



DNSR Newsletter

CSA Developing Standard for Certification

As reported in the last edition of the *DNSR Newsletter*, the CNSC has asked the Canadian Standards Association (CSA) to develop an occupational standard for the certification of exposure device operators (EDOs) in Canada.

Industrial radiography devices, also known as exposure devices, are used to conduct non destructive testing and inspections to evaluate and confirm the integrity of various steel components and other materials — such as welds, metal castings, pressure vessels, high capacity storage containers, concrete, and civil structures like bridges, high-rise buildings and pipelines.

The CNSC regulatory oversight is to ensure that industrial radiography is conducted with a high level of safety and security in accordance with CNSC regulations and international standards, such as the International Atomic Energy Agency. The use of an exposure device is categorized by the CNSC and other international organizations as “high-risk” based on several inherent risk factors including source strength, ease of transport, increased radiation protection, emergency preparedness, personal protection, public safety and security.

A CSA occupational standard for the certification of EDOs will ensure the certification process addresses personal and public health, as well as the safety risks and device security risks inherent in the industry. It will include baseline knowledge requirements, together with CNSC certification, recertification and training requirements for exposure device operators.

The CSA has set up a Scheme Committee to develop the scope, eligibility requirements, prerequisites and other requirements for the competencies related to exposure device operators. Committee members represent stakeholders from across the country and have a mandate to identify the minimum competencies and knowledge required for an individual to safely and securely perform the work

of certified EDO. The Committee consists of 20 subject matter experts from the radiography industry, training providers, testing and servicing companies, government departments, and the CSA.

The Scheme Committee held its first meeting on June 7-9, 2011, at the CSA's head office in Mississauga, Ontario. A technical meeting to review the job task analysis took place in Calgary, Alberta, on September 27-29, 2011, where certified EDOs from across Canada identified key safety issues when performing industrial radiography work.

When developing a standard, CSA committee members aim for substantial agreement among the interest groups represented on the committee. The committee considers the views of all participants and develops the content by a consensus process but not necessarily unanimity. When a draft standard is agreed upon,

Continued on page 2.

In this issue

CSA Developing Standard for Certification	1
Radium Luminous Devices Remain Radioactive ...	2
Overview: Nuclear Substances and Radiation Devices Licensing Division	3
Federal Court Decision on Enviropac	3
DNSR Staff meets Recycling Industry	4
Proposed Amendments to the <i>Packaging and Transport of Nuclear Substances Regulations</i>	4
Annual Radiography Meetings	5
New Licence Application Guide for Nuclear Substances and Radiation Devices Coming Soon	5
Orders	6
CNSC Publishes DNSR Industry Report	8
Guide Published for the Service of Class II Prescribed Equipment	8



CSA Standard ... *continued from p.1*

it is submitted for both industry and public review and amended where necessary.

This new standard for the certification of EDOs will outline the requirements to

- Certify the knowledge, skills and abilities of personnel operating exposure devices
- Protect the health, safety and security of the public, workers and the environment
- Ensure the safety and security of exposure devices when used in Canada

- Meet the requirements of the *Nuclear Safety and Control Act* and its regulations
- Help promote a strong safety culture in the industry

The CNSC will regularly update the joint CNSC/Industry Radiography Working Group throughout the CSA standard development process. During the approval process, CSA will make the draft standard available to the industry and the public for review and comment. The CNSC invites interested parties to comment on the draft when it is made available. 

Radium Luminous Devices Remain Radioactive

Until the 1960s, various artifacts such as consumer and military products — like wristwatches, clocks, marine compasses and aircraft instruments — were manufactured using a radium based, glow-in-the-dark paint. These products are called radium luminous devices.


The most common radium luminous devices that may be seen today are historic aircraft instruments, and many of these can still be found in Canada. Although the radium remains radioactive for thousands of years, the paint in these devices usually breaks down chemically after several years, and may no longer glow in the dark. When new, the radium luminous paint was often white, but typically tarnished to yellow as it aged.

