



## HEARING CONSERVATION PROGRAM

**SOP #19000-009**

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### SCOPE AND PURPOSE

The purpose of this program is to prevent noise-induced hearing loss by identifying and controlling/eliminating elevated and/or prolonged noise exposure. The scope of this program will include identifying all noise hazard areas, reviewing each area for potential noise emissions reductions, providing detailed training to affected workers, applying appropriate procedural and personal protective equipment controls where applicable and providing access to medical monitoring. All individuals who have the potential work in areas where high noise exists must participate in this Hearing Conservation Program. No worker is to be exposed to a sound level greater than an equivalent sound exposure level of 85 dBA for an 8 hr shift, 84 dBA for a 10hr shift, or 83 dBA for a 12 hr shift.

This program applies to all work environments at SCEP where sound levels may be equal to or exceed sound exposure levels listed prior and to all employees who work in these areas. It is the intent of SCEP that, whenever practical or feasible, every effort will be made to reduce or eliminate excessive noise exposure by utilizing the hierarchy of controls (Elimination, Substitution, Engineering, Administrative, and PPE). This program includes provisions for conducting noise level surveys, employee exposure monitoring, employee training and education (proper fitting and use of hearing protective devices), medical surveillance (audiometric testing), and record keeping.

### RESPONSIBILITIES

#### *Environmental Health and Safety*

- Identify noise hazard areas and employees who may be noise-exposed
- Maintain an up-to-date list of noise hazard areas/operations
- Provide recommendations to site leadership related to noise reduction, control and monitoring
- Support discipline managers steps to minimize the risk of noise-induced hearing loss, including, but not limited to, supporting the identification and implementation of noise control measures where feasible and the provision of appropriate hearing protection devices
- Engage JHSC input regarding potential noise reduction measures
- Notify JHSC of upcoming noise monitoring
- Ensure medical surveillance programs are available to employees

#### *Joint Health and Safety Committee*

- Provide input on noise, noise mitigation, monitoring, etc.
- Participate in, and provide feedback related to, testing programs and proposed noise control measures
- Report, as soon as practicable, any worker concerns related to noise to their supervisor and escalate as necessary.
- Communicate information provided at the JHSC to their co-workers and gather feedback for JHSC consideration
- Support worker compliance with the Noise Conservation Program

*Discipline Managers (Operations, Maintenance, Technical, etc.)*

- Identify noise hazard areas and employees who may be noise-exposed
- Ensure that all potentially noise-exposed employees are trained and competent to conduct work utilizing appropriate noise controls measures (administrative controls and proper fitting and use of hearing devices)
- Take appropriate steps to minimize the risk of noise-induced hearing loss, including, but not limited to, identification and implementation of noise control measures where feasible (elimination (where practicable), engineering controls, and administrative control measures)) related to work activities in consultation with EH&S
- Support compliance with noise control measures related to the work (enforcing proper work practices, hearing protection requirements, risk assessment activities etc.)
- Ensure that all new employees who may be exposed to hazardous noise levels undergo audiometric testing within the first two weeks of employment
- Ensure all workers are made available to participate in audiometric testing every 2 years
- Ensure noise monitoring reports are communicated with employees
- Support follow-up and response to any worker concerns related to noise or other workplace hazards
- Ensure medical surveillance programs are available to employees and support coverage to allow for monitoring to be conducted

*Shift Supervisors*

- Enforce compliance related to proper selection, use and care of hearing protective devices
- Ensure compliance with administrative controls (procedures, work scheduling) implemented to reduce worker noise exposure
- Ensure workers have proper training
- Ensure noise considerations are outlined on the Safe Work Permit
- Share noise monitoring reports with workers
- Contact EHS for requests around noise surveys, and noise concerns when appropriate

*Employees*

- Attend Hearing Protection – St. Clair Ethanol Plant, as required
- Participate in SCEP's Hearing Conservation Program
- Comply with administrative and personal protective controls (PPE)
- Make every reasonable attempt to participate in SCEP's medical surveillance program every 2 years
- Proper care and use for hearing protective devices where required
- Report noise concerns to Supervisor

*Human Resources*

- Ensure that all new employees who may be exposed to hazardous noise levels undergo audiometric testing within the first two weeks of employment

**NOISE EXPOSURE MONITORING**

Monitoring of elevated noise areas and individual employee exposure to noise is a central component of this hearing conservation program. Noise sources capable of causing and/or contributing to hearing loss are identified via site noise surveys. When noise sources are identified, exposures of employees working in these areas will be evaluated.

