Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

SAFETY STARTS WITH PEOPLE LIKE US

ANNUAL REPORT 2018–19

CNSC CCSN

Canada

The Canadian Nuclear Safety Commission regulates all nuclear facilities and activities in Canada from uranium mining to power generation, nuclear research, nuclear facilities and prescribed equipment, transportation of radiological substances, industrial and medical applications of nuclear materials, and waste disposal.

We strive to ensure that Canadian nuclear activities are among the safest and most secure in the world.

As leaders in our field we are experts with a strong focus on action: We enforce our very strict regulatory requirements and vigilantly monitor licensees to verify they are following the rules.

VISION

To be the best nuclear regulator in the world.

MISSION

The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect health, safety, security and the environment; to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific technical and regulatory information to the public.

WE REGULATE THE NUCLEAR INDUSTRY IN CANADA TO KEEP CANADIANS SAFE.

LETTER TO THE MINISTER

THE HONOURABLE AMARJEET SOHI
MINISTER OF NATURAL RESOURCES
OTTAWA, ONTARIO

Sir:

I have the honour of presenting you with the Canadian Nuclear Safety Commission's annual report for the fiscal year ending March 31, 2019. The report has been prepared and tabled in accordance with section 72 of the *Nuclear Safety and Control Act*.

Rumina Velshi
President and Chief Executive Office
Canadian Nuclear Safety Commission

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MESSAGE FROM THE PRESIDENT

I am pleased to present to you my first annual report as President and Chief Executive Officer of the Canadian Nuclear Safety Commission (CNSC). As I look back on my first year in this role, I am proud of the work we have accomplished together.

Prior to my appointment, I had the pleasure of serving as a CNSC Commission member for almost six years. For more than 30 years before that, I worked as a scientist and nuclear engineer. This is to say that I have a great appreciation for the work that the CNSC and its staff carry out.

This annual report features short employee profiles in addition to the details about our regulatory program activities. These brief biographies of CNSC staff give readers a more personal look at the people who commit themselves to the CNSC's work regulating the use of nuclear energy and materials in Canada to protect health, safety and the environment.

I would also like to touch on the CNSC's four key priorities:

- to have a modern approach to nuclear regulation
- to be a trusted regulator
- to maintain our global nuclear influence
- to improve management effectiveness

A modern approach to nuclear regulation follows science-based, risk-informed and technically sound regulatory practices that take into account uncertainties and evolving expectations. It means ensuring we have a strong regulatory safety culture that encourages open, professional and respectful scientific debate. A modern approach also allows us to evaluate the regulatory implications of new and innovative nuclear technologies, and to ensure that the CNSC is ready to regulate Canada's nuclear sector today and in the future.

Being a trusted regulator means being recognized by the public, Indigenous peoples and industry as independent, strong, competent and transparent, and as a credible source of scientific, technical and regulatory information.

The key to maintaining our global influence is to collaborate more closely and more frequently, and to do so with a clear purpose. Cooperation, whether domestic or international, is vital to ensuring international nuclear safety. While nuclear energy is being phased out in some countries, it is expanding in many others, bringing with it new and developing regulatory frameworks and infrastructure. It is important that we at the CNSC continue sharing our own best practices and knowledge, while also learning from others. It is part of our commitment to continuous improvement.

The CNSC will continue to improve management effectiveness to ensure that it is agile, highly skilled, representative of Canada's diverse population, and that it is supported by modern management practices and tools that allow us to respond to an evolving workforce and industry.

Finally, in addition to these priorities, I have made it a personal goal to promote careers in science, technology, engineering and mathematics – or STEM disciplines – especially for girls and women. What better way to adapt to a changing world than to infuse our industry with new energy and new perspectives – and ensure that it is attracting the best and brightest of all genders. I am proud to work for an organization that values diversity and inclusion.

The first year of my presidency has been incredibly enriching and informative and I look forward to continuing my work with the many stakeholders who have a vested interest in our regulatory activities.

Rumina Velshi

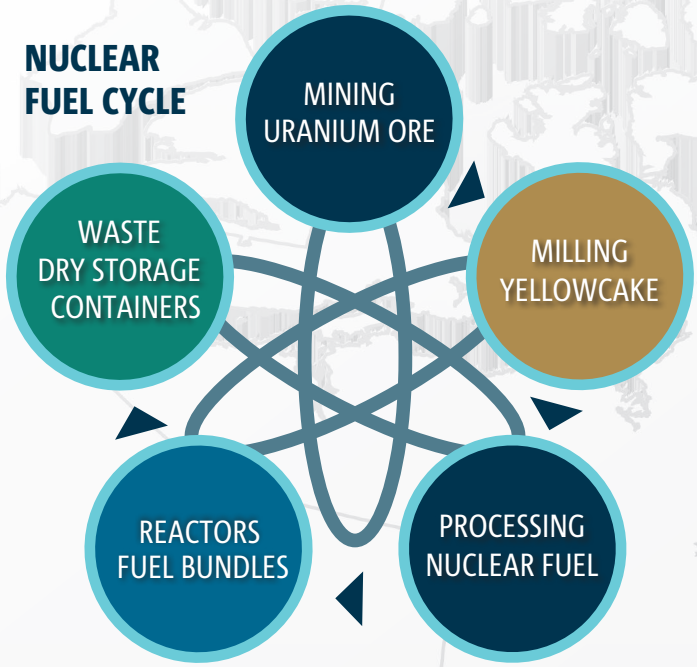
CANADA'S NUCLEAR REGULATOR

WHO WE ARE

The Canadian Nuclear Safety Commission (CNSC) regulates all nuclear facilities and activities in Canada, including the nuclear fuel cycle.

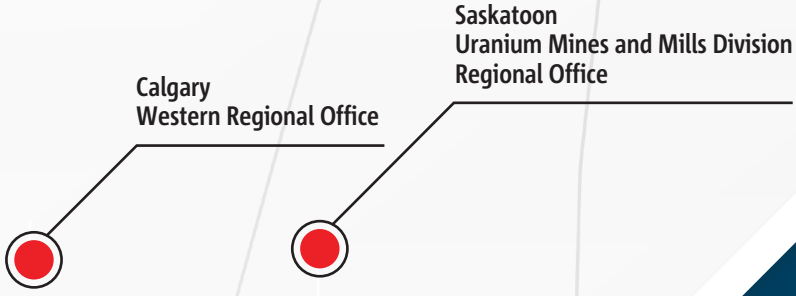
WHAT IS THE NUCLEAR FUEL CYCLE?

The nuclear fuel cycle starts with uranium mining, followed by the processing of uranium into fuel for nuclear power plants. After the fuel has been used in nuclear reactors, the CNSC also regulates the safe management of the nuclear waste. Beyond the fuel cycle, the CNSC monitors and ensures the safe use of nuclear materials in medicine, research and other industries.



CNSC REGULATES

- Uranium Mines and Mills
- Nuclear Processing and Research
- Nuclear Power Generation
- Nuclear Medicine
- Nuclear Substances and Transportation
- Waste Management
- The Environment
- National Security & International Commitments



REPORTING

Publishing regulatory actions and reports

CNSC actions are widely communicated to the public, including government, licensees, stakeholders and Indigenous peoples.

HOW WE WORK

The CNSC is Canada's nuclear regulator. It is composed of a Commission that is completely independent, and is supported by highly skilled, professional staff who are dedicated and committed to protecting health, safety, security and the environment with respect to all types of authorized nuclear activity.

LICENSING AND CERTIFICATION

Reviewing and assessing applications to ensure that requirements are met

Reviews ensure that all those who carry out nuclear-related activities are qualified and capable of undertaking these activities safely.

SETTING REQUIREMENTS

Setting expectations, clarifying when needed and seeking feedback

Requirements are established through legislation, regulations, licences and licence conditions, and regulatory documents, with ongoing consultations with CNSC stakeholders.

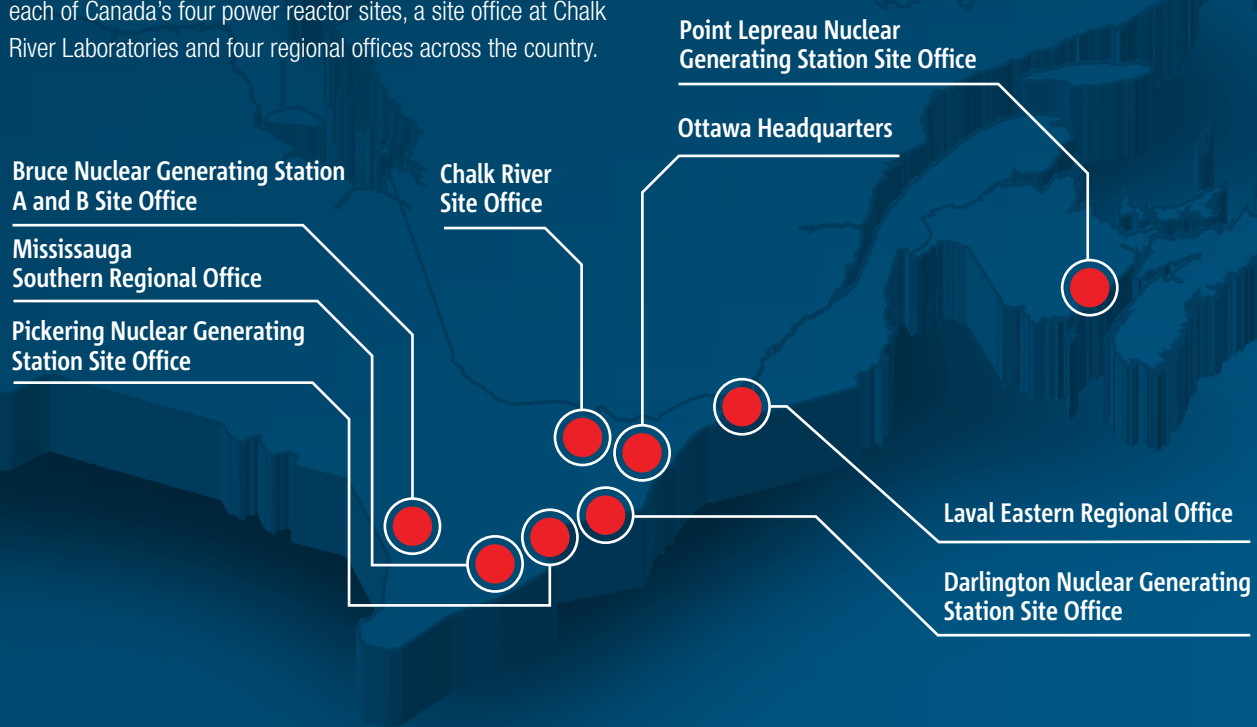
OVERSEEING COMPLIANCE

Verifying that licensees are following the conditions of their licences

Inspections and reviews are conducted to monitor licensee activity, and to ensure that appropriate corrective measures are taken to address and correct deficiencies or non-compliances.

WHERE WE WORK

The CNSC's headquarters are in Ottawa and we have offices at each of Canada's four power reactor sites, a site office at Chalk River Laboratories and four regional offices across the country.



SAFETY STARTS WITH PEOPLE LIKE US

THE CNSC STAFF AND THEIR COMMITMENT

This annual report is dedicated to the talented women and men who work for the Canadian Nuclear Safety Commission – Canada's nuclear regulator.

We are more than 900 people who dedicate ourselves every day to regulating all nuclear activities and facilities in Canada and to ensuring that they are safe for Canadians and our environment.

The CNSC has the regulatory power to protect the environment and this responsibility is reflected in all our licences. Our regulatory processes and actions rigorously enforce environmental protection.

Our workforce of scientific technical experts and support personnel is composed of a diverse group of individuals. All play an important role in achieving our mandate.

The CNSC is proud to be an inclusive workplace, and is committed to building a skilled workforce that reflects Canadian society. We see diversity and inclusion in the workplace as critical to building a healthy environment, where different viewpoints spur innovation and improve results.

Throughout the report, you will meet a few of the many CNSC staff members who are proud to be serving Canadians by ensuring nuclear safety in Canada and contributing to Canada's success story.

The CNSC staff and their commitment to their work are integral to our motto: "We will never compromise safety."

PLAYING A KEY ROLE IN SUPPORTING WOMEN IN THE FIELDS OF SCIENCE, TECHNOLOGY, ENGINEERING AND MATH (STEM)

Karina Lange is passionate about encouraging women who want to enter and lead in the STEM fields. A PhD in Engineering and graduate of Queen's University in Kingston, Ontario, she has had a diverse career in her 10 years at the CNSC. Currently a Senior Project Officer in the Wastes and Decommissioning Division, she has also worked in the scientific specialists group of the Technical Support Branch. Karina also teaches and uses this opportunity to initiate programs at Carleton University in Ottawa and at Queen's to promote effective learning for women in the hard sciences.

This experience and dedication made Karina a natural choice for a special assignment to lead an internal effort to develop a strategy and work plan for the Women in STEM (WISTEM) initiative at the CNSC.

In announcing the nomination of Karina as a Special Advisor to the WISTEM initiative, CNSC President Rumina Velshi stated, "It is my belief that the nuclear industry benefits from diverse voices and diverse leadership. As a science-based organization within a government dedicated to the advancement of women and minorities, the CNSC can and should show progress in this area."

Karina is leading a tiger team of both women and men who will develop a strategic plan and actions to not only support and encourage women to enter the STEM fields, but also remain in these fields and assume leadership roles. "An important part of the work is to encourage women to remain in the sciences and assume positions of leadership," says Karina. "We are seeing a growing pool of women coming in, but we also need to give them the right tools to take on greater responsibility and lead."

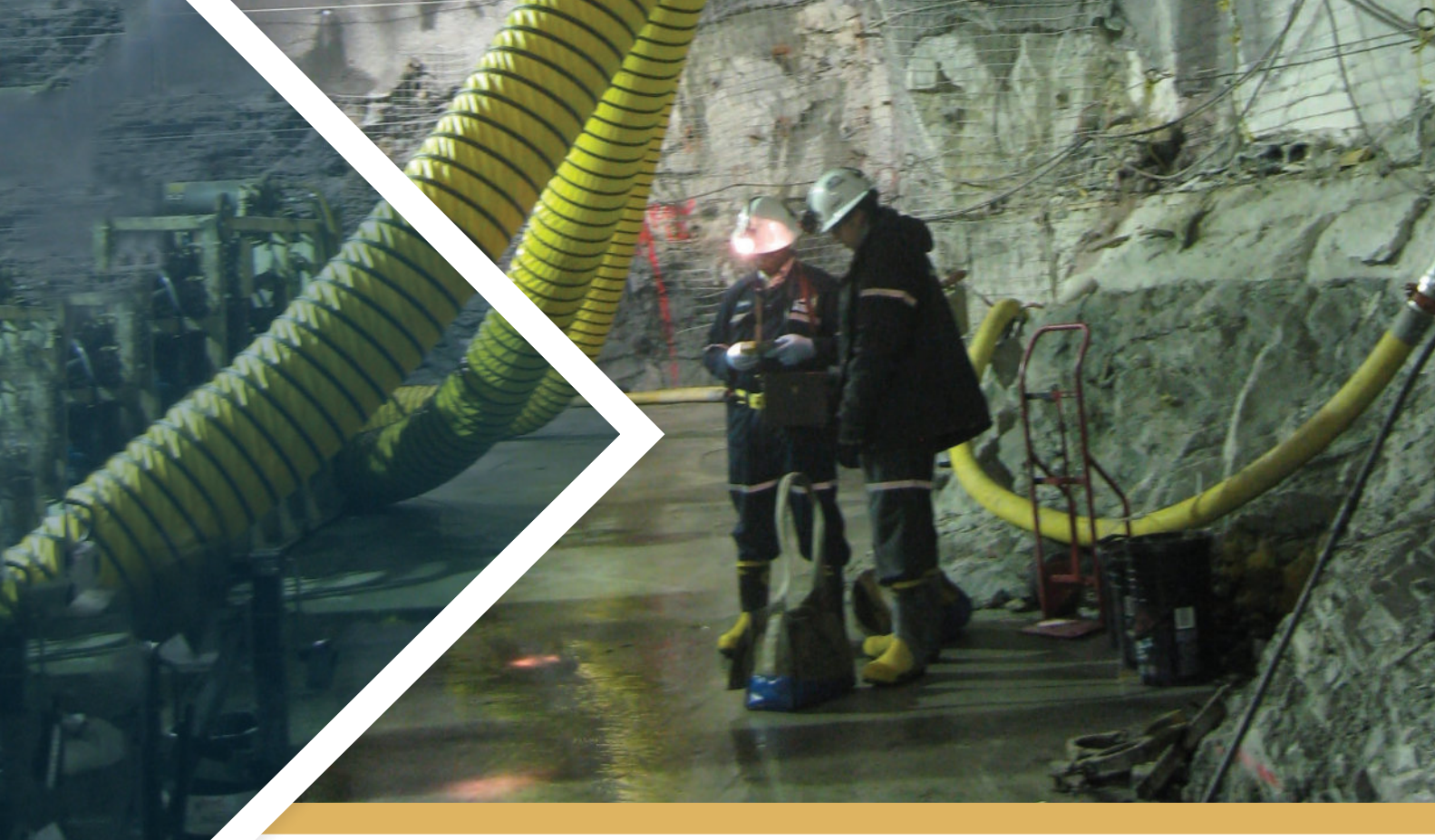
THE CNSC'S REGULATORY OBJECTIVE

Safe and secure nuclear installations and processes used solely for peaceful purposes, and a public that is informed about the effectiveness of Canada's nuclear regulatory regime.

To support this objective, the CNSC has five regulatory programs:

- Nuclear Fuel Cycle Program
- Nuclear Reactors Program
- Nuclear Substances and Prescribed Equipment Program
- Nuclear Non-Proliferation Program
- Scientific, Regulatory and Public Information Program

WE ARE MORE THAN 900 PEOPLE WHO DEDICATE OURSELVES EVERY DAY TO REGULATING ALL NUCLEAR ACTIVITIES AND FACILITIES IN CANADA AND TO ENSURING THAT THEY ARE SAFE FOR CANADIANS AND OUR ENVIRONMENT.



NUCLEAR FUEL CYCLE PROGRAM

This program regulates facilities associated with the nuclear fuel cycle, specifically nuclear processing facilities, nuclear waste management facilities, and uranium mines and mills. The program regulates all the lifecycle stages for these facilities – from site preparation, construction and operation, to decommissioning (or long-term management, in the case of some nuclear waste facilities).

Number of radiation exposures over the allowable dose limits for nuclear energy workers and members of the public	0
Number of radiological releases to the environment above regulatory limits	0
Percentage of uranium mines and mills that received a rating of satisfactory or above in meeting CNSC requirements	100%
Percentage of uranium and nuclear processing facilities that received a rating of satisfactory or above	100%
Percentage of nuclear waste management facilities that received a rating of satisfactory or above	100%

NUMBER OF REGULATORY INSPECTIONS OF NUCLEAR FUEL CYCLE PROGRAM LICENSEES IN 2018–19

26
Uranium Mines and Mills

36
Uranium and Nuclear Processing Facilities

25
Nuclear Waste Management Facilities and Major Decommissioning Projects

NUCLEAR FUEL CYCLE PROGRAM HIGHLIGHTS FOR 2018–19

Each year, the CNSC publishes a report on the performance of Canada's uranium and nuclear substance processing facilities.

The report focuses on the three safety and control areas (SCAs) of radiation protection, environmental protection, and conventional health and safety, as these are key performance indicators. It also tracks the ratings of the 11 other SCAs, including waste management, and emergency management and fire protection. The report is presented at a public Commission meeting, and the public is invited to make written interventions to the Commission and apply to the CNSC's Participant Funding Program to assist with those submissions.