Radium luminous devices pre-date the regulation of nuclear substances, and are generally not identified or marked as containing nuclear substances. As long as the devices remain intact, the risk of contamination is very low. If the device is open or damaged, the radium inside may present a radiological risk if ingested, inhaled, or absorbed through an open wound in the skin.

Radium luminous devices sometimes inadvertently end up in scrap metal recycling facilities, where they set off the alarms on vehicle radiation portal monitoring systems. Although not required by CNSC regulations, many waste management operators have installed these radiation portal monitoring systems, to screen waste before committing it to landfills, or before compacting it for transport to landfills or to other recycling facilities.

If any of these devices are discovered at waste management or recycling facilities, the CNSC is available to provide advice on the identification and management of radium luminous devices. A poster and pamphlet —

published earlier this year on the CNSC Web site — would also be of particular interest to recycling facilities. Hard copies of the material, titled *Alarm Response Guidelines for Radiation Portal Monitoring Systems*, are available by contacting info@cnscccsn.gc.ca.

For information on identifying and removing radium luminous devices from scrap metal recycling facilities, or from public and private properties, please contact the CNSC at 1-800-668-5284, or email radium@cnscccsn.gc.ca. 



The writing on this broken aircraft dial (left) and the tips of the toggle switches (bottom), used to glow in the dark with radium luminous paint.



Overview: Nuclear Substances and Radiation Devices Licensing Division

What do road paving, making paper, heart attack patients, helicopter blades and hyperthyroid cats all have in common?

They all utilize nuclear substances and radiation devices licensed through the Nuclear Substances and Radiation Devices Licensing Division (NSRDLD) at the CNSC. These are only five of the almost 60 types of uses for which NSRDLD administers licences.

NSRDLD, within the Directorate of Nuclear Substance Regulation (DNSR), is composed of 11 Licensing Specialists, four Licensing Project Officers and the Director. On behalf of the CNSC, this division manages all aspects of licensing for approximately 2,500 active licences. On average, in addition to the 40 to 100 renewal applications per month, the NSRDLD also manages 40-70 licence amendments, 15-25 licence revocations, and 10-15 new licences on a monthly basis.


The licensing process starts with the submission of a request for a new licence, or the amendment, renewal or revocation of an existing licence. Applications can vary — from a simple email asking for new nuclear substances or radiation devices, up to whole binders of documents comprising a complete operations and radiation safety program, as part of a new application or submission for renewal.

Licensing Specialists use their expert judgement, knowledge of the use of nuclear substances and radiation devices, and well established assessment criteria to ensure the applicant is qualified to undertake the proposed licensed activities. If the Licensing Specialist has questions or concerns, they can draw upon the resources of the division, other groups within the Directorate or broader resources in the CNSC. The division has regular weekly meetings to discuss licensing issues and develop policies to ensure consistency of licensing actions.

Once the Licensing Specialist is satisfied that the submission meets all required criteria, the application is forwarded through a Licensing Project Officer to the Division Director, as the officer designated by the Commission Tribunal to make the final decisions on all licensing matters.

NSRDLD has been involved in many different initiatives, including extending the implementation of financial guarantees for all CNSC licensees, and attending information sessions and meetings to explain the financial guarantee system. Of particular interest is the consolidation of ten different licence application guides into one guide and form RD/GD-371, *Licence Application*

Guide for Nuclear Substances and Radiation Devices Licences, to simplify the licensing process and clarify regulatory expectations for applicants. RD/GD-371 will significantly improve the licensing process.

The work of NSRDLD remains challenging, due to the number of licences and the variety of issues that arise every day. Dealing with people from across Canada and around the world creates a unique work environment for NSRDLD staff, and provides opportunities for them to interact directly with industry and the Canadian public, in order to support the mandate of the CNSC. 




NSRDLD staff members, like Paul Matthews above, have attended numerous information sessions and meetings with licensees to explain the financial guarantee system.

