Consultation Paper on Updating Noise Requirements in the Industrial Regulation under the Occupational Health and Safety Act (OHSA)

Issued: November 23, 2005

Purpose of this Consultation

The Ministry of Labour is consulting on proposed changes to the noise requirements in the Regulation for Industrial Establishments (Regulation 851) under the Occupational Health and Safety Act (OHSA).

The purpose of the consultation is to:

- Update the provisions in the Industrial regulation to prevent noise-induced hearing loss, in support of the government's commitment to strengthen our province by improving the health and safety of Ontarians
- Adopt exposure limits for noise that address the needs of today's industrial workplaces
- Ensure that any changes are done in consultation with industry and labour stakeholders in order to encourage and support the high performance necessary to promote a vibrant and competitive economy.

Why does Ontario Want to Update the Noise Requirements in Regulation 851?

The noise provisions in Regulation 851 have not been amended since they were first introduced in the early 1970s, under legislation that predates the OHSA.

The government has committed to reduce workplace injuries 20 per cent by 2008. Hearing loss does not typically result directly in lost time or substantial loss of earnings for workers. However:

- There are considerable economic costs for employers. The Workplace Safety and Insurance Board reports that the claims cost for noise-induced hearing loss in manufacturing workplaces exceeded $30 million dollars, from 1995-2004.
- Exposure to high levels of noise may cause hearing loss, create physical and psychological stress, reduce productivity, interfere with

communication, and contribute to accidents and injuries by making it difficult to hear warning signals.
- It can also have a significant impact on quality of life for workers and their families.

Current Regulatory Framework

The current Industrial regulation contains a table that provides an allowable noise exposure of 90 dBA[1] for 8 hours, with other permissible exposures derived using a 5-decibel (dB[2]) exchange rate. The exchange rate is used to calculate the amount by which the permitted sound level may increase if the exposure time is halved. For example, using the 5 dB "rule", if the sound level increases from 90 to 95 dBA, a worker may only be exposed to the sound for 4 hours, instead of 8. Employers covered by this regulation are expected to take measures to reduce noise. If controls are not practical to implement, they must provide hearing protection and post warning signs.

The current regulation assumes there is no variation in noise levels throughout a workday or workweek, so it does not include highly variable noise levels or impact noise. This approach does not incorporate a formula to permit the consideration of duration of exposure to various noise levels, in order to calculate an average noise exposure measurement or limit.

Proposal to Update the Noise Requirements in Regulation 851

The Ministry proposes to revoke the current noise provisions in Regulation 851 and replace them with the following key elements:

1. A time-weighted average exposure limit of 85 dBA (known as the Leq, or equivalent noise limit, which is based on a 3 dB exchange rate); and,
2. A 140 dBC[3] ceiling limit.

In this proposal, if controls are not practical to implement, employers would continue to be required to take measures to reduce noise, and to provide hearing protection and post warning signs.

Various consequential amendments may also be required, such as:

- Updating the definition of decibel,
- Providing a definition of dBC, and;
- Permitting the use of integrating sound level meters and when necessary, personal dosimeters, as well as the sound level meters (currently required) to measure sound.

These changes would be consistent with the limits recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). ACGIH is a private, not-for-profit corporation whose members are industrial hygienists and other occupational health and safety professionals dedicated to promoting health and safety in the workplace. Most Canadian jurisdictions, including the federal government, and many international regulatory agencies consider the ACGIH recommended limits in the process of establishing their respective regulated limits.

Purpose and Effect of the Leq

Like the time weighted average exposure value for hazardous chemical substances, an Leq would define the permissible exposure of a worker to all noise (whether steady or fluctuating) over a standard 8 hour working day or standard 40-hour working week.

Since the Leq represents a time weighted average exposure and a 3 dB exchange rate, calculations to adjust permissible duration of exposure based on individual noise volumes would no longer be necessary. The workplace parties would be required to comply with a time weighted noise exposure limit (which is the Leq).

The Leq is cost-effective, and compliance with it is relatively easy to determine using a commercially available noise-averaging device that gives a single exposure value. This measurement can then be compared to the permissible time-weighted average exposure value in the regulation. Adopting the Leq would also eliminate the need for employers to calculate exposures.

Similar to an occupational exposure limit for a hazardous chemical substance, when a worker is exposed to noise exceeding the Leq for a period of time in the work shift, the employer must take measures to reduce the exposure to noise for the remainder of the shift, so that the permissible time weighted average is not exceeded. Employers could use engineering controls, work practices including personal protective equipment (such as ear plugs and muffs) and other measures to reduce noise.

Other Jurisdictions and Agencies

- Eleven Canadian jurisdictions have a noise limit of 85 dBA, of which eight use a 3 dB exchange rate. As well, eight Canadian jurisdictions have adopted a ceiling exposure limit.
- A number of jurisdictions have updated their regulations to adopt the Leq including British Columbia (2005), Alberta (2004), Manitoba (1984), Saskatchewan (1996) and the federal government (1991).
- ACGIH has not incorporated the Leq approach per se into its recommendations for noise exposure. However, in acknowledgment

that noise is variable, it recommends a "sum of ratios" formula. The formula reflects the duration of exposure to various noise levels, in order to calculate an average noise exposure measurement or limit. ACGIH's support for the 3 dB exchange rate is reflected in its table of recommended exposure values for noise.

- As an example of an Leq approach in regulation, British Columbia provides that:

  "An employer must ensure that a worker is not exposed to noise levels above either of the following exposure limits:

  a. 85 dBA Lex[4] daily noise exposure level;
  b. 140 dBC peak sound level".

How You Can Participate

Stakeholder input is an essential part of the ministry's development of updated occupational noise requirements for the Industrial regulation. As a result, the Ministry is conducting a 90-day consultation. From November 23, 2005 until February 24, 2006, interested parties are invited to make written submissions concerning the proposal for updating the noise requirements in Regulation 851. Please send comments to:

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Electronic submissions are encouraged.

[1] dBA: The human ear and brain interpret the intensity of a sound partially based on its pitch. Therefore, sound level meters are programmed to measure dBA; "A" representing a factor applied to reflect how the human ear would hear and interpret the sound being measured.

[2] dB: The unit of sound measurement is the decibel. The scale of sound intensity (the loudness of a noise) is logarithmic, not linear. Therefore, a one-decibel unit change represents a 10-fold increase in the sound intensity; a 3-unit change represents a 1,000-fold increase.

[3] dBC: Similar to the dBA measurement, the dBC indicates that the sound measurement has been corrected for variation in the measuring equipment response to very high levels of noise.

[4] Lex: A notation used by British Columbia to denote an 8-hour Leq.