Based on inspections and reviews conducted during the year, CNSC staff concluded that Canada's uranium and nuclear processing facilities operated safely. This conclusion was based on the following:

- Radiation protection measures were effective and doses remained as low as reasonably achievable (ALARA).
- No worker received a radiation dose that exceeded the regulatory limit.
- The frequency and severity of injuries/accidents involving workers were minimal.
- All conventional health and safety programs were effective in protecting workers.
- No member of the public received a radiation dose that exceeded the regulatory limit.
- All environmental protection programs were effective and their results were ALARA.
- Licensees complied with their licence conditions concerning Canada's international obligations.

Uranium Mines and Mills

Uranium is a naturally occurring radioactive element used for fuel in nuclear power reactors. Canada is one of the world's largest uranium producers. The majority of Canada's production is exported.

Uranium is mined to provide uranium ore, which is processed at a milling facility to produce uranium concentrate. The uranium concentrate is then processed further to create fuel for nuclear reactors.

The CNSC is responsible for regulating and licensing all existing and proposed uranium mining and milling operations in Canada.

At this time, all operating uranium mines and mills in Canada are located in northern Saskatchewan. Orano Canada (formerly AREVA Resources Canada Inc.) and Cameco Corporation are the licensees of the active mining and milling facilities:

- Cigar Lake Mine
- Key Lake Mill (currently in suspended production)
- McArthur River Mine (currently in suspended production)
- McClean Lake Mill
- Rabbit Lake Mine and Mill (currently in suspended production)

To learn more about uranium mines and mills and their safe regulation, refer to the CNSC's online resources, including:

- Overview of Uranium Mining – How mines work and how the CNSC keeps them safe
- Life of a Uranium Mine in Canada – Safe and responsible mining operations
- Parts of a Uranium Mine – Explore a mine from top to bottom
- Fact or Fiction: Mining Edition – You don't know what you don't know till you know!

LICENSING AND REGULATORY ACTIVITIES AT CANADA'S NUCLEAR FUEL CYCLE FACILITIES

Uranium Mines and Mills

Licence application for a new uranium mine and mill at Patterson Lake, Saskatchewan

On February 14, 2019, NexGen Energy Ltd. submitted a project description along with an application for a licence for a new uranium mine and mill on the Patterson Lake peninsula in the southwestern Athabasca Basin in northern Saskatchewan, approximately 155 km north of La Loche, Saskatchewan.

The CNSC licensing process begins with a sufficiency review of the application. If the project description is assessed as complete, the next step will be to issue a notice of commencement. The project description will then become available for public comment as part of the environmental assessment process.

CNSC receives a project description – new in situ recovery uranium mine Athabasca Basin

On February 19, 2019, Denison Mines Corp. submitted a project description with the intent to develop an in situ recovery uranium mine in the Athabasca Basin in northern Saskatchewan, 4 km west of Highway 914 and approximately 600 km north of Saskatoon.

If the CNSC assesses the project description as complete, the next step will be to issue a notice of commencement. The project description will then become available for public comment as part of the environmental assessment process.

Learn more about the CNSC's role in licensing uranium mines and mills and about the CNSC's environmental assessment process.

CNSC releases Independent Environmental Monitoring Program results for Cluff Lake and an update on McClean Lake

Through its Independent Environmental Monitoring Program (IEMP), the CNSC analyzed the 2017 sampling results from the Cluff Lake closed mine site and updated the 2016 results from the McClean Lake Operation. The McClean Lake results now include radon in ambient air, based on samples collected over a one-year period. The results are available on the CNSC website and confirm that the public, Indigenous communities and the environment around these sites are protected and that there are no expected health impacts.

Orano Canada Inc. (formerly AREVA Resources Canada Inc.) is licensed by the CNSC to operate the McClean Lake Operation and the Cluff Lake closed mine site. Both sites are located in the Athabasca Basin region of northern Saskatchewan. The McClean Lake site has been in operation since 1999 and includes a uranium mill and tailings management facility. The Cluff Lake site was shut down in 2002 and consisted of a uranium mine, mill and tailings management area. Major decommissioning activities were completed in 2006.

The IEMP was implemented to verify that the public, Indigenous communities and the environment around licensed nuclear facilities are safe. It is separate from, but complementary to, the CNSC's ongoing compliance verification program. The IEMP involves taking samples from public areas around the facilities, and measuring and analyzing the amount of radioactive and hazardous substances in those samples. For the uranium mines and mills, samples are sent to a third-party laboratory for testing and analysis.

More information on the results from the Cluff Lake site and the McClean Lake Operation is available on the CNSC's website.

Nuclear Waste Management Facilities

Hearing in writing held to consider an application from Canadian Nuclear Laboratories

The CNSC conducted a hearing based on written submissions in March 2019. The hearing considered an application from Canadian Nuclear Laboratories (CNL) to amend the release limits of liquid effluent in its waste nuclear substance licence for the Port Granby Long-Term Low-Level Radioactive Waste Management Project (Port Granby Project). The Port Granby Project site is located in the municipality of Clarington, Ontario.

The previous licence contains release limits specific to now-decommissioned and dismantled waste water treatment facility. The proposed release limits for the amended licence would apply to a broader list of nuclear and hazardous substances and to the operation of the new waste water treatment plant at the Port Granby site. The requested licence modernization would not alter the licensing basis of the current licence.

The Commission considered written submissions from CNL and CNSC staff, as well as written interventions from members of the public. A panel of the Commission deliberated and issued a decision on April 5, 2019. An amended licence was issued to CNL, valid until December 31, 2021.

ENSURING SAFETY AND COMPLIANCE AT CANADA'S OLDEST NUCLEAR FACILITY IS THE WORK OF THESE TWO TEAM LEADERS

Chalk River Laboratories (CRL) in Chalk River, Ontario, is Canada's oldest nuclear facility – established in the 1940s as part of Canada's World War II efforts in atomic research. Today, the Canadian Nuclear Laboratories' facility continues to represent the largest single complex within Canada's science and technology infrastructure.

Brett Legree is the Nuclear Facility Site Office Supervisor for the CNSC and is located at Chalk River Laboratories. Patrick Burton is a Senior Project Officer who works in the CNSC's Canadian Nuclear Laboratories Regulatory Program Division. He is located at CNSC headquarters in Ottawa and is the licensing lead for the facility. Maintaining regulatory oversight of Canada's largest nuclear facility is Brett and Patrick's primary responsibility.

Patrick is a 15-year veteran with the CNSC. A mechanical engineer who graduated from McMaster University, Patrick joined the CNSC in 2004 and worked for more than a decade in international safeguards. Now, as the licensing lead for the CRL facility, he heads up a team of licensing specialists who oversee several projects, notably the decommissioning work on the National Research Universal (NRU) reactor, which ceased operation in March 2018, after more than 50 years of service. "Having moved from a specialist's role to a licensing officer role has been an exciting challenge for me. The CNSC is a good place to work at. It has offered me interesting opportunities to learn and diversify."

You could say Brett Legree was predestined to be involved with the Chalk River Laboratories. Brett's grandfather returned to the area in the 1940s to work for Atomic Energy Canada Limited (AECL) and was part of the facility's original team. Brett's father also spent a career working at Chalk River. Brett, however, chose a different path and obtained a degree in chemical engineering from McMaster University in Hamilton, Ontario. After graduating, he worked in the 1990s in the electrical and manufacturing sector in southern Ontario. By the year 2000, Brett was hired by AECL in Chalk River to write computer code for thermal-hydraulics simulations. He also worked in isotope production and waste management. The desire for new challenges and the attraction of staying near his childhood home convinced Brett in 2010 to accept the job of Senior Nuclear Inspector and later Supervisor at the CNSC's CRL facility site office. "I'm especially excited by the opportunity to be leading and mentoring a team of young regulatory inspectors who also manage to teach me a thing or two," says Brett.

REGULATORY OVERSIGHT OF WASTES AND DECOMMISSIONING ACTIVITIES GROWS AS MORE NUCLEAR SITES ARE RETIRED

Nancy Greencorn is a Senior Project Officer in the CNSC's Wastes and Decommissioning Division. Prior to joining the CNSC nearly three years ago, Nancy worked for Atomic Energy Canada Limited/ Canadian Nuclear Laboratories for seven years in the area of waste management and decommissioning. She graduated with a master's degree in chemical engineering from the University of New Brunswick in Fredericton. Nancy is currently developing CNSC regulatory guidance documents for nuclear waste management and decommissioning activities.

"We are seeing several major new decommissioning projects currently undergoing approvals – in Chalk River, Ontario and in Whiteshell, Manitoba," explains Nancy. "I am finding much satisfaction in writing regulatory documents and benchmarking them against international standards." Nancy adds, " I am also a content lead in preparation for an upcoming International Regulatory Review Mission organized by the International Atomic Energy Agency. This assessment will evaluate how well Canada conducts its licensing and compliance work, when compared to other regulators in the world."

She concludes, "I see a long future in my field."

Progress update for Canadian Nuclear Laboratories waste facilities

On August 22, 2018, the CNSC held a public meeting during which CNSC staff presented their Progress Update for CNL's Prototype Waste Facilities, Whiteshell Laboratories and the Port Hope Area Initiative.

The progress update provided an overview of the CNSC's regulatory oversight and updates on CNL's major decommissioning projects – including Douglas Point, Gentilly-1, Nuclear Power Demonstration and Whiteshell Laboratories – as well as the Port Hope Area Initiative.

In March 2019, the CNSC offered an additional round of participant funding to assist Indigenous peoples, members of the public and stakeholders in the review of the environmental assessment and licence application, and in participating in a future Commission hearing process for the following CNL projects:

- Near Surface Disposal Facility (NSDF)
- In situ decommissioning of the Whiteshell Reactor-1 (WR-1)
- Nuclear Power Demonstration (NPD) Decommissioning

Through its Participant Funding Program, the CNSC offered up to $150,000 in funding per project to assist Indigenous persons, members of the public and stakeholders in the review of documentation, including the EA report, and Commission member documents submitted by CNSC staff and CNL, when they become available; and participation in associated public Commission hearings.

Release of 2017 Independent Environmental Monitoring Program results for the Port Hope and Port Granby projects

Through its Independent Environmental Monitoring Program (IEMP), the Canadian Nuclear Safety Commission (CNSC) has analyzed the 2017 sampling results from the Port Hope Project and the Port Granby Project, respectively located in the municipalities of Port Hope and Clarington, Ontario. The results are available on the CNSC website and confirm that the public and the environment around these sites are protected and that there are no expected health impacts.

CNL has two waste nuclear substance licences issued by the CNSC for the Port Hope Project and the Port Granby Project. These licences are part of the Port Hope Area Initiative (PHAI), which represents the Government of Canada's commitment to developing and implementing a safe, local, long-term solution for the management of historic low-level radioactive waste in the municipalities of Port Hope and Clarington, Ontario.

WORKING IN THE NUCLEAR INDUSTRY IS A FAMILY AFFAIR FOR THIS PROJECT OFFICER

Growing up in the area of the Darlington Nuclear Generating Station, Shona Thompson became familiar with the world of nuclear at a young age. Her father works at the Darlington NGS as a Control Technician. "When I wasn't certain what I wanted to do after high school, my dad suggested I might want to consider a career in the nuclear industry," says Shona.

Shona chose to earn a bachelor's degree in nuclear engineering from OntarioTech University in Oshawa, Ontario, which also included several co-op placements with the CNSC starting in 2011. After graduating in 2013, Shona accepted a permanent offer with the CNSC. She is now a Project Officer and Inspector with the Wastes and Decommissioning Division.

"I get to do such a great variety of work in my job," says Shona. "I also am very involved in international work through the CNSC's participation in the Joint Convention on the Safety of Spent Fuel and on the Safety of Radioactive Waste Management."

CNSC publishes REGDOC-2.11, Framework for Radioactive Waste Management and Decommissioning in Canada

In December 2018, the CNSC published a new regulatory document, REGDOC-2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada*.

REGDOC-2.11 provides an overview of the governance of and regulatory framework for radioactive waste management and the decommissioning of nuclear facilities in Canada. This regulatory document also explains the principles taken into account in CNSC regulatory decisions with respect to waste management and decommissioning. This regulatory document is relevant to all decommissioning, and to all waste management facilities and activities in Canada, including the generation, handling, processing, storage, transport and disposal of radioactive waste. Radioactive waste is defined as any material (liquid, gaseous or solid) that contains a radioactive nuclear substance.

Sixth Canadian National Report for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

In April 2018, the CNSC, on behalf of the Government of Canada, published the sixth Canadian National Report for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) is a legally binding international agreement that governs all aspects of spent fuel and radioactive waste management. It represents a commitment by Contracting Parties (member countries) to achieve and maintain a consistently high level of safety in the management of spent fuel and radioactive waste.

The report demonstrates how Canada continued to meet its obligations under the terms of the Joint Convention, for the reporting period of April 1, 2014 to March 31, 2017. It was presented at the Joint Convention Sixth Review Meeting held at the International Atomic Energy Agency (IAEA) in Vienna, Austria, in May 2018. Canada presented its national program on the management of spent fuel and radioactive waste for peer review, including updates and improvements to these programs since the last Review Meeting in 2015.

Nuclear Processing Facilities

CNSC releases 2018 Independent Environmental Monitoring Program results for Nordion, BWXT Nuclear Energy Canada Inc. and Blind River Refinery

In winter-spring 2019, the CNSC released Independent Environmental Monitoring Program (IEMP) results for samples it had taken from areas around three Canadian nuclear processing facilities. The results are available on the CNSC website. They confirm that the public and the environment around the facilities are safe and that there are no expected health impacts related to emissions from the facilities.

Nordion

The CNSC analyzed sampling results for 2018 from Nordion (Canada) Inc., located in Ottawa, Ontario. Nordion is licensed by the CNSC to operate a nuclear substance processing facility. The company processes unsealed radioisotopes for health and life sciences applications, and manufactures sealed radiation sources for industrial applications.

BWXT Nuclear Energy Canada Inc.

The CNSC analyzed sampling results for 2018 for BWXT (Canada) Inc., at its locations in Toronto and Peterborough, Ontario. BWXT (Canada) Inc. Toronto and Peterborough locations are licensed by the CNSC to operate a nuclear fuel fabrication facility.

Blind River Refinery

The CNSC analyzed sampling results for 2018 from the Blind River Refinery located in Blind River, Ontario. Cameco Corporation is licensed by the CNSC to operate the Blind River Refinery. The facility refines uranium concentrates (yellowcake) from uranium mines around the world, including northern Saskatchewan, to produce uranium trioxide (UO_3), an intermediate product of the nuclear fuel cycle.

More information on the CNSC's Independent Environmental Monitoring Program is available on the CNSC website.

FIELD WORK BRINGS SATISFACTION TO THIS ENVIRONMENTAL PROGRAM OFFICER

"I really enjoy the work I do" says Kate Peters, Technical Lead for the CNSC's Independent Environmental Monitoring Program (IEMP). "After a week of hands-on sample collection in the field, we return with approximately 50 samples that are ready to test. You have the feeling of doing something real with tangible results," adds Kate, who has worked at the CNSC since 2012.

Prior to joining the CNSC full-time, Kate worked for the organization as a summer student after obtaining a B.Sc. in chemistry from the University of Ottawa. She remained with the CNSC after the summer term, pursuing a master's degree in chemical engineering from the University of Ottawa, which she completed as a part-time student while working full time for the CNSC.

The CNSC's environmental monitoring program was established around the time Kate joined the Commission. "I started to work on the IEMP a year later and it was a challenge to get it up and running. Today when we are out in the field, we are meeting members of the public who say they are happy to see us there – they feel more confident because we are confirming compliance through our own monitoring program."

NUCLEAR REACTORS PROGRAM

This program regulates nuclear power plants and research reactors over all lifecycle stages – from site preparation, construction and operation, to decommissioning and abandonment (once operations are ended).

Number of radiation exposures over the allowable dose limits for nuclear energy workers and members of the public	0
Number of radiological releases to the environment above regulatory limits	0
Percentage of nuclear power plant facilities that received a rating of satisfactory or above	100%
Percentage of research reactor facilities that received a rating of satisfactory or above	100%

NUMBER OF REGULATORY INSPECTIONS OF NUCLEAR REACTORS PROGRAM LICENSEES IN 2018–19

67
Nuclear Power Plants

9
Research Reactors

NUCLEAR REACTORS PROGRAM HIGHLIGHTS FOR 2018–19

Each year, the CNSC publishes the *Regulatory Oversight Report for Canadian Nuclear Power Plants* and conducts related public proceedings, which provide an opportunity to intervene. The CNSC offers participant funding to assist Indigenous persons, members of the public and stakeholders in reviewing this regulatory oversight report and submitting comments, in writing, to the Commission.

The report focuses on the CNSC's 14 safety and control areas (SCAs). It outlines the CNSC's assessment of how well plant operators are meeting regulatory requirements and program expectations in all areas.

Showing comparisons and trends where possible, the report highlights emerging regulatory issues pertaining to the industry at large and to each licensed station.

Through site inspections, reviews and assessments, CNSC staff concluded that Canada's nuclear power plants (NPPs) operated safely during 2018. The regulatory oversight report on Canada's research facilities also concluded that Canada's research reactors operated safely during 2018. The evaluations of all findings for the SCAs show that, overall, licensees made adequate provisions for the protection of the health, safety and security of persons and the environment from the use of nuclear energy, and took the measures required to implement Canada's international obligations on the peaceful use of nuclear energy.

The following observations support the conclusion of safe operation:

- There were no serious process failures at the NPPs or research reactors.
- No member of the public received a radiation dose that exceeded the regulatory limit.
- No worker at any NPP or research reactor received a radiation dose that exceeded the regulatory limits.
- The frequency and severity of non-radiological injuries to workers were minimal.
- No radiological releases to the environment from the stations exceeded the regulatory limits.
- Licensees complied with licence conditions concerning Canada's international obligations.
- No NPP or research reactor events above Level 0 on the International Nuclear and Radiological Event Scale (INES) were reported to the International Atomic Energy Agency.

Canadian NPP Safety Performance Ratings for 2018

Safety and control area	Bruce A	Bruce B	Darlington	Pickering	Point Lepreau
Management system	SA	SA	SA	SA	SA
Human performance management	SA	SA	SA	SA	SA
Operating performance	FS	FS	FS	FS	FS
Safety analysis	FS	FS	FS	FS	FS
Physical design	SA	SA	SA	SA	SA
Fitness for service	SA	SA	SA	SA	SA
Radiation protection	FS	FS	SA	FS	SA
Conventional health and safety	FS	FS	FS	FS	FS
Environmental protection	SA	SA	SA	SA	SA
Emergency management and fire protection	SA	SA	SA	SA	SA
Waste management	SA	SA	SA	SA	SA
Security	SA	SA	SA	SA	SA
Safeguards and non-proliferation	SA	SA	SA	SA	SA
Packaging and transport	SA	SA	SA	SA	SA

FS Fully satisfactory **SA** Satisfactory **BE** Below expectations

PROFESSIONAL SUCCESS CAN OFTEN TAKE AN UNCONVENTIONAL PATH

Nadine El Dabaghi is an accomplished electrical power systems engineer at the CNSC. As a member of the Systems Engineering Division, she has important responsibilities in carrying out technical compliance verification activities at Canada's nuclear power reactors. She provides technical support and knowledge to the CNSC's power reactors inspection program. In addition, she is a technical subcommittee member of two CSA standards, and a member of two international working groups with the IAEA and OECD.

