



**Radiation Safety  
Institute of Canada**  
Institut de radioprotection du Canada

Radiation Safety &  
Wellness Webinars



June 27, 2023

# CAN/CGSB-192.3

## TDG Training, Assessment, and Competency

RSIC Presenter: **Lynn MacDonald**  
Invited Guest: **Laura Boksman**  
Health Physicist Consultant

Good Science in Plain Language®

Not legal advice



- Audio and video
  - During the presentation, from the presenters only
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- Use the **Chat** feature to talk to discuss with everyone
- Use Q&A feature to ask questions for Q&A portion
- 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.



- Regulation of TDG Class 7 in Canada
- History of CAN/CGSB-192.3
  - Proposed amendments of TDG Regs
- Current training requirements
- New training requirements
- Additional training considerations
- Q&A





- Transport Canada
  - TDG Act
    - TDG Regulations
  - 9 Classes of Dangerous Goods
  - Class 7: Radioactive Materials
- CNSC
  - NSCA
    - PTNS Regulations
  - Nuclear substances and devices
- IAEA
  - Regulations for the Safe Transport of Nuclear Materials



Table 1. Categories of Regulatory Authority for NORM Transport (adapted from the Canadian NORM Guidelines, <sup>2</sup> PTNSR, 2015 <sup>4</sup> and IAEA, 2018 <sup>5</sup> )

NORM RADIONUCLIDE	I. Unrestricted Derived Release Limit (UDRL)		II. Provincially Regulated NORM		III. Federally Regulated NORM Follow PTNSR <sup>4</sup> and TDGR <sup>3</sup>	
	Specific Activity Limits <sup>2</sup>	Exempt Package Activity Limits <sup>5</sup>	Specific Activity Limits <sup>2</sup> <sup>4</sup> <sup>5</sup>	Exempt Package Activity Limits <sup>5</sup>	Specific Activity Limits <sup>4</sup> <sup>5</sup>	Exempt Package Activity Limits <sup>5</sup>
Uranium-238 Natural (All progeny in equilibrium)	< 0.3 Bq/g	< 1,000 Bq	0.3 Bq/g to 10 Bq/g	< 1,000 Bq	> 10 Bq/g	< 1,000 Bq
Thorium-230	< 10 Bq/g	< 10,000 Bq	N/A	N/A	> 10 Bq/g	< 10,000 Bq
Radium-226 (All progeny in equilibrium)	< 0.3 Bq/g	< 10,000 Bq	0.3 Bq/g to 70 Bq/g	< 10,000 Bq	> 70 Bq/g	< 10,000 Bq
Lead-210 (In equilibrium with Bi-210 and Po-210)	< 0.3 Bq/g	< 10,000 Bq	0.3 Bq/g to 70 Bq/g	< 10,000 Bq	> 70 Bq/g	< 10,000 Bq
Thorium-232 Natural (All progeny in equilibrium)	< 0.3 Bq/g	< 1,000 Bq	0.3 Bq/g to 10 Bq/g	< 1,000 Bq	> 10 Bq/g	< 1,000 Bq
Thorium-232	< 10 Bq/g	< 10,000 Bq	10 Bq/g to 70 Bq/g	< 10,000 Bq	> 70 Bq/g	< 10,000 Bq
Radium-228 (In equilibrium with Ac-228)	< 0.3 Bq/g	< 100,000 Bq	0.3 Bq/g to 70 Bq/g	< 100,000 Bq	> 70 Bq/g	< 100,000 Bq
Thorium-228 (All progeny in equilibrium)	< 0.3 Bq/g	< 10,000 Bq	0.3 Bq/g to 10 Bq/g	< 10,000 Bq	> 10 Bq/g	< 10,000 Bq

**Note:**

- Contributions by daughter radionuclides are indicated in parentheses. When calculating the specific activity limit and the exempt package activity limit, you do not add contributions from the daughters.
- The PTNSR <sup>4</sup> do not apply to the packaging and transport of NORM provided that it has a specific activity that is less than or equal to 70 Bq/g or an activity concentration that does not exceed 10 times the activity concentration limit for exempt material values set out in the IAEA Safety Standards Series, *Regulations for the Safe Transport of Radioactive Material No. SSR-6* <sup>5</sup> as amended from time to time.