Federal Court Decision on Enviropac

On June 9, 2011, the Federal Court of Canada granted the Canadian Nuclear Safety Commission (CNSC) an order to dispose of the nuclear substances and prescribed equipment seized from 588972 Alberta Ltd. — operating as Enviropac — in Edmonton, Alberta.

Following Commission Tribunal proceedings held in December 2006 and February 2007, the CNSC suspended the storage, processing and calibration licences issued to Enviropac. In 2008, the CNSC took possession of all nuclear substances and prescribed equipment located at Enviropac's premises. An application to the Federal Court was subsequently filed by the CNSC on December 20, 2010, to seek approval to dispose of all materials seized.

With this [Federal Court order](#), the CNSC is permitted to send the nuclear substances and radiation devices for disposal at a licensed waste management facility. 

DNSR Staff Meets with Recycling Industry

The majority of scrap metal recycling facilities in Canada are not CNSC licensees. In order to protect their facilities, they use radiation portal monitoring systems to identify the presence of nuclear substances coming onto their property. By doing so, they may inadvertently come into the possession of nuclear substances, including orphaned radioactive sources.

As non-licensees, these facilities are likely not aware of their regulatory obligations under the *Nuclear Safety and Control Act* and its associated regulations. As part of the CNSC's ongoing outreach activities, members of the Directorate of Nuclear Substance Regulation (DNSR) met with the Ontario chapter of the [Canadian Association of Recycling Industries \(CARI\)](#) on May 16, 2011, in Hamilton, Ontario. Much of the discussions with Sylvain Faille and Jennifer Pyne (Director and, respectively, Program Officer with the Transport Licensing and Strategic Support Division), and Henry Rabski (Director of the Operations Inspection Division), revolved around the CNSC's Orphan Source Regulatory Program.

Presenting at CARI chapter meetings is a great way for the CNSC to pass on valuable information about orphan sources and naturally occurring nuclear substances (NONS) — also known as naturally occurring radioactive material (NORM). During the week of September 12, 2011, DNSR staff also attended CARI chapter meetings in Vancouver, Red Deer, Winnipeg and Moncton.

These meetings were well attended, and CARI members posed some interesting and challenging questions about radiation portal monitoring systems, while also providing insight into their own experiences with finding radioactive sources or NONS in scrap metal arriving at their yards.

Proposed Amendments to *Packaging and Transport of Nuclear Substances Regulations*

The Canadian *Packaging and Transport of Nuclear Substances Regulations* (PTNSR) reference the International Atomic Energy Agency (IAEA) TS-R-1, *Regulations for the Safe Transport of Radioactive Materials*, 1996 Edition (Revised), published in 2000. The CNSC is proposing to review the PTNSR to incorporate the changes brought by the [2009 Edition of the IAEA's TS-R-1 Regulations](#).

For the most part, the IAEA TS-R-1 2009 Edition does not create new requirements; however, it has been restructured to harmonize with the United Nations' *Recommendations on the Transport of Dangerous Goods*.

Of particular interest to attendees was an overview presentation of a CNSC poster and pamphlet published earlier this year on the CNSC Web site, titled *Alarm Response Guidelines for Radiation Portal Monitoring Systems*. Copies of the poster and pamphlet were also made available to attendees.

The CNSC plans to attend a CARI chapter meeting in Quebec in 2012, and is engaged in continuing to work with the association and with the recycling industry to address issues related to radiation detection and NONS. The CNSC would also like to thank CARI for the invitation to participate in their chapter meetings. ☺



Pictured above are CARI Executive Director, Len Shaw; Henry Rabski, CNSC Director of Operations Inspection Division; Jennifer Pyne, CNSC Program Officer in the Transport Licensing and Strategic Support Division; and CARI President, Bertrand Van Dorpe.