Nadine left her native Lebanon 23 years ago to study in Canada and obtained a degree in electrical engineering from the University of Ottawa. Having graduated during the post-dot com recession, Nadine, like most of her classmates, had great difficulty in finding work in her chosen field. After a number of years in jobs that did not allow her to make use of her academic training and knowledge and at the time a new mother with a one-year old son, Nadine decided she had to get a job and a career in her field. When she saw a job posting at the CNSC for an administrative assistant's position, Nadine made a bold and unorthodox decision – knowing she was overqualified, she decided to remove her academic qualifications from her application.

During the interview process, the selection committee members were puzzled when they noticed Nadine was wearing an iron ring on her small finger – the telltale symbol of all members of the engineering profession. Nadine was hired for the administrative assistant's position, but CNSC management quickly recognized the talents of the young engineer and she was quickly promoted to the professional level where she could put her abilities to good use. "After 10 years I am always looking forward to my future with the CNSC," says Nadine, "I am where I am happy!"

LICENSING AND REGULATORY ACTIVITIES AT CANADA'S NUCLEAR POWER PLANTS

Pickering Nuclear Generating Station licence renewed

In December 2018, CNSC issued the detailed Record of Decision for the renewal of Ontario Power Generation's (OPG) nuclear power reactor operating licence for the Pickering Nuclear Generating Station (PNGS). The renewed licence covers the period from September 1, 2018 until August 31, 2028. The CNSC also authorized OPG to operate PNGS Units 5 to 8 up to a maximum of 295,000 equivalent full power hours. The CNSC emphasized that its decision in this matter was based on OPG's intent to cease commercial operations at the PNGS on December 31, 2024; this would be followed by post-shutdown activities and a stabilization stage until 2028. Through its decision, the CNSC made it clear that commercial operation by any PNGS reactor unit beyond 2024 would require authorization from the Commission. OPG will present a comprehensive mid-term update on its licensed activities at the PNGS by 2023.

In making its decision, the Commission considered submissions from OPG and from 155 intervenors, as well as CNSC staff's recommendations.

Bruce Nuclear Generating Station licence renewed

In September 2018, following a two-part public hearing held on March 14, 2018 in Ottawa, Ontario and from May 28 to 31, 2018 in Kincardine, Ontario, the CNSC announced its decision to renew the nuclear power reactor operating licence issued to Bruce Power Inc. for the Bruce Nuclear Generating Station (NGS), located in the Municipality of Kincardine. The licence is valid from October 1, 2018 until September 30, 2028.

With this licence renewal, the Commission authorized Bruce Power to undertake licensed activities related to the refurbishment of Bruce NGS Units 3 to 8, through its planned major component replacement project.

In making its decision, the Commission considered submissions from Bruce Power and 149 intervenors, as well as CNSC staff's recommendations.

Point Lepreau nuclear emergency exercise in New Brunswick

To ensure the safety of Canadians and the environment, the CNSC requires all major nuclear facilities in Canada to have comprehensive emergency management programs in place to deal with any incident that may occur at their sites.

In October 2018, the CNSC participated in Exercise Synergy Challenge 2018, a full-scale, multi-jurisdictional nuclear emergency exercise led by New Brunswick Power and the Government of New Brunswick.

OVERSEEING COMPLIANCE AT THE BRUCE NUCLEAR GENERATING STATION

Jeff Stevenson is a Senior Power Reactor Site Inspector at the Bruce Nuclear Generating Station in Kincardine, Ontario. He has been performing compliance work there for 15 years. Bruce NGS is Canada's largest nuclear power plant and one of the largest in the world.

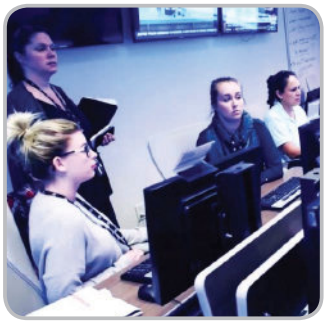
"My work is to ensure that the licensee is in compliance with the legislation, the regulations and their licence conditions," says Jeff, who holds a BSc in physics from the University of Waterloo in Ontario.

"Nuclear power plants are very technically complex operations which can make our work challenging," says Jeff. "However, I really enjoy doing outreach in the area with local Indigenous groups and the public and explaining those complex concepts in what is hopefully plain language. Working at the site has enabled me to become a part of the local community, which ensures that safety is always a top priority when I do my work."

In a nuclear emergency, the CNSC monitors events, evaluates operator actions, provides technical advice and regulatory directives, and informs the public and government about its assessment of the situation.

The exercise brought together over 1,000 people, including more than 100 CNSC staff members for a hands-on, two-day immersive experience, simulating a nuclear emergency.

To learn more about the exercise and the CNSC's role in an emergency, you can read this feature article and check out the CNSC video on Exercise Synergy Challenge 2018.



Global First Power licence application for small modular reactor

In March 2019, Global First Power submitted an application for a licence to prepare a site for a small modular reactor on Atomic Energy of Canada Limited's property at the Chalk River Laboratories location. The CNSC licensing process begins with a sufficiency review of the application. If the CNSC assesses the project description as complete, the next step will be to issue a notice of commencement. The project description will then become available for public comment as part of the environmental assessment process.

Phase 1 vendor design review of Ultra Safe Nuclear Corporation's SMR completed

In February 2019, the CNSC concluded a Phase 1 vendor design review (VDR) of the Ultra Safe Nuclear Corporation (USNC) micro modular reactor. The VDR considers that, overall, USNC has demonstrated an understanding of CNSC regulatory requirements and expectations. The VDR noted that USNC will need to provide additional information on management system processes if it proceeds to a Phase 2 VDR.

A VDR provides an optional opportunity for CNSC staff to assess a design prior to any licensed activities that would use that design. An application by a vendor for a review is not an application for a licence to prepare a site or to construct or operate a nuclear power facility, and is not an indication of intent to proceed with a project. Nor does this review certify a reactor design. The conclusions of any design review do not bind or otherwise influence decisions made by the Commission.

More information on small modular reactors and the CNSC's role in licensing new reactor facilities is available on the CNSC website.

UNDERSTANDING HISTORY HELPS THIS PROJECT OFFICER PLAN FOR THE FUTURE

Stephanie Herstead is a Project Officer in the the CNSC's New Major Facilities Licensing Division. As a licensing lead, Stephanie is very much involved in the work that could lead to reviewing applications for site preparation from proponents of small modular reactor projects.

Stephanie has been with the CNSC for 12 years. She holds a bachelor's degree in nuclear engineering from OntarioTech University in Oshawa, Ontario. She also has a diploma in welding from Algonquin College in Ottawa. "With time and experience at the CNSC, I came to recognize that one of the vital skills in the nuclear industry was the work done by welders in the fabrication of highly complex and exacting industrial equipment."

Stephanie adds "So many of the skilled people who provided those welding services in the heyday of nuclear reactor construction in the 1970s and 1980s have either retired or are about to retire. With the agreement of the CNSC, I decided it would be useful for me, in my role as an oversight regulator, to have first-hand knowledge and experience in this industrial art and be better at my job."

IN SPRING 2018, THE CNSC RELEASED INDEPENDENT ENVIRONMENTAL MONITORING PROGRAM (IEMP) RESULTS FOR TWO OF CANADA'S NUCLEAR GENERATING STATIONS.

CNSC releases 2017 Independent Environmental Monitoring Program results for Darlington and Point Lepreau nuclear generating stations

In spring 2018, the CNSC released IEMP results for samples it had taken from two of Canada's nuclear generating stations. The results confirm that the public and the environment around both sites are protected and that there are no expected health impacts.

Darlington NGS

The CNSC analyzed the 2017 sampling results from the Darlington nuclear generating site, located on the north shore of Lake Ontario, in the Municipality of Clarington, Ontario.

Ontario Power Generation (OPG) is licensed by the CNSC to operate the Darlington nuclear generating site, which consists of four 881-megawatt CANDU reactors and a tritium removal facility (TRF). The TRF extracts tritium from the heavy water used in the reactors to minimize the amount of tritium going into the environment, and to reduce the potential radiation exposure to workers.

Point Lepreau NGS

The CNSC analyzed the 2017 sampling results from the Point Lepreau nuclear generating site, located in Point Lepreau, New Brunswick.

New Brunswick Power Nuclear Corporation (NB Power) is licensed by the CNSC to operate this site, which includes one CANDU reactor and the Solid Radioactive Waste Management Facility. The reactor began operating in 1982, with a rated capacity of 705 MWe (megawatts electrical).

PROTECTING THE ENVIRONMENT IS AN IMPORTANT MISSION FOR THIS OFFICER

Jeffrey Lam came to the CNSC in 2015 after graduating from the University of British Columbia in Vancouver, B.C. with a bachelor's degree in chemical engineering. "I joined as a new graduate after applying online and now I'm an Environmental Program Officer in the Health Sciences and Environmental Compliance Division."

He continues, "My work involves verifying that licensees' environmental protection programs are in compliance with the CNSC's environmental protection framework. This ensures that their activities do not have any negative effects on people and the environment."

He adds, "I accompany CNSC operational personnel on environment-focused oversight inspections of licensees as the environmental compliance subject matter expert. It is one of the best ways to achieve knowledge transfer from the staff who have years of experience. Everyone is always so busy it can be hard to get face time, but these field inspections do provide that hands-on opportunity to learn. And I see this as a way to maintain corporate knowledge as people retire."

A NEW INSPECTOR ON THE FRONTLINES OF REGULATORY OVERSIGHT AT DARLINGTON

Chantal Yacoub is a Power Reactor Site Inspector at the Darlington Nuclear Generating Station, where her duties include inspecting, auditing, evaluating and monitoring the station's performance. Additionally, with the reactor refurbishments at the Darlington station, Chantal gets to participate in the oversight of one of Canada's largest construction projects.

A graduate from OntarioTech University in Oshawa, Ontario with a bachelor's degree in nuclear engineering, Chantal joined the CNSC in 2017 as a full-time site inspector. As part of her academic program, she did various student placements with the CNSC both at the Darlington site office, and at CNSC headquarters in Ottawa, and completed a term with the International Commission on Radiological Protection (ICRP).

With an eye to the future, Chantal is continuing her studies and working towards a master's in nuclear engineering. "I see a bright future in my field, given the work in reactor refurbishments and the early development work on small modular reactors," says Chantal. "I am working hard to learn all aspects of compliance work and hope someday to become a director within the CNSC."

CNSC publishes a regulatory document on site evaluation and site preparation for new reactor facilities

In July 2018, the Canadian Nuclear Safety Commission (CNSC) published REGDOC-1.1.1, Site Evaluation and Site Preparation for New Reactor Facilities. This new regulatory document sets out requirements and guidance for site evaluation and site preparation for new reactor facilities. It also includes a licence application guide to prepare a site for a new reactor facility.

This document supersedes RD-346, Site Evaluation for New Nuclear Power Plants, published in November 2008, and includes the following modifications:

- expanded scope to include small reactor facilities using a graded approach
- inclusion of site preparation requirements and guidance
- description of the necessary robust characterization of the site to include lessons learned from the March 2011 Fukushima nuclear event.

NUCLEAR SUBSTANCES AND PRESCRIBED EQUIPMENT PROGRAM

This program regulates the use and transport of nuclear substances, prescribed equipment manufacturers and users, and dosimetry providers. It includes licensing the possession of nuclear substances and the delivery of dosimetry services, overseeing the safe transport of nuclear substances, certifying transport packages and prescribed equipment, and overseeing the certification of radiation safety officers for Class II nuclear facilities

Number of radiation exposures over the allowable dose limits for nuclear energy workers and members of the public	2 [1, 2]
Number of radiological releases to the environment above regulatory limits	0
Percentage of inspection findings receiving satisfactory or above grades	99.57%
Number of incidents in transport resulting in an individual receiving a dose above the limit for members of the public (1 millisievert per year)	1 [2]
Percentage of independent dosimetry tests passed by licensees	98%

NUMBER OF REGULATORY INSPECTIONS AND COMPLIANCE REVIEWS OF NUCLEAR SUBSTANCES AND PRESCRIBED EQUIPMENT PROGRAM LICENSEES 2018–19

948
Number of Inspections Conducted

1,962
Number of Annual Compliance Reports Reviewed

NUCLEAR SUBSTANCES AND PRESCRIBED EQUIPMENT PROGRAM HIGHLIGHTS FOR 2018–19

Staff conducted compliance verification activities consisting of field inspections, desktop reviews and technical assessments of licensee activities, and concluded that the use of nuclear substances in Canada was safe during 2018–19.

The evaluations of findings for the safety and control areas show that, overall, licensees made adequate provisions for the protection of the health, safety and security of persons and the environment from the use of nuclear substances, and took the measures required to implement Canada's international obligations.

Each year, CNSC staff assess licensees' overall safety performance with respect to the use of nuclear substances in Canada and publish regulatory oversight reports on the use of nuclear substances. Staff consider industry performance as a whole, as well as the performance of each sector (that is, medical, industrial, academic and research, and commercial) separately. Safety performance is measured in terms of licensees' regulatory compliance and occupational doses. These reports also include a summary of reported events and of orders issued by the CNSC.

There were approximately 2,177 active licences in the Nuclear Substances and Prescribed Equipment Program in 2018–19.

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1 In November 2018, a nuclear energy worker received an equivalent dose of approximately 1.68 sieverts to the left hand, in excess of the annual regulatory equivalent dose limit of 500 millisieverts mSv. No health effects have been observed since the incident and no physical effects due to the exposure are expected. The incident was reported to the Commission on December 13, 2018, in Commission member document (CMD)18-M65.

2 During the period of March 1, 2017 to February 28, 2018, a member of the public received a cumulative dose of approximately 1.06 mSv. This dose is above the annual regulatory effective dose limit of 1 mSv for members of the public, but would not result in any effect on the health and safety of the person. This person was a non-nuclear energy worker responsible for transporting packages, the majority of which contain nuclear substances. CNSC staff reviewed an investigation report submitted by the licensee and are satisfied with the actions taken to prevent a recurrence The incident was reported to the Commission in CMD 18-M43 on August 22, 2018.

National Sealed Source Registry and Sealed Source Tracking System Annual Report

The National Sealed Source Registry and Sealed Source Tracking System Annual Report 2017 provides information on radioactive sealed sources in Canada that were registered and tracked through the National Sealed Source Registry (NSSR) and Sealed Source Tracking System (SSTS) in 2017. A national database managed by the Canadian Nuclear Safety Commission (CNSC), the NSSR maintains inventory information on all five categories of sealed sources in Canada. The NSSR and SSTS, together with regulatory licensing and compliance activities, increase the safety and security of those sources. As a result of the effectiveness of the NSSR and SSTS, the CNSC has confidence in the overall safety and security of sealed sources in Canada.

The CNSC was the first nuclear regulator among the G7 countries to develop a national registry and to implement a Web-based tracking system, along with enhanced import and export controls, for high-risk radioactive sealed sources.

2017 NSSR and SSTS annual report highlights:

- The number of sealed sources in the NSSR increased by 11% in 2017.
- There was a 15% increase over the number of transactions recorded in 2016.
- There were a total of 11 reported events involving 19 lost, stolen and found sealed sources.
- Licensees had very high rates of compliance with licence conditions for tracking high-risk sealed sources.

Report on Lost or Stolen Sealed Sources and Radiation Devices

The *Report on Lost or Stolen Sealed Sources and Radiation Devices* summarizes the information reported to the CNSC about the losses and thefts of licensable sealed sources and radiation devices.

This report provides a description for each event, the date the event occurred, the event location, the risk categorization, a brief summary and the recovery status. The risk categorization of the sealed source at the time of the event (Category 1 (highest risk) to Category 5 (lowest risk) is based on the IAEA document titled *Categorization of Radiation Sources*.

Up-to-date details of lost or stolen sealed sources and radiation devices are always available on the CNSC website.

THE GROWING FIELD OF MEDICAL AND INDUSTRIAL ISOTOPE PRODUCTION KEEPS THIS SENIOR PROJECT OFFICER BUSY

Canada is seeing an increase in the number of new facilities that are classified as medical accelerators and cyclotrons. Traditionally, cyclotrons are used to make radioisotope-imaging agents for the diagnosis of such things as cancer. Accelerators, which up until now have been exclusively used for medical treatments, are now increasingly being used for industrial applications.

Adam Dodd's job as a Senior Project Officer with the CNSC's Accelerators and Class II Facilities Division is to provide regulatory oversight of Class II nuclear facilities. This involves leading and coordinating the design review and safety analysis of a proposed Class II facility including all phases of its lifecycle.

"We are seeing an increase in the number of places making isotopes and an increase in the number of cyclotrons," says Adam. "Medical applications used to represent 70% of the demand. It is now down to 50%, with industrial applications now making up a larger share of the field," he adds.

Adam has a PhD in nuclear physics from London University in the United Kingdom. He worked for seven years at an accelerator facility in Oxford before coming to Canada in 1992 to work as a researcher in nuclear physics at Ontario's University of Guelph. Adam has an understanding of what it means to be a CNSC licensee, having worked for a company that distributed radiochemicals and performed contract research in Canada. Adam joined the CNSC in 2002 to work in the area of safeguards. In 2010, he became Senior Project Officer in the accelerators group.

CONSISTENT ADVICE AND INFORMATION ARE IMPORTANT FOR THIS OFFICER WHO, WITH HIS COLLEAGUES, SERVES THE LARGEST SEGMENT OF CNSC LICENSEES

As a Licensing Specialist in the CNSC's Nuclear Substances and Radiation Devices Licensing Division, Jocelyn Murray's work involves assessing licence applications for medical, academic and industrial uses of nuclear substances and radiation devices. The work also includes advising licence applicants on the regulatory requirements and standards.

Jocelyn came to the CNSC in 2011 after working for 15 years at the Ottawa Hospital as an X-ray Technician. He has a diploma in radiology from Cambrian College in Sudbury, Ontario.

"One of our challenges," says Jocelyn, "is we have the largest number of licensees at the CNSC and they cover many categories. We are now seeing an increase in the number of new applications for medical research labs. Despite the new technologies and new issues, it is important for us to be ready to provide answers and be consistent with our information."

CNSC publishes REGDOC-1.5.1, *Application Guide: Certification of Radiation Devices or Class II Prescribed Equipment*

REGDOC-1.5.1, *Application Guide: Certification of Radiation Devices or Class II Prescribed Equipment* is intended to help applicants to prepare and submit applications to the CNSC for certification of radiation devices and Class II prescribed equipment. It assists applicants and licensees in complying with the *Nuclear Safety and Control Act* and regulations made under the Act and ensures that:

- the radiation device or Class II prescribed equipment is safe to use
- adequate measures are in place to protect the environment, the health and safety of persons, and national security
- the design meets Canada's international obligations

CNSC publishes REGDOC-2.14.1, *Packaging and Transport, Volume II: Radiation Protection Program Design for the Transport of Nuclear Substances*

REGDOC-2.14.1, Packaging and Transport, Volume II, provides guidance for the implementation of a radiation protection program to transport nuclear substances. It describes a typical radiation protection program that carriers of nuclear substances can implement, in order to comply with the requirements of the *Packaging and Transport of Nuclear Substances Regulations,* 2015.

For 10 years, this quarterly newsletter on nuclear substance regulation has provided targeted information to the CNSC's largest class of licensees

The Directorate of Nuclear Substance Regulation started the *DNSR Newsletter* back in 2009, as a forum for information sharing with stakeholders.

Addressing various regulation and compliance issues, this newsletter is part of the CNSC's commitment to keeping licensees and the public informed about CNSC activities.