- See **Volume III Transportation: Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)** to help determine jurisdiction for NORM radionuclides not used in the nuclear fuel cycle.
- Federal Provincial Territorial Radiation Protection Committee
- If in doubt, contact Transport Canada or the CNSC.

<https://www.canada.ca/en/health-canada/services/publications/health-risks-safety/guidelines-managing-naturally-occurring-radioactive-material-volume-3-transportation.html>





- Current TDGR Part 6 gives training requirements
  - “adequately trained”
- Regulations Amending TDG Regs Part 6 published 12/11/21.
  - Explains reasoning and process
  - Remove “adequately trained”
  - Incorporate CAN/CGSB training standard based on competencies





- Consultation began in 2016
  - Industry, governmental, training school, public stakeholders
  - Targeted and online
  - Different input requested at different stages
- 2014 - 2019
  - 55/408 incidents resulting in death or injury due to training issues resulting in 174 injuries, 3 fatalities
  - 69/300 training violations due to task performance with inadequate training
- Inspectors find those with certificates not always adequately trained





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11/2020 Standard published



12/2021 Amendments published







## **PART 6**

### **Training**

#### **Training Certificate Requirements**

**6.1 (1)** A person who handles, offers for transport or transports dangerous goods must

(a) be adequately trained and hold a training certificate in accordance with this Part; or

(b) perform those activities in the presence and under the direct supervision of a person who is adequately trained and who holds a training certificate in accordance with this Part.

**(2)** An employer must not direct or allow an employee to handle, offer for transport or transport dangerous goods unless the employee

(a) is adequately trained and holds a training certificate in accordance with this Part; or

(b) performs those activities in the presence and under the direct supervision of a person who is adequately trained and who holds a training certificate in accordance with this Part.



**6.2** A person is adequately trained if the person has a sound knowledge of all the topics listed in paragraphs (a) to (m) that relate directly to the person's duties and to the dangerous goods the person is expected to handle, offer for transport or transport:

- (a)** the classification criteria and test methods in Part 2 (Classification);
- (b)** shipping names;
- (c)** the use of Schedules 1, 2 and 3;
- (d)** the shipping document and train consist requirements in Part 3 (Documentation);
- (e)** the dangerous goods safety marks requirements in Part 4 (Dangerous Goods Safety Marks);
- (f)** the certification safety marks requirements, safety requirements and safety standards in Part 5 (Means of Containment);
- (g)** the ERAP requirements in Part 7 (Emergency Response Assistance Plan);
- (h)** the report requirements in Part 8 (Reporting Requirements);
- (i)** safe handling and transportation practices for dangerous goods, including the characteristics of the dangerous goods;
- (j)** the proper use of any equipment used to handle or transport the dangerous goods;
- (k)** the reasonable emergency measures the person must take to reduce or eliminate any danger to public safety that results or may reasonably be expected to result from an accidental release of the dangerous goods;
- (l)** for air transport, the aspects of training set out in Chapter 4, Training, of Part 1, General, of the ICAO Technical Instructions for the persons named in that Chapter and the requirements in Part 12 (Air) of these Regulations; and
- (m)** for marine transport, the requirements of the IMDG Code and the requirements of Part 11 (Marine) of these Regulations.

