Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Canada

Canadian Nuclear Safety Commission's Dose Limits for the Lens of an Eye

Adelene Gaw, Dosimetrist

Dose to the Lens of the Eye Symposium
2018 Fall International RAMP user's Group meeting
October 29 - November 2, 2018
Ottawa

nuclearsafety.gc.ca

Canada

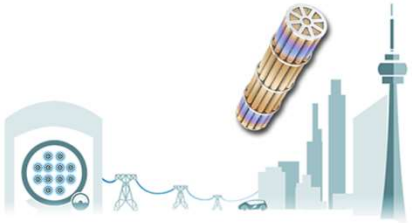
Our Mandate

- Regulates the use of nuclear energy and materials to protect health, safety, and security and the environment
- Implements Canada's international commitments on the peaceful use of nuclear energy
- Disseminates objective scientific, technical and regulatory information to the public

The CNSC Regulates All Nuclear-Related Facilities and Activities

Uranium mining

Uranium fuel processing



Nuclear power

Transport

Waste management

Dosimetry Services

Nuclear research

Medical uses

Nuclear substance processing

CNSC's *Radiation Protection Regulations*

- First published on May 31, 2000
- Based on recommendations in the International Commission on Radiological Protection (ICRP) Publication 60 (1990)

CONSOLIDATION

CODIFICATION

Radiation Protection Regulations

Règlement sur la radioprotection

SOR/2000-203

DORS/2000-203

Current to May 2, 2012

Last amended on September 18, 2007

À jour au 2 mai 2012

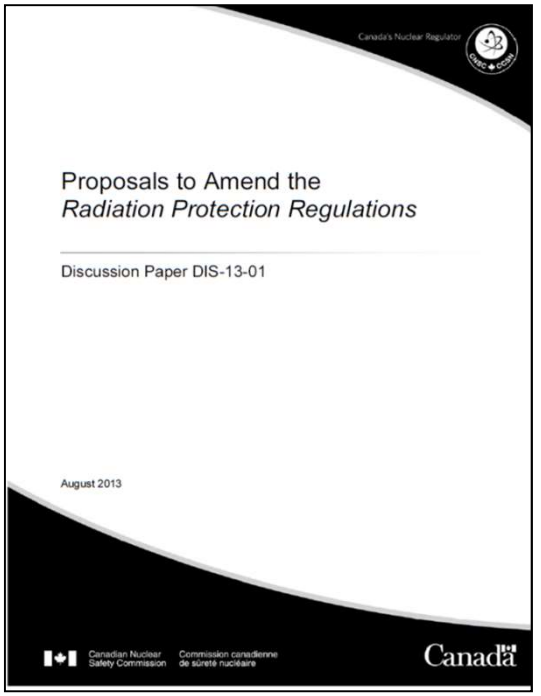
Dernière modification le 18 septembre 2007

Published by the Minister of Justice at the following address: http://laws-lois.justice.gc.ca

Publié par le ministre de la Justice à l'adresse suivante : http://lois-laws.justice.gc.ca

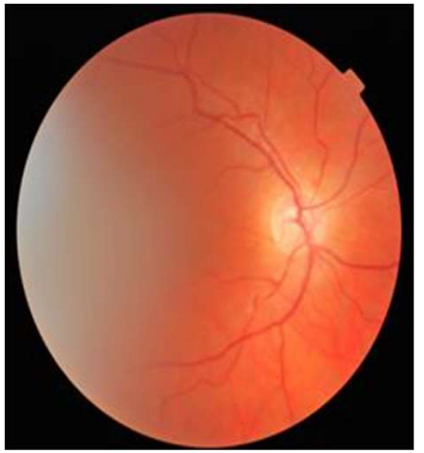
Amendments to the *Radiation Protection Regulations*

- Discussion Paper published in 2013
  - proposed revision to existing sections of the *Radiation Protection Regulations*
  - addition of several new sections



Dose Limits for the Lens of an Eye

- Current
  - 150 mSv equivalent dose per one-year dosimetry period for a nuclear energy worker
- Proposed
  - 50 mSv equivalent dose per one-year dosimetry period for a nuclear energy worker
  - 100 mSv equivalent dose per five-year dosimetry period for a nuclear energy worker



What We Heard Report

- What We Heard Report published on CNSC website in 2015
- Summarizes:
  - stakeholder feedback on proposed amendments
  - planned path forward for proposed amendments
  - next steps in the project

What We Heard for the Proposed Change to the Lens of Eye Dose Limit

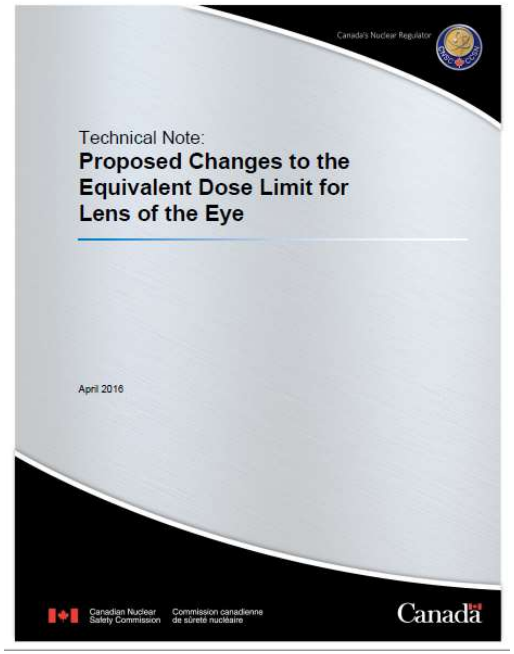
- Disagreement with ICRP's scientific basis
- Technical issues ascertaining dose to lens of an eye
- Claims of undue regulatory burden given the treatability of cataracts