The following are just a few of the topics the *DNSR Newsletter* has covered in the past year:

- lessons learned from an administrative monetary penalty issued for a transportation violation
- the importance of properly identifying shipping documents, from the perspective of a first responder
- the way biodosimetry is used to confirm and measure individual radiation exposures
- new security requirements for licensees with Category 3, 4, and 5 sealed sources
- evaluation of the role of radiation safety officers

For the latest news on nuclear substance regulation read the DNSR Newsletter.

NUCLEAR NON-PROLIFERATION PROGRAM

This program provides assurance to both the Canadian public and the international community that the development, production and use of nuclear energy and nuclear substances, prescribed equipment and prescribed information are safe and conform to the control measures and international obligations to which Canada has agreed.

The CNSC is responsible for implementing Canada's nuclear non-proliferation policy, which contains two broad, long-standing objectives:

1. to assure Canadians and the international community that Canada's nuclear exports do not contribute to the development of nuclear weapons or other nuclear explosive devices
2. to promote a more effective and comprehensive international nuclear non-proliferation regime

Canada maintains the International Atomic Energy Agency (IAEA) safeguards broader conclusion that there was no diversion of declared nuclear material, and no indication of undeclared nuclear material or nuclear activity	YES
Percentage of annual inventory reports of Canadian obligated nuclear goods and technology that were confirmed as meeting CNSC requirements	100%
Percentage of nuclear material reports submitted that were confirmed as meeting requirements of Canada's international commitments	93.5%
Percentage of goods exported solely for peaceful purposes	100%
Number of import and export licences issued in 2018–19	942

NUMBER OF REGULATORY INSPECTIONS OF NUCLEAR NON-PROLIFERATION PROGRAM LICENSEES 2018–19

SAFEGUARDS:

51
Number of Additional Protocols Declarations

108
Number of Inspections Led by the IAEA

2
Number of Inspections Led by the CNSC

IMPORT/EXPORT:

4
Number of Inspections Conducted

NUCLEAR NON-PROLIFERATION PROGRAM HIGHLIGHTS FOR 2018–19

Non-Proliferation and Import/Export Controls

The major elements of Canada's nuclear non-proliferation policy involve support to international non-proliferation initiatives and activities, regulatory import and export controls, implementation of international safeguards measures, and security commitments.

During 2018–19, the CNSC conducted technical licensing assessments and made licensing decisions on applications for the import and export of nuclear substances, prescribed equipment and prescribed information, in accordance with the *Nuclear Non-proliferation Import and Export Control Regulations and the General Nuclear Safety and Control Regulations.* A total of 942 import and export licences were issued.

CNSC publishes an updated regulatory document on import and export

In April 2018, the CNSC published REGDOC-2.13.2, *Import and Export, Version 2*.

Part II is new and sets out CNSC guidance for current and prospective licensees intending to import or export risk-significant radioactive sources (Category 1 and 2 radioactive sources). This regulatory document also provides information about the CNSC's import and export control program with respect to licence applications, the licence evaluation process and compliance with regulatory requirements.

Part I of the document, which was published in September 2016, remains unchanged. It sets out guidance for current and prospective licensees who intend to import or export nuclear and nuclear-related dual-use items (also known as controlled nuclear substances, equipment and information).

International Agreements

The CNSC implements the terms and conditions of Canada's bilateral nuclear cooperation agreements through administrative arrangements concluded with its counterparts in the partner country.

In November 2018, the CNSC signed a new administrative arrangement with the United Kingdom's Department for Business, Energy and Industrial Strategy, and its Office for Nuclear Regulation, which implements the provisions of the nuclear cooperation agreement (NCA) between Canada and the United Kingdom that assures the peaceful use of nuclear items and technology.

Nuclear cooperation between Canada and the United Kingdom is currently governed by the Canada-Euratom (European Atomic Energy Community) NCA. A new Canada-UK NCA, similar in scope, was also signed to allow current and future nuclear trade between the two countries to continue. Upon the UK's withdrawal from the EU and Euratom, the new Canada-UK NCA and the administrative arrangement will come into effect.

Visit the CNSC website to learn more about Canada's international commitments on non-proliferation and import/export controls and safeguards, including the CNSC's role and responsibilities, and to get detailed information on Canada's international agreements.

Emergency Preparedness

Being prepared in the event of an emergency is an essential part of being a responsible nuclear regulator. Because nuclear emergency preparedness and response is a shared responsibility in Canada, the CNSC has a comprehensive emergency preparedness program in place and works with nuclear operators, municipal, provincial and federal government agencies, first responders and international organizations to always be ready.

One way to ensure that the CNSC evaluates its state of readiness to meet worldwide best practices is by participating in international reviews. The Emergency Preparedness Review (EPREV) is a service offered by the International Atomic Energy Agency (IAEA), whereby a team of international experts appraises a Member State's level of emergency preparedness for nuclear and radiological emergencies. In 2018–19, the CNSC continued its planning and preparation for one such mission scheduled for June 2019.

The scope of that mission includes federal authorities and provinces with nuclear reactors (Ontario and New Brunswick), and nuclear power plant operators. The mission serves to identify opportunities for improvement in Canada's overall current preparations for a nuclear emergency in Canada, and it will help increase Canada's level of preparedness to protect public health and safety.

THIS OFFICER PUTS HER INTERNATIONAL CREDENTIALS TO USE IN ENSURING THE NON-PROLIFERATION OF NUCLEAR MATERIALS

"My job is to ensure that Canada's nuclear exports take place in a safe and secure way and are strictly used for peaceful purposes," says Elaine Kanasewich, who is a Senior Advisor in Nuclear Non-Proliferation in the Non-Proliferation and Export Controls Division of the CNSC.

Elaine joined the CNSC in 2010 after an international academic and work experience journey. After her undergraduate studies in International Relations and Criminology from the University of Toronto, Elaine obtained her master's degree in strategic affairs from the Australian National University in Canberra, Australia.

After graduating, Elaine worked at NATO headquarters in Brussels, Belgium as an intern in the Nuclear Policy Directorate and contributed to policy development in such areas as NATO nuclear deterrent policy and NATO's Chemical, Biological, Radiological and Nuclear Defence Strategy. Returning to Canada, Elaine worked for a NATO-oriented think tank, as well as Canada's Department of Foreign Affairs and the Department of National Defence before accepting a position with the CNSC.

In 2018, Elaine was selected by the CNSC to attend the World Nuclear University in South Korea. Each year, two promising CNSC employees are selected to attend this six-week course that is held in various parts of the world. "WNU was a fantastic experience for me," says Elaine. "I appreciated the chance to be with peers from all areas of the nuclear industry, including technology companies, operators and regulators."

CONTROLLING THE IMPORTS AND EXPORTS OF NUCLEAR MATERIAL PRESENTS CHANCES TO LEARN SAYS THIS OFFICER

David Reinholz is a Non-Proliferation Officer with the CNSC's Non-Proliferation and Export Controls Division. His work is to evaluate and formulate licensing recommendations on nuclear and nuclear-related dual-use export and import licence applications in conformance with the Nuclear Safety and Control Act (NSCA) and regulations made under the Act. He also provides advice and guidance on the negotiation, application and implementation of bilateral nuclear cooperation agreements and administrative arrangements, Canada's nuclear non-proliferation and export control policies, and Canadian positions in multilateral nuclear non-proliferation.

David joined the CNSC full-time in 2009 after he obtained a bachelor's degree in nuclear engineering from OntarioTech University. He initially worked in the power reactor regulatory area and then joined the Non-Proliferation and Export Controls Division in 2010. David had previously worked at the CNSC as a summer student in 2008.

“I love my job because there is something new to do and to learn every day,” says David.

Fukushima: Lessons Learned to Improve Emergency Preparedness

The most important lesson Fukushima has taught us is to expect the unexpected, and to be prepared to respond to it. Although tsunamis and large earthquakes are unlikely to occur in Ontario or New Brunswick – where Canada's operating nuclear plants are located – the CNSC has taken concrete steps to ensure that it is ready to respond to extreme accident scenarios.

In May 2018, the CNSC published an update on the key improvements that have been made to Canada's nuclear regulatory oversight and action plan. After the Fukushima accident, the CNSC assembled a task force of experts in various fields (including nuclear engineering, radiation protection and emergency preparedness), which concluded that Canada's major nuclear facilities are safe, and that our regulatory oversight is comprehensive.

After carefully considering the most important lessons learned from Fukushima, the CNSC implemented a robust four-year action plan in 2015 to ensure it is prepared for an extreme event. Improvements include:

- asking operators to review the severe accident management guidelines (SAMG), which are a set of plans and procedures invoked in case of severe accidents
- ensuring emergency response facilities are equipped with additional portable backup power and telecommunications equipment
- asking nuclear power plant operators to acquire portable equipment to ensure that reactors can be cooled and fuel pools replenished, regardless of circumstance; this equipment is to be stored onsite and offsite

WATCH – Impact of Fukushima on Canada's Nuclear Regulation

PREPARATION AND TRAINING FOR POSSIBLE EMERGENCIES MOTIVATES THIS FORMER FIREFIGHTER

Laurent Nicolai is a Licensee Emergency Programs Officer with the CNSC's Emergency Management Program Division. His role is to lead and coordinate the work of CNSC staff in the assessment of licensees' emergency preparedness and fire protection programs. He also develops and delivers training in emergency preparedness and response to CNSC staff, as well as CBRNe (chemical, biological, radiological, nuclear and explosive) training to outside stakeholders, both domestic and international.

Laurent has been with the CNSC since 2007. He first worked at the Hydro-Québec Gentilly-2 Nuclear Generating Station located near Trois-Rivières, Quebec, as a student intern and later joined the CNSC licensing division in Ottawa. Since 2009, he has been part of the Emergency Management Program Division, ensuring that licensees have the appropriate emergency preparedness and fire protection response plans and programs in place, should an incident ever occur.

Laurent obtained a master's of engineering in radiation protection from Joseph Fourier University in Grenoble, France, after obtaining his B.Sc from the University of Corsica in France. His interest in emergency preparedness and fire protection work started well before his master's graduation in 2004, when he became a volunteer firefighter in his native France. After successfully obtaining national accreditation, he became an "officier-pompier" (officer-firefighter) in 2005.

In addition, Laurent works at other federal, provincial and municipal levels in the intricate work of ensuring that a complex level of emergency planning is in place. "Having the public's trust is an important factor of our work," says Laurent. "And the respect of our licensees and the public contributes to ensuring strong emergency preparedness and response plans that can be executed in an emergency."

Nuclear Security

CNSC announces a new updated regulatory document on high-security sites

In September 2018, the CNSC announced but did not publish the new updated version of REGDOC-2.12.1, *High Security Sites: Volume I: Nuclear Response Force.* This document contains prescribed information and is available on a valid need-to-know basis.

The regulatory document sets out the expectations of the CNSC with respect to the minimum requirements for establishing, equipping, training, testing and deploying an on site nuclear response force (NRF). The document applies to all persons whom the licensee is considering training and authorizing as NRF members. REGDOC-2.12.1 incorporates an updated NRF training plan, firearms qualifications and modern practices.

This regulatory document also describes the application process for licensees to request authorization for an NRF member to be designated as a CNSC-sponsored public agent in order to possess and have access to firearms, prohibited weapons, prohibited devices, prohibited ammunition or restricted weapons, for the purpose of carrying out NRF duties at a licensed high-security nuclear site.

International Peer Reviews

Canada requests an Integrated Regulatory Review Service mission for 2019

The Canadian Nuclear Safety Commission (CNSC) is committed to regulatory excellence. In December 2018, as part of its ongoing demonstration of this commitment, the CNSC requested an Integrated Regulatory Review Service (IRRS) mission to take place in September 2019. Performed by a team of international experts, an IRRS mission is a service offered by the International Atomic Energy Agency to Member States. The September 2019 IRRS mission will review elements of the CNSC's framework for safety and core regulatory processes, and will also focus on regulatory oversight of waste management strategies.

The purpose of an IRRS mission is to compare a country's regulatory practices with international standards and equivalent good practices elsewhere in the world. The mission will provide the opportunity to highlight the CNSC's strengths as a regulator and to identify areas for continuous regulatory improvement. At the conclusion of the mission, a report outlining the mission's findings will be prepared and made available to the public.

The CNSC previously hosted an IRRS mission in 2009, with a follow-up mission in 2011, making it the timeliest follow-up mission by a Member State. Both missions produced an IAEA report and a CNSC management response.

You can learn more about IRRS Mission 2019 on the CNSC's website.

SCIENTIFIC, REGULATORY AND PUBLIC INFORMATION PROGRAM

This program generates scientific and technical information institutionalizes the information within the regulatory framework, and publicly disseminates objective scientific technical and regulatory information.

Number of research projects funded under the CNSC's Research and Support Program	16
Number of regulatory documents published or completed by the CNSC in 2018–19	18
Number of separate recipients awarded funding under the Participant Funding Program	38
Number of Indigenous groups that had meetings with the CNSC in 2018–19	20
Number of public inquiries to the CNSC's info account in 2018–19	1,378

SCIENTIFIC, REGULATORY AND PUBLIC INFORMATION PROGRAM HIGHLIGHTS FOR 2018–19

Scientific and Regulatory Information

The CNSC integrates the best available science with its decision making. The CNSC maintains research initiatives and programs to ensure that it keeps abreast of new scientific information, develops its own knowledge base and shares its research findings with stakeholders and scientists in Canada and abroad.

Research is carried out on a wide range of topics, from health studies on nuclear workers and host communities to research on the long-term management of nuclear waste in geological repositories.

Directed by CNSC staff, research initiatives and programs are often completed with the support of independent third parties and/or in collaboration with national and international partners, providing access to valuable expertise, state-of-the-art facilities and the best available data. The outcome of these research activities helps the CNSC understand and address new or emerging safety issues, gain third-party perspectives on nuclear science, and share scientific knowledge with the nuclear industry and the public at large. This research helps support the CNSC's mandate to disseminate objective scientific technical and regulatory information to the public about the activities of the Commission and the industry it regulates.

The CNSC makes its extensive body of research available to the public

The CNSC offers the public a comprehensive list of all relevant scientific and technical information on its website. Topics can be searched according to the CNSC's 14 safety and control areas (SCAs), which are used to assess, evaluate, review, verify and report on regulatory requirements and performance. The SCAs are presented in a comprehensive framework and grouped into three primary functional areas: management, facility and equipment, and core control processes.

In 2019, the CNSC published *The Science of Safety – CNSC Research Report 2017–18*. It is the fifth annual edition of this publication. The report summarizes our research program while making the results more accessible to general audiences.

The Science of Safety research reports share some of the key research activities facilitated and supported by the CNSC on a yearly basis. These reports are part of the CNSC's ongoing effort to ensure that Canadians have access to the science that informs the CNSC's work.

Health Studies

The CNSC continuously conducts and reviews health studies on a variety of areas associated with the production, possession or use of nuclear substances. The information gathered in these studies serves to guide the CNSC in decisions affecting its regulatory framework.

In August 2018, the CNSC published an update of its fact sheet titled *Health Effects of the Chernobyl Accident* to include the latest data collected on the health consequences of radiation exposure from the 1986 accident. New information is based on the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 2018 white paper titled *Evaluation of data on thyroid cancer in regions affected by the Chernobyl accident*.

For more information on research conducted on health-related issues, visit the CNSC website.

Research and Support Program

The CNSC funds an external research program to obtain knowledge and information needed to support its regulatory mandate. The program provides the CNSC with access to independent advice, expertise, experience, information and other resources via contracts, grants and contributions placed in the private sector, and with other agencies and organizations in Canada and elsewhere. The program is compiled from project proposals submitted from across the CNSC. In 2018–19, $1.36 million was invested in 16 research projects, $1.61 million was invested in 28 contribution agreements, and 8 grants totalling $74.6 thousand were made.

HOW HUMANS PERFORM IS AN INTEGRAL PART OF REGULATORY OVERSIGHT FOR THESE HUMAN FACTORS SPECIALISTS

The CNSC has a very wide range of specialist job categories in its ranks. Amongst the less well known would be our Human and Organizational Factors Specialists. They have in-depth knowledge in human and organizational factors related to engineering, industrial psychology, organizational psychology and safety culture. The fundamental principles, theories and practices of these domains are applied in assessing human and organizational factors and practices within high-reliability workplaces such as the nuclear industry.

Lynda Hunter and Aaron Derouin are both Human and Organizational Factors Specialists with the CNSC's Directorate of Safety Management and have been with the CNSC for over 10 years. One of their top priorities at the CNSC has been the development of fitness-for-duty guidance and requirements relating to the use of cannabis, alcohol and other drugs in the nuclear workplace.

Lynda has a master's degree in cognitive psychology from Ottawa's Carleton University. Prior to joining the CNSC, she was a consultant to Canada's Department of National Defence, working on issues related to the interaction of aircraft pilots and their avionic systems. "As a regulator, it is important for us at the CNSC to learn and understand from events in other sectors – how latent human and organizational weaknesses can lead to human errors and unnecessary accidents – and how we can best try to prevent them in our own industry," says Lynda.

Aaron is a board-certified ergonomist and earned a master's degree in applied human performance from the University of Windsor. He is also currently pursuing his PhD in occupational biomechanics. Prior to coming to the CNSC, Aaron worked in the automotive and heavy equipment-manufacturing sector. Aaron considers that the CNSC's work is important and he notes, "the CNSC is being recognized as a world leader among nuclear regulators in the application of human factors to regulatory oversight and guidance."

RESEARCH WORK ON THE EFFECTS OF RADIATION KEEPS THIS SCIENTIST BUSY

As a Radiation and Health Sciences Officer in the CNSC's Health Sciences and Environmental Compliance Division, Julie Leblanc studies the effects of radiation on bio-organisms. After completing a PhD in biochemistry from the University of Ottawa, Julie joined the CNSC in 2015 through its program for new graduates.

"I adore what I do," says Julie. "With the support of my director and the mentorship of colleagues, I get to show my abilities. I'm involved in research projects with other organizations such as Health Canada, and I work on the Federal Nuclear Science and Technology Work Plan research committee, specifically on theme 1 (implications of radiation on living things)."

Julie adds, "With climate change becoming ever more evident and a real concern to the public, I believe nuclear will play a role in the future solutions to this problem."

What makes up the CNSC's regulatory framework ?

The CNSC's regulatory framework consists of laws passed by the Parliament of Canada that govern the regulation of Canada's nuclear industry, along with regulations, licences and documents that the CNSC uses to regulate the industry.

In 2017, the CNSC published its Regulatory Framework Plan 2017–22, setting out the regulations and regulatory documents that it plans to develop or amend in the coming five ye rs. CNSC documents are reviewed periodically to determine if they are still appropriate or need to be updated. Aligned with the CNSC's corporate priorities, the plan considers current developments in the nuclear environment.

In 2018–19, the CNSC published or completed 18 regulatory documents, which are listed in annex B.

A number of regulatory documents have already been mentioned throughout the regulatory oversight program sections of this report. The following regulatory documents have broad application to the CNSC's entire regulatory program:

REGDOC-2.1.2, *Safety Culture*

REGDOC-2.1.2, Safety Culture, establishes requirements and guidance for fostering and assessing safety culture.

The CNSC defines safety culture as the characteristics of the work environment, such as the values, rules and common understandings that influence workers' perceptions and attitudes about the importance that the licensee places on safety. A healthy safety culture is a key factor in reducing the likelihood of safety-related events and mitigating their potential impact, and in continually improving safety performance.

