



**Labour and Advanced Education**  
Occupational Health and Safety Division

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## Dosimeter Information Sheet for Nova Scotia Dental Offices

The Occupational Health and Safety Act and regulations require that employers are able to verify that their employees are not excessively exposed to radiation. In Nova Scotia the [Workplace Health and Safety Regulations](#)<sup>1</sup> adopt the Threshold Limits Value (TLV) set by the American Conference of Governmental Industrial Hygienists in section 2.3. The regulations do not specify the limit, the ACGIH TLV publication does.



The effective dose limit for ionizing radiation to the whole body is 20 mSv/year, over a five year period. In special circumstances, 50 mSv/yr is permitted, as long as the average for the 5 year period remains at 20 mSv/yr.<sup>2</sup>

The easiest way to verify this limit is not exceeded is to wear a dosimeter.

When employees wear a dosimeter for twelve months, or more, the employer can establish a baseline for the dental practice and its employees. A greater time period is more substantive and encouraged - but not required. These exposure records must then be kept to provide documented proof of workplace exposures.

Section 84 of the [Occupational Safety General Regulations](#)<sup>3</sup> requires X-ray machine(s) to be installed, maintained, and inspected etc. according to the manufacturer's specifications.

*"An employer shall ensure that a machine that may be a hazard to the health or safety of a person at the workplace is erected, installed, assembled, started, operated, used, handled, stored, stopped, inspected, serviced, tested, cleaned, adjusted, maintained, repaired and dismantled in accordance with the manufacturer's specifications, or, where there are no manufacturer's specifications, the specifications certified by an engineer."*

If this has not occurred, **additional dose measurements must be made** for twelve months, or more after the equipment has been serviced, adjusted, tested, repaired, inspected and maintained. Note that the maintenance and inspections referenced are for prevention purposes. The manufacturer will specify what is required and how often it is required. If the manufacturer has not specified, then a professional engineer must prepare specifications for preventative maintenance and or testing and inspection of x-ray equipment.



**Other factors that trigger a requirement for additional dose measurements include:**

1. A change in the workload for the equipment or for the employees. This occurs when either the amount of x-rays taken per day increases or the work distribution amongst staff changes.
2. New equipment installations. When new equipment is installed dosimeters will again have to be worn for a twelve month period to re-establish the exposure levels.
3. Changes in the threshold limit value standard for ionizing radiation. The TLV document is updated annually to ensure it is up-to-date with the best science. While the levels for radiation have remained unchanged for many years there is a new recommended limit for radiation exposure to the eyes that is expected to be adopted in the near future.<sup>4</sup>

New measurements are needed to confirm if the above changes have affected the employee's exposure levels to ionizing radiation and whether the employer is still compliant.

**While ALARA (as low as reasonably achievable) is not a legislative requirement, it is encouraged for all workplace exposures to hazardous substances, including radiation.**

## REFERENCES

1. Workplace Health and Safety Regulations

<http://novascotia.ca/just/regulations/regs/ohsworkplace.htm>

2. 2014 Threshold Value Limits and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists

3. Occupational Safety General Regulations

<http://novascotia.ca/just/regulations/regs/ohsgensf.htm>

4. Information on the new eye radiation limit recommendations can be found at the International Commission on Radiological Protection website provided below

<http://www.icrp.org/docs/ICRP%20Statement%20on%20Tissue%20Reactions.pdf>