All noise monitoring shall be conducted and interpreted by a competent person. The noise levels will be measured in accordance with *OHSA O.Reg 381/15* and *CSA Standard Z107.56-06, Procedures for the Measurements of Occupational Noise Exposure* using acceptable Type 2 instrument. All the evaluated noise levels will be compared to the Occupational Exposure Limits for Noise in *Appendix B: Determining Noise Exposure & Calculating Lex,8, Ministry of Labour, 2016*.

Noise Dosimetry and General area monitoring will be conducted every 3 years under normal (plant) operating conditions. In addition to triennial noise monitoring, personal and area monitoring will be conducted under the following circumstances:

- Employee/JHSC/Supervisor request
- Building structure change
- Change in operating equipment (i.e. machinery install/removal)
- Duration of employee exposure in high noise areas changes

### **Monitoring Equipment**

Sound level measurements are obtained by using:

- *A sound level meter*: provides instantaneous sound level measurement of noise emitting from a noise source. The noise level meter will be equipped with an octave-band analyzer to determine where the noise energy lies in the frequency spectrum
- *A noise dosimeter*: worn by the employee to measure the maximum sound level exposure; the equivalent sound level exposure; and the noise exposure pattern of the worker during the entire monitoring period.

### **Method of Noise Monitoring**

There are two approaches to collecting sound level measurements:

- *Area measurement*: Using a Type 2 sound level meter (set at A-scale slow response), record the maximum and minimum noise level at the center of each work area. Site maps are to be used for recording noise levels throughout the plant. Noise level measurements are taken and recorded at various locations and distances from the source.
- *Personal Exposure*: Conducted utilizing a noise dosimeter worn by the employee throughout their work shift. This is a great source of measurement for workers who work throughout various locations in the plant in any given shift. Personal letters will be provided to each worker that participates.

## **NOISE CONTROL MEASURES**

The selection of the most appropriate control option(s) will be governed by the specific task and work area. The preferred hierarchy of control options is ordered below.

### *1. Elimination*

Any replacement or alterations of existing vehicle, machine, tool, equipment must be designed and constructed with equivalent or lower noise emission levels.

Any new vehicle, machine, tool, equipment should not generate a continuous noise level greater than 85 dBA or are as low as reasonably practicable (determined by a risk assessment).



2. Engineering Controls

Engineering controls should be the first noise reduction measure to be considered and may include:

- Noise source enclosure
- Substitution of quieter equipment
- Acoustical treatment of walls, ceiling and floor etc.

3. Administrative Controls

The following are some administrative actions that should be considered when elevated noise levels cannot be eliminated or engineered out:

- Changing job schedule to limit employee’s exposure to the noise source wherever practicable, while always ensure exposure is within legislative permissible level and duration (based on shift length)
- Procedural controls that limit noise exposure during work execution
- Selecting/specifying a lower noise source when purchasing process equipment
- Rotate workers in high noise areas
- Signage
  - Clearly visible warning signs shall be posted at areas where the sound level exceeds 85 dBA, stating ‘hearing protection is required’. In areas where sound levels exceed 105 dBA ‘Double hearing Protection required’ signs are present. See Appendix B for Site map outlining hearing protection signage locations.

4. Personal Protective Equipment

Hearing protective devices such as ear plugs or muffs shall only be used when engineering or administrative controls cannot reduce the noise to acceptable levels. Hearing protection shall be worn by all personnel when they must enter or work in an area where noise levels are at or exceed the occupational exposure limits, based on shift length. Employees are allowed to select from a variety of suitable hearing protection devices that are readily available in the safety cage (in process building) and at entry points to the operating areas. Only SCEP approved hearing protection devices can be used for noise hazards-See Appendix A for SCEP Approved HPD’s.