REGDOC-2.2.1, *Human Factors*

REGDOC-2.2.1, Human Factors, describes how the CNSC will take human and organizational factors into account during its licensing, compliance and standards-development activities. For the purpose of this regulatory document, the term "human and organizational factors" means factors that influence human performance as it relates to the safety of a nuclear facility or activity over all phases, including design, construction, commissioning, operation, maintenance and decommissioning.

REGDOC-2.2.4, *Fitness for Duty, Volume III*

REGDOC-2.2.4, Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness, sets out the expectations and minimum requirements for nuclear security officer (NSO) medical physical and psychological certificates. This regulatory document applies to all persons whom the licensee is considering authorizing or has authorized to act as an NSO at a high-security site as defined in the *Nuclear Security Regulations.*

REGDOC-2.4.3, *Nuclear Criticality Safety*

REGDOC-2.4.3, *Nuclear Criticality Safety*, sets out requirements for nuclear criticality safety and provides guidance on how those requirements may be met. It provides information for preventing criticality accidents in the handling, storage, processing and transportation of fissionable materials and the long-term management of nuclear waste.

REGDOC-2.5.1, *General Design Considerations: Human Factors*

Part A of REGDOC-2.5.1, General Design Considerations: Human Factors sets out guidance for licensees and licence applicants in developing human factors engineering program planning documentation that demonstrates how human factors considerations are incorporated into CNSC-licensed activities.

Part B sets out guidance for licensees and licence applicants in planning activities for human factors verification and validation activities.

REGDOC-2.7.3, *Radiation Protection Guidelines for Safe Handling of Decedents*

REGDOC-2.7.3, *Radiation Protection Guidelines for Safe Handling of Decedents*, was developed to provide death-care professionals and the public with basic guidance on handling decedents that contain residual nuclear substances from therapeutic medical procedures. The purpose of this guidance is to ensure that radiation exposure is kept below limits that have been set to protect the public. Background information is provided on procedure types, the risks they present and methods for reducing the potential for exposure.

REGDOC-3.2.1, *Public Information and Disclosure*

REGDOC-3.2.1, *Public Information and Disclosure*, sets out requirements and guidance for public information and disclosure for licensees and applicants of Class I and Class II nuclear facilities, and uranium mines and mills, for all lifecycle phases.

This document supersedes RD/GD-99.3, *Public Information and Disclosure*, published in March 2012.

Consultation

Consultation with the public, Indigenous groups, licensees and interested organizations is an important part of the process the CNSC uses to develop many of the regulatory tools within its framework. The CNSC welcomes input from the public and Indigenous groups on draft documents that are open for consultation.

Each document open for public comment is made available for a specified period of time (at least 30 days). At the end of the consultation period, CNSC staff review all public input, and comments are then posted for feedback on the CNSC website. Comments submitted (including names and affiliations) are made public in the official language in which they were received.

The consultation section of the CNSC website provides up-to-date information on current consultations for regulatory initiatives, the necessary information and guidance on how to participate.

Indigenous Engagement and Consultation

Building long-term positive relationships and trust with Indigenous communities with an interest in CNSC-regulated activities and facilities is a priority for the CNSC. During 2018–19, the CNSC participated in over 30 meetings with more than 20 Indigenous communities and organizations. Many of these meetings were related to specific projects or applications, including licence renewals of the Pickering and Bruce nuclear generating stations, as well as the Whiteshell Laboratories site and Cluff Lake site.

Meetings were also held in relation to environmental assessments for Canadian Nuclear Laboratories' Near Surface Disposal Facility (NSDF), Nuclear Power Demonstration Closure (NPD), and Whiteshell Reactor #1 *In Situ* (WR-1) decommissioning projects; Cameco's Blind River Refinery; uranium mine and mill facilities in northern Saskatchewan; Point Lepreau Nuclear Generating Station; the Nuclear Waste Management Organization's Adaptive Phased Management initiative; and the CNSC's Independent Environmental Monitoring Program.

Many issues or concerns were discussed during these meetings: environmental impacts (including impacts to fish), environmental monitoring, the regulation of Canada's nuclear sector, the CNSC's approach to Indigenous engagement and consultation, transportation and storage of radioactive waste, and legacy issues.

Through its Long-Term Indigenous Engagement Strategy, the CNSC has continued to work on establishing formalized long-term engagement relationships with Indigenous groups who have a direct interest in CNSC regulatory activities. Part of the formalization of the relationship includes the collaborative development of a Terms of Reference document and an associated work plan that establishes the frequency of engagement meetings and areas for collaboration, including environmental monitoring and a learning plan, throughout the lifecycle of CNSC-regulated facilities and activities of interest.

In addition, through its Participant Funding Program (PFP), the CNSC continued to provide support to Indigenous groups in conducting Indigenous Knowledge (IK) studies in relation to CNSC-regulated facilities and regulatory reviews including CNL's NSDF, NPD and WR-1 projects. The CNSC is currently funding five different IK studies, providing a total of $710,793 in funding to support these studies. The information gathered through these studies brings valuable information to the Commission by providing baseline data that can inform environmental assessment processes, the Commission's decision making, and future environmental monitoring. The CNSC acknowledges the importance of working with and integrating IK alongside scientific and regulatory information in its assessments and regulatory processes, where appropriate and when authorized by Indigenous communities. Indigenous ways of knowing and cultural context enhance the CNSC's understanding of potential impacts of projects and strengthens the rigour of project reviews and regulatory oversight.

Funding to Enhance Indigenous and Public Participation

The CNSC continued to administer its Participant Funding Program (PFP), which was established in 2011 to enhance the participation of Indigenous peoples, members of the public, and stakeholders in Commission proceedings and environmental assessments for major nuclear facilities.

This past year, the PFP awarded more than $1,000,000 to 38 recipients. This included funding to 18 Indigenous communities or organizations to support participation in CNSC regulatory processes including appearances before the Commission to share their finding and perspectives, meetings with CNSC staff, and Indigenous knowledge studies related to CNSC-regulated facilities and activities.

Learn more about the CNSC's Participant Funding Program and watch a short CNSC information video about it by visiting the CNSC website.

MAKING SURE INDIGENOUS PEOPLES CAN MEANINGFULLY PARTICIPATE IN THE CNSC'S PROCESSES IS PART OF THE CHALLENGE FOR THIS POLICY OFFICER

When Adam Zenobi joined the CNSC in 2017, he quickly learned that his work as a Policy Officer could have a significant impact on the CNSC's relationship with Indigenous communities.

Adam, who graduated with an MA in public policy and public administration from Concordia University in Montreal, works in the CNSC's Policy, Aboriginal and International Relations Division of the CNSC and is part of a team responsible for managing the CNSC's Participant Funding Program (PFP).

Established in 2011, the PFP helps Indigenous peoples, members of the public, and not-for-profit organizations participate in the CNSC's regulatory review processes by providing funding to eligible applicants. The program helps bring value-added information to the Commission through informed and topic-specific interventions and increases participation related to environmental assessments and licensing processes for major nuclear facilities.

Adam says, "I feel my work is important in helping Indigenous peoples and communities to meaningfully participate in CNSC processes and Commission proceedings that could potentially impact their Indigenous and/or treaty rights and interests. It is an important part of the CNSC's efforts to contribute to build meaningful, long-term relationships with Indigenous communities."

NUMBER OF OUTREACH ACTIVITIES COMPLETED IN 2018–19

General Public Events (including Indigenous peoples, host and potential host communities and municipalities)

81

Licensee-Related Events (including medical professionals and nuclear industry)

12

Youth and Teacher Events (including university events)

16

Other Types of Events

12

Reaching out to Canadians

Disseminating information is a large part of the CNSC's mandate. CNSC staff travel across the country to visit Canadians and answer questions on nuclear regulation. They participate in community meetings, town halls and open houses to build relationships with stakeholders. This ongoing dialogue is important for increasing public understanding and trust in the CNSC's role of protecting Canadians, their health and the environment. In 2018–19, the CNSC participated in 121 outreach events: Staff were invited to schools, conferences, community events and special events to share their expertise in nuclear science and safety – helping to disseminate scientific, technical and regulatory information on CNSC activities.

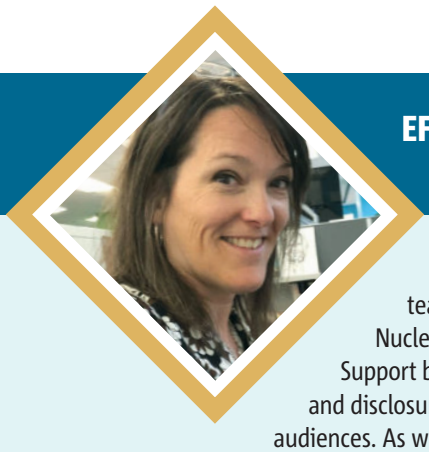
Keeping the Public Informed

In its ongoing commitment to transparency and openness, CNSC staff continued to respond to public questions about nuclear safety. In 2018–19, the CNSC responded to 61 media calls and 1,378 public information inquiries. The CNSC posted 10 feature articles to its website and disseminated 44 new publications.

Online Engagement

Disseminating information is part of the CNSC's mandate, but that information also has to be accessible and understood. One of the goals of the CNSC's social media platforms – YouTube, Facebook and Twitter – is to provide technical information in plain language that explains complicated nuclear science in simple terms. In 2018–19, the CNSC sent 2009 tweets, made 739 Facebook posts and uploaded 29 new YouTube videos. In June 2018, CNSC added LinkedIn to its social media platforms and published 286 posts during the remainder of the fiscal year.

The CNSC continues to invest resources in its social media engagement, not only by sharing information, but also by answering questions from its followers, often with the assistance of a subject-matter expert.



EFFECTIVE COMMUNICATIONS AND A TRANSPARENT REGULATOR ARE THE GOALS OF THIS ADVISOR

Laura Anderson is Chief Advisor, Strategic and Regulatory Communications. She leads a team responsible for strategic communication advice and services in support of the Canadian Nuclear Safety Commission's mandate and the priorities of the Regulatory Operations and Technical Support branches. Her team is also responsible for the regulatory compliance of public information and disclosure requirements for major licensees, making sure they are actively communicating with their audiences. As well, Laura leads on emergency and crisis communications preparedness so that the CNSC is ready to communicate quickly and clearly in the event of a nuclear emergency.

"I am fortunate to be part of a capable and talented team. We work closely with our clients to understand what they want to achieve, and provide proactive, strategic and creative advice — we are a true strategic partner. We connect the dots and tell the nuclear safety story, building relationships and trust with our audiences."

Laura joined the CNSC in 2008 after a communications career in the private and municipal sectors. She holds a Bachelor of Commerce degree in marketing from McGill University and recently completed the *Transformational Leadership Program* at Algonquin College.

Tackling the challenges of nuclear and radiological emergency communications

In October 2018, in Vienna, the International Atomic Energy Agency (IAEA) hosted the International Symposium on Communicating Nuclear and Radiological Emergencies to the Public, bringing together 400 participants from 74 Member States to discuss challenges and identify key priorities in improving strategies for effectively communicating with the public before, during and after nuclear and radiological emergencies. The CNSC's Jason Cameron, Vice-President of Regulatory Affairs and Chief Communications Officer, served as symposium president.

The final report of the symposium is available online. This informative document is a thorough summary of the symposium, with narratives covering all presentations, panels and poster sessions. It includes Mr. Cameron's recommendations aimed at improving how officials around the world and at all levels communicate to the public during a nuclear or radiological emergency. It is now up to Member States and the IAEA to implement these recommendations and share progress at future international events on emergency preparedness and response.

Engaging stakeholders through "Meet the Nuclear Regulator" sessions

From uranium mines to facilities for research and final waste disposal, Canada's nuclear facilities remain among the safest and most secure in the world. The CNSC offers opportunities throughout Canada to meet the experts who make that possible.

These dynamic sessions introduce the CNSC and its work of ensuring that Canadian nuclear facilities and activities are safe. Through information sessions, CNSC staff strive to build understanding of and public confidence in Canada's nuclear regulatory regime, as well as to offer the public an opportunity to learn about how to participate in the licensing process.

This past year, 22 CNSC information sessions were delivered to a total of 1,143 participants, as shown in the following table.

Meet the Nuclear Regulator sessions held in 2018–19

	Audience	Location	Date	Number attending
1	Nuclear Energy Insider SMR Summit	Atlanta (U.S.)	April 4, 2018	120
2	CNSC's New Technical Co-op Students	Ottawa	May 7, 2018	10
3	CNSC's Summer Students	Ottawa	May 14, 2018	15
4	Ottawa – General Public – CNL	Ottawa	June 12, 2018	7
5	Gatineau – General Public	Gatineau	June 15, 2018	9
6	New Hires	Ottawa	June 22, 2018	15
7	Slovakian Delegation	Ottawa	August 20, 2018	2
8	BAPETEN Indonesian Scientific mission	Ottawa	August 27, 2018	9
9	5th World Nuclear New Build Congress	London (U.K.)	September 18, 2018	125
10	Women in Nuclear Canada Annual Conference	Saskatoon	September 27, 2018	190
11	Office of Nuclear Regulation Delegation	Ottawa	October 15, 2018	12
12	21st Pacific Basin Nuclear Conference and Technology Exhibition	San Francisco (U.S.)	November 2, 2018	150
13	CNS – Generation IV and Small Modular Reactors – Conference	Ottawa	November 5, 2018	220
14	Radiation safety officers	Winnipeg	November 22, 2018	54
15	Australian Delegation	Ottawa	November 27, 2018	2
16	NAYGN Durham – Pickering NPP	Pickering	November 28, 2018	78
17	IRRS Advance Mission	Ottawa	December 17, 2018	3
18	Suncor – Government Relations and Regulatory Affairs	Calgary	January 28, 2019	8
19	University of Calgary – Energy Program, Physics Program and radiation safety officers	University of Calgary	January 28, 2019	59
20	General Public – English	Ottawa – Webinar	February 6, 2019	52
21	General Public – French	Ottawa – Webinar	February 6, 2019	2
22	U.S. NRC inspector visit	Ottawa	March 20, 2019	1

Learn how to participate in an upcoming "Meet the Regulator" session by visiting the CNSC website.

COMMISSION MEMBERS

Ms. Rumina Velshi

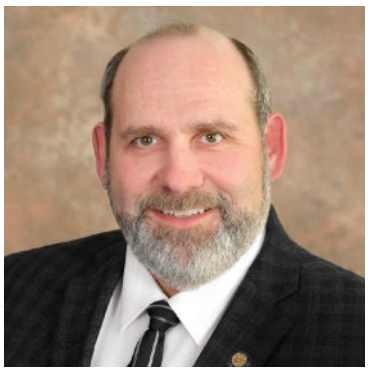
President and Chief Executive Officer (CEO)
of the Canadian Nuclear Safety Commission,
Ottawa, Ontario

Named as a permanent member for a five-year term beginning August 22, 2018. Ms. Velshi previously served as a permanent, part-time Commission member in 2011 and was reappointed for a second five-year term in March 2018.

Mr. Timothy Berube

Ben Berube Holdings
International Inc.
Thunder Bay, Ontario

Appointed as a permanent, part-time member on March 12, 2018



Dr. Sandor Demeter

Physician, Nuclear Medicine
Section Head at Health Sciences Centre of the Winnipeg Regional Health Authority
Winnipeg, Manitoba

Reappointed as a permanent, part-time member on March 12, 2018

Dr. Marcel Lacroix

Professor, Université de Sherbrooke
Sherbrooke, Quebec

Appointed as a permanent, part-time member on March 12, 2018

Ms. Kathy C. Penney

Vice-President and owner of
Shearwater Consulting Ltd.
Calgary, Alberta

Appointed as a permanent, part-time member on March 12, 2018

Dr. Michael Binder

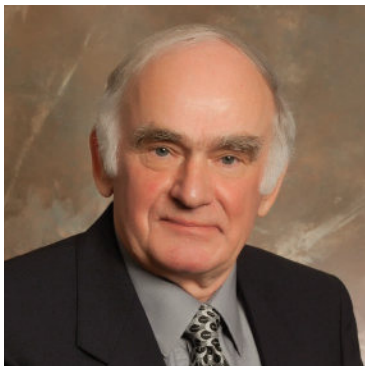
Former President and Chief Executive Officer, Canadian Nuclear Safety Commission
Ottawa, Ontario

Named as a permanent member on January 15, 2008 (term expired on August 8, 2018)

Dr. James F. Archibald

Professor of Mining Engineering
Queen's University, Ontario

Appointed as a temporary member on December 1, 2011, to the joint review panel for the Deep Geologic Repository for low- and intermediate-level radioactive waste (term has expired, but still seized of the DGR file)



Dr. Gunter Muecke

Professional geologist

Appointed as a temporary member on December 1, 2011, to the joint review panel for the Deep Geologic Repository for low- and intermediate-level radioactive waste (term has expired, but still seized of the DGR file)

Dr. Stella Swanson

Environmental consultant

Appointed as a temporary member on December 1, 2011, and currently Chair of the joint review panel for the Deep Geologic Repository for low- and intermediate-level radioactive waste (term has expired, but still seized of the DGR file)

COMMISSION OPERATIONS

MAKING INDEPENDENT AND TRANSPARENT DECISIONS

The Commission is an independent administrative, quasi-judicial tribunal that makes informed, fair and transparent decisions on the licensing of major nuclear-related activities or facilities, and is central to the functioning of the CNSC. It also establishes legally binding regulations, and sets regulatory policy on matters related to the protection of health, safety, security and the environment and to the implementation of international obligations respecting the peaceful use of nuclear energy.

Before the Commission decides whether to license nuclear-related activities, it considers applicants' proposals, recommendations from CNSC staff, and stakeholder views. Each licensing decision is based on information that demonstrates that the activity or the operation of a given facility can be carried out safely, that the environment and the health and safety of persons are protected, and the proposed licensee is qualified. To promote openness and transparency, the Commission conducts its business in public hearings and meetings and, where appropriate, in communities where activities take place. Indigenous Peoples and other members of the public can participate in public proceedings via written submissions and/or oral presentations. Commission hearings and meetings can also be viewed as live webcasts on the CNSC website, and transcripts of public hearings and meetings are also available. Webcasts are archived on the site for at least three months, and the transcripts are available for approximately two years after the session.

COMMISSION MEMBERSHIP

At fiscal year end, the Commission had five permanent members and three temporary members appointed by the Governor in Council. Four of these members are appointed on a part-time basis. All Commission members are chosen based on their qualifications and expertise. All are independent of political, governmental, special interest group or industry influences and have committed to the highest ethical and conflict-of-interest standards. The CNSC President is the only full-time Commission member.

FINANCIAL REVIEW AND HIGHLIGHTS

FINANCIAL STATEMENTS FOR THE YEAR ENDING MARCH 31, 2019

The CNSC's expenses totalled $165.5 million in 2018–19. Of this amount, $117.1 million was funded by earned revenues, and the balance of $48.4 million (the net cost of operations), was funded through government appropriations.

RESULTS

Expenses

The CNSC conducts an annual planning exercise and approves operating budget levels before the start of the fiscal year. Budget approval takes into account the expected revenues from planned regulatory activities that are subject to cost recovery and the available parliamentary funding.

Total CNSC expenses increased to $165.5 million in 2018–19, from $163.1 million in 2017–18, for a net increase of $2.4 million (1.5%). The net increase is mainly the result of:

- an increase in salaries and employee benefits expenses of $3.4 million (2.9%)
- a decrease in professional and special services of $0.4 million (1.8%)
- a decrease in expenses of $0.6 million (2.4%) in all other expenditure categories

The increase in salaries is largely a result of an increase in the average number of full-time equivalent employees, and of the anticipated normal economic and merit increases to basic salaries. The decrease in professional and special services is attributable to a decrease in legal services, information management and information technology consultants and translation services, partially offset by the increase in costs of services provided without charge from Shared Services Canada for the network infrastructure.

