



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

CNSC Departmental Results Report 2019–20



Canada

Canadian Nuclear Safety Commission

2019–20

CNSC Departmental Results Report

The Honourable Seamus O'Regan, P.C., M.P. Minister of
Natural Resources

**2019–20 Departmental Results Report
Canadian Nuclear Safety Commission**

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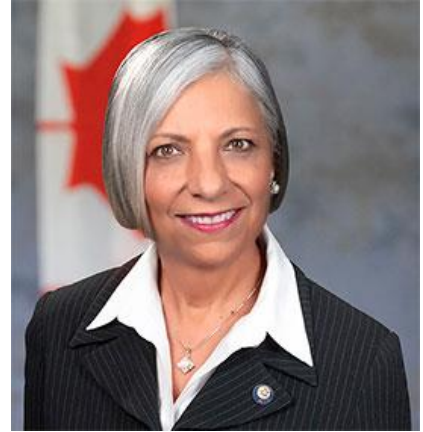
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Message from the President



As the President and Chief Executive Officer of the Canadian Nuclear Safety Commission (CNSC), I am pleased to present our 2019–20 Departmental Results Report. This report provides parliamentarians and Canadians with information about the CNSC’s work and results achieved over the past fiscal year. The end of the 2019–20 fiscal year brought new and unexpected challenges with the declaration of a global pandemic following the onset of the novel coronavirus (COVID-19). For the CNSC, this meant readying employees to work remotely for an extended period of time. I am proud to say that we have risen to these challenges and met them head on, finding new and innovative ways to ensure that we fulfill our mandate while keeping our staff healthy and safe.

Navigating such uncertain times has demonstrated that we are well served by the CNSC’s four organizational priorities, which have continued to guide our efforts over the last year:

- to have a **modern** approach to nuclear regulation
- to be a **trusted** regulator
- to maintain our **global** nuclear influence
- to be an **agile** organization

A **modern** approach to nuclear regulation follows science-based, risk-informed and technically sound regulatory practices that take into account uncertainties and evolving expectations. In 2019–20, the CNSC developed a regulatory readiness strategy to address the challenges of regulating advanced technologies including Small Modular Reactors (SMRs) and to prioritize regulatory efforts. The CNSC also took an important step by signing a memorandum of cooperation with the U.S. Nuclear Regulatory Commission (NRC) to collaborate on licensing activities of SMRs. We continued our oversight of the refurbishments of the Darlington Nuclear Generating Station, and of the Bruce Nuclear Generating Station major component replacement project. Inspections and oversight of these complex infrastructure projects will continue with strong CNSC regulatory oversight of existing facilities.

We also continued work on environmental assessments, including those for the Canadian Nuclear Laboratories’ project for a Near Surface Disposal Facility in Ontario, Global First Power’s application to prepare a site for a small modular reactor on Atomic Energy of Canada Limited’s property at the Chalk River Laboratories location, and two new mine project proposals.

To ensure that the public and Indigenous peoples are confident that the CNSC is an independent, competent and transparent regulator, we are developing a coordinated and focused strategy on **trust** building. In 2019, the CNSC continued to work in the spirit of collaboration and partnership to formalize its relationship with three Indigenous groups: the Métis Nation of Ontario, the Saugeen Ojibway Nation and the Historic Saugeen Métis. Terms of reference were signed with these Indigenous groups providing a forum through which we can collaborate and address areas of interest or concern.

The CNSC has always been a leader on the **global** stage, as we strongly believe in the importance of collaborating with fellow regulators and multilateral organizations. In February 2020, I was asked to serve as the new Chairperson of the International Atomic Energy Agency (IAEA) Commission on Safety Standards for a four-year term. This appointment is a testament to the IAEA's high regard for the CNSC's safety culture and leadership, and it serves to further strengthen our position as a global influencer and leader in nuclear safety.

With the high value we place on international collaboration, the CNSC participated in two peer review missions in 2019. On behalf of Canada, the CNSC hosted an Integrated Regulatory Review Service (IRRS) mission in September 2019. This mission offered a unique opportunity for other regulators and the IAEA to assess the CNSC's regulatory framework against international standards and best practices. We also participated in an Emergency Preparedness Review (EPREV) mission to test Canada's level of preparedness for nuclear or radiological emergencies. As a result of the EPREV mission, Canada has created an EPREV Steering Committee to oversee its commitment in addressing all six recommendations and six suggestions. Canada has shared both the IAEA's report and Canada's response with the public in both official languages to hold ourselves accountable. The CNSC's EPREV planning team was awarded the Canadian Nuclear Society 2020 John S. Hewitt Team Achievement Award.

Finally, we have continued to take the necessary steps to ensure that the CNSC is an **agile**, flexible and inclusive organization, with an empowered and equipped workforce, able to quickly adapt to an evolving operating environment. We prioritize the health and well-being of our staff, as we know they are fundamental to our success. Our efforts in this area were recognized this year when the CNSC was named one of the National Capital Region's Top 25 Employers.

We believe diversity and inclusion are critical to spurring innovation, solving complex issues and improving results for Canadians, which is why we developed and implemented the CNSC's new *Diversity and Inclusion Plan 2019–22*. This plan outlines ongoing and new commitments to leverage diversity and to make progress on ensuring we have a safe, inclusive workplace. An important piece of this is my personal goal to promote careers in science, technology, engineering and mathematics – or STEM disciplines – especially for girls and women. We know that infusing our industry with new energy and new perspectives and involving the best and brightest of all genders will help us to adapt to a changing world. The CNSC has continued working on a strategic plan to support our Women in STEM initiative in order to strengthen support and provide a roadmap for our efforts.

I wish to once again recognize the CNSC’s highly skilled, professional staff, who are dedicated and committed to keeping Canada’s people and environment safe through our regulatory work. In light of the recent global events I referenced, it is clear that our employees will not be deterred from their regulatory duties and that we will continue to be true to our goals and to enforce the highest safety standards.

Original signed by (October 15, 2020)

Rumina Velshi

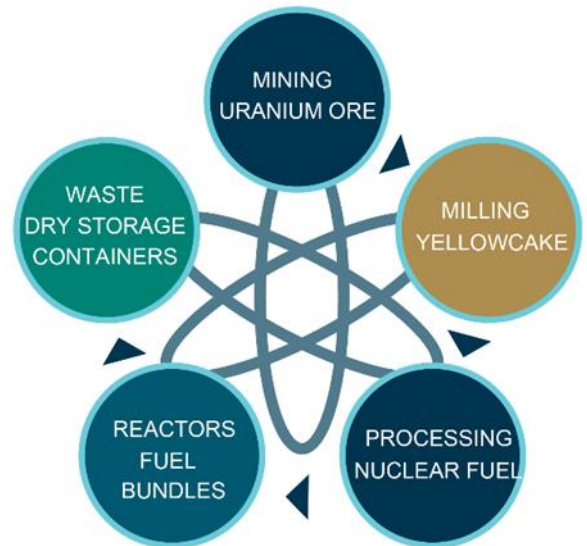
Canada's nuclear regulator

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.



What the CNSC regulates

1. Uranium mines and mills
2. Nuclear processing and research
3. Nuclear power generation
4. Nuclear medicine
5. Nuclear substances and transportation
6. Waste management
7. Protection of the environment
8. National security and international commitments

The CNSC's regulatory objective

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

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

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).

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).

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 regulating 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.

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 in Canada 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

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.

How the CNSC works

The CNSC is Canada's nuclear regulator. It is composed of a Commission that is 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.

Reporting

Publishing regulatory actions and reports

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

Setting requirements

Setting requirements, clarifying when needed and seeking feedback

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

Licensing and certification

Assessing if designs, competencies and measures are sufficient to ensure safety

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

Overseeing compliance

Verifying that licensees are operating safely

Inspections and reviews are conducted to monitor licensee activity, and to ensure that appropriate corrective measures are taken to address and correct deficiencies or lack of compliance with requirements.

Where we work

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

1. Calgary Western Regional Office
2. Saskatoon Uranium Mills and Mills Division Regional Office
3. Bruce Nuclear Generating Station A and B Site Office
4. Mississauga Southern Regional Office
5. Pickering Nuclear Generating Station Site Office
6. Darlington Nuclear Generating Station Site Office
7. Chalk River Site Office
8. Ottawa headquarters (HQ)
9. Laval Eastern Regional Office
10. Gentilly-2
11. Point Lepreau Nuclear Generating Station Site Office



CNSC staff are all about safety

Our staff and their commitment

This report is dedicated to the talented women and men who work for the CNSC – Canada’s nuclear regulator. They are more than 900 people who dedicate themselves every day to regulating all nuclear activities and facilities in Canada, and to ensuring that these facilities and activities are safe for Canadians and our environment.

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

The organization’s workforce of scientific technical experts and support personnel is composed of a diverse group of individuals. All play an important role in achieving its mandate.