<https://laws-lois.justice.gc.ca/eng/regulations/sor-2001-286/page-21.html#h-1229628>



## Issuance and Contents of a Training Certificate

**6.3 (1)** An employer who has reasonable grounds to believe that an employee is adequately trained and will perform duties to which the training relates must issue a training certificate to the employee that includes the following information:

- (a) the name and address of the place of business of the employer;
  - (b) the employee's name;
  - (c) the date the training certificate expires, preceded by the words "Expires on" or "Date d'expiration"; and
  - (d) the aspects of handling, offering for transport or transporting dangerous goods for which the employee is trained, including the specific topics set out in section 6.2.
- (2)** A self-employed person who has reasonable grounds to believe that he or she is adequately trained and who will perform duties to which the training relates must issue to himself or herself a training certificate that includes the information required by subsection (1).
- (3)** The training certificate must be signed
- (a) by the employee and by the employer or another employee acting on behalf of the employer; or
  - (b) in the case of a self-employed person, by that person.
- (4)** Despite subsection (1), if the employer of a person who is a member of a vessel's complement has reasonable grounds to believe that the person's certificate of competency issued in accordance with the [\*Marine Certification Regulations\*](#) is acceptable evidence that the person is adequately trained, the employer is not required to issue the training certificate. The certificate of competency is a valid training certificate for the purposes of these Regulations when the certificate of competency is valid in Canada.

<https://laws-lois.justice.gc.ca/eng/regulations/sor-2001-286/page-21.html#h-1229628>



## Foreign Carriers

**6.4 (1)** A document that is issued to a driver of a road vehicle licensed in the United States or to a member of the crew of a train subject to 49 CFR for the transportation of dangerous goods and that indicates that the driver or the crew member is trained in accordance with sections 172.700 to 172.704 of 49 CFR is a valid training certificate for the purposes of these Regulations when that document is valid in the United States.

**(2)** A document that is issued to a foreign member of the flight crew of an aircraft registered in a country that is a Member State of the International Civil Aviation Organization and that indicates that the crew member is trained to transport dangerous goods by air is a valid training certificate for the purposes of these Regulations, in accordance with Article 33 of the Convention on International Civil Aviation, when that document is valid in the Member State.

**(3)** A document that is issued to a foreign member of the crew of a vessel registered in a country that is a Member State of the International Maritime Organization and that indicates that the crew member is trained to transport dangerous goods by vessel is a valid training certificate for the purposes of these Regulations when that document is valid in the Member State.



## Expiry of a Training Certificate

### **6.5** A training certificate expires

- (a)** for transport by aircraft, 24 months after its date of issuance; and
- (b)** for transport by road vehicle, railway vehicle or vessel, 36 months after its date of issuance.

SOR/2017-253, s. 52.

## Keeping Proof of Training: Employer's and Self-Employed Person's Responsibility

**6.6** An employer or a self-employed person must keep a record of training or a statement of experience, as well as a copy of a training certificate, in electronic or paper form, beginning on the date the training certificate is issued and continuing until two years after the date it expires.

## Showing Proof of Training: Employer's and Self-Employed Person's Responsibility

**6.7** Within 15 days after the date of a written request by an inspector, the employer of a person who holds a training certificate or a self-employed person must provide a copy of the training certificate to the inspector and, if applicable, a copy of the record of training or the statement of experience and a description of the training material used in the person's training.

## Showing Proof of Training: Trained Person's Responsibility

**6.8** A person who handles, offers for transport or transports dangerous goods, or who directly supervises another person engaged in these activities, must give his or her training certificate, or a copy of it, to an inspector immediately on request.

<https://laws-lois.justice.gc.ca/eng/regulations/sor-2001-286/page-21.html#h-1229628>





- Gazette Part I - **Proposed** regulatory changes
- Final version expected Fall 2023
- Check Gazette Part II for publication
  - 12 months to implement fully



<https://www.gazette.gc.ca/rp-pr/p1/2021/2021-12-11/html/reg2-eng.html>



## Prohibitions

**6.1 (1)** A person must not handle, offer for transport or transport dangerous goods unless the person

- (a)** is competent to handle, offer for transport or transport dangerous goods in accordance with CGSB-192.3; and
- (b)** holds a certificate of competency.

