

Procedure Title	Noise Control and Hearing Conservation		
Date of Issue	January 28, 1999	Related Policy	BP 3801-D
Revision Dates	August 1, 2008	Related Forms	
Review Date		Originator	System Administrative Team
References			
BP 3861-D - Health and Safety; Occupational Health and Safety Act; Ontario Regulation 851/90, section 139, as amended			

Procedure:

1. Authority:

- Bluewater District School Board Policy BP 3801 - Health and Safety regulates the Occupational Health and Safety requirements to ensure all students and staff have a safe environment.
- Excessive noise exposure in Ontario has been identified as a hazard and as such is regulated under the Occupational Health and Safety Act and Ontario Regulation 851/90, Section 139, as amended.
- Ontario Ministry of Labour "Confidentiality of Worker Health Records" 1996.

2. Board Requirements:

- That no employee is exposed to levels of noise exceeding the equivalent sound exposure level of 85 dBA for an 8 hour work day without personal hearing protection.

3. Hearing Conservation Program:

- Exposure to excessive sound levels can result in permanent hearing loss. In order to protect all Bluewater District School Board employees from noise induced hearing loss, Bluewater District School Board has developed and will maintain an effective Hearing Conservation Program. This program will consist of:
 - Monitoring
 - Training
 - Controls
 - Hearing Protection
 - Audiometric Testing
 - Program Review

4. Definitions:

For the purpose of this Administrative Procedure, the following terms and definitions will apply:

Noise: Sound energy in the workplace.

Peak sound level: Maximum instantaneous sound level in dBA.

Base Line Audiogram: First Audiometric Test conducted on the employee.

Audiometric Testing: Hearing testing conducted by a qualified technician that includes pure tone tests, individual verbal counselling and specific paper work.

Decibel: Decibel (dBA) measured on a sound level meter conforming to the standard Z107.1 of the Canadian Standards Association operating on the A-weighting network with slow meter response.

Duration: The hours of exposure in a 8 hour work day.

Equivalent Sound Exposure Level:
Is the steady sound level in dBA which if present in the workplace for eight hours in a day, would contain the same total energy as that generated by the actual and varying sound levels to which a worker is exposed in his or her total work day, determined in accordance with the formula below.

Calculation of the Equivalent Sound Exposure Level:

$$L_{ex,8} = 10 \text{ Log}_{10} \left(\frac{\sum_{i=1}^n (t_i \times 10^{0.1 \text{ SPL}_i})}{8} \right)$$

where,

- $L_{ex,8}$ is the equivalent sound exposure level in 8 hours,
- \sum is the sum of the values in the enclosed expression for all activities from $i = 1$ to $i = n$,
- i is a discrete activity of a worker exposed to a sound level,
- t_j is a duration in hours of i ,
- SPL_i is the sound level of i in dBA,
- n is the total number of discrete activities in the worker's total workday.

5. Monitoring:

The Bluewater District School Board's Occupational Health and Safety Officer in accordance with current regulatory practice will conduct or arrange for the monitoring of sound levels.

6. Controls:

Where it is not practicable to reduce sound levels below the regulated exposure level, the following sequential controls will be implemented.

6.1 Engineering Controls

When possible engineering controls must be implemented in areas with a sound hazard to reduce the sound levels to or below the permissible exposure levels.

6.2 Administrative Controls

All employees that work in areas with sound levels in excess of the regulated exposure levels are required to wear hearing protection.

Supervisors/Managers must ensure that all employees exposed to sound levels in excess of the regulated exposure levels are provided with and wear hearing protection.

The hearing protection will be selected and maintained in accordance with CSA Standard Z94.2.

The following employee groups, including occasional staff, have been identified to be at risk when working in spaces with sound levels higher than 85 dBA.

- Maintenance/Custodial Staff

- Technical Shop Teachers
- Music Teachers
- Educational Assistants

The following types of hearing protection have been identified for the noted employee groups.

Maintenance/Custodial Staff	Full ear style (muff) + ear insert when required	NRR 25+
Technical Shop Teachers	Full ear style (muff)	NRR 25
Educational Assistants	Full ear style (muff)	NRR 25
Music Teachers	Musicians Ear	NRR 15/25

NOTE: The selection of hearing protection is an ongoing process based on user experience, monitoring the needs of the occupational group and the individual.

6.3 Posting of Sound Hazard Areas

All work areas with identified sound levels that exceed 85 dBA as per the Occupational Health and Safety Regulation 851, Section 139 (10) will be clearly signed at the entrance or approach to the area and at specific equipment.

7. Audiometric Testing:

A qualified Audiometric Technician will conduct Audiometric Testing. Audiograms are personal medical documents and will be retained as such by the Owen Sound Audiology and Hearing Aid Clinic. Employee audiometric testing will be conducted to establish a base line audiogram. Further testing will be done as per recommendations by the Owen Sound Audiology and Hearing Aid Clinic as established in Appendix A.

All new employees who are to work in areas with sound levels in excess of 85 dBA are required to have a base line audiometric test within the first six (6) months of employment.

Employees with sound level exposure above 85 dBA will be informed of:

- The results of any sound level exposure measurements
- The effect of noise on hearing
- The use and maintenance of hearing protection
- The purpose of hearing testing

8. Training:

All training will be conducted by either the Owen Sound Audiology and Hearing Aid Clinic Audiometric Technician, another qualified person or the Occupational Health and Safety Officer. Training may consist of either a group presentation; and/or video, handouts and if applicable additional information will be provided during the audiometric test.