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

Commission

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, in most cases, the views from Indigenous peoples, the public and stakeholders. Each licensing decision is based on information that demonstrates if the activity or the operation of a given facility can be carried out safely, how the environment and the health and safety of persons are to be protected, and whether the applicant is qualified. In accordance with its enabling statute (the *Nuclear Safety and Control Act*) and to promote openness and transparency, the Commission conducts its regulatory business in public [hearings](#)¹ and [meetings](#)² and, where appropriate, it does so in communities where the regulated activities take place. Indigenous peoples and other members of the public can participate in most 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.

In respect of the pandemic, the Commission rapidly adapted its processes to accommodate virtual hearings and meetings.

Commission members

At fiscal year end, the Commission had five permanent members and three temporary members appointed by the Governor in Council. Four of these permanent 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. You can read more about the [Commission members](#)³ on the CNSC website.

Results at a glance

The commitment to the CNSC’s core responsibility of **nuclear regulation**, the fulfillment of its mandate and the achievement of its departmental results for 2019–20 are guided by four organizational priorities.



Modern

The CNSC is committed to a **modern approach to nuclear regulation** using science-based, risk-informed, and technically sound regulatory practices that take into account scientific uncertainties and evolving expectations.

The drive for innovative technologies in the nuclear sector, such as SMRs and proton therapy facilities, is shaping Canadians’ expectations of government and the CNSC. In the context of the CNSC, regulation will need to account for any number of these innovative technologies in the nuclear sector.

Regulatory readiness strategy

In 2019–20, the CNSC developed a [regulatory readiness strategy](#)⁴ to address the challenges of regulating advanced reactor technologies and to prioritize regulatory efforts. This strategy also resulted in the development and publication of [REGDOC-1.1.5, Supplemental Information for Small Modular Reactor Proponents](#)⁵, which provides guidance for SMR proponents seeking to have their technology licensed in Canada.

In 2019–20, the CNSC formed a working group to explore potential impacts of disruptive, innovative and emerging technologies (DIET) on the CNSC’s regulatory framework and to develop an evergreen strategy to respond to them creatively and with agility. DIET can entail both new nuclear technologies to be regulated, and tools that replace human activities in the operation and maintenance of a nuclear facility (artificial intelligence, drones, autonomous vehicles, additive manufacturing, etc.). The DIET working group held meetings with industry and other governmental organizations to discuss technologies they are considering in their work, and to explore regulatory changes that may be needed in the future to continue keeping people and the environment safe.

Regulating new nuclear technology in Canada

The CNSC is no stranger to regulating nuclear innovations. Since 1946, Canada’s nuclear regulator has been regulating activities associated with the nuclear industry in Canada. In recent years, new

nuclear technologies that have the potential to supply power to smaller electrical grids have been under development. These new reactor designs are widely known as small modular reactors (SMRs).

On March 20, 2019, [Global First Power](#)⁶ submitted an application for a licence to prepare site for a [small modular reactor](#)⁷ on Atomic Energy of Canada Limited's property at the [Chalk River Laboratories](#)⁸ location. On July 15, 2019, the notice of commencement of an environmental assessment was posted, inviting comments on the project description from members of the public and Indigenous groups. The comment period closed on September 14, 2019.

CNSC completed Phase 1 of the vendor design review (VDR) of the ARC-100 SMR, and remains engaged in many [pre-licensing VDRs](#)⁹ for SMRs. A VDR provides an optional opportunity for a vendor to seek CNSC staff assessment of 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 determine decisions made by the Commission. More information on [SMRs](#)⁷ and the [CNSC's role in licensing new reactor facilities](#)¹⁰ is available on the CNSC website.

Collaborating on the regulation of technology

The CNSC took an important step in 2019 in signing a [memorandum of cooperation](#)¹¹ with the U.S. Nuclear Regulatory Commission to collaborate on licensing activities for SMRs and advanced reactors. Working together allows both regulators to better leverage skills and information in innovative nuclear technologies, to develop common nuclear safety regulatory positions and ultimately to improve efficiencies in regulatory practices.

Both regulators have begun cooperating on sharing regulatory insights, starting with two technology vendors that are currently conducting engagement activities in the U.S. and Canada: Terrestrial Energy Inc. (Integral Molten Salt Reactor) and NuScale Power (Integral Pressurized Water Reactor).

In 2019–20, CNSC President Rumina Velshi delivered presentations in which she shared her thoughts on how regulators could possibly enable the international harmonization of regulations for SMRs and advanced reactors. In November 2019, she discussed this topic during the International Framework for Nuclear Energy Cooperation's Global Ministerial Conference. To view all President Velshi's presentations, visit the [CNSC website](#)¹².



CNSC President Rumina Velshi and U. S. NRC Chairman Kristine Svinicki sign a memorandum of cooperation during an official signing ceremony in Ottawa, Ontario.

Environmental reviews

The *Impact Assessment Act* (IAA) came into force on August 28, 2019. The IAA broadens the scope of assessments to include environmental, health, social and economic effects – both positive and negative – of a proposed project. Under the IAA and the *Physical Activities Regulations*, impact assessments will be conducted on projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction.

Under the IAA, the Impact Assessment Agency of Canada (IAAC) will lead the reviews of major projects and work in collaboration with the CNSC to review projects that are also subject to regulation under the *Nuclear Safety and Control Act*. In October 2019, the CNSC signed a [memorandum of understanding](#)¹³ (MOU) with the IAAC. The MOU confirms the commitment of the two signatories to collaborate on integrated impact assessments under the IAA. The CNSC and the IAAC wish to ensure that the principle of “one project – one assessment” is followed in reviewing designated projects regulated by the CNSC, and that all reviews are conducted in an efficient and effective manner, without unnecessary delays or duplication of effort.

In 2019–20, the CNSC worked towards ensuring that managers and employees have the information and support they need to implement the readiness plan in a timely manner. Targeted revisions are being made to [REGDOC-2.9.1, Environmental Policy, Assessments and Protection Measures](#)¹⁴, which will incorporate changes and update content to reflect the new process under the IAA.



Trusted

The CNSC continuously strives to be a **trusted regulator** recognized by the public and Indigenous peoples as independent, open and transparent, and as a credible source of scientific, technical and regulatory information.

Building and strengthening relationships

In 2019–20, the CNSC continued proactive, regionally focused and formalized engagement with interested Indigenous communities and organizations. The CNSC has continued to formalize its relationship with three Indigenous groups, the Métis Nation of Ontario (MNO), the Saugeen Ojibway Nation (SON) and the Historic Saugeen Métis (HSM).

On December 17, 2019, the CNSC and the MNO signed [terms of reference](#)¹⁵ to provide a forum to collaborate and to address areas of interest or



CNSC Vice-President and Chief Communications Officer Jason Cameron and MNO President Margaret Froh sign terms of reference in Owen Sound, Ontario.

concern raised by the MNO regarding CNSC-regulated facilities and activities within the MNO's regions and traditional territories.

In April 2019, the CNSC and the HSM, in the spirit of collaboration and partnership, signed terms of reference for long-term engagement. This formalizes our relationship and provides a forum through which both organizations can collaborate and address areas of interest or concern raised by the HSM regarding CNSC-regulated facilities and activities within the HSM's traditional territory.

In May 2019, the CNSC and the SON signed terms of reference to strengthen their relationship and to meaningfully involve the SON in CNSC regulatory activities for nuclear activities in the SON Territory. Work will include the development of new study and analysis programs, joint review of environmental protection reports, and collaboration on the CNSC's Independent Environmental Monitoring Program.

Trust strategy

Building trust with stakeholders is directly connected to the CNSC's mandate and is generally delivered through communicating objective, scientific and regulatory information to the public. The CNSC shares this information in an effort to build public confidence and trust in the CNSC's role as a nuclear regulator.

In 2019–20, the CNSC comprehensively examined the issue of public engagement to prepare for developing a strategy for building trust. Nanos Research was retained to conduct a project that included surveying about 1,000 Canadians, and holding interviews with stakeholders from civil society, elected municipal officials, industry and Indigenous groups. The results revealed that municipal governments, industry stakeholders and Indigenous groups have high confidence in the CNSC's ability to deliver on its mandate, and that all stakeholders and Indigenous peoples have high confidence in the CNSC's professionalism. In addition, industry and municipal stakeholders, and Indigenous peoples interviewed believe that the CNSC is ethical, bases its decisions on science, and maintains open dialogue with stakeholders.

The results also highlighted areas where the CNSC could do more. For instance, Nanos found that public awareness of CNSC's work is low; approximately 50% of the public are unaware of the CNSC's existence and 18% of this cohort were unable to formulate an impression of the CNSC. This highlights an opportunity to address gaps and to ensure that the CNSC has an effective awareness strategy.

Trust in motion

At the IAEA General Conference in September 2019, Canada hosted a side event entitled Strengthening Public Trust. At this event, the CNSC shared a [video](#)¹⁶ which demonstrates how its stakeholders view trust and offers an opportunity for each of us to initiate important conversations about the CNSC and our sustained, steadfast efforts to gain public confidence.



Austin Paul, Wolastoqey First Nation, participates in the CNSC's "Trust in Motion" video.