This total of $165.5 million in CNSC expenses was also $4.6 million (2.8%) less than the planned expenses of $170.1 million reported in the CNSC's future-oriented financial statements included in the *2018–19 Departmental Plan*. The lower than planned expenses are a net result of:

- lower spending on salaries and employee benefits expenses of $4.2 million due to reduced staffing requirements and a lower rate than planned for the cost of health and dental plans for employees
- lower spending on travel and relocation of $1.0 million, as planned costs did not materialize and remained in line with historical trends
- higher than planned grants and contributions expenses of $0.8 million, partly as a result of increased use of the Participant Funding Program
- lower spending in all other expenditure categories expenses of $0.2 million

Revenues

The CNSC collects regulatory fees in accordance with the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations* (the Regulations). In 2018–19, the CNSC funded approximately 71% of its total cost of operations from fees collected from licensees. Revenue totalled $117.1 million in 2018–19, an increase of $3.8 million (3.3%) from $113.3 million in 2017–18. The increase in revenues is attributable to increased regulatory oversight activity costs related to increases in salaries and wages, as well as an increase in fees for nuclear substances used for commercial and industrial activities.

The 2018–19 revenues of $117.1 million were $6.4 million (5.2%) lower than the planned revenues of $123.5 million reported in the CNSC's future-oriented financial statements included in the *2018–19 Departmental Plan*. The variance is primarily attributable to lower than initially forecast salaries and employee benefits expenses as well as lower than planned revenue-generating special projects.

Net cost of operations

The net cost of operations reflects the parliamentary appropriations used to fund activities and certain types of licensees who, under the Regulations, are not subject to cost recovery. The Regulations state that licensees such as hospitals and universities are exempt from paying fees, as they are entities that exist for the public good. In addition, fees are not charged for activities that result from CNSC obligations that do not provide a direct benefit to identifiable licensees. These include activities with respect to Canada's international obligations (including non-proliferation activities), public responsibilities such as emergency management and public information programs, and updating of the *Nuclear Safety and Control Act* and associated regulations as appropriate.

In 2018–19, the CNSC's net cost of operations funded by government funding and transfers was $48.4 million, a $1.4 million (2.8%) decrease from the previous year. The decrease is mainly a result of retroactive payments for negotiated salary adjustments made in 2017–18.

Outlook

As reported in the CNSC's future-oriented financial statements included in the *2019–20 Departmental Plan*, the total projected revenue for 2019–20 is $125.5 million, up from $123.5 million forecast in 2018–19, for a net increase of $2.0 million (1.6%), which is primarily a result of normal salary increases. The total projected expenses for 2019–20 are $175.5 million, up $5.4 million (3.2%) from $170.1 million projected for 2018–19.

CNSC MANAGEMENT TEAM

Rumina Velshi

PRESIDENT AND
CHIEF EXECUTIVE OFFICER

Ramzi Jammal

EXECUTIVE VICE-PRESIDENT, REGULATORY OPERATIONS BRANCH, AND CHIEF REGULATORY OPERATIONS OFFICER

Jason Cameron

VICE-PRESIDENT, REGULATORY AFFAIRS BRANCH, AND CHIEF COMMUNICATIONS OFFICER

Peter Elder

VICE-PRESIDENT, TECHNICAL SUPPORT BRANCH, AND CHIEF SCIENCE OFFICER

Stéphane Cyr

VICE-PRESIDENT, CORPORATE SERVICES BRANCH, AND CHIEF FINANCIAL OFFICER

Lisa Thiele

SENIOR GENERAL COUNSEL AND DIRECTOR, LEGAL SERVICES

Marc Leblanc

COMMISSION SECRETARY

FINANCIAL STATEMENTS

CANADIAN NUCLEAR SAFETY COMMISSION

Statement of Management Responsibility Including Internal Control Over Financial Reporting

Responsibility for the integrity and objectivity of the accompanying financial statements for the year ended March 31, 2019, and all information contained in these statements rests with the management of the Canadian Nuclear Safety Commission (CNSC). These financial statements have been prepared by management using the Government's accounting policies, which are based on Canadian public sector accounting standards.

Management is responsible for the integrity and objectivity of the information in these financial statements. Some of the information in the financial statements is based on management's best estimates and judgment, and gives due consideration to materiality. To fulfill its accounting and reporting responsibilities, management maintains a set of accounts that provides a centralized record of the CNSC's financial transactions. Financial information submitted in the preparation of the Public Accounts of Canada, and included in the CNSC's *Departmental Results Report*, is consistent with these financial statements.

Management is also responsible for maintaining an effective system of internal control over financial reporting (ICFR) designed to provide reasonable assurance that financial information is reliable, that assets are safeguarded and that transactions are properly authorized and recorded in accordance with the *Financial Administration Act* as well as all relevant CNSC policies, authorities and statutory requirements, including the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations.*

Management seeks to ensure the objectivity and integrity of data in its financial statements through careful selection, training and development of qualified staff; through organizational arrangements that provide appropriate divisions of responsibility; through communication programs aimed at ensuring that regulations, policies, standards, and managerial authorities are understood throughout the CNSC; and through conducting an annual risk-based assessment of the effectiveness of the system of ICFR.

The system of ICFR is designed to mitigate risks to a reasonable level based on an ongoing process to identify key risks, to assess effectiveness of associated key controls, and to make any necessary adjustments.

A risk-based assessment of the system of ICFR for the year ended March 31, 2019 was completed in accordance with the Treasury Board *Policy on Financial Management* , and the results and action plans are summarized in the annex.

The effectiveness and adequacy of the CNSC's system of ICFR is reviewed by the internal control staff, who conduct periodic monitoring assessments, and by the Departmental Audit Committee, which oversees management's responsibilities for maintaining adequate control systems and the quality of financial reporting, and recommends the financial statements to the president.

The Office of the Auditor General, the independent auditor for the Government of Canada, has expressed an opinion on the fair presentation of the financial statements of the CNSC which does not include an audit opinion on the annual assessment of the effectiveness of the CNSC's internal controls over financial reporting. At the CNSC's request, the Office of the Auditor General also audited and expressed an opinion on its compliance with the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations.*

Rumina Velshi
President and
Chief Executive Officer

Stéphane Cyr
Vice-President, Corporate Services Branch and
Chief Financial Officer

Ottawa, Canada
July 15, 2019

INDEPENDENT AUDITOR'S LETTER

Office of the Auditor General of Canada

Bureau du vérificateur général du Canada

INDEPENDENT AUDITOR'S REPORT

To the Canadian Nuclear Safety Commission and the Minister of Natural Resources

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of the Canadian Nuclear Safety Commission (the Commission), which comprise the statement of financial position as at 31 March 2019, and the statement of operations and net financial position, statement of change in net debt and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Commission as at 31 March 2019, and the results of its operations, changes in its net debt, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Commission in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Commission's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either

intends to liquidate the Commission or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Commission's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Commission's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Commission's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of

our auditor's report. However, future events or conditions may cause the Commission to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Report on Compliance with Specified Authorities

Opinion

In conjunction with the audit of the financial statements, we have audited transactions of the Canadian Nuclear Safety Commission coming to our notice for compliance with specified authorities. The specified authorities against which compliance was audited are Canadian Nuclear Safety Commission Cost Recovery Fees Regulations pursuant to *the Nuclear Safety and Control Act*.

In our opinion, the transactions of the Canadian Nuclear Safety Commission that came to our notice during the audit of the financial statements have complied, in all material respects, with the specified authorities referred to above.

Responsibilities of Management for Compliance with Specified Authorities

Management is responsible for the Canadian Nuclear Safety Commission's compliance with the specified authorities named above, and for such internal control as management determines is necessary to enable the Canadian Nuclear Safety Commission to comply with the specified authorities.

Auditor's Responsibilities for the Audit of Compliance with Specified Authorities

Our audit responsibilities include planning and performing procedures to provide an audit opinion and reporting on whether the transactions coming to our notice during the audit of the financial statements are in compliance with the specified authorities referred to above.

Vicki Clement

Vicki Clement, CPA, CA
Principal
for the Interim Auditor General of Canada

Ottawa, Canada
15 July 2019

Statement of Financial Position

As at March 31

(in thousands of dollars)	**2019**	2018
Liabilities		
Accounts payable and accrued liabilities (note 4)	**26,797**	26,136
Vacation pay and compensatory leave	**10,610**	8,536
Deferred revenue (note 5)	**3,956**	3,523
Employee future benefits (note 6b)	**3,608**	3,983
Asset retirement obligation (note 7)	**351**	339
Total liabilities	**45,322**	42,517
Financial assets		
Due from the Consolidated Revenue Fund	**26,933**	26,113
Accounts receivable (note 8)	**1,567**	1,352
Total net financial assets	**28,500**	27,465
Net debt	**16,822**	15,052
Non-financial assets		
Tangible capital assets (note 9)	**16,370**	12,836
Prepaid expenses	**446**	777
Total non-financial assets	**16,816**	13,613
Net financial position	**(6)**	(1,439)

Contractual obligations (note 12) and contingent liabilities (note 13)

The accompanying notes form an integral part of these financial statements.

Rumina Velshi
President and
Chief Executive Officer

Stéphane Cyr
Vice-President, Corporate Services Branch and
Chief Financial Officer

Ottawa, Canada
July 15, 2019

Statement of Operations and Net Financial Position

For the year ended March 31

(in thousands of dollars)	Planned results* 2019	**2019**	2018
Expenses			
Salaries and employee benefits	123,451	**119,256**	115,839
Professional and special services	19,438	**19,535**	19,899
Accommodation	9,543	**9,615**	9,644
Travel and relocation	6,300	**5,319**	5,423
Amortization	4,286	**4,315**	4,265
Furniture, repairs and rentals	3,166	**3,137**	3,177
Grants and contributions	1,770	**2,584**	2,603
Communication and information	1,350	**1,186**	1,275
Utilities, materials and supplies	700	**504**	598
Other	125	**81**	415
Total expenses (note 10)	170,129	**165,532**	163,138
Revenues			
Licence fees	120,337	**114,422**	110,621
Special projects	3,147	**2,451**	2,663
Other	-	**217**	38
Total revenues (note 10)	123,484	**117,090**	113,322
Net cost of operations before government funding and transfers	46,645	**48,442**	49,816
Government funding and transfers			
Net cash provided by Government of Canada	25,007	**31,440**	38,521
Services provided without charge by other government departments (note 11a)	17,194	**17,615**	17,876
Change in due from Consolidated Revenue Fund	2,419	**820**	(7,871)
Transfer of assets and liabilities from other government departments	-	**-**	40
Net (revenue) cost of operations after government funding and transfers	2,025	**(1,433)**	1,250
Net financial position - Beginning of year	28	**(1,439)**	(189)
Net financial position - End of year	(1,997)	**(6)**	(1,439)

Segmented information (note 10)

*Planned results amounts in the "Expenses" and "Revenues" sections as reported in the Future-Oriented Statement of Operations included in the *2018–19 Departmental Plan* . The planned results amounts in the "Government funding and transfers" section have not been previously published.

The accompanying notes form an integral part of these financial statements.

Statement of Change in Net Debt

For the year ended March 31

(in thousands of dollars)	Planned results* 2019	**2019**	2018
Net (revenue) cost of operations after government funding and transfers	2,025	**(1,433)**	1,250
Change due to tangible capital assets			
Acquisition of tangible capital assets (note 9)	3,895	**7,860**	4,029
Amortization of tangible capital assets (note 9)	(4,286)	**(4,315)**	(4,265)
Transfer from other government departments	-	**-**	40
Proceeds from disposal of tangible capital assets	-	**(185)**	(11)
Gain on disposal of tangible capital assets including adjustments	-	**174**	68
Total change due to tangible capital assets	(391)	**3,534**	(139)
Change due to prepaid expenses	15	**(331)**	36
Net (decrease) increase in net debt	1,649	**1,770**	1,147
Net debt - Beginning of year	13,798	**15,052**	13,905
Net debt - End of year	15,447	**16,822**	15,052

*Planned results amounts have not been previously published.

The accompanying notes form an integral part of these financial statements.

Statement of Cash Flows

For the year ended March 31

(in thousands of dollars)	**2019**	2018
Operating activities		
Net cost of operations before government funding and transfers	**48,442**	49,816
Non-cash items:		
Amortization of tangible capital assets (note 9)	**(4,315)**	(4,265)
Gain on disposal of tangible capital assets including adjustments	**174**	68
Services provided without charge by other government departments (note 11a)	**(17,615)**	(17,876)
Variations in Statement of Financial Position:		
Increase (decrease) in accounts receivable	**215**	(260)
(Decrease) increase in prepaid expenses	**(331)**	36
Decrease in accounts payable and accrued liabilities	**223**	8,236
Increase in vacation pay and compensatory leave	**(2,074)**	(1,045)
Increase in deferred revenue	**(433)**	(225)
Decrease in employee future benefits	**375**	518
Increase in asset retirement obligation	**(12)**	(73)
Cash used in operating activities	**24,649**	34,930
Capital investing activities		
Acquisitions of tangible capital assets (note 9)	**6,976**	3,602
Proceeds from disposal of tangible capital assets	**(185)**	(11)
Cash used in capital investing activities	**6,791**	3,591
Net cash provided by Government of Canada	**31,440**	38,521

The accompanying notes form an integral part of these financial statements.

1. Authority and objectives

The Canadian Nuclear Safety Commission (CNSC) was established in 1946 by the *Atomic Energy Control Act* . It was known as the Atomic Energy Control Board until May 31, 2000, when the *Nuclear Safety and Control Act* (NSCA) came into effect. The CNSC is a departmental corporation listed in Schedule II of the *Financial Administration Act* and reports to Parliament through the Minister of Natural Resources.

To protect the health, safety and security of people and the environment, the NSCA provides comprehensive powers to the CNSC to establish and enforce national standards on the use of nuclear energy and materials. As part of this mandate, the CNSC is responsible for disseminating objective scientific, technical and regulatory information to the public. The NSCA establishes a basis for implementing Canadian nuclear policy and fulfilling Canada's international commitments on the peaceful use of nuclear energy. It also empowers the CNSC to require financial guarantees, order remedial action in hazardous situations, and require responsible parties to bear the costs of decontamination and other remedial measures.

Under the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations* (2003), the CNSC recovers costs related to its regulatory activities from users licensed under the NSCA. These activities include conducting technical assessments of licence applications, performing compliance inspections and developing licensing standards.

2. Summary of significant accounting policies

These financial statements are prepared using the CNSC's accounting policies stated below, which are based on Canadian public sector accounting standards. The presentation and results using the stated accounting policies do not result in any significant differences from Canadian public sector accounting standards.

Significant accounting policies are as follows:

(a) Parliamentary authorities and revenue spending authority

The CNSC is financed by the Government of Canada through Parliamentary and statutory authorities. Included in the statutory appropriation is a revenue-spending authority, which allows the CNSC to spend licence fee revenue. Financial reporting of authorities provided to the CNSC do not parallel financial reporting according to generally accepted accounting principles since authorities are primarily based on cash flow requirements. Consequently, items recognized in the CNSC Statement of Operations and Net Financial Position and in the Statement of Financial Position are not necessarily the same as those provided through authorities from Parliament. Note 3 provides a reconciliation between the bases of reporting. The planned results amounts in the "Expenses" and "Revenues" sections of the CNSC Statement of Operations and Net Financial Position are the amounts reported in the Future-Oriented Statement of Operations included in the *2018–19 Departmental Plan* . The planned results amounts in the "Government funding and transfers" section of the CNSC Statement of Operations and Net Financial Position and in the CNSC Statement of Change in Net Debt were prepared for internal management purposes and have not been previously published.

(b) Net cash provided by Government of Canada

The CNSC operates within the Consolidated Revenue Fund (CRF), which is administered by the Receiver General for Canada. All cash received by the CNSC is deposited to the CRF, and all cash disbursements made by the CNSC are paid from the CRF. The net cash provided by Government of Canada is the difference between all cash receipts and all cash disbursements, including transactions between departments and agencies of the Government.

(c) Amounts due from or to the Consolidated Revenue Fund

Amounts due from or to the CRF are the result of timing differences at year-end between when a transaction affects authorities and when it is processed through the CRF. Amounts due from the CRF represent the net amount of cash that the CNSC is entitled to draw from the CRF without further authorities to discharge its liabilities.

(d) Revenues

Revenues from regulatory fees are recognized based on the services provided in the year. Revenue is recognized in the period in which the underlying transaction or event that gave rise to the revenue takes place. Licence fee revenue is recognized on a straight-line basis over the period to which the fee payment pertains (normally three months or one year). Licence fees received for future year licence periods are recorded as deferred revenue.

2. Summary of significant accounting policies (continued)

(d) Revenues (continued)

Certain educational institutions, not-for-profit research institutions wholly owned by educational institutions, publicly funded healthcare institutions, not-for-profit emergency response organizations and federal government departments and agencies are not subject to the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations.* The CNSC provides licences to these organizations free of charge. The value of licences provided free of charge is calculated on the same basis as licence fees for organizations subject to the Regulations. The CNSC does not include the foregone revenue associated with these licences in the Statement of Operations and Net Financial Position.

(e) Accounts payable and accrued liabilities

- Accounts payable and accrued liabilities are measured at cost and represent obligations of the CNSC for salary and wages, for material and supply purchases and for the cost of services rendered to the CNSC.
- Salary-related accrued liabilities are determined using the employees' salary levels at year-end.

(f) Expenses

Expenses are recorded on an accrual basis. The cost of goods and services are expensed as they are incurred.

The CNSC provides grants and contributions to enable the development and management of activities of its Research and Support Program and the Canadian Safeguards Support Program. Grants are recognized in the year in which the conditions for payment are met. Contributions are recognized in the year in which the recipient has met the eligibility criteria or fulfilled the terms of a contractual transfer agreement, provided that the transfer is authorized and a reasonable estimate can be made.

Vacation pay and compensatory leave are accrued as the benefits are earned by employees under their respective terms of employment.

Services provided without charge by other government departments are recorded as operating expenses at their carrying amount. These include accommodation provided by Public Services and Procurement Canada, contributions covering the employer's share of employees' insurance premiums and other costs paid by the Treasury Board Secretariat, services provided by Shared Services Canada, audit services provided by the Office of the Auditor General, workers' compensation benefits provided by Employment and Social Development, and the costs of legal services provided by Justice Canada.

(g) Related party transactions

Related party transactions, other than inter-entity transactions, are recorded at the exchange amount. Related parties include individuals who are members of key management personnel (KMP) or close family members of those individuals, and entities controlled by, or under shared control of, a member of KMP or a close family member of that individual. The CNSC has defined its KMP to be the president, the vice-presidents, the commission secretary and the senior general counsel.

Inter-entity transactions are transactions between commonly controlled entities which includes all government departments, agencies, and Crown corporations. Inter-entity transactions that are undertaken on similar terms and conditions to those adopted if the entities were dealing at arm's length are recorded on a gross basis and are measured at the exchange amount, with the exception of services received without charge between commonly controlled entities used in the normal course of the operations, which have been recorded as expenses at the carrying amount.

