



Radiation Safety
Institute of Canada
Institut de radioprotection du Canada

Radiation Safety &
Wellness Webinars



May 28, 2022

Preparing for an **X-Ray Inspection in an Industrial Setting** Based on Ontario Regulations and Best Practices

With Guest Lothar Doehler
Followed by Mandel Fraser from PowerYoga West

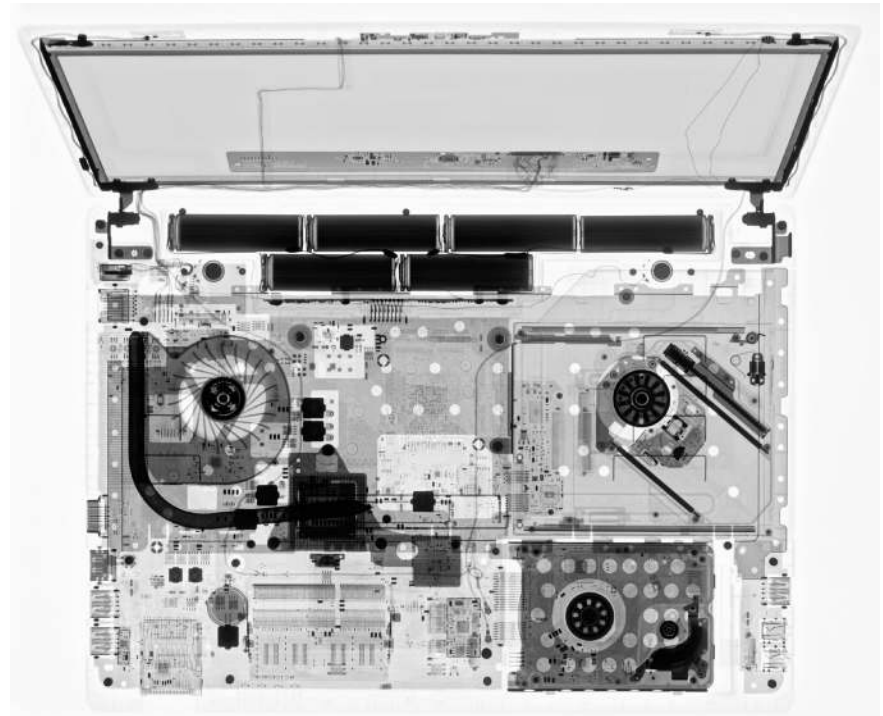
Good Science in Plain Language®

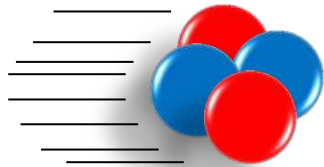


- Audio and video
 - During the presentation, from the presenters only
 - Use computer or telephone (call in)
 - Computer seems to give the best sound quality
 - Technical difficulties: 1-800-263-5803 x321
- Use the “Chat” feature to enter comments and questions
- Posted on webinar page
 - Video, answers to questions, copy of the slides
- Follow up email will be sent
 - Topics covered, time of attendance
- It may be possible to change your Zoom view if the controls are hiding the closed captioning.