Global

The CNSC maintains its **global nuclear influence**, leveraging and influencing global nuclear efforts relevant to Canadian interests and activities to enhance international nuclear safety, security and non-proliferation.

International peer reviews

From September 3 to 13, 2019, the CNSC hosted an [Integrated Regulatory Review Service¹⁷](#) (IRRS) mission on behalf of Canada. The IRRS is a service provided by the IAEA to Member States that offers a unique opportunity for other regulators and the IAEA to assess the CNSC's regulatory framework against international standards and best practices.

The results from the peer review mission were published in the [2019 IRRS Report to Canada¹⁸](#),



All CNSC counterparts, IAEA counterparts and team leads who participated in the IRRS mission.

along with [Canada's response¹⁹](#) in February 2020. Through this report, the IAEA confirmed that the CNSC has a strong, effective regulatory framework and demonstrates leadership in multiple areas.

The CNSC will be tracking progress on all commitments made in Canada's response through its Harmonized Plan Program. The CNSC will take part in a follow-up mission within the next 4 years to demonstrate its commitment to continuous improvement by confirming that the recommendations and suggestions have been fully addressed. You can learn more about [IRRS Mission 2019²⁰](#) on the CNSC's website.

Externally, Executive Vice-President, Ramzi Jammal continued to cultivate the CNSC's global influence by leading IRRS missions in the United Kingdom in 2019 and to Japan in 2020. Along with many internal processes, the CNSC's international cooperation provides an additional tool to affirm that nuclear material and substances, facilities and activities are secure and used for peaceful purposes.

Emergency preparedness

In 2019–20, the CNSC participated in an [Emergency Preparedness Review](#)²¹ (EPREV) mission to evaluate Canada’s level of preparedness for nuclear or radiological emergencies. Led by international experts from the IAEA and hosted by Health Canada, the EPREV mission focused on Canada’s compliance with IAEA standards and on determining further actions to protect the health and safety of Canadians during a nuclear emergency. The mission provided valuable insight and commended Canada on its well developed and mature nuclear emergency preparedness and response system across all levels of government.

In February 2020, the IAEA published the [final report](#)²² on the EPREV mission to Canada. In response, Canada prepared an [action plan](#)²³ to address the review team’s recommendations and suggestions over the next few years.

CNSC President appointed new Chair of the Commission on Safety Standards

In early 2020, the International Atomic Energy Agency (IAEA) announced that President Velshi was appointed the new Chair of its Commission on Safety Standards (CSS) for a four-year period. The IAEA’s CSS is a standing body responsible for establishing standards relevant to nuclear, radiation, transport and waste safety, and emergency preparedness and response. Forums such as this one provide an important opportunity to consider key safety issues and to discuss how countries can harmonize their work, as well as to share and/or implement bold new approaches.



Agile

The CNSC continues to ensure that it is a flexible and inclusive organization, with an empowered and equipped workforce, able to quickly adapt to an evolving operating environment.

Agility through the COVID-19 pandemic

The COVID-19 pandemic quickly altered our reality and has had real implications for all Canadians. The CNSC activated its business continuity plan on March 15, 2020, to ensure continued effective regulatory oversight of the nuclear industry while at the same time, providing for the health and safety of its workers, the public and the environment.

With the activation of business continuity, staff were directed to stay home on March 16, 2020, with critical staff working remotely to oversee the safety of the nuclear industry in Canada. The CNSC quickly adjusted its compliance efforts to continue to maintain oversight while at the same time protecting the health and safety of staff.

A new governance expectation was issued by the CNSC modifying compliance activities during the pandemic, focusing on inspections that cannot be delayed despite the current situation. As of May 1, 2020, some inspections resumed under strict COVID-19 protocols. The CNSC’s focus remains on the

health and safety of our staff, our families and our communities while ensuring we have the ability to carry out our mandate.

Digital transformation

In 2019–20, the CNSC embarked on a digital transformation of key business processes to ensure efficient and effective regulatory oversight. The CNSC’s digital strategy was developed to support the CNSC’s mandate by offering an approach to digital transformation that, as a modern, world-class nuclear regulator, the CNSC must adopt to stay relevant in an ever-evolving technological landscape.

Key accomplishments in 2019–20 include the publication of the CNSC’s information management and data strategy.

Knowledge management

In 2019–20, the CNSC conducted activities to continue its efforts in ensuring effective knowledge management. These activities included interviews with experts in the CNSC’s Power Reactor Program and transformation of the information into knowledge maps, which will be used as a basis for developing knowledge transfer plans. The CNSC also conducted the second annual “Know-vember” information blitz, focused on highlighting tools and mechanisms in place to build, capture and share knowledge at the CNSC.

Diversity and inclusion

The CNSC strives to be a safe and healthy workplace – one that is inclusive and free from harassment and discrimination – where all employees are able to effectively use their skills, expertise and experience to help deliver on the CNSC’s important mandate. Developed and implemented in the 2019–20, the CNSC’s new *Diversity and Inclusion Plan 2019–2022* outlines ongoing and new commitments to leverage diversity and to make progress in creating a safe, inclusive workplace.

Women in science, technology, engineering and math: Highlights

Launched in 2019, the [Women in STEM initiative](#)²⁴ (WISTEM) supports women in STEM careers at the CNSC and elsewhere, and aims to raise awareness of STEM in collaboration with interested partners like government, industry and academia. Championed by President Velshi, this initiative contributes to the development of STEM careers for women within our organization and in the broader scientific community. As a science-based organization within a government dedicated to the advancement of women and minorities, the CNSC is taking a leadership role in this area. It is the CNSC’s shared belief that the nuclear industry benefits from diverse voices and diverse leadership.

To achieve these goals CNSC is raising awareness of unconscious bias, encouraging and supporting attendance of staff to Women in STEM-related conferences and events, building partnerships among female researchers, and providing mutual support to the [IAEA²⁵](#) and [NEA Initiatives on Gender Mainstreaming²⁶](#).

For more information on the CNSC’s plans, priorities and results achieved, see “Results: what we achieved” section of this report.

Results: What we achieved

Core responsibility



Nuclear regulation

The CNSC regulates the use of nuclear energy and materials to protect health, safety, security and the environment; implements Canada’s international commitments on the peaceful use of nuclear energy; and disseminates objective scientific and regulatory information to members of the public.

For the CNSC to achieve its planned results, risks must be identified, monitored and controlled across all nuclear facilities and activities by CNSC inspectors who conduct compliance verification activities for nearly 1,600 licensees across various sectors. Ensuring compliance with legislation, regulations and licensing requirements is one of the CNSC’s core business processes and is carried out through [compliance verification and enforcement](#)²⁷. Together, these activities enable the CNSC to assure Canadians about licensees’ continuing compliance and safety performance, which provide for the protection of the environment and Canadians.

To learn more about the CNSC’s oversight of safety procedures and adherence to regulatory policy of licensees, read the CNSC’s [regulatory oversight reports](#)²⁸.

Departmental result 1

The environment is protected from releases from nuclear facilities and activities.

Departmental result 2

Canadians are protected from radiation resulting from nuclear facilities and activities.

Environmental assessments

The CNSC continued environmental assessments under the *Canadian Environmental Assessment Act, 2012* with projects including Global First Power’s Micro Modular Reactor and the Near Surface Disposal Facility proposed by Canadian Nuclear Laboratories (CNL). Any new projects started after August 28, 2019, fall under the new *Impact Assessment Act*. Some of the decommissioning projects for which the CNSC is conducting environmental assessments are CNL’s Nuclear Power Demonstration facility and Whiteshell Reactor-1. In 2019, the CNSC began overseeing environmental assessments of two new mines, Denison Mines Corporation’s Wheeler River and NexGen Energy Ltd.’s Rook I.

In 2019–20, the CNSC continued to provide regulatory oversight of and environmental reviews for the Port Hope Area Initiative, representing the Government of Canada’s commitment to

respond to community-recommended solutions for the cleanup and local, long-term, safe management of historic low-level nuclear waste. In addition, the CNSC reviewed licensee planning for new radioisotope production at the Bruce and Darlington Nuclear Generating Stations. CNSC staff continue to work closely with Bruce Power and Ontario Power Generation (OPG) to provide oversight of these first-of-a-kind technologies. OPG and their partners are progressing with work on the Mo-99 isotope irradiation system and CNSC staff continue to perform regulatory oversight activities as planned.

Refurbishments and major component replacement

The CNSC is providing regulatory oversight for the refurbishment activities at the Darlington Nuclear Generating Station and the major component replacement at the Bruce Nuclear Generating Station.

At the Darlington Nuclear Generating Station, the CNSC is continuing to perform inspections throughout the refurbishment process of two units. Unit 2 was scheduled to return to service by June 2020, but in light of the uncertainty caused by COVID-19 and related impacts, OPG has revised this start date to early November 2020. Additional information on the [refurbishment and continued operation of the Darlington Nuclear Generating Station](#)²⁹ is available on the CNSC website.