- Hearing protection devices must attenuate employee exposure at least to the following relevant sound exposure levels (based on shift length)

Shift Length	Sound Exposure Level (dBA)
8 hrs	85
10 hrs	84
12 hrs	83

- Double hearing protection (ear plug and ear muff) must be worn in locations where noise levels are at or greater than 105 dBA (note: double hearing protection is recommended for areas with noise levels or greater than 95 dBA. Additionally, when noise levels exceed 105 dBA, the exposure time must be limited to keep sound reaching employee's ear drum below the occupational exposure limits. Assistance from SCEP EHS may be required to determine these locations. Refer to Appendix B for general single & double HPD areas.

**TRAINING**

As outlined in O.Reg 381/15 workers using hearing protection devices (HPD) shall be provided adequate training and instruction around the care and use of the HPD, including its limitations, proper fitting, inspection and maintenance and, if applicable, the cleaning and disinfection of the device.



Hearing Protection – St. Clair Ethanol Plant (Course ID 534001) via LMS will be required within two weeks of employment, and every 3 years thereafter, for all SCEP employees and long term contractors who may utilize hearing protection devices (HPD's) on site.

Through this training employees and long term contractors receive education on the following:

- The risks associated with unwanted noise on the job
- The purpose and limitations of hearing protection devices (HPD's)
- Characteristics of noise in employee's working environment
- Noise hazards
- Health impacts of elevated and high noise exposure
- How to select and care for appropriate hearing protection
- Worker and management role and responsibilities

### **MEDICAL SURVEILLANCE**

Audiometric testing will be offered, as part of our voluntary medical surveillance program, to all SCEP noise exposed workers, whose personal noise exposure levels have the potential to exceed 85 dBA for 8-hr shift, 84 dBA for a 10-hr shift and 83 dBA for 12-hr shift. Audiometric testing will be conducted in the following circumstances: Initial audiometric assessments, Periodic (biennial) Audiometric Assessments, Post-Incident Assessments, and Exit Assessments.

Contractors are responsible for performing medical monitoring of their employees.

Medical monitoring following suspected noise exposure that exceeds daily limits will be offered to any worker on-site. If symptoms and signs of noise induced hearing loss are present, follow-up activities will be undertaken and corrective actions applied where practicable. An Incident Report shall be completed which will include any results of noise monitoring at the time of exposure. This information will be part of the employee's medical history and administration records.

### **RECORD KEEPING**

All noise surveys will be kept for 5 years. Training records will be kept for 3 years. Medical monitoring will be kept with the employees medical files are to be kept for 40 years, or 20 years past the last entry, whichever is longer.

A program evaluation/audit will be conducted every 5 years by occupational hygiene in consultation with occupational health to ensure program effectiveness.

**REFERENCE DOCUMENTATION**

Corbet, Kenneth. (2014). Medical Surveillance for Hearing Loss. University of Calgary. Retrieved from:  
[http://oemac.org/?wpfb\\_dl=115](http://oemac.org/?wpfb_dl=115)

CSA Standard. (2013). Z107.56-06, *Procedures for the Measurements of Occupational Noise Exposure*

Malchaire, J. (2000). Strategy for Prevention and control of the risks due to noise. *Occupational Environmental Medicine*. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1739962/pdf/v057p00361.pdf>

MOL. (2016). Appendix B: Determining Noise Exposure and Calculating  $L_{ex,8}$ . Retrieved from:  
[https://www.labour.gov.on.ca/english/hs/pubs/noise/gl\\_noise\\_4.php](https://www.labour.gov.on.ca/english/hs/pubs/noise/gl_noise_4.php)