(h) Employee future benefits

- **Pension benefits:** Eligible employees participate in the Public Service Pension Plan (the Plan), a multi-employer pension plan administered by the Government. The CNSC's contributions to the Plan are charged to expenses in the year incurred and represent the total CNSC obligation to the Plan. The CNSC's responsibility with regard to the Plan is limited to its contributions. Actuarial surpluses or deficiencies are recognized in the financial statements of the Government of Canada, as the Plan's sponsor.
- **Severance benefits**: Employees entitled to severance benefits under labour contracts or conditions of employment earn these benefits as services necessary to earn them are rendered. The CNSC estimates the obligation using employee-specific data to determine the amount that will be due to employees upon departure from the public service.
- **Maternity/parental leave**: Employees are entitled to maternity/parental leave benefits as provided for under labour contracts and conditions of employment. The benefits earned are event driven, meaning the CNSC's obligation for the cost of the entire benefit arises upon occurrence of a specific event being the commencement of the maternity/parental leave. Management has determined the accrued benefit obligation and benefit expenses based on its best estimates. The unpaid portions of maternity/parental leave at year-end are expected to be paid from future parliamentary authorities.

2. Summary of significant accounting policies (continued)

(i) Accounts receivable

Accounts receivable are stated at the lower of cost and net recoverable value. A valuation allowance is recorded for receivables where recovery is considered uncertain.

Credit risk refers to the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The CNSC is not exposed to significant credit risk as all debtors require CNSC licences for their continued operation. The maximum exposure the CNSC has to credit risk is equal to the carrying value of its accounts receivable.

(j) Contingent liabilities

Contingent liabilities are potential liabilities that may become actual liabilities when one or more future events occur or fail to occur. If the future event is likely to occur or fail to occur, and a reasonable estimate of the loss can be made, a provision is accrued and an expense recorded to other expenses. If the likelihood is not determinable or if an amount cannot be reasonably estimated, the contingency is disclosed in the notes to the financial statements.

(k) Tangible capital assets

The costs of acquiring equipment and other capital property are capitalized as tangible capital assets and are amortized to expense over the estimated useful lives of the assets. All tangible capital assets and leasehold improvements having an initial cost of $10,000 or more are recorded at their acquisition cost. Internally developed and externally purchased software are capitalized as tangible capital assets. The cost of internally developed software consists of directly attributable costs necessary to create, produce, and prepare the software to be capable of operating in the manner intended by the CNSC.

Amortization of tangible capital assets is calculated on a straight-line basis over the estimated useful life of the asset as follows:

Asset class	Amortization period
Leasehold improvements	Lesser of the remaining term of lease or useful life of the improvement
Betterment	Over the useful life of the asset or useful life of the betterment, if shorter
Motor vehicles	7 years
Equipment & Special Machinery	5 to 20 years
Furniture	5 to 10 years
Informatics equipment and software	2 to 10 years

(m) Asset retirement obligation

The CNSC provides for its legal obligation, under a lease agreement, to return the premises to their original state. The asset retirement obligation is recognized in the year in which the associated leasehold improvement capital asset is put into use. The obligation is recorded at the net present value of the estimated future cost of retiring the capital asset at the expiry of the lease period. The estimated cost of retirement is added to the carrying amount and amortized over the related assets' useful life. The cost estimate is subject to periodic review, and any material changes in the estimated amount or timing of the underlying future cash flow are recorded as an adjustment to the provision. Upon settlement of the liability, a gain or loss will be recorded. The estimated future cash flows are adjusted for inflation using a rate that is derived on the basis of consensus forecasts and Bank of Canada historical and target inflation rates. The discount rate is a weighted average rate reflecting the Government of Canada's cost of borrowing on initial recognition and on subsequent changes to expected cash flows, which is most closely associated with the period to settlement of the obligation. Change to the liability recognized due to discounting is recognized as accretion expense on the Statement of Operations and Net Financial Position. Details of the liability are provided in note 7 of these financial statements.

(l) Measurement uncertainty

The preparation of these financial statements requires management to make estimates and assumptions that affect the reported and disclosed amounts of assets, liabilities, revenues and expenses reported in the financial statements and accompanying notes at March 31. At the time of preparation of these statements, management believes the estimates and assumptions to be reasonable. The most significant items where estimates are used are the likliehood of occurrence for contingent liabilities, the liability for employee future benefits and the useful life of tangible capital assets. Actual results could significantly differ from those estimated. Management's estimates are reviewed periodically and, as adjustments become necessary, they are recorded in the financial statements in the year they become known.

3. Parliamentary authorities

The CNSC receives most of its funding through annual parliamentary authorities. Items recognized in the Statement of Operations and Net Financial Position and the Statement of Financial Position in one year may be funded through parliamentary authorities in prior, current or future years. Accordingly, the CNSC has different net results of operations for the year on a government funding basis than on an accrual accounting basis. The differences are reconciled in the following tables:

(a) Reconciliation of net cost of operations to current year authorities used

(in thousands of dollars)	2019	2018
Net cost of operations before government funding and transfers	**48,442**	49,816
Adjustments for items affecting net cost of operations but not affecting authorities:		
Amortization of tangible capital assets	**(4,315)**	(4,265)
Decrease (increase) in vacation pay, compensatory leave and accrued liabilities	**(3,375)**	3,931
Services provided without charge by other government departments (note 11a)	**(17,615)**	(17,876)
Revenues pursuant to paragraph 21(3) of the *Nuclear Safety and Control Act*	**116,873**	113,284
Decrease in employee future benefits	**375**	518
Refund of prior years' expenditures	**553**	444
Gain on disposal of tangible capital assets including adjustments	**174**	68
Other	**193**	(371)
	92,863	95,733
Adjustments for items not affecting net cost of operations but affecting authorities:		
Acquisitions of tangible capital assets (note 9)	**7,860**	4,029
Salary overpayments	**89**	179
(Decrease) increase in prepaid expenses	**(331)**	36
	7,618	4,244
Current year authorities used	**148,923**	149,793

(b) Authorities provided and used

(in thousands of dollars)	2019	2018
AUTHORITIES PROVIDED:		
Vote 1 – Program expenditures	**42,006**	43,677
STATUTORY:		
Spending of revenues pursuant to section 21(3) of the *Nuclear Safety and Control Act*	**97,463**	98,069
Spending of proceeds from the disposal of surplus assets	**45**	-
Contributions to employee benefit plans	**13,946**	13,578
	153,460	155,324
LESS:		
Authorities available for use in the subsequent year	**3,899**	3,478
Lapsed Vote 1 – Program expenditures	**638**	2,053
Current year authorities used	**148,923**	149,793

4. Accounts payable and accrued liabilities

The following table presents details of the CNSC's accounts payable and accrued liabilities:

(in thousands of dollars)	**2019**	2018
Other government departments and agencies	**10,603**	9,694
External parties	**14,818**	15,879
Licensees*	**1,376**	563
Total accounts payable and accrued liabilities	**26,797**	26,136

*Payable to licensees represents the calculation of the excess of collection of fees charged over the actual fees earned as at year-end.

5. Deferred revenue

Deferred revenue represents the balance at year-end of unearned revenues from amounts received from licensees for fees charged prior to services being performed. Revenue is recognized in the period in which these expenditures are incurred or in which service is performed. Details of the transactions related to this account are as follows:

(in thousands of dollars)	**2019**	2018
Balance, beginning of year	**3,523**	3,298
Licence fee revenue recognized during the year	**(3,466)**	(3,253)
Licence fee received for future years	**3,899**	3,478
Balance, end of year	**3,956**	3,523

6. Employee future benefits

(a) Pension benefits

CNSC employees participate in the Public Service Pension Plan (the Plan), which is sponsored and administered by the Government of Canada. Pension benefits accrue up to a maximum period of 35 years at a rate of 2% per year of pensionable service, times the average of the best five consecutive years of earnings. The benefits are integrated with Canada/Quebec Pension Plan benefits and they are indexed to inflation.

Both the employees and the CNSC contribute to the cost of the Plan. Due to the amendment of the *Public Service Superannuation Act* following the implementation of provisions related to Economic Action Plan 2012, employee contributors have been divided into two groups: Group 1 consists of existing plan members as of December 31, 2012; and Group 2 consists of members joining the Plan as of January 1, 2013. Each group has a distinct contribution rate.

The 2018–19 expense amounts to $9,725,747 ($9,246,343 in 2017–18). For Group 1 members, the expenses represent approximately 1.01 times (1.01 times in 2017–18) the employee contributions and, for Group 2 members, approximately 1.00 times (1.00 times in 2017–18) the employee contributions.

The CNSC's responsibility with regard to the Plan is limited to its contributions. Actuarial surpluses or deficiencies are recognized in the Consolidated Financial Statements of the Government of Canada, as the Plan's sponsor.

(b) Severance benefits and parental leave benefits

The CNSC previously provided severance benefits to its employees based on eligibility, years of service and salary at termination of employment.

The accumulation of severance benefits for voluntary departures ceased for all employees in 2013–14. Employees were given the option to be immediately paid the full or partial value of benefits earned to date, or collect the full or remaining value of benefits upon departure from the public service. The remaining balance represents the estimated obligation due to employees as at the reporting date. These severance benefits are not pre-funded, and consequently the outstanding obligation will be paid from future authorities.

6. Employee future benefits (continued)

The CNSC provides maternity/parental leave benefits as provided for under labour contracts and conditions of employment. Management determined the accrued benefit obligation and benefit expenses based on the difference between 93% of the employee's weekly rate of pay and the maternity/parental leave benefit they are entitled to receive under the Employment Insurance or the Québec Parental Insurance Plan.

Information about the future benefits, measured as at March 31, is as follows:

(in thousands of dollars)	**2019**	2018
Accrued severance benefit obligation, beginning of year	**3,748**	4,173
Increase in severance benefits	**105**	269
Severance benefits paid during the year	**(601)**	(694)
Accrued severance benefit obligation, end of year	**3,252**	3,748
Maternity/Parental leave benefits	**356**	235
Accrued benefit obligation, end of year	**3,608**	3,983

7. Asset retirement obligation

The asset retirement obligation is based on the current cost estimate of $338,150 ($338,150 in 2017–18) of the site restoration plan. The estimate has been indexed for inflation using the forecasted Consumer Price Index rate of 2.20% to reflect the estimated future cost of the site restoration plan. The CNSC recognizes the net present value, using the actual zero-coupon yield curve for Government of Canada bonds of 1.55% (1.79% in 2017–18), of the estimated future cost of $385,314 ($351,122 in 2017–18), of restoring the leased premises at the projected expiry of the lease on March 31, 2025. As of March 31, 2019, the CNSC has an asset retirement obligation that can be reasonably estimated as follows:

(in thousands of dollars)	**2019**	2018
Balance, beginning of year	**339**	266
Revision in estimate	**-**	79
Accretion expense	**12**	(6)
Balance, end of year	**351**	339

8. Accounts receivable

The following table presents details of the CNSC's accounts receivable:

(in thousands of dollars)	**2019**	2018
Receivables – Licence fees	**1,323**	1,107
Receivables – Other government departments and agencies	**87**	236
Receivables – Others	**359**	221
	1,769	1,564
Allowance for doubtful accounts on receivables	**(202)**	(212)
Net accounts receivable	**1,567**	1,352

9. Tangible capital assets

Cost (in thousands of dollars)	**Opening balance**	**Acquisitions**	**Adjustments**	**Disposals / Write-offs**	**Work in progress transfers**	**Closing balance**
Furniture and equipment	6,786	611	-	(218)	14	**7,193**
Informatics equipment and software	11,833	-	-	-	3,404	**15,237**
Leasehold improvements	16,303	-	-	-	332	**16,635**
Motor vehicles	819	149	-	(134)	-	**834**
Other vehicles	77	-	-	-	-	**77**
Work-in-progress – software	2,990	6,406	-	-	(3,292)	**6,104**
Work-in-progress – construction	51	694	-	-	(458)	**287**
Total	38,859	7,860	-	(352)	-	**46,367**

Accumulated amortization (in thousands of dollars)	**Opening balance**	**Amortization**	**Adjustments**	**Disposals / Write-offs**	**Closing balance**
Furniture and equipment	4,881	445	(50)	(218)	**5,058**
Informatics equipment and software	7,599	2,581	50	-	**10,230**
Leasehold improvements	13,137	1,177	-	-	**14,314**
Motor vehicles	378	109	-	(123)	**364**
Other vehicles	28	3	-	-	**31**
Total	26,023	4,315	-	(341)	**29,997**

Net book value (in thousands of dollars)	2018	**2019**
Furniture and equipment	**1,905**	**2,135**
Informatics equipment and software	**4,234**	**5,007**
Leasehold improvements	**3,166**	**2,321**
Motor vehicles	**441**	**470**
Other vehicles	**49**	**46**
Work-in-progress – software	**2,990**	**6,104**
Work-in-progress – construction	**51**	**287**
Total	**12,836**	**16,370**

The capital costs associated with the in-house development of software and improvements to leased accommodations are recorded as work-in-progress until they are completed and put into use. During the year ended March 31, 2019, $3,750,000 work-in-progress was completed and put into use.

The acquisition of tangible capital assets and the increase in accounts payables and accrued liabilities presented in the Statement of Cash Flows excludes an amount of $883,731 ($427,116 in 2017–18) in relation to the acquisition of tangible capital assets, as the amount relates to capital investing activities in 2018–19 that remain to be paid as at March 31, 2019.

10. Summary of segmented expenditures and revenues by cost recovery fee category

The following table presents the expenses incurred and revenues generated for the CNSC's main business lines. It follows the same accounting policies described in note 2. The segment results for the period are as follows:

(in thousands of dollars)	Revenue	Licences provided free of charge (note 11(b) and note 14)	2019 total value of licences and other revenue	2018 total value of licences and other revenue	2019 cost of operations	2018 cost of operations
LICENCE FEES						
Power reactors	**71,173**	**-**	**71,173**	70,587	**71,173**	70,587
Non-power reactors	**-**	**927**	**927**	1,712	**927**	1,712
Nuclear research and test establishments	**14,653**	**-**	**14,653**	14,327	**14,653**	14,327
Particle accelerators	**-**	**679**	**679**	612	**679**	612
Uranium processing facilities	**4,230**	**-**	**4,230**	3,855	**4,230**	3,855
Nuclear substance processing facilities	**1,026**	**-**	**1,026**	971	**1,026**	971
Radioactive waste facilities	**6,194**	**-**	**6,194**	4,948	**6,194**	4,948
Uranium mines and mills	**7,241**	**-**	**7,241**	7,164	**7,241**	7,164
Waste nuclear substance	**891**	**3,331**	**4,222**	3,530	**4,222**	3,530
Total regulatory activity plan fees	**105,408**	**4,937**	**110,345**	107,706	**110,345**	107,706
Nuclear substances and Class II nuclear facilities						
Academic and research	**160**	**1,910**	**2,070**	2,281	**1,755**	2,468
Commercial	**1,211**	**652**	**1,862**	1,912	**3,440**	3,087
Industrial radiography	**6,254**	**184**	**6,439**	5,748	**10,541**	10,792
Medical	**596**	**4,745**	**5,341**	5,391	**5,744**	6,052
Dosimetry services	**282**	**15**	**297**	293	**510**	593
Total formula fees	**8,503**	**7,506**	**16,009**	15,625	**21,990**	22,992
Transport licences and transport package certificates	**262**	**1**	**263**	160	**669**	712
Radiation device and prescribed equipment certificates	**146**	**5**	**151**	207	**1,987**	1,903
Exposure device operator certificates	**103**	**-**	**103**	93	**1,201**	1,753
Total fixed fees	**511**	**6**	**517**	460	**3,857**	4,368
TOTAL LICENCE FEES	**114,422**	**12,449**	**126,871**	123,791	**136,192**	135,066
NON-LICENCE FEES						
Other non-licence fees	**217**	**-**	**217**	38	**27,096**	25,481
Special projects and related expenses	**2,451**	**-**	**2,451**	2,663	**2,244**	2,591
TOTAL NON-LICENCE FEES	**2,668**	**-**	**2,668**	2,701	**29,340**	28,072
TOTAL	**117,090**	**12,449**	**129,539**	126,492	**165,532**	163,138

11. Related party transactions

The CNSC had the following transactions with related parties in addition to those disclosed elsewhere in these financial statements.

(a) Common services provided without charge by other government departments

During the year, the CNSC received services without charge from certain common service organizations. These services provided without charge have been recorded at the carrying value in the CNSC's Statement of Operations and Net Financial Position as follows:

(in thousands of dollars)	**2019**	2018
Accommodation provided by Public Services and Procurement Canada	**5,926**	6,012
Contributions for employer's share of employee benefits provided by the Treasury Board Secretariat	**8,135**	9,059
Salary and associated costs of services provided by Shared Services Canada	**2,966**	2,246
Audit services provided by the Office of the Auditor General of Canada	**267**	203
Other	**321**	356
Total	**17,615**	17,876

The Government of Canada has centralized some of its administrative activities for efficiency, cost-effectiveness purposes and the economic delivery of programs to the public. As a result, the Government uses central agencies and common service organizations so that one department performs services for all other departments and agencies without charge.

(b) Licences provided without charge to other federal government departments and agencies

The CNSC provided licences free of charge to other federal government departments and agencies in the amount of $2,713,569 ($2,585,947 in 2017–18). The forgone revenue is not included in the Statement of Operations and Net Financial Position.

(c) Other transactions with related parties

The CNSC enters into transactions with these entities in the normal course of business and on normal trade terms. These transactions are measured at the exchange amount.

(in thousands of dollars)	**2019**	2018
Accounts receivable – Other government departments and agencies	**87**	236
Accounts payable – Other government departments, agencies and Crown corporations	**10,836**	9,738
Expenses – Other government departments and agencies	**28,653**	25,955
Revenues – Other government departments and agencies	**17,897**	15,589

Expenses and revenues disclosed in (c) exclude common services provided without charge, which are already disclosed in (a).

12. Contractual obligations

The nature of the CNSC's activities can result in some large multi-year contracts and obligations whereby the CNSC will be obligated to make future payments in order to carry out its transfer payment programs or when services and goods are received. Significant contractual obligations that can be reasonably estimated are summarized as follows:

(in thousands of dollars)	**2020**	**2021**	**2022**	**2023 and subsequent**	**Total**
Acquisitions of goods and services	9,354	1,967	596	607	12,524
Transfer payments	1,562	654	158	40	2,414
Operating leases	336	155	155	-	646
Total	**11,252**	**2,776**	**909**	**647**	15,584

The CNSC has multi-year contracts with related parties in the amount of $2,948,455.

13. Contingent liabilities

Claims have been made against the CNSC in the normal course of operations. These claims include items with pleading amounts other for which no amount is specified. Claims and litigations for which the outcome is not determinable and a reasonable estimate can be made by management amount to approximately $841,500 ($0 in 2017-2018) at March 31, 2019.

14. Other licences provided free of charge by the CNSC

The CNSC provides licences free of charge to educational institutions, not-for-profit research institutions wholly owned by educational institutions, publicly funded healthcare institutions and not-for-profit emergency response organizations. The total value of these licences amounted to $9,735,829 ($10,584,288 in 2017–18). The foregone revenue is not included in the Statement of Operations and Net Financial Position.

ANNEX TO THE STATEMENT OF MANAGEMENT RESPONSIBILITY

INCLUDING INTERNAL CONTROL OVER FINANCIAL REPORTING 2018–19

1. INTRODUCTION

This document provides summary information on the measures taken by the Canadian Nuclear Safety Commission (CNSC) to maintain an effective system of internal control over financial reporting including information on internal control management, assessment results and related action plans.

Detailed information on the CNSC's authority, mandate and program activities can be found in the most recent Departmental Results Report[3] and Departmental Plan.[4] The CNSC 2018–19 audited financial statement[5] are available on the CNSC website.