9. Program Review:

The Hearing Conservation Program will be reviewed annually by the Joint Health and Safety Committee. The review will consist of:

- The need for further sound level measurements (monitoring)
- The education and training of workers
- The adequacy of noise control measures
- The selection and use of hearing protection
- Hearing testing and information on the rate and extent of occupational hearing loss

10. Responsibilities:

10.1 Board

- Establish and maintain a hearing conservation program.
- Perform all necessary testing and monitoring to establish exposure.
- Establish and implement noise reduction strategies at individual locations using available controls.
- Provide appropriate warning signage.
- Provide personal protective equipment as required.

10.2 Principal/Manager:

- Ensure adequate personal protective equipment is provided.
- Ensure appropriate signage is posted at the school locations where sound levels exceed 85 dBA.
- Ensure personal protective equipment is worn in areas where sound levels exceed 85 dBA.
- Ensure all new equipment is fitted with original equipment manufacturer sound attenuation devices, where available.
- Ensure staff is available for audiometric testing.
- Ensure staff is available for training/education program.

10.3 Employee:

- Work in a manner as prescribed in the Occupational Health and Safety Act.
- Wear personal hearing protection equipment as prescribed by the Board where sound levels exceed the regulated exposure levels.
- Maintain all hearing protection in a clean sanitary condition.
- Report all missing, damaged or worn hearing protection equipment to the supervisor.
- Participate in sound level monitoring as required.
- Participate in audiometric testing.
- Participate in the training/education program.

APPENDIX A (AP 3861)

AUDIOMETRIC TESTING PROTOCOL

Testing:

- Employees shall have no significant noise exposure for 48 - 72 hours prior to testing
- Screening is on a pass/non-pass basis for pure tone stimuli presented at a level of 20 dB HL
- Assessment (testing) is done in five (5) dB steps
- Frequencies to be monitored: 500, 1000, 2000, 3000, 4000, 6000, 8000 Hz
- Screening - pass/fail at 20 dB HL
 - Pass - go to bi-annual screening
 - Fail - go to annual assessment:
 - when annual assessment indicates no significant threshold change for three consecutive years, bi-annual assessments will be recommended
 - when comparison of the current assessment to the employee's baseline indicates a change of 15 dB or more at any frequency, annual assessment will be recommended

Significant Threshold Change:

- A change of 15 dB or more at any frequency when comparing two consecutive tests

Program Target:

- Year to year comparison will indicate a significant threshold shift occurred in less than 5% of the employees in the Hearing Conservation Program

Target Met:

Responsibility:

Bi-annual screening	<ul style="list-style-type: none"> - employees with pass - screening - employees with non-pass - screening and pass - assessment - employees with non-pass screening, non-pass assessment for air conduction due to a documented conductive component, when the sensori-neural component meets pass criteria 	Owen Sound Audiology Clinic
Annual Assessment	<ul style="list-style-type: none"> - employees with non-pass - screening and non-pass - assessment due to a sensori-neural component until there is no significant change over three consecutive years - employees with a change of 15 dB or more at any frequency from the baseline assessment 	Owen Sound Audiology Clinic
Bi-annual Assessment	<ul style="list-style-type: none"> - employees with documented sensori-neural loss (non-pass - assessment) with no significant change over three consecutive years 	Owen Sound Audiology Clinic
Education at Assessment	<ul style="list-style-type: none"> - results of measurements - effect of noise on hearing - purpose of hearing testing 	Owen Sound Audiology Clinic
Hearing protection checked annually	<ul style="list-style-type: none"> - use and maintenance of hearing protection 	Owen Sound Audiology Clinic & School
On-going awareness promotion within schools	<ul style="list-style-type: none"> - staff meetings - posters - signage 	Administrator

Target Not Met:

Repeat educational in-service
Repeat individual instruction re: insertion, use and care of hearing protection
Review in-school education and awareness component
Annual assessment with individual education for all employees

Responsibility:

Joint Health & Safety Committee
Owen Sound Audiology Clinic
School Safety Committee
Owen Sound Audiology Clinic

Significant Loss per Workplace Safety and Insurance Board (WSIB):

- Losses are corrected by Workplace Safety and Insurance Board (WSIB) for age and non-occupational exposure
- Based on four (4) frequency average of .5, 1, 2, 3 kHz
- When there is evidence of a notched loss at higher frequencies with a history of occupational noise exposure, WSIB will consider the merits of the claim application on an individual basis. Due to difference ear canal resonant frequencies (this varies with the size of the canal) and the frequency characteristics of different stimuli, noise induced hearing loss notches can occur at higher frequencies than the typical 3 to 4 kHz notch. For this reason the test frequencies of 4, 6 and 8 kHz will be included in the program.

Noise Induced Hearing Loss: (as defined by Workplace Safety and Insurance Board)

Medical Loss:

- To be monitored, possible entitlement to Health Care and Rehabilitation Benefits
- 4 frequency average of 25 dB or greater in each ear

Permanent Disability:

- 4 frequency average of 35 dB or greater in poorer ear and 25 dB or greater in better ear, or
- 4 frequency average of 35 dB or greater in poorer ear and 24 dB or less in better ear, but the pattern of hearing loss is clearly consistent with occupational noise exposure