The major component replacement at Bruce began on January 17, 2020, as scheduled, and all fuel was removed from the core on March 11, 2020. The CNSC will continue to execute inspections throughout the four-year activity. The COVID-19 pandemic, however, has caused the licensee's work to be delayed but the project is ongoing. CNSC oversight activities have been completed as planned, with one exception – a training inspection of contractor onboarding practices, which has also been delayed due to the pandemic.

The CNSC is not only providing ongoing robust regulatory oversight of existing facilities, but also conducting research on aging reactors throughout their lifecycle, to maintain safety throughout the lifecycle of Canada's nuclear generating stations.

Waste and decommissioning highlights

The following draft regulatory documents are scheduled to go before the Commission for its consideration in June 2020. If they are approved, these documents will complete the CNSC's regulatory framework for waste and decommissioning.

1. REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*
2. REGDOC-2.11.1, *Waste Management, Volume III: Safety Case for Long-Term Radioactive Waste Management*
3. REGDOC-2.11.2, *Decommissioning*
4. REGDOC-1.2.1, *Guidance on Deep Geological Repository Site Characterization*
5. REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*

Laboratories Canada initiative

The CNSC Laboratory is planning to join other federal laboratories under the Laboratories Canada Initiative (formerly the Federal Science and Technology Infrastructure Initiative). The laboratory is key to many of the CNSC's scientific developments and is collaborating with other federal government departments to improve government science as a whole.

Independent Environmental Monitoring Program

Complementary to its ongoing compliance verification program, the CNSC independently verifies that the public, Indigenous communities and the environment around licensed nuclear facilities are safe through its [Independent Environmental Monitoring Program](#) (IEMP)³⁰.

All results from the operations of the sites sampled in 2019, the CNSC's eighth year of IEMP sampling, demonstrated that there were no expected impacts to the environment and human health. The nuclear sites sampled in 2019 were: Chalk River Laboratories; Bancroft closed mine sites; BWXT Nuclear Energy Canada Inc. (Toronto and Peterborough); Bruce Power nuclear power generating site; Port Hope Project and Port Granby Project; and TRIUMF.

Regulatory framework

The current [Radiation Protection Regulations](#)³¹ (RPR) are largely based upon the 1991 recommendations of the International Commission on Radiological Protection (ICRP 60). In order to ensure that the regulations take into account the most up-to-date international standards and recommendations, a regulatory proposal was pre-published in the [Canada Gazette, Part I](#)³² on June 15, 2019. The CNSC will take all comments into account prior to finalizing the proposal for consideration by the CNSC's Commission to make the regulations, and for the Governor in Council to consider approval of the regulations.

In addition, the CNSC published 11 [regulatory documents](#)³³ in 2019–20. Regulatory documents may contain practical guidance to licensees and applicants on how to meet the CNSC's regulatory requirements.

Gender-based analysis plus (GBA+) in regulations

The CNSC continues its efforts towards incorporating GBA+ considerations in all its regulatory framework documents, evaluations, and development of cabinet proposals.

In 2019–20, GBA+ considerations were taken into account in the development of proposed amendments to our *Radiation Protection Regulations*. The CNSC focused on the changes that could have unintended impacts on different groups such as female nuclear energy workers and breastfed infants.

An internal working group was created to draft a GBA+ policy statement and action plan for the organization. This working group collaborated with other federal departments to learn from their experiences with GBA+.

Departmental result 3

Nuclear material and substances, facilities and activities are secure and used for peaceful purposes.

Nuclear security

Nuclear security is a major consideration in all activities of the CNSC. The CNSC is responsible for enforcing Canada's [Nuclear Security Regulations](#)³⁴ and works closely with nuclear operators, law enforcement and intelligence agencies, international organizations and other government departments to ensure that nuclear materials and facilities are adequately protected. Licensees adhere to stringent nuclear security requirements set forth by the CNSC and have programs in place to prevent the theft, loss or illicit use of nuclear substances.

The *Nuclear Security Regulations* define security-related information requirements for certain nuclear facilities, including high-security sites. The regulations are in place so that Canada continues to fulfill its international obligations for the security of nuclear and radioactive materials, both in Canada and internationally. In its efforts to enhance nuclear security in Canada, in 2019–20 the CNSC continued to review and modernize its *Nuclear Security Regulations* as the last major revision to the regulations was completed in 2006. Since then, security threats, operational experience and technological advancements have evolved. There is a need to ensure that requirements consider technological advancements and keep up with international recommendations, guidance and best practices.

The CNSC has continued work in 2019–20 to address the findings from a number of activities, including the evaluation of the CNSC's Performance Testing Program (PTP); the 2015 International Physical Protection Advisory Service mission; the 2016 U.S. NRC Inter-Agency visit; and a four year (2014–17) review of the PTP Security Exercise and Licensee (High-Security Sites) Drill and Exercise Program.

Combining the findings of these activities, the action plan identifies areas where the CNSC needed to establish a strategy to ensure development of its own personnel and resources for future sustainability, and to provide regulatory guidance to licensees in order to promote the development of their programs.

Cyber security

In 2019–20, the CNSC continued work on preparing a documented strategy for its regulatory oversight of cyber security through its cyber security roadmap. The strategy considers both computer-based systems and cyber security intelligence, and is intended for broad implementation, in a risk-informed manner, across all licensed facilities and activities.

The strategy's objectives are to set the regulatory framework's high-level cyber security goals, which will be achieved by regulatory documents and activities for cyber security.

Non-proliferation and import/export controls

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

The CNSC implements regulatory programs to ensure that CNSC licensees – and Canada at large – meet the obligations arising from international safeguards agreements. Safeguards agreements ensure that all nuclear materials in Canada remain in peaceful use, and that international transfers of nuclear goods and technology are used solely for peaceful purposes. Within the IAEA’s annual [Safeguards Statement](#)³⁵, a “broader conclusion” is issued for designated states, verifying that nuclear material is not diverted from peaceful uses. In 2019–20, the CNSC maintained the IAEA broader conclusion for Canada, as it has every year since 2005.

During 2019–20, 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](#)³⁶ and the [General Nuclear Safety and Control Regulations](#)³⁷. A total of 1,014 import and export licensing decisions were made by the CNSC under these regulations.

Emergency management

Being prepared in the event of an emergency is an essential part of being a responsible nuclear regulator. 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. As per CNSC [REGDOC-2.10.1, Nuclear Emergency Preparedness and Response](#)³⁸, through enhanced safety requirements and regulatory requirements, as well as rigorous training, all Canadian nuclear power plant operators are required to perform emergency exercises and drills to ensure they are prepared for the unexpected.

On October 22 and 23, the CNSC Emergency Operations Centre was activated in Ottawa as CNSC staff participated in “Huron Resilience”, Bruce Power’s full-scale nuclear exercise. During the exercise, simulated seismic events affected the stability of station units at Bruce Power. Staff worked in collaboration with the licensee, the Municipality of Kincardine, the Office of the Fire Marshal and Emergency Management, and Health Canada to oversee Bruce Power’s emergency management response to ensure that the public was well informed and that the environment was protected throughout the emergency exercise.

On Sunday January 12, 2020, the CNSC’s emergency response was put into practice when a broadcast intrusive alert, alleging an incident at the Pickering Nuclear Generating Station, was mistakenly sent across Ontario. The alert was sent out during a routine test by the Provincial



CNSC staff in the Emergency Operations Centre work through the status of the exercise event.

Emergency Operations Centre, which coordinates the Government of Ontario’s response to major emergencies. The Government of Ontario’s Ministry of the Solicitor General published a [report on the investigation](#)³⁹ into the emergency alert, as well as developed a [Provincial Emergency Operations Centre Action Plan](#)⁴⁰. Various groups within the CNSC, including the Strategic Communications Directorate and the Emergency Management Programs Division, are reviewing the impact of the false alert and are participating in a lessons-learned exercise to continuously improve emergency management and response. The CNSC’s response to the false alert was presented to the Commission in June 2020.

Departmental result 4

Canadians, including Indigenous peoples, have meaningful information about, and the opportunity to participate in, the nuclear regulatory process.

Scientific and regulatory information

The CNSC integrates the best available science into 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 the long-term management of nuclear waste in geological repositories.

The CNSC offers the public a [comprehensive list of all relevant scientific and technical information](#)⁴¹ on its website. Topics can be searched according to the CNSC’s [14 safety and control areas \(SCAs\)](#)⁴², 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.

Research and Support Program

The CNSC funds an external research program to obtain knowledge and information needed to support its regulatory mission. 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



Research and Support Program:
\$3.4 M

- **\$1.29M** invested in 24 research projects
- **\$2.05M** invested in 28 contribution agreement
- **\$63K** towards 10 grants

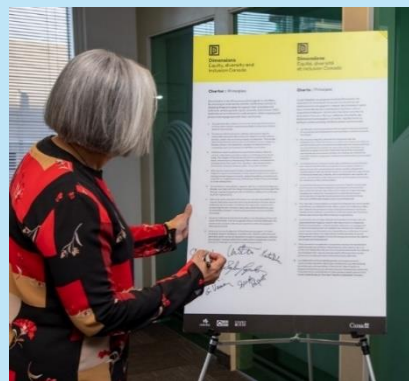
scientific knowledge with the nuclear industry and the public at large. For more information on the outcomes of this program, visit the [CNSC's website](#)⁴³.