MOL. O.Reg 213/91

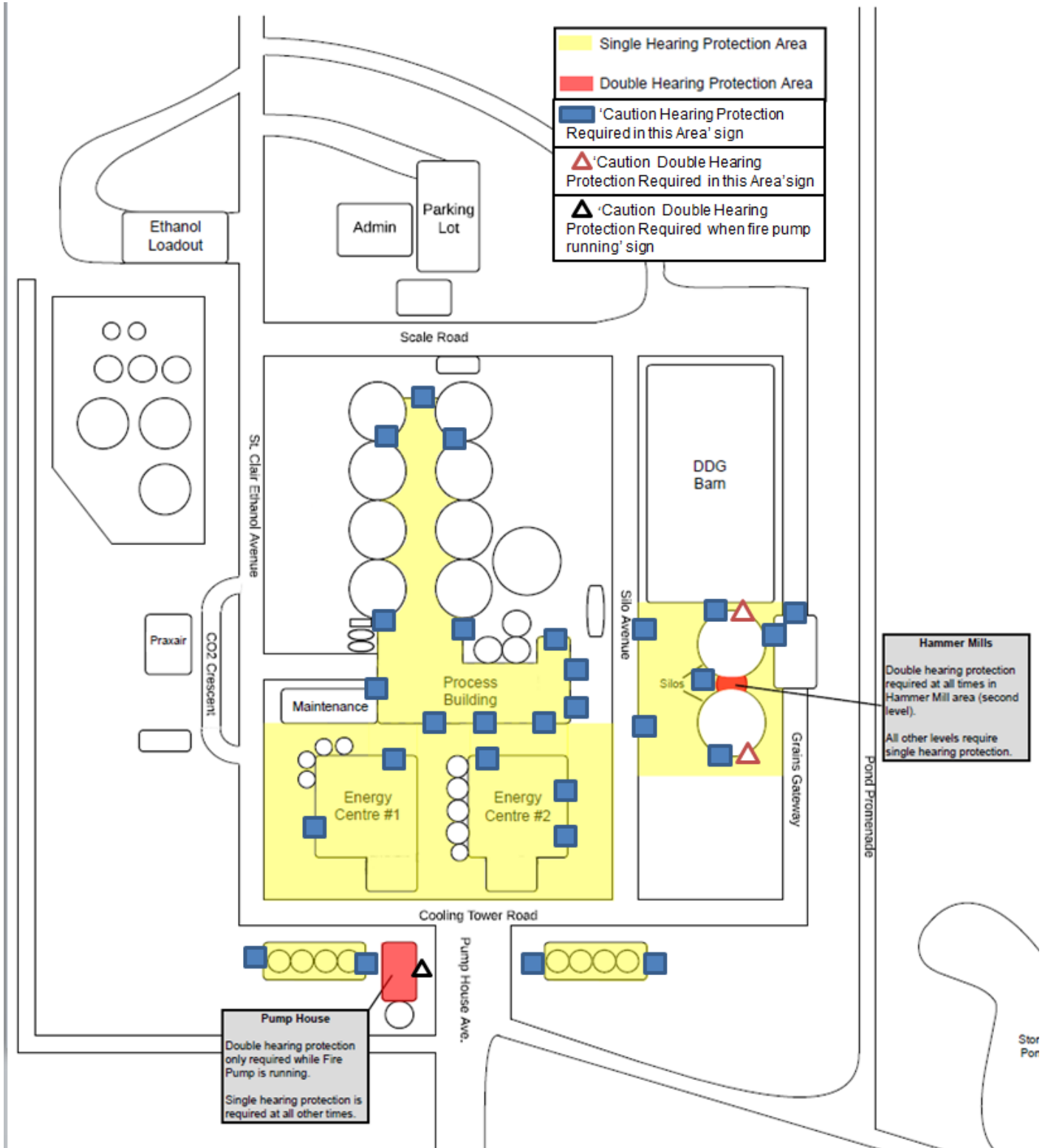
MOL. O.Reg 381/15



**APPENDIX A - SCEP APPROVED HEARING PROTECTIVE DEVICES**

<b>Name</b>	<b>Type</b>	<b>Location on Site</b>	<b>True NRR</b>
<b>Moldex Pura-Fit</b>	Ear Plug- Disposable	Safety Cage	13.5
<b>Moldex - Sparkplugs</b>	Ear Plug- Disposable	Entry doors in process areas	13.5
<b>3M Ultrafit Corded</b>	Ear Plug- Reusable	Safety Cage	9.5
<b>3M Peltor (Cap-Mount)</b>	Ear Muff	Safety Cage	18.7
<b>3M Optime 98 (Cap-Mount)</b>	Ear Muff	Safety Cage	13.1

APPENDIX B – HEARING PROTECTION AREA'S & HDP SIGNAGE







**END OF STANDARD**

<b>REVISIONS</b>			
<b>No.</b>	<b>Date (mm/dd/yyyy)</b>	<b>Author</b>	<b>Description</b>
0	03/31/2017	L. Nauta	Created