In addition, the PTNSR are being examined to determine if modifications are needed to address:

- the movement of unidentified loads that trigger radiation portal monitoring systems
- clarity and consistency issues, as well as overlaps with other regulations that have been identified since the PTNSR were last amended

As the CNSC updates information on the proposed amendments to the *Packaging and Transport of Nuclear Substances Regulations*, details will be posted on the CNSC Web site. We encourage stakeholders to provide comments on the revised regulations, once they become available. ☺



Annual Radiography Meetings


This year, the CNSC organized again the annual meetings with the radiography industry, in Ottawa on May 12th, and Leduc, Alberta, on May 25th. The joint CNSC/Industry Radiography Working Group presented updates on communication initiatives, compliance performance and notification requirements. In addition, the CNSC provided information on the upcoming implementation of financial guarantees for licensees using nuclear substances and security requirements for exposure device operators.

As part of the technical program, a number of presentations were made, including:

- Chris Spencer, of Spencer Manufacturing, on the safety aspects of radiography equipment
- Tom Levey, of Acuren Group, on the essential components of an emergency response kit
- Alina Martin, of Danetec, on training programs
- Kip Bennett, of Mirion Technologies, on new personal monitoring equipment
- André Régimbald, Director General of the CNSC's Directorate of Nuclear Substance Regulation, provided

an update on the CNSC initiative to engage the Canadian Standards Association to develop a standard for the certification of exposure device operators

- Henry Rabski, Director of the DNSR Operations Inspection Division, on compliance performance
- Karen Mayer, a DNSR licensing project officer, on reported radiography events

The turnout for both sessions was excellent and allowed those present the opportunity to discuss, with their colleagues and representatives from the CNSC, issues related to the safe use of exposure devices. 

Accidents involving portable gauges are preventable. To read how, *click here*.

New Licence Application Guide for Nuclear Substances and Radiation Devices Published

The CNSC's Nuclear Substances and Radiation Devices Licensing Division (NSRDLD) is responsible for approximately 2,500 licences, covering almost 60 different uses of nuclear substances and radiation devices.

About a year ago, as part of the continuous improvement process, NSRDLD staff began to review existing CNSC licence application guides, to ensure the guides were consistent and clear, as well as to address long-standing concerns with these documents

Several guiding principles were established early in the process:

- minimize the number of licence application guides
- make the application guides clear and transparent to meet CNSC staff expectations
- increase the amount of guidance information available
- standardize the collection of information

This resulted in the development of an application guide and form titled *RD/GD-371, Licence Application Guide for Nuclear Substances and Radiation Devices Licences*.

The application guide and form are divided into five parts that request applicants to provide information on the following:

Part A - Applicant information

Part B - Purpose of the proposed licence

Part C - Radiation protection program authority


Part D - Radiation safety program policies and procedures

Part E - Specific requirements based on proposed licence activity

NSRDLD is also implementing a new *Applicant Authority Form*, which is much more comprehensive, and requires the person signing the form to acknowledge their awareness of:

- the application
- the applicant's regulatory obligations
- reporting requirements for licensees

RD/GD-371 will benefit all stakeholders in the licensing process. Through the development of this new licence application guide and form, the process will be simplified and clarified, which will facilitate the submission of licence applications to the CNSC.

The new *Licence Application Guide for Nuclear Substances and Radiation Devices Licences* guidance document and form, as well as the *Applicant Authority Form*, are now published on the CNSC Web site. 



Orders

These regulatory actions were taken by the CNSC between May 1, 2011, and September 30, 2011.

On May 18, 2011, the CNSC issued an order to **Stewart, Weir & Co. Ltd.** of Sherwood Park, Alberta, a geotechnical and construction consulting company. The order is related to the company's licensed activities, conducted at the Kearl Oil Sands project, north of Fort McMurray, Alberta.

The order was issued as a result of a CNSC inspection, and required the company to cease the use of radiation devices and place them in secure storage, until the company could demonstrate that

- management control over work practices has been established
- a radiation protection program has been fully implemented
- an effective training and qualification program has been established

On June 3, 2011, the CNSC confirmed that Stewart, Weir & Co. Ltd. had complied with all the terms and conditions of the order.