The program is compiled from project proposals submitted from across the CNSC. In 2019–20, \$1.29 million was invested in 24 research projects, \$2.05 million was invested in 28 contribution agreements, and 10 grants totaling \$63,000 were made.

Supporting equity, diversity and inclusiveness in research

In February 2020, President Rumina Velshi signed the [Dimensions EDI charter](#)⁴⁴, which aims to foster research excellence, innovation and creativity within the post-secondary sector in Canada across all disciplines, through greater equity, diversity and inclusion. The Dimensions program addresses obstacles faced by, but not limited to women, Indigenous peoples, persons with disabilities, members of visible minorities/racialized groups, and members of LGBTQ2+ communities.

As a science-based organization, the CNSC is proud to endorse the Dimensions charter, a Government of Canada initiative that provides the foundation of the Dimensions pilot program. Jointly administered by the Natural Sciences and Engineering Research Council of Canada, the Canadian Institutes of Health Research and the Social Sciences and Humanities Research Council, the charter strives to foster post-secondary research excellence through increased equity, diversity and inclusion. By committing to these principles, organizations create opportunities for the full pool of potential participants within the research community.



President Rumina Velshi signing the Dimensions EDI Charter.

Health studies at the CNSC

The CNSC continuously conducts and reviews health studies in various areas associated with the production, possession or use of nuclear substances. The information gathered in these studies guides the CNSC in decisions that strengthen its regulatory framework.

In the fall of 2019, the CNSC gained the distinction of becoming the first non-European organization to join the [Multidisciplinary European Low Dose Initiative, or MELODI](#)⁴⁵, a European platform dedicated to low-dose radiation risk research. CNSC's involvement in MELODI will help to advance low dose radiation research coordination and collaboration on an international scale and bring a Canadian perspective.

The Canadian Organization on Health Effects from Radiation Exposure (COHERE) was initiated in 2019. The initiative built on the formal agreement between Health Canada and the CNSC to share information and to cooperate on studies or assessments relevant to the health effects of nuclear substances and nuclear energy. COHERE's immediate goals include maintaining and enhancing expertise in dosimetry, radiobiology and epidemiology within the Government of Canada; aligning

research priorities; and providing informed and consistent messaging on matters involving low-dose/dose rate ionizing radiation.

You can find more information on research conducted on [health-related issues](#)⁴⁶ on the CNSC website.

Consultation and engagement

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

Each regulatory 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 input and comments are posted for feedback on the CNSC website.

The [consultation section](#)⁴⁷ of the CNSC website provides up-to-date information on current consultations for regulatory initiatives, and the necessary information and guidance on how to participate.

Regulatory consultation

In 2019–20, public consultation was conducted for one set of proposed regulations (*Radiation Protection Regulations*) via the *Canada Gazette, Part I*. In addition, nine draft regulatory documents were posted for public consultation:

1. REGDOC-1.6.2, *Developing and Implementing an Effective Radiation Protection Program for Nuclear Substances and Radiation Devices*
2. REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Drug and Alcohol Use*
3. REGDOC-2.7.1, *Radiation Protection*
4. REGDOC-2.7.2, *Dosimetry, Volume I: Ascertaining Occupational Dose*
5. REGDOC-2.10.2, *Fire Protection*
6. REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*
7. REGDOC-2.11.1, *Waste Management, Volume III: Assessing the Long Term Safety of Radioactive Waste Management*
8. REGDOC-2.11.2, *Decommissioning*
9. REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities*

Indigenous and public engagement and consultation

The CNSC is a responsive regulator that supports public and Indigenous participation in the CNSC’s regulatory processes. The CNSC’s public hearings and meetings are open to the public, held where appropriate in communities where activities take place and always live webcast. This is recognized internationally as a best practice.

The public and Indigenous peoples are also provided with the opportunity to review and give input on draft regulatory framework documents prior to publication, as well as regulatory oversight reports and other CNSC reports and initiatives, where appropriate. The Whiteshell Laboratories licence renewal hearings in October 2019 garnered specific attention from this population. CNSC President Rumina Velshi reached out to the leadership of a number of Indigenous communities with an interest in the Whiteshell site to offer them the opportunity to



President Velshi meeting with leadership from Sagkeeng First Nation in February 2020 in their community during her tour of Manitoba.

have an introductory meeting and discuss their concerns and priorities. Interested groups had the opportunity to participate in tours and discussions with President Velshi within their communities.

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, including environmental assessments for major nuclear facilities.

Learn more about the [PFP](#)⁴⁸ and watch a short [CNSC information video](#)⁴⁹ about it by visiting the CNSC website.



In 2019–20, the CNSC's PFP awarded funding to support **18** meetings with Indigenous communities and organizations and CNSC staff.

In addition, the PFP awarded a total of **\$1,125,192.34** to **88** recipients of which **51** were Indigenous communities or organizations.

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.

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.

Through these 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.



In 2019–20, there were **41** “Meet the Nuclear Regulator” sessions attended by **1,308** total participants.

Learn how to participate in an upcoming [“Meet the Nuclear Regulator” session](#)⁵⁰ by visiting the CNSC website.

Keeping the public informed

In its ongoing commitment to transparency and openness, CNSC staff continued to respond to public questions about nuclear safety. In 2019–20, the CNSC responded to 1,220 public information inquiries. The CNSC posted 4 feature articles to its website and disseminated 13 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](#)⁵¹, [Facebook](#)⁵², [LinkedIn](#)⁵³ and [Twitter](#)⁵⁴ – is to

provide technical information in plain language that explains complicated nuclear science in simple terms. In 2019–20, the CNSC posted 2,030 times on social media channels and engaged with the public through these platforms a total of nearly 40,000 times.

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.



899,027 YouTube views in 2019–20

Results achieved

Departmental results	Performance indicators	Target	Date to achieve target	2017–18 Actual results	2018–19 Actual results	2019–20 Actual results
The environment is protected from releases from nuclear facilities and activities.	Number of instances of radiological releases that exceeded regulatory limits	0	March 31, 2020	1 ⁵⁵	0	1 ⁵⁶
	Number of instances of hazardous releases that exceeded regulatory limits	0	March 31, 2020	2 ⁵⁷	9 ⁵⁸	2 ⁵⁹
	Percentage of Independent Environmental Monitoring (IEMP) samples (food, water, air and vegetation) that met guidelines	100%	March 31, 2020	90% ⁶⁰	97% ⁶⁰	98.9% ⁶¹
Canadians are protected from radiation resulting from nuclear facilities and activities.	Number of radiation doses to members of the public that exceeded regulatory limits	0	March 31, 2020	0	1 ⁶²	0
	Number of radiation doses to workers that exceeded regulatory limits	0	March 31, 2020	1 ⁶³	1 ⁶⁴	2 ⁶⁵
Nuclear material and substances, facilities and activities are secure and used for peaceful purposes.	Number of instances of non-peaceful or malicious use of Canadian exports of nuclear substances, equipment and information	0	March 31, 2020	0	0	0
	Number of lost or stolen radioactive sealed sources	≤2	March 31, 2020	0	0	0
	Canada's international commitments to the International Atomic Energy Agency (IAEA) with respect to nuclear safeguards and verification are met	Receipt of broader conclusion	December 31, 2019	Met	Met	Met
Canadians, including Indigenous peoples, have meaningful information about, and the opportunity to participate in, the nuclear regulatory process.	Percentage of CNSC proceedings that were accessible to members of the public and Indigenous peoples	>90%	March 31, 2020	100%	100%	100%
	Percentage of CNSC proceedings for which the Participant Funding Program (PFP) was made available to members of the public and Indigenous peoples	>90%	March 31, 2020	100%	100%	100%
	Percentage of CNSC proceedings documents that were available to members of the public and Indigenous peoples in a timely manner	>90%	March 31, 2020	100%	100%	100%
	Number of Indigenous peoples who participated in CNSC proceedings	Increasing trend	March 31, 2020	20	18 ⁶⁶	22

The notes cited in the table above, which provide additional information on the CNSC's results, are available at the end of report.

Budgetary financial resources (dollars)

2019–20 Main Estimates	2019–20 Planned spending	2019–20 Total authorities available for use	2019–20 Actual spending (authorities used)	2019–20 Difference (Actual spending minus planned spending)
100,803,165	107,748,059	107,318,207	101,570,723	(6,177,336)

Human resources (full-time equivalents)

2019–20 Planned full-time equivalents	2019–20 Actual full-time equivalents	2019–20 Difference (Actual full-time equivalents minus planned full-time equivalents)
639	605	(34)

Financial, human resources and performance information for the CNSC's program inventory is available in the [GC InfoBase](#)⁶⁷ and in the [2019–20 Main Estimates](#)⁶⁸.