**(2)** Subsection (1) does not apply to a person who handles, offers for transport or transports dangerous goods in the presence, and under the direct supervision of, a person who is competent and who holds a certificate of competency.

**(3)** An employer must not allow another person to handle, offer for transport or transport dangerous goods unless that other person meets the conditions set out in subsection (1) or (2).

<https://www.gazette.gc.ca/rp-pr/p1/2021/2021-12-11/html/reg2-eng.html>



- Developed by CGSB committee
  - Industry
  - Training organizations
  - Government
- Regulations take precedence
- For those who handle, offer for transport, or transport dangerous goods
  - General awareness training and assessment
  - Function-specific training and assessment



# Competency-Based Training and Assessment



- Performance-based
- Focus on outcome
  - Rather than being prescriptive
- In TDG
  - Requirement for both general and function-specific training for tasks
  - Set performance criteria for evaluation of competence
  - Maintenance of records
  - Recurring training and assessment as needed
- Download a copy from CGSB and review for full details



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## **International Civil Aviation Organization (ICAO)**

- *Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284)*

## **Transport Canada**





Task descriptions and performance criteria

Ensuring compliance with the requirements around training

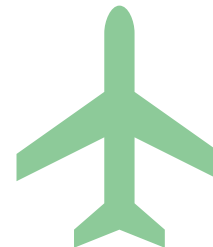
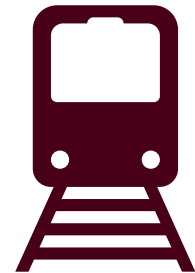
Compliance with respect to task performance

Procedures or agreements with subcontractors re: training



# Training Types Required

- General awareness
- Function specific
  - Assigned tasks
- Supplementary
  - Regulatory changes
  - Changes in task
- General/Function specific reassessment
  - 24 months for air
  - 36 months for road/rail/vessel





A. Overview of TDG Act and Regulations, including roles and responsibilities

B. Classification and identification of dangerous goods

C. MOC and Certification safety marks

D. Dangerous goods safety marks

E. Documentation

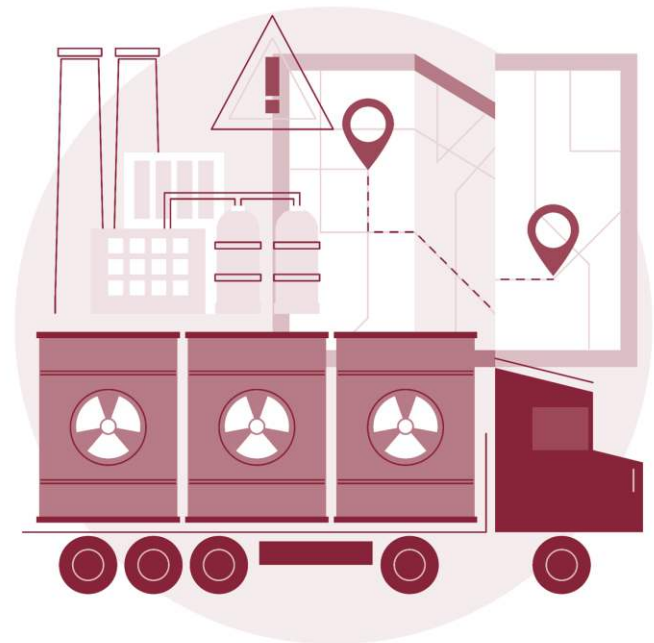
F. Emergency response and reporting

G. Special cases, special provisions, equivalency certs

- Learning topics listed in Annex B
  - Plus learning outcomes
- Employer must confirm
  - Competency of trainer
  - Identity of trainees
- Assessment
  - No less than 25 questions
  - No less than one question per learning topic
  - Pass rate 80%
  - Identity confirmed
  - 3 attempts
  - If unsuccessful, further training and reassessment
  - Alternative assessments allowed if necessary