On July 7, 2011, the CNSC issued an order to **AR Geotechnical Engineering Ltd.** of Medicine Hat, Alberta, a consulting firm that provides geotechnical, environmental and material engineering services for South/Central Alberta and Saskatchewan.

The order was issued as a result of observations made during a CNSC inspection and required the company to place all its nuclear substances and radiation devices in secure storage until the company could demonstrate that

- a radiation protection program has been fully implemented
- workers and managers have received adequate training on the company's radiation protection program
- all items of non-compliance have been addressed

On August 29, 2011, the CNSC confirmed that AR Geotechnical Engineering Ltd. had complied with all the terms and conditions of the order.

On July 13, 2011, the CNSC issued an order to **Mistras Canada Inc.**, a company based in Olds, Alberta, that provides non-destructive testing and inspection for the oil and gas industry in Western Canada. The order required the removal of a certified exposure device operator from all regulated activities (except transport) until Mistras Canada Inc. could demonstrate, that the operator would no longer present a risk to the health and safety of persons.

The order was issued as a result of a CNSC inspection conducted at a Midway Energy pipeline project near Olds, Alberta. The operator was unsafely performing non-destructive testing, and was deemed to pose an unreasonable risk to the health and safety of himself and the public.

On July 28, 2011, the CNSC confirmed that Mistras Canada Inc. had complied with all the terms and conditions of the order.

On August 10, 2011, the CNSC issued an order to **Advance Testing Ltd.**, a consulting firm based in Surrey, British Columbia, which provides geotechnical, environmental and material engineering services. The order required the company to place all nuclear substances and radiation devices in secure storage until the company could demonstrate that

- a radiation protection program has been fully implemented
- management control over work practices has been established
- all items of non-compliance have been addressed

The order was issued following a series of CNSC inspections on August 9, 2011. These inspections revealed that there was no effective implementation of the radiation safety training program in the field. The recorded observations included a lack of adherence to the company's radiation protection program, and inadequate provisions made for the transport of nuclear substances.

On August 23, 2011, the CNSC confirmed that Advance Testing Ltd. had complied with all the terms and conditions of the order.

On August 23, 2011, the CNSC issued an order to **770088 Alberta Ltd.** (operating as EnviroGeo Testing), a company based in Medicine Hat, Alberta, which provides geotechnical, environmental and materials testing services. The order required the company to place all radiation devices in secure storage until the company could demonstrate that

- workers have received adequate training on the company's radiation protection program
- all items of non-compliance have been addressed

The order was issued following a CNSC inspection that revealed that the company's staff had insufficient knowledge and training to carry out their licensed activity safely. The placement of the radiation devices in storage

Continued on page 7.



Orders... *continued from p.6*

did not pose any risk to the health and safety of workers, the public, or the environment.

On September 19, 2011, the CNSC confirmed that EnviroGeo Testing had complied with all the terms and conditions of the order.

On August 26, 2011, the CNSC issued an order to **Pazin Geotechnical Services Ltd.**, a company based in Toronto, Ontario, which provides geotechnical engineering services. The order required the company to transfer all radiation devices to another CNSC licensee, authorized to possess these radiation devices. The order was issued as a result of Pazin Geotechnical Services Ltd. failing to submit an application to renew their CNSC licence.

Since the company's CNSC licence expired on August 31, 2011, Pazin Geotechnical Services Ltd. is no longer authorized to possess radiation devices.

On September 29, 2011, the CNSC confirmed that Pazin Geotechnical Services Ltd. has complied with all the terms and conditions of the order.

On September 12, 2011, the CNSC issued an order to **The Graff Company ULC**, a company based in Brampton, Ontario, which provides non-destructive testing services to various industries. The order required the company to place all radiation devices into secure storage until the company could demonstrate that

- a radiation protection program has been fully implemented



Radiation protection programs and adequate worker training are important in safeguarding the health and safety of workers, the public, and the environment.

