

OCCUPATIONAL HEALTH REGULATIONS

RESPECTING NOISE

Alberta Regulation No. _____

effective _____

made under

THE OCCUPATIONAL HEALTH & SAFETY ACT

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Definitions

1. In these regulations

(1) "abnormal audiogram" means an audiogram which suggests that a pathology exists or that hearing has deteriorated significantly since the baseline test;

(2) "acoustical consultant" means a professional engineer or occupational hygienist, with qualifications in noise abatement approved by the Director of Occupational Hygiene;

(3) "audiologist" means a person who holds a degree in audiology from an accredited university;

(4) "audiometer" means a device capable of measuring pure tone air conduction hearing threshold levels at the frequencies outlined in Section 8(a);

(5) "audiometric technician" means a person holding a current certificate obtained by successful completion of an audiometric technician's course approved by the Director of Medical Services;

(6) "dBA" means a measure of sound level in decibels using a reference level of 20 micropascals corrected to the A weighted scale of a sound level meter;

(7) "effective hearing protector" means a sound attenuating personal protective device meeting the standards set out in Section 10;

(8) "impulse noise" means sounds with rise times of not more than 3.5 milliseconds to peak intensity and durations of not more than 500 milliseconds to the time when the sound level decays to 20 decibels below peak intensity, and maxima at intervals of greater than one per second;

(9) "impulse noise meter" means a sound pressure measuring instrument, the specifications for which meet the standards set out in the International Electrochemical Commission Publication 179A (1973);

(10) "physician" means a medical practitioner licenced by the College of Physicians and Surgeons of Alberta;

(11) "sound level meter" means an instrument for measuring sound levels, which meets the specifications for a Type 2 meter as described in the Canadian Standards Association Standard Z107.1 - 1973. (CSA/ANSI specification S1.4-1971).

Permitted Noise Exposures

2. The employer shall ensure that
- (a) a worker's exposure to continuous or intermittent noise as measured by a sound level meter on slow response using the A-weighting scale (dBA) shall not exceed the permitted exposures set out in Table 1.

TABLE 1

Permitted Exposure to Continuous or Intermittent Noise

<u>Duration of Exposure (hours per day)</u>	<u>Occupational Exposure Limit (dBA)</u>
8 or more	85
4	90
2	95
1	100
1/2	105
1/4	110
1/8	115

- (b) no worker is exposed to continuous or intermittent noise in excess of 115 dBA,
- (c) where a worker's exposure to continuous or intermittent noise is composed of two or more periods of exposure to different levels, then the value of D in the formula below shall not exceed unity

$$D = \frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_n}{T_n}$$

where D is the daily noise exposure, C_1, \dots, C_n are the actual durations of exposure to each sound level and T_1, \dots, T_n are the permitted exposure durations for those sound levels as set out in Table 1,

unless the worker is provided with and wears effective hearing protectors.

3. The employer shall ensure that
- (a) a worker's daily exposure to impulse noise as measured by an impulse noise meter does not exceed the permitted exposure set out in Table 2.

TABLE 2

Permitted Exposure to Impulse Noise

<u>Occupational Exposure Limit (decibels)</u>	<u>Impulses per day</u>
135	100
125	1,000
115	10,000

- (b) no worker is exposed to impulse noise in excess of 135 decibels unless the worker is provided with and wears effective hearing protectors.

Engineering Controls

4. Where a worker is required to work in an area where noise exposure exceeds the permitted exposures set out in sections 2 and 3, then
- (a) the employer shall institute engineering controls where practicable to reduce noise levels below the occupational exposure limits prescribed in sections 2 and 3, and
 - (b) the Director of Occupational Hygiene may require the employer to obtain an independent acoustical consultant's evaluation of the most practicable means of reducing noise levels to below the occupational exposure limits set out in sections 2 and 3.

Hearing Conservation Program

5. Where the engineering controls required in section 4 are not practicable, or until such time as the engineering controls have been implemented, the employer shall
- (a) establish a program of hearing conservation including each worker who is required to work in an area where noise exposure exceeds the permitted exposure set out in sections 2 and 3,

- (b) notify the Director of Medical Services within 30 days of the establishment of the program,
- (c) obtain the consent of the Director of Medical Services to discontinue the program.