- 6.2.1.1 Task list for road, rail, and marine
- 6.2.1.2 Task list for air
- Annex C: Competency for road, rail, and marine
- Annex D: Competency for air





Written examination

Structured interview

Demonstration

Simulation

Collection of Evidence

- Annex A
- May use more than one type
- Not exhaustive
- Method appropriate for the task being assessed





Name

Task descriptions and  
performance

Description, copy or  
the location of the  
training material used  
for training

Date(s) of the  
assessment and  
training;

Description of, copy or  
reference to the  
assessment

The name of the  
person(s) or  
organization providing  
the training and  
assessment

The outcome of the  
assessment



# Additional Training



- CNSC
  - Radiation Protection
  - Applicable Regulations
- WHMIS
- IATA for air transport
- Etc.



Canada.ca > [Transport Canada](#) > [Corporate Services](#) > [Acts and regulations](#)

## Forward Regulatory Plan

From: [Transport Canada](#)

A forward regulatory plan is a public list or description of anticipated regulatory changes or actions that a department intends to bring forward or undertake in a specified time frame. It is intended to give consumers, business, other stakeholders and trading partners greater opportunity to inform the development of regulations and to plan for the future. It should be noted that this forward regulatory plan will be adjusted and updated over time as Transport Canada's operating environment also changes over time.

This plan provides information on planned and potential regulatory initiatives that Transport Canada expects to bring forward over the next two years. It also identifies public consultation opportunities and a departmental contact point for each regulatory initiative.

### Initiatives planned for April 2023 – April 2025

- [Aviation](#)
- [Marine](#)
- [Rail and surface](#)
- [Road safety](#)
- [Transportation of dangerous goods](#)

<https://tc.canada.ca/en/corporate-services/acts-regulations/forward-regulatory-plan>

Canada.ca | [Services](#) | [Departments](#) | [Français](#)

## Canadian Nuclear Safety Commission

[The Commission](#) | [Uranium](#) | [Reactors](#) | [Nuclear substances](#) | [Waste](#) | [Acts and regulations](#) | [Resources](#)

### The CNSC's Regulatory Framework Plan

[View the current Regulatory Framework Plan](#)  
[The Regulatory Framework Plan's structure](#)  
[Discussion topics, regulations and regulatory documents](#)  
[Sitemap](#)

The Canadian Nuclear Safety Commission (CNSC's) Regulatory Framework Plan sets out the regulations and regulatory documents that the CNSC plans to develop or amend. The CNSC's regulatory framework consists of laws passed by Parliament that govern the regulation of Canada's nuclear industry, and regulations, licences and documents that the CNSC uses to regulate the industry.

In keeping with the CNSC's commitment to stakeholder engagement, comments on specific documents, regulations and on the Plan are welcome at any time. Comments received will not be formally dispositioned, but will be used by the CNSC to evaluate the need for future amendments, and to make adjustments to the Plan. Suggestions and comments on the Regulatory Framework Plan may be submitted through our [e-consultation platform](#).

The Plan outlines the regulations and regulatory documents that the CNSC will be developing or amending in the coming years. Aligned with the CNSC's corporate priorities, the plan also considers current developments in the nuclear environment. It is reviewed regularly and adjusted as necessary.

The Plan includes all activities, from policy analysis through to the publication of regulations and regulatory documents. Documents are reviewed at least every five years. After review, the CNSC decides if they are still appropriate, or need to be updated.