2. SYSTEM OF INTERNAL CONTROL OVER FINANCIAL REPORTING

2.1 Internal control management

The CNSC has a well-established governance and accountability structure to support efforts to evaluate and monitor its internal control system. An internal control management framework, approved by the president, is in place, and includes:

- organizational accountability structures as they relate to internal control management to support sound financial management, including roles and responsibilities of senior managers in their areas of responsibility
- an Office of Audit and Ethics that manages values and ethics programs, internal disclosure, the *Public Servants Disclosure Protection Act*, and conflict of interest and post-employment policies
- ongoing communication and training on statutory requirements, and policies and procedures for sound financial management and control
- monitoring of and regular updates on internal control management, as well as the provision of related assessment results and action plans to the president and, as applicable, the Audit Committee

The Audit Committee provides advice to the president on the adequacy and functioning of the CNSC's risk management, control and governance frameworks and processes.

3 tbs-sct.gc.ca/dpr-rmr/index-eng.asp

4 tbs-sct.gc.ca/rpp/index-eng.asp

5 nuclearsafety.gc.ca/eng/resources/publications/reports/annual-reports/index.cfm

2.2 Service arrangements relevant to financial statements

The CNSC relies on other organizations for the processing of certain transactions that are recorded in its financial statements as follows:

Common arrangements

- Public Services and Procurement Canada centrally administers the payments of salaries and the procurement of goods and services in accordance with the CNSC's delegation of authority, and provides accommodation services.
- The Treasury Board of Canada Secretariat provides services related to public sector insurance for CNSC employees and centrally administers payment of the employer's share of contributions toward statutory employee benefit plans (i.e., the Public Service Pension Plan, Employment Insurance Plan, Canada Pension Plan, Quebec Pension Plan and Public Service Supplementary Death Benefit Plan) on behalf of the CNSC.
- Shared Services Canada is responsible for managing and maintaining the CNSC's information technology infrastructure.

Readers of this annex may refer to the annexes of the above-noted organizations for a greater understanding of the systems of internal control over financial reporting related to these specific services.

3. DEPARTMENTAL ACTION PLAN

3.1 Progress during fiscal year 2018–19

The CNSC continued to conduct its ongoing monitoring according to the established rotational plan, as shown in the following table.

Progress during fiscal year 2018–19

Key control areas	Status
Purchase to payment	Completed as planned; remedial actions complete (see section 3.2 for additional information)
Year-end financial close and statement preparation	Completed as planned; remedial actions complete (see section 3.2 for additional information)
Payroll	Completed as planned; remedial actions started (see section 3.2 for additional information)

3.2 Assessment results for fiscal year 2018–19

New or significantly amended key controls: In the current year, there were no significantly amended key controls in existing processes that required reassessment.

Ongoing monitoring program: As part of its rotational ongoing monitoring plan, the department completed its reassessment of the purchase to payment, year-end financial close and statement preparation, and payroll business processes. For the most part, the key controls that were tested performed as intended. The CNSC noted a need for improvement as follows:

- Review and refine processes and procedures to ensure the most efficient implementation of controls in the three tested business processes indicated above; notably, controls relating to the account verification process and the monitoring of acquisition cards require attention (medium risk).
- Enhance the requirements for obtaining delegation to authorize payments by ensuring that delegates complete the appropriate training before authorizing payments in the purchase to payment and payroll business processes (medium risk).

Management is aware of the recommendations for improvement and actions are being taken to address them.

3.3 Progress against fiscal year 2017–18 items

In addition to the progress made in ongoing monitoring, the department conducted a follow-up of the outstanding 2017–18 action items:

Revenue

- Completed a review of segregation of duties in the revenue process and made adjustments as required (medium risk)

Year-end financial close and statement preparation

- Reviewed year-end procedures and key controls, and ensured that roles and responsibilities are clear and understood (medium risk)

All items were remediated as planned.

3.4 Monitoring plan for fiscal year 2019–20 and subsequent years

The CNSC's rotational ongoing monitoring plan over the next three years, based on an annual validation of the high-risk processes and controls, and related adjustments to the ongoing monitoring plan as required, is shown in the following table.

Rotational ongoing monitoring plan

Key control areas	Fiscal year 2019–20	Fiscal year 2020–21	Fiscal year 2021–22
Entity-level controls	Yes	No	No
IT general controls (under management of the CNSC)	Yes	No	No
Capital assets	Yes	No	No
Purchase to payment	No	No	Yes
Payroll	No	No	Yes
Revenue	No	Yes	No
Year-end financial close and statement preparation	No	Yes	No
SAP access controls[6]	Yes	No	No
Impact of SAP on financial business processes[6]	Yes	No	No

6 As of April 1, 2019, the CNSC has replaced its financial system with a SAP solution hosted by Agriculture and Agri-Food Canada. In 2019–20, the CNSC will assess a new set of SAP accesses to ensure appropriate employee access to the SAP system, and will also assess a number of sub-processes from payroll, purchase to payment and revenue that are expected to change. These are non-recurring assessments.

ANNEX A: COMMISSION HEARINGS AND HEARINGS IN WRITING IN 2018–19

PUBLIC HEARINGS

NUCLEAR POWER PLANTS

Bruce Power Inc. (Bruce Power): Decision and Errata

- Decision to renew the Bruce Power nuclear power reactor operating licence for the Bruce Nuclear Generating Stations (NGS) A and B for a period of 10 years. Public hearing Part 1 (March 14, 2018) and Part 2 (May 28–31, 2018)

Ontario Power Generation (OPG): Decision and Errata

- Decision to renew the nuclear power reactor operating licence issued to Ontario Power Generation for its Pickering Nuclear Generating Station for a period of 10 years – Public Hearing, Part 1 (April 4, 2018) and Part 2 (June 25-29, 2018)

HEARINGS IN WRITING (BASED SOLELY ON WRITTEN SUBMISSIONS)

University of Alberta: Decision

- Decision to issue the Licence to Abandon a Non-Power SLOWPOKE-2 Reactor Facility, to the University of Alberta for its SLOWPOKE-2 Reactor Facility located in Edmonton, Alberta, and to revoke the Non-Power Reactor Licence, issued to the University of Alberta for its SLOWPOKE-2 Reactor Facility in Edmonton, Alberta (May 25, 2018)

AREVA Resources Canada Inc.: Decision

- Decision to amend the uranium mine operating licence issued to AREVA Resources Canada Inc. for its McClean Lake Operation to reflect the licensee corporate name change to Orano Canada Inc. (July 12, 2018)

Canadian Nuclear Laboratories (CNL): Decision

- Decision to renew the nuclear research and test establishment decommissioning licence issued to Canadian Nuclear Laboratories for its Whiteshell Laboratories for a period of one year (August 1, 2018)

AREVA Resources Canada Inc.: Decision

- Decision to amend the uranium mine decommissioning licence issued to AREVA Resources Inc. for its Cluff Lake Project to reflect the Licensee corporate name change to Orano Canada Inc. and to accept the proposed financial guarantee (August 1, 2018)

Canadian Nuclear Laboratories (CNL): Decision

- Decision to separate the waste facility decommissioning licence for Douglas Point, Gentilly-1 and Nuclear Power Demonstration into three licences (February 8, 2019)

Nordion (Canada) Inc.: Decision

- Decision to transfer the Nuclear Substance Processing Facility Operating Licence NSPFOL-11A.00/2025 issued to Nordion (Canada) Inc. (corporate number 891613-6) for its Class IB facility located in Ottawa, Ontario to the amalgamated corporation named Nordion (Canada) Inc. (corporate number 1115250-5). The transferred licence, NSPFOL-11A.01/2025, is valid until October 31, 2025. (February 26, 2019)

MEETINGS

Opportunities to be heard

- The public was invited to comment, in writing, on the *Progress Update for the Canadian Nuclear Laboratories' Prototype Waste Facilities, Whiteshell Laboratories and the Port Hope Area Initiative* – Commission meeting (August 22, 2018)
- The public was invited to comment, in writing, on the *Regulatory Oversight Report for Research Reactors and Class 1B Accelerators: 2016-2017* – Commission meeting (August 23, 2018)
- The public was invited to comment, in writing, on the *Regulatory Oversight Report on the Use of Nuclear Substances in Canada: 2017* – Commission meeting (October 3, 2018)
- The public was invited to comment, in writing, on the *Regulatory Oversight Report for Canadian Nuclear Power Generating Sites: 2017* (November 8, 2018)
- The public was invited to comment, in writing, on the *Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2017* (December 12, 2018)
- The public was invited to comment, in writing, on the *Regulatory Oversight Report on Uranium and Nuclear Substance Processing Facilities in Canada: 2017* (December 13, 2018)

Number of intervenors at Commission hearings and meetings from April 1, 2018 to March 31, 2019

Intervenors - April 1, 2018 to March 31, 2019			
Date	**Subject**	**ORAL**	**WRITTEN**
May 28–31, 2018	Hearing Part 2 – Bruce Power	58	91
June 25–29, 2018	Hearing Part 2 – Pickering	51	104
August 22, 2018	Meeting	0	6
October 3, 2018	Meeting	0	1
November 8, 2018	Meeting	0	6
December 12–13, 2018	Meeting	5	11
February 20, 2019	Meeting	0	0
May 25, 2018	Hearing in Writing – University of Alberta	0	0
July 12, 2018	Hearing in Writing – AREVA McClean Lake	0	0
August 1, 2018	Hearing in Writing – AREVA Cluff Lake	0	2
August 1, 2018	Hearing in Writing – CNL Whiteshell	0	4
February 26, 2019	Hearing in Writing – Nordion	0	0
TOTAL		114	225

ANNEX B: REGULATORY FRAMEWORK PROJECTS PUBLISHED IN 2018-19

REGDOC-1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities*

REGDOC-1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities*, was published in July 2018. This regulatory document provides requirements and guidance for site evaluation and site preparation for new reactor facilities. It also includes a licence application guide for a licence to prepare a site for a new reactor facility.

This document supersedes RD-346, *Site Evaluation for New Nuclear Power Plants* published in November 2008.

REGDOC-1.5.1, *Application Guide: Certification of Radiation Devices or Class II Prescribed Equipment*

REGDOC-1.5.1, *Application Guide: Certification of Radiation Devices or Class II Prescribed Equipment*, was published in April 2018. This document provides guidance for the completion and submission of the application form for certification of radiation devices or Class II prescribed equipment. It provides a description of the type of information that should be included in an application for certification.

This document supersedes RD/GD-254, *Application Guide: Certification of Radiation Devices or Class II Prescribed Equipment*, published in 2010.

REGDOC-2.1.2, *Safety Culture*

REGDOC-2.1.2, *Safety Culture*, was published in April 2018. This document sets out requirements and guidance for fostering a healthy safety culture and for conducting safety culture assessments.

The CNSC defines safety culture as the characteristics of the work environment, such as the values, rules and common understandings that influence workers' perceptions and attitudes about the importance that the licensee places on safety. A healthy safety culture is a key factor in reducing the likelihood of safety-related events and mitigating their potential impact, and in continually improving safety performance.

REGDOC-2.2.1, *Human Factors*

REGDOC-2.2.1, *Human Factors*, was published in March 2019. This document describes how human factors are taken into consideration in the CNSC's regulatory activities.

This document supersedes P-119, *Policy on Human Factors*, published in July 2000.

REGDOC-2.2.4, *Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness*

REGDOC-2.2.4, *Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical and Psychological Fitness*, was published in September 2018. This document sets out the expectations of the CNSC concerning minimum requirements for nuclear security officer (NSO) medical, physical, and psychological certificates. This regulatory document applies to all persons whom the licensee is considering authorizing or has authorized to act as an NSO at a high-security site as defined in the *Nuclear Security Regulations*.

This document supersedes RD-363, *Nuclear Security Officer Medical, Physical, and Psychological Fitness*, published in November 2008.

REGDOC-2.4.3, *Nuclear Criticality Safety*

REGDOC-2.4.3, *Nuclear Criticality Safety*, was published in February 2019. This document sets out requirements for nuclear criticality safety and provides guidance on how those requirements may be met.

This document clarifies the minimum physical constraints and limits on fissionable materials in order to ensure nuclear criticality safety during the construction, operation, decommissioning or abandonment of the licensed facility and with respect to the handling, storing, processing and transportation of certain fissionable materials.

This document supersedes RD-327, *Nuclear Criticality Safety* and GD-327, *Guidance for Nuclear Criticality Safety*, both published in December 2010.

REGDOC-2.5.1, *General Design Considerations: Human Factors*

REGDOC-2.5.1, *General Design Considerations: Human Factors*, was published in March 2019. Part A sets out guidance for licensees and licence applicants in developing human factors engineering program planning documentation that demonstrates how human factors considerations are incorporated into activities licensed by the CNSC. Part B sets out guidance for licensees and licence applicants in planning for human factors verifi ation and validation activities.

This document supersedes guidance documents G-276, *Human Factors Engineering Program Plans*, and G-278, *Human Factors Verification and Validation Plans,* both published in June 2003.

REGDOC-2.7.3, *Radiation Protection Guidelines for Safe Handling of Decedents*

REGDOC-2.7.3, *Radiation Protection Guidelines for Safe Handling of Decedents,* was published in June 2018. This document provides guidance and recommended practices for minimizing radiation dose to death-care professionals and other members of the public who may encounter a decedent with residual nuclear substances from therapeutic medical procedures.

The CNSC does not regulate the safe handling of decedents. The CNSC published this document in accordance with its mandate to disseminate objective scientific and technical information. REGDOC-2.7.3 was created in response to a growing number of requests from cancer treatment centres and death-care professionals for advice on handling decedents that contain nuclear substances.

REGDOC-2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada*

REGDOC-2.11, *Framework for Radioactive Waste Management and Decommissioning in Canada*, was published in December 2018. This document provides overview information on the governance and regulatory framework for radioactive waste management and decommissioning in Canada. This overview provides the basis for the other documents in the waste management series, described below.

REGDOC-2.11.1, *Waste Management, Volume II: Management of Uranium Mine Waste Rock and Mill Tailings*

REGDOC-2.11.1, *Waste Management, Volume II: Management of Uranium Mine Waste Rock and Mill Tailings*, was published in November 2018. This regulatory document provides guidance to applicants regarding the CNSC's expectations for new mining projects throughout Canada, on the management of waste rock and tailings generated by uranium mining and milling operations.

This document replaces RD/GD-370, *Management of Uranium Mine Waste Rock and Mill Tailings*, published in March 2012, and P-290, *Managing Radioactive Waste*, published in July 2004.

REGDOC-2.11.1, *Waste Management, Volume III: Assessing the Long-Term Safety of Radioactive Waste Management*

REGDOC-2.11.1, *Waste Management, Volume III: Assessing the Long-Term Safety of Radioactive Waste Management*, was published in May 2018. It is intended to assist applicants for new licences and for licence renewals in assessing the long-term safety of radioactive waste management. This document describes approaches for assessing the potential long-term impact that radioactive waste storage and disposal methods may have on the environment and on the health and safety of people.

This document replaces G-320, *Assessing the Long Term Safety of Radioactive Waste Management,* published in December 2006, and P-290, *Managing Radioactive Waste,* published in July 2004.

REGDOC-2.12.1, *High Security Facilities, Volume I: Nuclear Response Force, Version 2*

REGDOC-2.12.1, *High Security Facilities Volume I: Nuclear Response Force*, was published in September 2018. This document sets out the expectations of the CNSC with respect to the minimum requirements for establishing, equipping, training, testing and deploying an onsite nuclear response force (NRF). The document applies to all persons whom the licensee is considering training and authorizing as NRF members. This document contains prescribed information and is not available to the public.

This document supersedes REGDOC-2.12.1, *High Security Facilities: Volume I: Nuclear Response Force*, published in October 2013.

REGDOC-2.12.1, *High-Security Sites Volume II: Criteria for Nuclear Security Systems and Devices*

REGDOC-2.12.1, *High-Security Sites, Volume II: Criteria for Nuclear Security Systems and Devices*, was published in April 2018. This document provides an approach for meeting the requirements of the *Nuclear Security Regulations* (NSR) to prevent and detect unauthorized entry into a protected area or inner area at a high-security site, and to prevent unauthorized entry of weapons and explosive substances.

In applying the criteria described in this regulatory document, licensees contribute to security and safety at high security sites.

This document supersedes RD-321, *Criteria for Physical Protection Systems and Devices at High-Security Sites*, and RD-361, *Criteria for Explosive Substance Detection, X-ray Imaging, and Metal Detection Devices at High-Security Sites*, both published in December 2010.

REGDOC-2.13.2, *Import and Export, Version 2*

REGDOC-2.13.2, *Import and Export,* Version2, was published April 2018. Part I of this document provides guidance for current and prospective licensees who intend to import or export nuclear and nuclear-related dual-use items (also known as controlled nuclear substances, equipment and information). Part I also identifies a change to the implementation of Canada's nuclear non-proliferation policy for evaluating export applications of foreign-origin uranium.

Part II provides guidance for current and prospective licensees who intend to import or export risk-significant radioactive sources as set out in the IAEA's RS-G-1.9, Categorization of Radioactive Sources.

This document also provides information about the CNSC's import and export control program with respect to licence applications, the licence evaluation process and compliance with regulatory requirements. Version 2

This document supersedes Version 1 published in September 2016.

REGDOC-2.14.1, *Packaging and Transport, Volume II: Radiation Protection Program Design for the Transport of Nuclear Substances*

REGDOC-2.14.1, Packaging and Transport, Volume II: *Radiation Protection Program Design for the Transport of Nuclear Substances*, was published November 2018. This document describes a typical radiation protection program that carriers of nuclear substances can implement, to comply with the requirements of the *Packaging and Transport of Nuclear Substances Regulations, 2015*.

This document is intended to assist carriers who are regulated under the NSCA, but not licensed by the CNSC. Consignors, carriers, and consignees who are licensed must comply with the requirements for a radiation protection program through the CNSC's licensing process.

This document supersedes GD-314, *Radiation Protection Program Design for the Transport of Nuclear Substances,* published in March 2012.

REGDOC-3.2.1, *Public Information and Disclosure*

REGDOC-3.2.1, *Public Information and Disclosure*, was published in May 2018. This document sets out requirements and guidance to assist licensees and licence applicants to develop and implement an effective public information program that includes a disclosure protocol.

Through an effective public information program, a licensee or licence applicant establishes an atmosphere of openness, transparency and trust. Licensees and licence applicants are encouraged to adopt the most appropriate and effective means of communication.

REGDOC-3.2.1 supersedes RD/GD-99.3, *Public Information and Disclosure*, published in March 2012.

REGDOC-3.5.3, *Regulatory Fundamentals*

REGDOC-3.5.3, *Regulatory Fundamentals*, was published in August 2018. This document outlines the CNSC's regulatory philosophy and approach to applying the *Nuclear Safety and Control Act*. It provides information for licensees, applicants and the public, and contains neither guidance nor requirements. It supersedes P-299, *Regulatory Fundamentals,* published in April 2005, and INFO-0795, *Licensing Basis – Objective and Definitions, published in* January 2010.

REGDOC-3.5.4, *Pre-licensing Review of a Vendor's Reactor Design*

REGDOC-3.5.4, *Pre-Licensing Review of a Vendor's Reactor Design*, was published in November 2018. This document describes the pre-licensing review process provided by the CNSC for assessing a vendor's reactor design. The review considers the areas of design that relate to reactor safety, security and safeguards.

A pre-licensing review is an optional service provided by the CNSC. The review can be requested by a reactor vendor prior to an applicant's submission of a licence application to the CNSC.

This document supersedes GD-385, *Pre-Licensing Review of a Vendor's Reactor Design,* published in March 2012.

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