>&lt; 70 dB</td>
<td>Too high</td>
</tr>
</tbody>
</table>

Appendix B – Employee Standard Threshold Shift Checklist

The Employee Standard Threshold Shift Checklist (PDF document) must be completed whenever an employee has suffered a confirmed Significant Threshold Shift (STS).