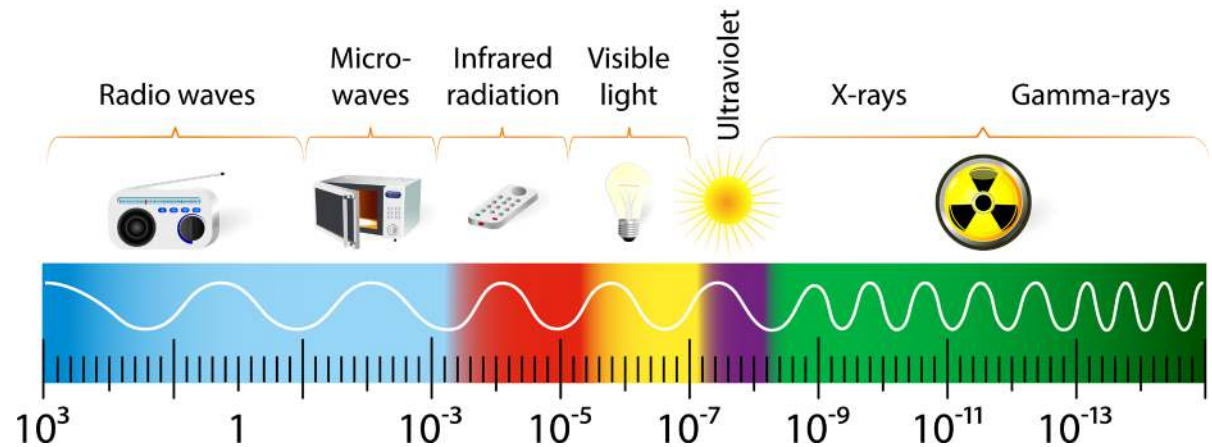


- Background
 - X-Rays
 - Jurisdiction in Canada
 - Ontario Industrial X-Ray Regulation
- Interview
 - OHS Regulation 861
 - Facility organization
 - The role of the responsible person
 - Worker credentials
 - Powers of inspectors
 - Additional advice
- Wellness



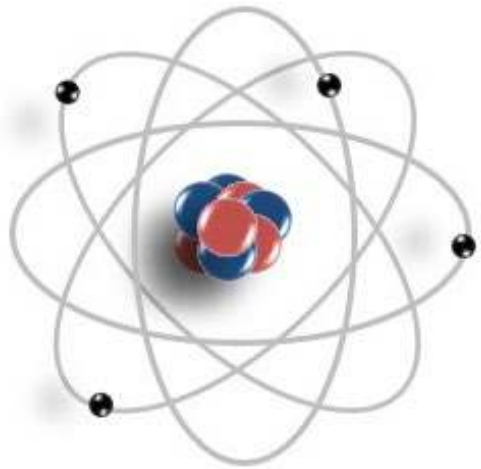


THE ELECTROMAGNETIC SPECTRUM

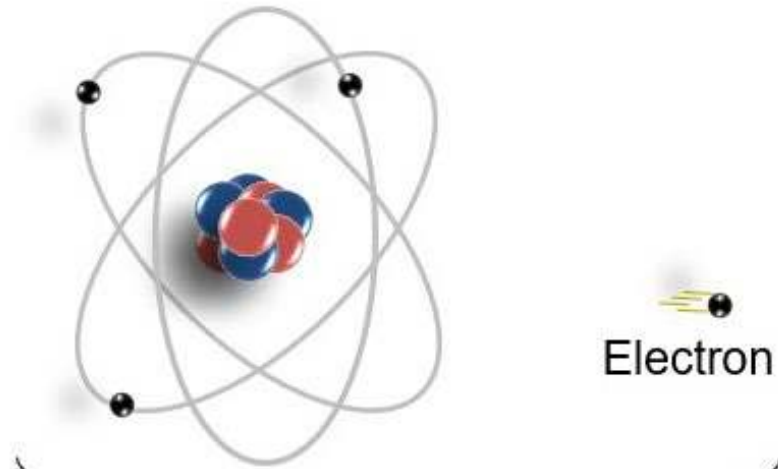




Radiation that can cause ionization



Neutral Atom



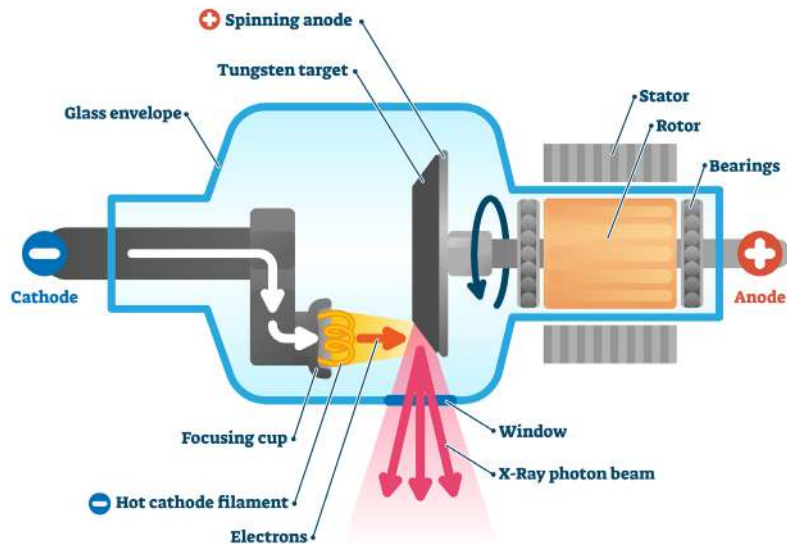
Electron

Ion Pair

Ionization: the process of creating ions.