Internal services

Description

Internal services are those groups of related activities and resources that the federal government considers to be services in support of programs and/or required to meet corporate obligations of an organization. Internal services refer to the activities and resources of the 10 distinct service categories that support program delivery in the organization, regardless of the internal services delivery model in a department. The 10 service categories are as follows:

- Acquisition management
- Communications
- Financial management
- Human resources management
- Information management
- Information technology
- Legal services
- Materiel management
- Management and oversight
- Real property management

Experimentation

In 2019–20, the CNSC used design-thinking workshops to review the effectiveness of the organization's programs. This opportunity allowed staff to identify gaps and offer solutions to improve existing processes and procedures. Some workshop topics included: planning and reporting, CNSC outreach, the processes and content of Commission member documents and dissemination of information.

Employee health and well-being

The CNSC strongly believes that ensuring a mentally healthy work environment helps all employees perform at their best. Throughout the year, the organization works to promote mental well-being through activities including participation in the [Bell Let's Talk⁶⁹](#) event, monthly mental health breaks, and a friendly annual fitness challenge to encourage physical activity.

To support employees who may be facing challenges with their mental health, the organization offers a number of resources, including access to "LifeSpeak", an online health and wellness platform. Through this platform employees have access to videos, podcasts, action plans and "Ask the Expert" sessions on issues from depression to nutrition to financial health and parenting.

Providing a respectful and healthy workplace is not only essential but the right thing to do. Working together can drive positive change. Everyone has a role to better understand mental health and in building healthy workplaces.

Budgetary financial resources (dollars)

2019–20 Main Estimates	2019–20 Planned spending	2019–20 Total authorities available for use	2019–20 Actual spending (authorities used)	2019–20 Difference (Actual spending minus planned spending)
43,842,009	48,511,367	46,726,220	46,394,660	(2,116,707)

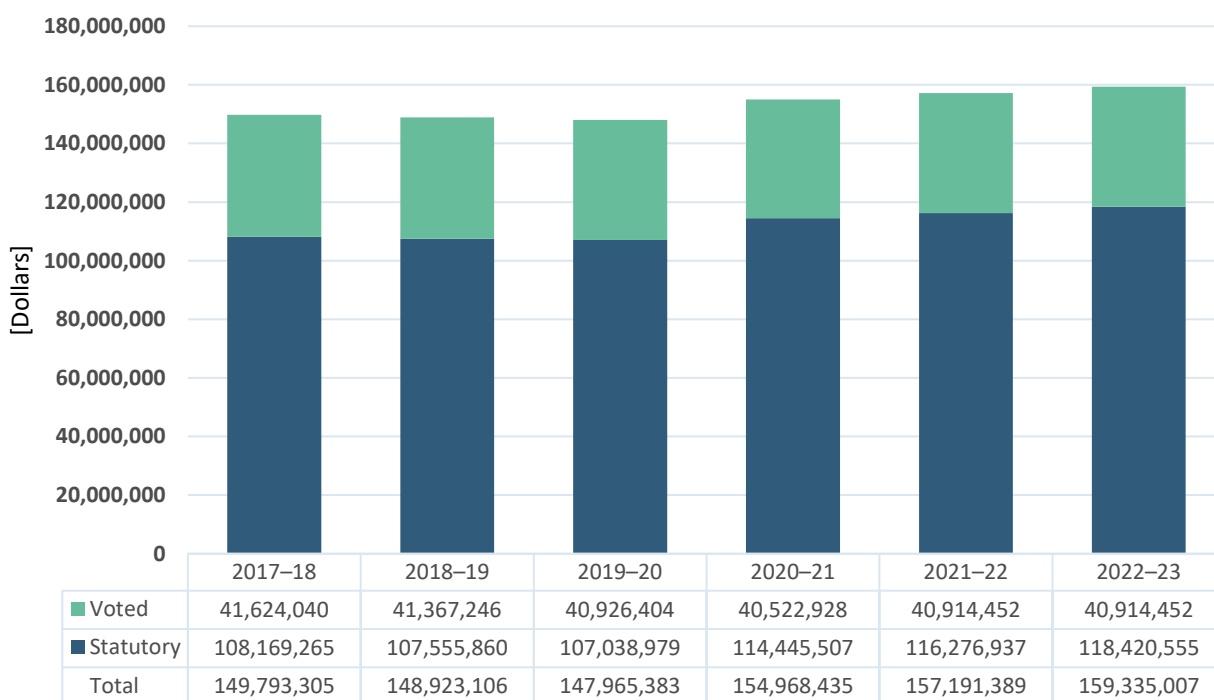
Human resources (full-time equivalents)

2019–20 Planned full-time equivalents	2019–20 Actual full-time equivalents	2019–20 Difference (Actual full-time equivalents minus planned full-time equivalents)
296	281	(15)

Analysis of trends in spending and human resources

Actual expenditures

Departmental spending trend graph



Budgetary performance summary for core responsibilities and internal services (dollars)

Core responsibilities and internal services	2019–20 Main Estimates	2019–20 Planned spending	2020–21 Planned spending	2021–22 Planned spending	2019–20 Total authorities available for use	2017–18 Actual spending (authorities used)	2018–19 Actual spending (authorities used)	2019–20 Actual spending (authorities used)
Nuclear regulation	100,803,165	107,748,059	106,939,338	108,473,336	107,318,207	102,683,841	100,067,374	101,570,723
Internal services	43,842,009	48,511,367	48,029,097	48,718,053	46,726,220	47,109,464	48,855,732	46,394,660

Total	144,645,174	156,259,426	154,968,435	157,191,389	154,044,427	149,793,305	148,923,106	147,965,383
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The CNSC's Main Estimates for the fiscal year 2019–20 totaled \$144.6 million, compared to total authorities of \$154.0 million. The \$9.4 million increase is primarily attributable to:

- contributions to employee benefit plans for personnel expenditures related to subsections 21(3) of the *Nuclear Safety and Control Act* that are not included in the 2019–20 Main Estimates, \$9.6 million.
- funds received from the Treasury Board of Canada Secretariat for negotiated salary adjustments and for the reimbursement of eligible payroll expenses, \$1.9 million.
- an operating budget carry-forward from 2018–19 to 2019–20, \$1.1 million.
- A decrease of revenue spending authority based on final costs, (\$3.2 million).

The marginal decrease in actual spending from \$149.8 million in 2017–18 to \$148.9 million in 2018–19 is due to reduced retroactive salary payments and professional services, offset in part by implementation costs to replace the CNSC's financial and material management system, which was operational on April 1, 2019. In 2019–20, actual spending decreased to \$148.0 million due to the non-recurring implementation costs incurred in 2018–19 for the CNSC's new financial and material management system, a decrease in full-time equivalent (FTE) utilization, partially offset by retroactive salary payments made in 2019–20.

Actual spending was \$148.0 million in 2019–20, compared with planned spending of \$156.3 million due to cost containment measures implemented internally subsequent to the 2019–20 Departmental Plan, augmented by some activities being delayed into 2020–21, in part due to COVID-19.

Planned spending is forecasted to increase to \$155.0 million in 2020–21 and \$157.2 million in 2021–22, primarily as a result of salary increases under the collective agreement and a projected higher level of staffed positions.

The CNSC has taken a number of measures to prevent the effects of the COVID-19 virus such as safety and health measures for our staff (like physical distancing and working from home). For 2019–20, the financial impact on our organization and results is limited mostly to a reduction in planned travel, conferences and some professional services offset by equipment purchases to support staff in working remotely.

Actual human resources

Human resources summary for core responsibilities and internal services (full-time equivalents)

Core responsibilities and internal services	2017–18 Actual full-time equivalents	2018–19 Actual full-time equivalents	2019–20 Planned full-time equivalents	2019–20 Actual full-time equivalents	2020–21 Planned full-time equivalents	2021–22 Planned full-time equivalents
Nuclear regulation	585	625	639	605	618	612
Internal services	269	293	296	281	287	286
Total	854	918	935	886	905	898

The increase in FTEs from 854 FTEs in 2017–18 to 918 FTEs in 2018–19 was mainly due to the implementation of the workforce renewal initiative, which focused on the recruitment and development of new graduates to meet the organization’s future needs for senior regulatory and technical officers. In 2018–19, the CNSC amended the FTEs determination to include students and alumni personnel and implemented a more effective methodology to allocate costs and FTEs by program.

The decrease in FTEs from 918 in 2018–19 to 886 in 2019–20 was mainly due to the cost containment initiatives and the timing of positions vacated and subsequently staffed during the year.

The FTE forecast anticipates marginal changes to 905 FTEs in 2020–21 and 898 FTEs in 2021–22.

Expenditures by vote

For information on the CNSC’s organizational voted and statutory expenditures, consult the [Public Accounts of Canada 2019–20⁷⁰](#) and the [2019–20 Main Estimates⁶⁸](#).

Government of Canada spending and activities

Information on the alignment of the CNSC’s spending with the Government of Canada’s spending and activities is available in the [GC InfoBase⁶⁷](#).

Financial statements and financial statements highlights

Financial statements

The CNSC's financial statements (audited) for the year ended March 31, 2020, are available on the [departmental website](#)⁷¹.

Financial statements highlights

Condensed statement of operations (unaudited) for the year ended March 31, 2020 (dollars).