- workers have received adequate training on the company's radiation protection program
- all items of non-compliance have been addressed

The order was issued following a CNSC inspection that revealed that the company's staff had insufficient knowledge and training to carry out its licensed activity safely, and that the company was not adhering to all of its regulatory obligations for the radiation devices in its possession.

On October 24, 2011, the CNSC confirmed that The Graff Company ULC had complied with all the terms and conditions of the order.

On September 22, 2011, the CNSC issued an order to **Global Engineering and Testing Ltd.**, a company based in Calgary, Alberta, which provides geotechnical, environmental and materials testing services. The order required the company to keep all nuclear gauges in storage, until the company could demonstrate that

- workers have received adequate training on the company's radiation protection program
- all items of non-compliance have been addressed


The order was issued following a CNSC inspection that revealed that the company's staff had insufficient knowledge and training to safely carry out their licensed activity.

On October 28, 2011, the CNSC confirmed that Global Engineering and Testing Ltd. had complied with all the terms and conditions of the order.

On September 29, 2011, the CNSC issued an order to the **Memorial University of Newfoundland**. The university, based in St. John's, Newfoundland and Labrador, conducts research in several scientific fields using nuclear substances, including biology, chemistry and geology.

The order required the university to review the implementation of its radiation protection program, and to correct the causes of re-occurring non-compliances. The university must also incorporate corrective actions to the program, in order to ensure the health and safety of university staff, the public and the environment.

The order was issued following a CNSC inspection that found that the licensee was not complying with those requirements resulting from its internal management of the radiation protection program.

On November 17, 2011, the CNSC confirmed that Memorial University of Newfoundland had complied with all the terms and conditions of the order. 



CNSC Publishes DNSR Industry Report

A report on the safety performance of specific nuclear sectors regulated by DNSR was recently published by the CNSC. This inaugural safety report is titled *Nuclear Substances in Canada: A Safety Performance Report for 2008 and 2009*. Areas examined include the use of nuclear substances in medical, industrial and commercial applications, as well as for academic and research purposes.

The safe use of nuclear substances requires compliance with the *Nuclear Safety and Control Act*, CNSC regulations and licence conditions, as well as minimization of incidents and occupational radiation doses. For this report, safety

performance is measured in terms of licensees' regulatory compliance, reported incidents and occupational doses.

In general, the medical, industrial, academic and research, as well as commercial sectors exhibited positive gains in compliance in 2009. Results with respect to occupational doses show that they were well within regulatory limits, with the vast majority of workers receiving less than the prescribed public dose limit of 1 mSv per year. There were no serious events or incidents reported in 2008 and 2009.

To request paper copies of *Nuclear Substances in Canada: A Safety Performance Report for 2008 and 2009*, in either official language, contact info@cnsccsn.gc.ca.

Web Content Suggestions

The CNSC is committed to providing Web content to assist you with your regulatory information needs. If you have suggestions for specific content on the CNSC Web site or in the *DNSR Newsletter* that would be helpful to you and other DNSR licensees, send your comments to info@cnsccsn.gc.ca.

Guide Published for the Service of Class II Prescribed Equipment

The CNSC has published RD/GD-207, *Licence Application Guide – Service Class II Prescribed Equipment* and a related form.

RD/GD-207 provides information to current and prospective licensees on how to complete and submit an application for a licence to service Class II prescribed equipment, in accordance with the *Nuclear Safety and Control Act* (NSCA) and its regulations.

Before issuing a licence, the CNSC reviews these applications to ensure the applicant is qualified, has made

adequate provision for the protection of the environment and the health and safety of persons, and meets the requirements of the NSCA and its regulations.

While the guide and application form have been in use for many years, the CNSC is updating and finalizing the documents to reflect current requirements and practices.

To request paper copies of RD/GD-207, *Licence Application Guide – Service Class II Prescribed Equipment* and the related form, in either official language, contact info@cnsccsn.gc.ca.

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The *DNSR Newsletter* is a CNSC publication. If you have any suggestions on topics or issues that you would like to see covered, please do not hesitate to contact us.

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