X-RAY TUBE



- High energy electromagnetic waves
- Created by
 - Accelerate electrons
 - Hit target
 - Electrons
 - Slow down,
 - Change direction, or
 - Knock bound electron from orbit
 - X-ray might be produced
 - Human-made ionizing radiation



- CNSC
 - High-energy particle accelerators
 - >1 MeV
- Health Canada
 - Import, sale, or lease
 - RED Act & Regulation
 - Other than
 - CNSC
 - TC MVSA
 - Safety Codes
- Provinces/Territories
 - Use
 - < 1MeV
- Federally Regulated Workplaces
 - Canada Labour Code/ OHS Regs





Ontario 
**Ministry of Labour,
Training and Skills
Development**

MLTSD

- Worker safety
- Occupational Health and Safety Act
- Regulation 861: X-Ray Safety

Ontario 
Ministry of Health

MOH

- Patient safety
- Healing Arts Radiation Protection Act
- Regulation 543: X-Ray Safety Code



The screenshot shows the Ontario e-Laws website interface. At the top, there is a search bar with the text "SEARCH LAWS" and a "SEARCH" button. To the right, there are links for "contact us" and "français", and a "Topics +" menu. Below the search bar, the breadcrumb trail reads "HOME PAGE / LAWS / R.R.O. 1990, REG. 861: X-RAY SAFETY". The main content area displays the title "R.R.O. 1990, Reg. 861: X-RAY SAFETY" under the "Occupational Health and Safety Act, R.S.O. 1990, c. O.1". A "Versions" section lists three versions: "current" (July 1, 2021 – (e-Laws currency date)), "June 7, 2021 – June 30, 2021", and "March 15, 2018 – June 6, 2021", with a link for "1 more". There are "Print" and "Download" buttons. Below the main content, there is a "Français" link, the text "Occupational Health and Safety Act", "R.R.O. 1990, REGULATION 861", and "X-RAY SAFETY". A "Consolidation Period" note states: "From July 1, 2021 to the e-Laws currency date." The "Last amendment" is listed as "425/21". A "Legislative History" link is available. A note states: "This is the English version of a bilingual regulation." The first section of the regulation is: "1. In this Regulation, 'absorbed dose' means the mean energy per unit mass imparted by ionizing radiation to matter; «dose absorbée» 'air kerma' means the sum of the initial kinetic energies per unit mass of all the charged particles liberated by uncharged ionizing radiation in air; ('kerma de l'air') 'dose equivalent' means the product of absorbed dose and a quality factor where the quality factor is a measure of the biological effectiveness of the radiation, and is assigned the value 1.0 for X-rays; ('équivalent de dose')".

- Section 15
 - Specific to industrial radiography or industrial fluoroscopy
 - Not cabinet
- Section 17
 - Specific to cabinet x-ray equipment
- Section 18
 - Specific to analytic X-ray equipment
 - Not cabinet



- Not legal advice
- Follow regulations in your jurisdiction
- Points for consideration
- Best practices
- Not vetted by Ministries
- Detailed questions to relevant jurisdictional Ministry





- Interview Questions
- Questions posted in the chat room
- To ask a question verbally
 - use “raise hand” button
 - When asked, press spacebar or unmute to speak
- Questions we do not get to
 - Answers will be posted to our website and link to resources emailed out





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“Good science in plain language”[®]

Thank you for listening!

www.radiationsafety.ca

1-800-263-5803

info@radiationsafety.ca



- Ontario Ministry of Labour, Training, and Skills Development:
<https://www.ontario.ca/page/ministry-labour-training-skills-development>
- OHSA of Ontario: <https://www.ontario.ca/laws/statute/90o01>
- Regulation 861 – X-Ray Safety: <https://www.ontario.ca/laws/regulation/900861>
- Ontario Application for Installation and Registration of an X-Ray Source Form:
<https://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/FormDetail?OpenForm&ACT=RDR&TAB=PROFILE&SRCH=1&ENV=WWE&TIT=ON00057&NO=ON00057E>
- Information on Ontario Radiation Protection Services (see bottom of page):
<https://www.ontario.ca/page/specialized-professional-services-unit>