Financial information	2019–20 Planned results	2019–20 Actual results	2018–19 Actual results	Difference (2019– 20 Actual results minus 2019–20 planned results)	Difference (2019–20 Actual results minus 2018–19 actual results)
Total expenses	175,514,000	167,523,084	165,533,480	(7,990,916)	1,989,604
Total revenues	125,496,000	118,507,107	117,090,114	(6,988,893)	1,416,993
Net cost of operations before government funding and transfers	50,018,000	49,015,977	48,443,366	(1,002,023)	572,611

The actual total revenues of \$118.5 million were 5.6% or \$7.0 million lower than planned revenues of \$125.5 million, as a result of lower than initially planned salaries and employee benefits expenses, and slightly lower than planned fees for special projects. The actual total expenses of \$167.5 million were 4.6% or \$8.0 million less than planned expenses of \$175.5 million as a result of lower than planned salaries and associated employee benefits costs, professional and special services and travel expenses.

The CNSC's total expenses increased by 1.2% or \$2.0 million and revenues increased by 1.2% or \$1.4 million from 2018–19 to 2019–20. The increase in expenses was primarily due to amortization as a result of implementing the new financial system and rising contributions under the Research and Support Program and the Participant Funding Program. The increase in revenue was attributable to an increase in fees for nuclear substances used for commercial and industrial activities as the CNSC continues to phase in increases to recover the costs for these activities, in addition to an increase in revenues from special projects due to increased demand for vendor design reviews for small modular reactors.

Condensed statement of financial position (unaudited) as of March 31, 2020 (dollars)

Financial information	2019–20	2018–19	Difference (2019–20 minus 2018–19)
Total net liabilities	51,282,603	45,320,297	5,962,306
Total net financial assets	34,208,634	28,499,853	5,708,781
Departmental net debt	17,073,969	16,820,444	253,525
Total non-financial assets	13,467,852	16,815,543	(3,347,691)
Departmental net financial position	(3,606,117)	(4,901)	(3,601,216)

The increase of \$6.0 million in the CNSC's net liabilities is mainly due to an increase in the amounts of year-end refunds payable to licensees resulting from the excess collection of fees charged over the actual fees earned at year-end.

The increase of \$5.7 million in the CNSC's net financial assets is primarily a result of an increase in the amount due from the Consolidated Revenue Fund, which are amounts due from the federal government that may be disbursed without further charges to the CNSC's authorities.

The increase of \$0.3 million in departmental net debt is a result of the increase of net liabilities offset by an increase in total net financial assets.

The decrease of \$3.3 million in non-financial assets is a result of a decrease in the net book value of tangible capital assets as amortization expenses exceeded the cost of new capital acquisitions.

The decrease of \$3.6 million in CNSC's departmental net financial position, which is the difference between total non-financial assets and the departmental net debt, is attributable to the decrease in tangible capital assets.

Additional information

Organizational profile

Appropriate minister: Seamus O’Regan

Institutional head: Rumina Velshi

Ministerial portfolio: [Natural Resources Canada](#)⁷²

Enabling instrument: [Nuclear Safety and Control Act](#)⁷³

Year of incorporation / commencement: 2000

Other: The CNSC’s headquarters are located in Ottawa, Ontario. The CNSC maintains 11 regional offices, both at major facilities and elsewhere, in order to conduct inspections of licensees across the country on a regular basis.

Raison d’être, mandate and role: Who we are and what we do

“Raison d’être, mandate and role: who we are and what we do” is available on the [CNSC’s website](#)⁷⁴.

Operating context and key risks

Information on operating context and key risks is available on the [CNSC’s website](#)⁷⁴.

Reporting framework

The CNSC’s departmental results framework and program inventory of record for 2019–20 are shown below.

Departmental Results Framework	Nuclear Regulation				Internal Services	
	The environment is protected from releases from nuclear facilities and activities					
	Number of instances of radiological releases that exceeded regulatory limits					
	Number of instances of hazardous releases that exceeded regulatory limits					
	Percentage of Independent Environmental Monitoring Program (IEMP) samples (food, water, air, and vegetation) that met guidelines					
Canadians are protected from radiation resulting from nuclear facilities and activities						
Number of radiation doses to members of the public that exceeded regulatory limits						
Number of radiation doses to workers that exceeded regulatory limits						
Nuclear material and substances, facilities and activities are secure and used for peaceful purposes						
Number of instances of non-peaceful or malicious use of Canadian exports of nuclear substances, equipment and information						
Number of lost or stolen radioactive sealed sources						
Canada’s international commitments to the International Atomic Energy Agency (IAEA) with respect to nuclear safeguards and verification are met						
Canadians, including Indigenous peoples, have meaningful information about, and the opportunity to participate in, the nuclear regulatory process						
Percentage of CNSC proceedings that were accessible to members of the public and Indigenous peoples						
Percentage of CNSC proceedings for which the Participant Funding Program (PFP) was made available to members of the public and Indigenous peoples						
Percentage of public proceedings documents that were available in a timely manner upon request by members of the public and Indigenous peoples						
Number of Indigenous peoples who participated in CNSC proceedings						
Program Inventory						
Nuclear Fuel Cycle		Nuclear Reactors		Nuclear Substances and Prescribed Equipment	Nuclear Non-Proliferation	Scientific, Regulatory and Public Information

Supporting information on the program inventory

Financial, human resources and performance information for the CNSC’s program inventory is available in the [GC InfoBase](#)⁶⁷.

Supplementary information tables

The following supplementary information tables are available on [the CNSC’s website](#)⁷⁴

- ▶ Corporate information
- ▶ Departmental Sustainable Development Strategy
- ▶ Gender-based analysis plus (GBA+)

Federal tax expenditures

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance Canada publishes cost estimates and projections for these measures each year in the [Report on Federal Tax Expenditures](#)⁷⁵. This report also provides detailed background information on tax expenditures, including descriptions, objectives, historical information and references to related federal spending programs. The tax measures presented in this report are the responsibility of the Minister of Finance.

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Appendix: Definitions

appropriation (crédit)

Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

budgetary expenditures (dépenses budgétaires)

Operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

core responsibility (responsabilité essentielle)

An enduring function or role performed by a department. The intentions of the department with respect to a core responsibility are reflected in one or more related departmental results that the department seeks to contribute to or influence.

Departmental Plan (plan ministériel)

A report on the plans and expected performance of an appropriated department over a 3-year period. Departmental Plans are usually tabled in Parliament each spring.

departmental priority (priorité)

A plan or project that a department has chosen to focus and report on during the planning period. Priorities represent the things that are most important or what must be done first to support the achievement of the desired departmental results.

departmental result (résultat ministériel)

A consequence or outcome that a department seeks to achieve. A departmental result is often outside departments' immediate control, but it should be influenced by program-level outcomes.

departmental result indicator (indicateur de résultat ministériel)

A quantitative measure of progress on a departmental result.

departmental results framework (cadre ministériel des résultats)

A framework that connects the department's core responsibilities to its departmental results and departmental result indicators.

Departmental Results Report (rapport sur les résultats ministériels)

A report on a department's actual accomplishments against the plans, priorities and expected results set out in the corresponding Departmental Plan.

experimentation (expérimentation)

The conducting of activities that seek to first explore, then test and compare the effects and impacts of policies and interventions in order to inform evidence-based decision-making, and improve outcomes for Canadians, by learning what works, for whom and in what circumstances. Experimentation is related to, but distinct from innovation (the trying of new things), because it involves a rigorous comparison of results. For example, using a new website to communicate with Canadians can be an innovation; systematically testing the new website against existing outreach tools or an old website to see which one leads to more engagement, is experimentation.

full-time equivalent (équivalent temps plein)

A measure of the extent to which an employee represents a full person-year charge against a departmental budget. For a particular position, the full-time equivalent figure is the ratio of number of hours the person actually works divided by the standard number of hours set out in the person's collective agreement.

gender-based analysis plus (GBA+) (analyse comparative entre les sexes plus [ACS+])

An analytical process used to assess how diverse groups of women, men and gender-diverse people experience policies, programs and services based on multiple factors including race ethnicity, religion, age, and mental or physical disability.

government-wide priorities (priorités pangouvernementales)

For the purpose of the 2019–20 Departmental Results Report, those high-level themes outlining the government's agenda in the 2019 Speech from the Throne, namely: fighting climate change; strengthening the middle class; walking the road of reconciliation; keeping Canadians safe and healthy; and positioning Canada for success in an uncertain world.

horizontal initiative (initiative horizontale)

An initiative where two or more federal organizations are given funding to pursue a shared outcome, often linked to a government priority.

non-budgetary expenditures (dépenses non budgétaires)

Net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

performance (rendement)

What an organization did with its resources to achieve its results, how well those results compare to what the organization intended to achieve, and how well lessons learned have been identified.

performance indicator (indicateur de rendement)

A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, program, policy or initiative respecting expected results.

performance reporting (production de rapports sur le rendement)

The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

plan (plan)

The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally, a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead to the expected result.

planned spending (dépenses prévues)

For Departmental Plans and Departmental Results Reports, planned spending refers to those amounts presented in Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their Departmental Plans and Departmental Results Reports.

program (programme)

Individual or groups of services, activities or combinations thereof that are managed together within the department and focus on a specific set of outputs, outcomes or service levels.

program inventory (répertoire des programmes)

Identifies all the department's programs and describes how resources are organized to contribute to the department's core responsibilities and results.

result (résultat)

A consequence attributed, in part, to an organization, policy, program or initiative. Results are not within the control of a single organization, policy, program or initiative; instead they are within the area of the organization's influence.

statutory expenditures (dépenses législatives)

Expenditures that Parliament has approved through legislation other than appropriation acts. The legislation sets out the purpose of the expenditures and the terms and conditions under which they may be made.

target (cible)

A measurable performance or success level that an organization, program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

voted expenditures (dépenses votées)

Expenditures that Parliament approves annually through an appropriation act. The vote wording becomes the governing conditions under which these expenditures may be made.

