



Audiometric Testing and Hearing Protection

CAGC SAFETY ALERT

June 2016

Canadian Association of Geophysical Contractors
1045, 1015 - 4th Street SW Phone: 403 265 0045
Calgary, Alberta Fax: 403 265 0025
T2R 1J4 E-mail: info@cagc.ca

Worksafe BC has studied hearing test results from 2014. It was found that Worksafe BC spends an average of about \$8000 per accepted claim for hearing loss issues in the oil and gas industry, which is preventable. There were 3 main findings from this

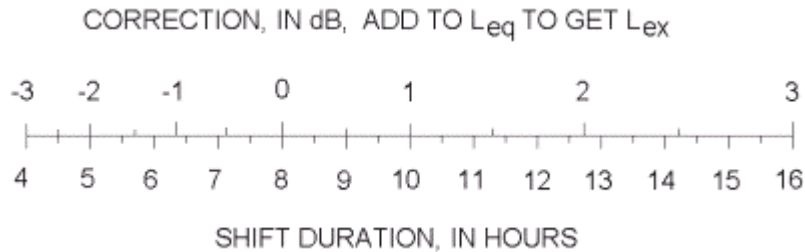
- 1) The data showed that only a small amount of oil, gas and pipeline workers had had a hearing test (which is against legislation). Of that small amount 33% of those tested showed signs of noise-induced hearing loss. This is more than double the average for workers in noisy industries. Also, more than half of those who showed hearing loss were workers 35 years old and younger.
- 2) Most of those who showed hearing loss reported wearing hearing protection which means that the protection being worn is not working. Some possibilities for this are: workers removing hearing protection or wearing incorrectly, workers may need better protection, or the noise at the worksite was so high that no amount of protection would work. If this is the case engineering controls to reduce the noise levels or set work-time limits inside the noisy area.
- 3) Young workers are not wearing hearing protection. Many of these young workers do not wear hearing protection: 17% of those 35 and under however, those under 21 the lack of usage increases to 27%.

In order to help improve these stats employers can take any or all of the following steps:

- 1) Identify potential engineering controls to lower noise levels
- 2) Rotate workers to different positions/ reduce time working in high noise conditions
- 3) Ensure workers have sufficient hearing protection and ensure they use it.
- 4) Ensure workers have hearing tested regularly.

Daily Limits Calculation

dba Lex- is the calculation of noise in decibels averaged over an 8 hour work period. These calculations can fluctuate depending on the amount of time a worker spends in the noise area. If a worker is working for 8 hours at 85dba Lex, however, if that worker is in the same environment for 10 hours then the calculation will adjust +1 dba to make 86 dba Lex as an average for the day. The Chart below explains the deviation:



Mandatory Testing

In **BC legislation**, workers are to be tested by an approved audiologist annually.

G7.2 Exposure limits

Issued August 1999; Revised January 1, 2005 **Section 7.2 of the OHS Regulation states:**

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

- (a) 85 dba Lex daily noise exposure level, or
- (b) 140 dBC peak sound level.

In Alberta it is required that audiometric testing be done if a worker will be exposed to "excessive noise." Excessive Noise is referred to as noise exceeding 85 dba Lex (Part 16, section 218 of the OHS Code) requires an initial (baseline assessment) as soon as possible but not more than 6 months after the start of employment and another within one year of the baseline assessment. Once this was been completed it is required to have a test every two years.

Schedule 3,

Table 1 Occupational exposure limits for noise [See sections 218, 219(1)]

Exposure level (dba)	Exposure duration
82	16 hours
83	12 hours 41 minutes
84	10 hours and 4 minutes
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 minutes
100	15 minutes

103	8 minutes
106	4 minutes
109	2 minutes
112	56 seconds
115 and greater	0

Note: Exposure levels and exposure durations to be prorated if not specified

Table 2 Selection of hearing protection devices

[See subsection 222(1)]

Maximum equivalent noise Level (dBA Lex)	CSA Class of hearing protection	CSA Grade of hearing protection
≤ 90	C, B or A	1, 2, 3, or 4
≤ 95	B or A	2, 3, or 4
≤ 100	A	3 or 4
≤ 105	A	4
≤ 110	A earplug + A or B earmuff	3 or 4 earplug + 2, 3, or 4 earmuff
> 110	A ear plug + A or B earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA Lex	3 or 4 earplug + 2, 3, or 4 earmuff and limited exposure time to keep sound reaching the worker's ear drum below 85 dBA Lex

Saskatchewan Regulation:

99 Measurement of noise levels

(2) Where practicable, an employer or contractor shall ensure that a hearing protector provided pursuant to subsection (1) reduces the noise level received into the worker's ears to not more than 85 dBA.

111

(1) In every area where workers are required or permitted to work and the noise level may frequently exceed 80 dBA, an employer or contractor shall ensure that:

- (a) the noise level is measured in accordance with an approved method;
- (b) in consultation with the committee, the representative or, where there is no committee or representative, the workers, a competent person evaluates the
- (c) sources of the noise and recommends corrective action;
- and
- (d) the measurements, evaluation and recommendations are documented

113

(3) Where it is not reasonably practicable to reduce a worker's occupational noise exposure below 85 dBA Lex

or the noise level below 90 dBA in any area where a worker may be required or permitted to work, an employer or contractor shall:

- (a) provide a hearing protector to the worker that meets the requirements of section 99;
- (b) train the worker in the selection, use and maintenance of the hearing protector; and
- (c) arrange for the worker to have, at least once every 24 months during the worker's normal working hours, an audiometric test and appropriate counselling based on the test results under the direction of a physician, an audiologist or a registered nurse who has a certificate in audiometric testing.

In **Manitoba OH Regulation (Part 12)** reads:

12.4(2)

When it is not reasonably practicable to implement sound control measures, or the sound

control measures implemented by an employer do not reduce the worker's noise exposure to 85 dBA Lex or less, an employer must:

- (a) inform the worker about the hazards of the level of noise;
- (b) provide the worker with
 - (i) a hearing protector that
- (A) complies with CAN/CSA Z94.2-02, Hearing Protection Devices — Performance, Selection, Care, and Use, and
- (B) reduces the worker's noise exposure to 85 dBA Lex or less, and
 - (ii) information about the selection, use and care of the hearing protector; and
- (c) at the employer's expense, provide the worker with the following audiometric tests:
 - (i) an initial baseline test as soon as is reasonably practicable but not later than 70 days after the worker is initially exposed to that noise level,
 - (ii) a further test at least once every year after the initial baseline test.

Hearing Protection Rating

All approved hearing protection has a Noise Reduction Rating (NRR) number attached to it. This means that if worn properly the noise levels will decrease by the NRR.

For instance:

If the area noise is 100 dBA Lex and the NRR is 30 then, if the hearing protection is worn properly the noise level for that employee becomes 70 dBA Lex.

For More information:

http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/basic_noise_calculations.pdf

http://www2.worksafebc.com/publications/OHSRegulation/Part7.asp?_ga=1.197477935.146444961.1429209783#SectionNumber:7.1

<http://work.alberta.ca/SearchAARC/157.html>

https://www.ccohs.ca/oshanswers/phys_agents/exposure_can.html