6. Where a program of hearing conservation is required by section 5, the employer shall

- (a) supply, and ensure that each worker wears, hearing protectors that conform to the standards set out in section 10,
- (b) provide a program of audiometric testing for each worker required to work in an area where the noise level exceeds 90 dBA,
- (c) where practicable, conduct the audiometric testing during the worker's normal hours of employment,
- (d) post and maintain clearly worded signs in each area where noise levels exceed 85 dBA, indicating that hearing protectors shall be worn in the area and the class of hearing protectors to be used, and
- (e) ensure that each worker is informed of the hazards associated with exposure to noise and the purpose and limitations of protective equipment,
- (f) submit a report, in a form acceptable to the Director of Medical Services, every 18 months, describing the activities of the hearing conservation program and a summary of the audiometric results.

Audiometric Testing for Hearing Conservation Program

7. (1) The audiometric testing required by section 6(b) shall be carried out by an audiometric technician or a person holding an equivalent qualification approved by the Director of Medical Services.

(2) All persons conducting audiometric testing shall attend a refresher course approved by the Director of Medical Services six months after initial training and every 2 years thereafter.

(3) Exemptions to the provisions of section 7(2) may be approved by the Director of Medical Services.

(4) Abnormal audiograms shall be reviewed by a physician or audiologist.

8. The audiometric testing required by section 6(b) shall be carried out as follows:

- (a) Pure tone, air conduction thresholds shall be established at 500 Hz, 1000 Hz, 2000 Hz, 3000 Hz, 4000 Hz, 6000 Hz and 8000 Hz for each ear.
- (b) There shall be a period of 14 hours or more preceding the test during which time the worker has been absent from or protected from noise levels exceeding 85 dBA.
- (c) The test shall be carried out in a testing room where the background levels do not exceed the sound pressure levels set out in Table 3.

TABLE 3

Acceptable Background Noise Conditions For
Audiometric Testing

<u>Octave band centre frequency</u>	<u>Maximum level in dB re: 20 micropascals</u>
500	30
1000	30
2000	37
4000	47
8000	52

- (d) Baseline pre-placement audiograms shall be performed within 3 months of employment.
- (e) Subsequent audiograms shall be performed at least every 18 months.

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Notification

9. (1) The person who has performed the audiometric testing required by section 6(b) shall provide notification of the audiometric results in writing within 30 days to the worker.

(2) Where an audiogram, which has been reviewed by a physician or audiologist, as required by section 7(4), is confirmed to be abnormal, the worker shall be advised in writing within 15 days of the need for further medical evaluation.

(3) For the purposes of these regulations, hearing loss which is medically diagnosed as noise induced shall be designated as an occupational disease to which section 17 of The Occupational Health and Safety Act applies, when the average hearing threshold levels at 1000 Hz, 2000 Hz and 3000 Hz exceed 30 dB bilaterally.

Hearing Protectors

10. Where hearing protectors are required by section 6(a)

- (a) the hearing protectors utilized shall comply with the standards set out in the Canadian Standards Association Z94.2-1974.
- (b) the employer shall provide effective hearing protectors selected from Table 4.

TABLE 4

Hearing Protectors

<u>Sound Level dBA</u>	<u>Minimum CSA Class of Hearing Protector</u>
85 - 95	C
96 -105	B
106 or over	A
Impulse noise	A

- (c) a hearing protector shall not be modified in such a manner that it alters its intended purpose or reduces its attenuation characteristics.

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11. Where audiometric testing is required by section 6(b) the worker's audiometric results shall
- (a) be maintained by the employer for the duration of employment plus a minimum of 5 years,
 - (b) be made available on request to a physician authorized by the worker for the purpose of diagnosing or treating the worker.

12. (1) Audiometers shall be calibrated annually by an agent authorized to do so by the manufacturer of the audiometer.

(2) Audiometers shall have logbooks containing maintenance and calibration records, including the manufacturer's calibration.

(3) The annual calibration required in subsection (1) shall consist of the following:

- (a) frequency and intensity output of each setting
- (b) rise time and overshoot
- (c) electrical and mechanical integrity
- (d) linearity of attenuation
- (e) harmonic distortion.

(4) The logbook shall be kept for the life of the audiometer.

13. (1) the employer shall maintain a record of all noise level surveys and noise dosimeter studies conducted at the work site for a minimum of 5 years.

(2) This record shall consist of

- (a) date of measurement
- (b) a brief description of the noise source or sources and their location
- (c) the number of employees exposed
- (d) duration of exposure
- (e) calibration devices
- (f) the type of measurements, either A-scale, octave-band analysis, or impulse scale
- (g) exposure levels.