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- ⁵⁵ The reported exceedance was in relation to the monthly average discharge limit for radium-226 at the Elliot Lake decommissioned uranium mine site for the month of January 2018. Follow-up monitoring in the environment confirmed that there were no radiological impacts to the public or the environment.
- ⁵⁶ Draximage event, reported to the Commission in December 2019. Jubilant Draximage Inc. reported that its weekly sampling monitoring results were above the weekly release limit for I-131 as specified in its licence. On November 20, 2019, the average weekly release concentration was calculated as 322 Bq/m³ for I-131 and the weekly release limit for I-131 is 175 Bq/m³. CNSC staff analyzed the impact of the event and determined that the estimated dose to public is less than 0.01 mSv, which is lower than the public dose limit of 1 mSv/yr. CNSC staff have concluded that the public and environment are protected from ongoing releases from nuclear facilities and activities.
- ⁵⁷ In 2017–18, there were two exceedances of limits, both at the Bruce NGS. There was an exceedance of the ammonia provincial discharge limit and the acute toxicity limit. CNSC staff reviewed the event and concluded that the licensee took appropriate corrective actions. The exceedances were reported to the Commission in Commission member document (CMD) 18-M39 on November 8, 2018. CNSC staff confirmed that the public in the vicinity of Bruce NGS were protected and that there were no expected health impacts resulting from exceedances of provincial hazardous substances limits at the Bruce NGS.
- ⁵⁸ In 2018–19, there were nine total exceedances of provincial hazardous substances limits, all at nuclear power plants. At Pickering Nuclear Generating Station (NGS), there were four exceedances of provincial hazardous substances limits. One exceedance was for morpholine concentration, two were for oil and grease, and one was an effluent temperature exceedance. At Darlington NGS, one morpholine result was slightly above provincial hazardous substances limits. At Bruce NGS, there were two toxicity exceedances and two ammonia exceedances of the provincial hazardous substances limits. The number of exceedances are related to minor sporadic issues at the nuclear power plants and vary from year to year. For all instances, CNSC staff reviewed the event and concluded that the licensee took appropriate corrective actions. The exceedances were discussed in CMD 19-M30, scheduled for November 6–7, 2019. The provincial hazardous substances regulatory limit exceedances have always been reported in the CNSC's [regulatory oversight reports](#). However, in previous years, the CNSC had not reported this information at the departmental level, as it was considered duplicative to any provincial reporting. In 2018–19, the CNSC started to report these exceedances at the departmental level as well to improve transparency and dissemination of information. CNSC staff confirmed that the public in the vicinity of these nuclear power plants were protected and that there were no expected health impacts resulting from exceedances of provincial hazardous substances limits at these nuclear power plants.
- ⁵⁹ First instance: environmental release control: A refrigerant leak on refrigeration Unit 0-73910-RFU2 (Halocarbon release over 100 kg) at Darlington Nuclear Generating Stations was reported on December 9, 2019. On September 25, 2019, while performing a routine monthly leak check, mechanical maintenance found a refrigerant leak on Unit 0 refrigeration unit 0-7391 0-RFU2, which resulted in an unacceptable amount (833lbs or 378 kg) of refrigerant (R-134a) being released in a spill to the environment. Second instance: environmental release: Potential discharge directly from inactive drainage to circulating cooling water duct (toxicity test failure (rainbow trout) at Darlington Nuclear Generating Station, reported on December 11, 2019. On November 23, 2019, a sump isolation valve was found to be in the open position instead of the normally closed position. This could have led to a

discharge of inactive drainage to the lake. Samples were collected and the toxicity test of rainbow trout failed. The investigation could not conclusively determine if water was discharged. For due diligence, the conservative decision was made to report this potential discharge as a lethality limit exceedance. In all noted cases, CNSC staff have concluded that the public and environment are protected from ongoing releases from nuclear facilities and activities.

⁶⁰ Some sites are known to be contaminated; therefore, if sampling occurs near a contaminated site during a fiscal year, the percentage of samples that meet guidelines will trend downwards that year. Noted exceedances for all three fiscal years were expected, as they are similar to values reported by CNSC licensees' environmental monitoring programs. No additional unexpected exceedances were noted. In 2018–19, there were four exceedances at Elliott Lake historical sites for two sediment results and two water results. These exceedances are related to iron, lead and zinc in sediment and water. These heavy metals are contaminants from historical industrial activities at the Elliott Lake site. There were also 27 exceedances at the Deloro Mine site for 15 sediment results and 12 water results. Exceeding a guideline does not mean that there is an expected health impact; rather, it triggers a more in-depth assessment by CNSC staff to ensure that the health and safety of people and the environment are protected. In all noted cases, CNSC staff have concluded that the public and environment are protected from ongoing releases from nuclear facilities and activities. More information in IEMP results for each site is available on the [CNSC website](#).

⁶¹ In the fiscal year 2019–20, the percentage of the IEMP results that met the guidelines was 98.9%. Exceedances for the 2019–20 fiscal year were expected, and similar to the values reported by CNSC licensees' environmental monitoring programs. No unexpected exceedances were noted. There were two exceedances of uranium in the surface water near the Bancroft mine sites. The exceedances are a result from historical activities and consistent with the results submitted by the licensee. There was also exceedance of iron in one water sample taken near Chalk River Laboratories. The exceedance is not reflective of activities at Chalk River, and is deemed associated with either natural concentrations or other local construction activities. No health or environmental impacts are expected at these levels. At the Port Hope Area Initiative, there were four samples where some parameters were above the applicable guidelines; i.e., arsenic exceedance in one sediment sample and total dissolved solid (TDS) exceedance in three water samples. The arsenic exceedance in the sediment sample was expected given the historical releases. Although this value is above the Canadian Council of Ministers of the Environment (CCME) interim sediment quality guideline, it is significantly below CCME probable effect level for aquatic organisms. In addition, the TDS exceedance for the water samples does not pose any risk for public health and the environment, given that the guidelines for TDS in water are an aesthetic objective rather than a health based benchmark. Exceeding a guideline does not mean that there is an expected health impact; rather, it triggers a more in-depth assessment by CNSC staff to ensure that the health and safety of people and the environment are protected. In all noted cases, CNSC staff have concluded that the public and environment are protected from ongoing releases from nuclear facilities and activities. More information in IEMP results for each site is available on the [CNSC website](#).

⁶² 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 Commission member document (CMD) 18-M43 on August 22, 2018.

⁶³ On October 28, 2016, a nuclear energy worker received a dose of approximately 1,100 mSv to the left hand when the worker experienced contamination during routine administration (injections) of a

nuclear substance to patients. The dose was in excess of the annual regulatory equivalent dose limit of 500 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 in CMD16-M72 on December 14, 2016. On March 1, 2017, a nuclear energy worker received a dose of approximately 2,300 mSv to the right hand when the worker experienced contamination during the administration of therapeutic doses of a nuclear substance to patients. The dose was in excess of the annual regulatory equivalent dose limit of 500 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 in CMD 17-M22 on April 12, 2017.

⁶⁴ In November 2018, a nuclear energy worker received an equivalent dose of approximately 1,680 mSv to the left hand, in excess of the annual regulatory equivalent dose limit of 500 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 in CMD 18-M65 on December 13, 2018.

⁶⁵ Unexplained dose of 1.85 mSv on quarterly badge reading of a non-nuclear energy worker, which exceeded the annual dose limit of 1 mSv/year. No health effects were observed or expected as a consequence of this event. This event was reported to the Commission in November 2019 in CMD 19-M41. Unexplained dose on quarterly badge reading of a nuclear medicine technologist. NEW worker exceeded both the one-year effective dose limit (recorded dose of 56.91 mSv) and equivalent dose limit for the lens (recorded dose of 174.9 mSv). Investigation concludes that the recorded dose is likely non-personal but rather due to contamination on the dosimeter although this cannot be demonstrated conclusively. No health effects were observed or expected. This event will be reported to the Commission in 2020.

⁶⁶ The decrease in Indigenous participation in 2018–19 relative to 2017–18 is due to fewer total public proceedings.

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