#### The Regulatory Framework Plan's structure

The CNSC has recently reorganized its regulatory framework catalogue in order to develop a sustainable regulatory framework structure that better reflects the CNSC's current approach to regulating the nuclear industry. The new structure presents all existing documents and document projects in a clear and logical manner, according to:

- regulated facilities and activities
- safety and control areas
- other areas of regulatory interest

<https://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatoryplan/forward-regulatory-plan-details/index.cfm>



- First addressing questions posted in the Q&A
- To ask/comment on a question
  - use “raise hand” button
  - When asked, press spacebar or unmute to speak
  - If you prefer to type, do so and I will read it out
- Questions we do not get to
  - Answers will be posted to our website and link to resources emailed out





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***Thank you for listening!***

[www.radiationsafety.ca](http://www.radiationsafety.ca)

1-800-263-5803

[info@radiationsafety.ca](mailto:info@radiationsafety.ca)





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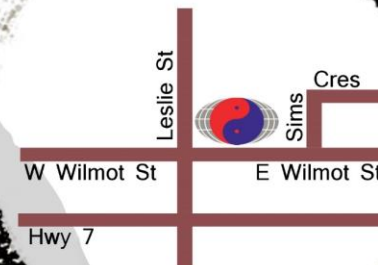
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Chief Instructor - Bao Sen Liang



10 East Wilmot St. Unit 21  
Richmond Hill, Ontario

Ji Hong Tai Chi & Qi Gong, Richmond Hill, ON



- Canadian General Standards Board: <https://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html>
  - CAN/CGSB-192.3 Transportation of Dangerous Goods Training, Assessment, and Competency standard:  
[https://publications.gc.ca/site/eng/9.893439/publication.html?\\_ga=2.259902794.1386476759.1668610751-1263749592.1668610750](https://publications.gc.ca/site/eng/9.893439/publication.html?_ga=2.259902794.1386476759.1668610751-1263749592.1668610750)
- Canada Gazette: <https://www.gazette.gc.ca/accueil-home-eng.html>
  - Canada Gazette, Part I, Volume 155, Number 50: Regulations Amending the Transportation of Dangerous Goods Regulations (Part 6 – Training): <https://www.gazette.gc.ca/rp-pr/p1/2021/2021-12-11/html/reg2-eng.html>



- Transport Canada: <https://tc.canada.ca/en>
  - Transportation of Dangerous Goods Act, 1992 (including amendments): <https://lois-laws.justice.gc.ca/eng/acts/T-19.01/>
  - Transportation of Dangerous Goods Regulations (including amendments): <https://lois-laws.justice.gc.ca/eng/regulations/SOR-2001-286/>
  - Transport Canada Forward Regulatory Plan: <https://tc.canada.ca/en/corporate-services/acts-regulations/forward-regulatory-plan>



- Canadian Nuclear Safety Commission (CNSC): <https://nuclearsafety.gc.ca/eng/>
  - Nuclear Safety and Control Act: <https://laws-lois.justice.gc.ca/eng/acts/n-28.3/>
  - Packaging and Transport of Nuclear Substances Regulations: <https://laws-lois.justice.gc.ca/eng/regulations/sor-2015-145/index.html>
  - Canadian Nuclear Safety Commission Forward Regulatory Plan: <https://nuclearsafety.gc.ca/eng/acts-and-regulations/regulatoryplan/forward-regulatory-plan-details/index.cfm>



- Federal Provincial Territorial Radiation Protection Committee (FPTRPC):  
<https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/understanding/federal-provincial-territorial-radiation-protection-committee.html>
- Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM)  
Volume III: Transportation: <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/health-risks-safety/guidelines-managing-naturally-occurring-radioactive-material-volume-3-transportation/27-20-2790-norm-guidelines-eng-final.pdf>



- IAEA Regulations for the Safe Transport of Radioactive Material:  
<https://www.iaea.org/publications/12288/regulations-for-the-safe-transport-of-radioactive-material>
- Technical Instructions For The Safe Transport of Dangerous Goods by Air (Doc 9284):  
<https://www.icao.int/safety/DangerousGoods/Pages/Doc9284-Technical-Instructions.aspx>





- Lynn MacDonald: <https://www.linkedin.com/in/tlynnmacdonald/>
- Laura Boksman: <https://www.linkedin.com/in/laura-b-6828a894/>
- Ji Hong Tai Chi & Qi Gong: <https://taichiontario.com/>
  - Charlmane Wong: <https://taichiontario.com/team/charlmane-wong/>