CNSC's Approach

- CNSC is proceeding with the proposed amendments based on the following:
  - recent scientific studies clearly indicate that the risk to the lens of the eye from radiation exposure is higher than was originally known; these studies have been evaluated and accepted by the ICRP
  - lens opacities and cataracts are a health effect that should be prevented
  - alignment with international recommendations and requirements is encouraged for all member states of the International Atomic Energy Agency, which includes Canada

Technical Note

- Communicated to all licensees in April 2016
- Includes the following information:
  - background information
  - CNSC's plan moving forward
  - guidance for licensees in advance of the planned change to the dose limit



Recommended Licensee Actions

Licensees are encouraged to consider the relevant information and initiate the following steps:

1. Investigate if work practices need to be modified to reduce exposure to the lens of the eye
2. Review existing education and training material on this matter and incorporate the most current information
3. Undertake a preliminary hazard assessment to evaluate if workers might receive elevated exposures to the lens of the eye
4. Ascertain dose to the lens of the eye

Guidance on Ascertaining Dose

The Technical Note contains a table to assist licensees in choosing appropriate dosimetry and placement, if applicable to them

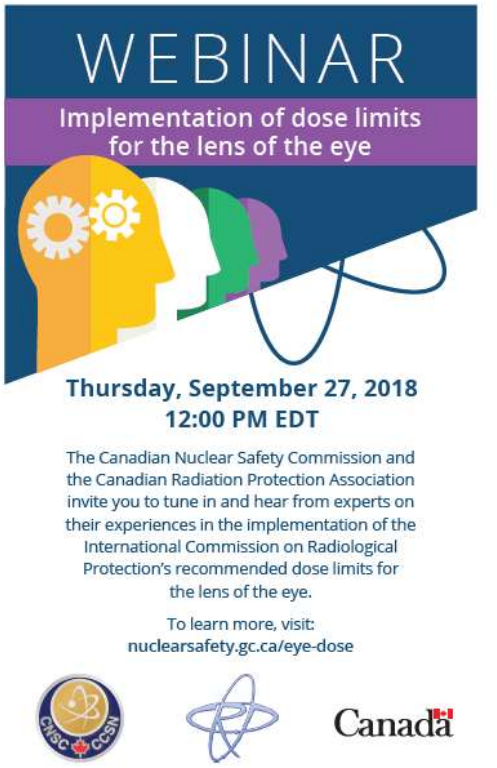
Factors to consider			Resulting options	
Radiation type and energy	Angle of incident radiation	Is the body uniformly exposed?	Operational quantity to be used	Recommended dosimeter type and placement

Outreach

- Presentation to Canadian Radiation Protection Association (CRPA) (2013)
- CANDU Owners Group workshops: radiation protection and lens of eye workshop (2013)
- Cross-Canada outreach to engage licensees that use nuclear substances and radiation devices (2014–16)
- CRPA workshop (2016)
- Stakeholder meeting (2016)

Webinar Series (1)

The CNSC and the CRPA have organized two webinars in a three part series of webinars on the ICRP dose limits for the lens of the eye



Webinar Series (2)

- Webinar #1: Scientific Basis for the Recommended Dose Limits for the Lens of the Eye
  - March 21, 2018
- Webinar #2: Implementation of the ICRP Dose Limits for the Lens of the Eye
  - September 27, 2018
- Webinar #3: Dosimetry services that provide lens of eye dosimeters
  - targeting spring 2018

Federal Provincial Territorial Radiation Protection Committee (1)

The Federal Provincial Territorial Radiation Protection Committee (FPTRPC) is an intergovernmental committee established to support federal, provincial and territorial radiation protection agencies

Federal Provincial Territorial Radiation Protection Committee (2)

- The CNSC has been in communication with provincial/territorial regulators through FPTRPC on the proposed change to the dose limit for the lens of the eye
- In Canada, x-ray use is regulated by the provinces and territories
- Alberta amended their *Radiation Protection Regulation in 2013* to align the dose limit for the lens of the eye with international recommendations

Timelines for Amendments to *Radiation Protection Regulations*

- Public consultation in Canada Gazette, Part I
  - targeting Fall 2018
- Publication in Canada Gazette, Part II
  - targeting June 2019

Regulatory Documents

- Regulatory documents will
  - formally document CNSC guidance on radiation protection and dosimetry
  - update and consolidate existing CNSC regulatory information on radiation protection
- REGDOC-2.7.1, *Radiation Protection*
- REGDOC-2.7.2, *Dosimetry*
  - Volume 1: Ascertaining Occupational Exposure
  - Volume 2: Technical and Quality Assurance Requirements for Dosimetry Services
- Public consultation will coincide with the amendments to the *Radiation Protection Regulations*

International Expert Group (1)

- Nuclear Energy Agency (NEA) Committee on Radiological Protection and Public Health (CRPPH) has supported Canada's proposal for a new activity on sharing lessons learned on implementing ICRP recommended dose limits for the lens of the eye
- Decision was made to establish the Expert Group on sharing of lessons learned on implementing the ICRP's recommended equivalent dose limit for the lens of the eye for occupational exposures (EGDLE)

International Expert Group (2)

- EGDLE will provide NEA member countries a forum for collaborating on the practical implementation of the ICRP's recommended lens of the eye dose limit
- EGDLE will meet in early 2019 to finalize the mandate, including the scope of work and deliverables
- Draft mandate will be presented for approval to the CRPPH at its 77th meeting in March 2019

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Questions?

Thank You!

Canada

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