



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

CNSC
Annual Report
2021–22

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2021–22

2021–22 ANNUAL REPORT **CANADIAN NUCLEAR** **SAFETY COMMISSION**

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MESSAGE FROM THE PRESIDENT

I am pleased to present the 2021–22 Annual Report of the Canadian Nuclear Safety Commission (CNSC), outlining how we protected the health, safety, security of persons and the environment, and met our international obligations. I am grateful for the opportunity to convey information to parliamentarians and Canadians about the important work of the CNSC and its successes and challenges over the past fiscal year.

2021 marked 75 years of nuclear safety and security regulation in Canada, making the CNSC one of the most mature nuclear regulators in the world. Our diamond anniversary gave us an opportunity to celebrate our rich history of keeping Canadians and the environment safe. We have overcome many challenges over the last 75 years, and this past year was no exception. Among the challenges we faced – and overcame – this year were adapting to the ongoing COVID-19 pandemic, meeting the needs of Canada’s energy sector as it responds to the climate change crisis, and responding to the appalling situation in Ukraine and its unique implications for nuclear energy.



Throughout the war in Ukraine, CNSC staff have been at the forefront of engaging with Government of Canada officials and our international colleagues to share information and analyses to respond to potential threats. In March, we acted immediately following the shelling of an administrative building at one of Ukraine’s nuclear power plants, quickly sharing information about risks with our international colleagues, other federal departments and, most importantly, Canadians. The conflict points to the need for a strong, effective international nuclear regulatory regime. We worked closely with the International Nuclear Regulators Association to share technical information on nuclear safety and coordinate assistance to the International Atomic Energy Agency (IAEA) and Director General Rafael Grossi’s efforts to enhance safety. In the coming years, enhancing the robustness and transparency of the international regime will be an important priority for us in order to ensure that risks are mitigated. The war also highlights the importance of being able to communicate science and risks to the public quickly and transparently, even if such risks are not immediate to Canadians.

March 2022 marked 2 full years of remote work for CNSC staff because of the COVID-19 pandemic. I am heartened that the CNSC has been able to adapt and thrive during this time of global uncertainty. We have shown that the CNSC is not only an organization that is capable of change, but one that rises to the most challenging situations. We have been unwavering in our commitment to ensuring safety throughout this time, including our ongoing regulatory oversight of the complex refurbishments at the Bruce and Darlington nuclear generating stations. Innovation in the production of medical isotopes also continued to be a key area of focus, with the Commission granting licence amendments to Ontario Power Generation to produce molybdenum-99, which is used in diagnostic imaging, and to Bruce Power to produce lutetium-177, which is used in cancer treatments.

In July 2021, Bruce Power reported elevated levels of uptake of hydrogen and its isotopes in the pressure tubes of 2 of its units that were shut down at the time. The levels were higher than anticipated, posing a potential risk to the continued safe operation of those units. We held special public Commission hearings to understand the science and facts, established the External Advisory Committee on Pressure Tubes, and provided open, timely and transparent communications to the public to keep them informed of the situation. The CNSC directed Bruce Power to assess the fitness for service of its other reactors to ensure that continued operation of the units is allowed only once it is established that it can be done safely. The

CNSC also issued formal notices to all nuclear power plant licensees in Canada, requiring timely review and reporting on the continued safe operation of pressure tubes.

In 2021–22, we continued to show leadership through our readiness to enable the innovation necessary to meet climate goals. In December 2021, Ontario Power Generation announced the technology it has selected for the first grid-scale small modular reactor (SMR) in Canada and in a G7 nation. We are ready to receive a construction licence application for the Darlington site, which is expected before the end of 2022. We have been preparing to regulate this technology for years, and we continue to build upon our relationships with other nuclear regulators to collaborate and share best practices, experiences, and knowledge that will enhance international nuclear safety, security and non-proliferation. We actively support the IAEA’s initiative on the international harmonization and standardization of SMRs to make sure that we are supporting the safe development and deployment of these technologies globally.

Nuclear waste management was another area of focus this past year. Canadians are showing increasing interest in the future of nuclear waste management. Part 1 of the Commission hearing for the Canadian Nuclear Laboratories application for a licence to construct a near surface disposal facility in Deep River, Ontario, was held in February 2022 and focused on the final environmental assessment report and licensing application. This project, if approved, would see the construction of the first engineered facility for the disposal of low-level radioactive waste in Canada.

As part of a new study on governing nuclear waste in Canada, I had the opportunity to share with the House of Commons Standing Committee on Environment and Sustainable Development how the CNSC carries out its critical role in regulating radioactive waste management. The CNSC has been actively engaged in Natural Resources Canada’s modernization of the Radioactive Waste Policy Framework, which aims to shape Canada’s national policies and strategies on radioactive waste, aligning them with international standards and best practices. The Office of the Auditor General’s Performance Audit of Nuclear Waste Management – Low and Intermediate Levels, which was launched in July 2021, included reviewing the CNSC’s regulatory role. We look forward to the audit’s recommendations and to the report that will be tabled in the fall.

I want to close on a note about our employees, who continued to demonstrate resilience, professionalism and dedication in all they do. This year, we further strengthened our commitment to making the CNSC a place where everyone feels respected, safe, and able to reach their true potential. While we still have much to do, we made significant progress on diversity, equity and inclusion by implementing new aspirational 3-year employment equity hiring goals, implementing a new policy to help us all identify and prevent workplace violence, and establishing several employment equity groups. As co-chair of the International Gender Champions Impact Group on Gender Equality in Nuclear Regulatory Agencies, I am very pleased at our progress over this past year to greatly expand membership and fuel momentum across the globe for gender equity. Lastly, we completed our Reimagine the Workplace Initiative, which highlights the vision and principles that will guide the approach to our future post-pandemic hybrid work model. Everyone’s mental health and well-being are of utmost importance, so giving employees the choice of where to work is just one more way that we can provide flexibility and support to our staff.

I invite you to read the CNSC’s 2021–22 Annual Report to gain a better understanding of how we continue to navigate these challenging times. This report reinforces that we are well served by our organizational priorities, which have guided our efforts over the past year.

Rumina Velshi
President

RESULTS AT A GLANCE

THE CNSC'S 4 STRATEGIC PRIORITIES



modern

TO HAVE A **MODERN** APPROACH TO NUCLEAR REGULATION

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



trusted

TO BE A **TRUSTED** REGULATOR

- The CNSC continuously strives to be a trusted regulator, recognized as independent, open and transparent, and as a credible source of scientific, technical and regulatory information.



global

TO MAINTAIN OUR **GLOBAL** NUCLEAR INFLUENCE

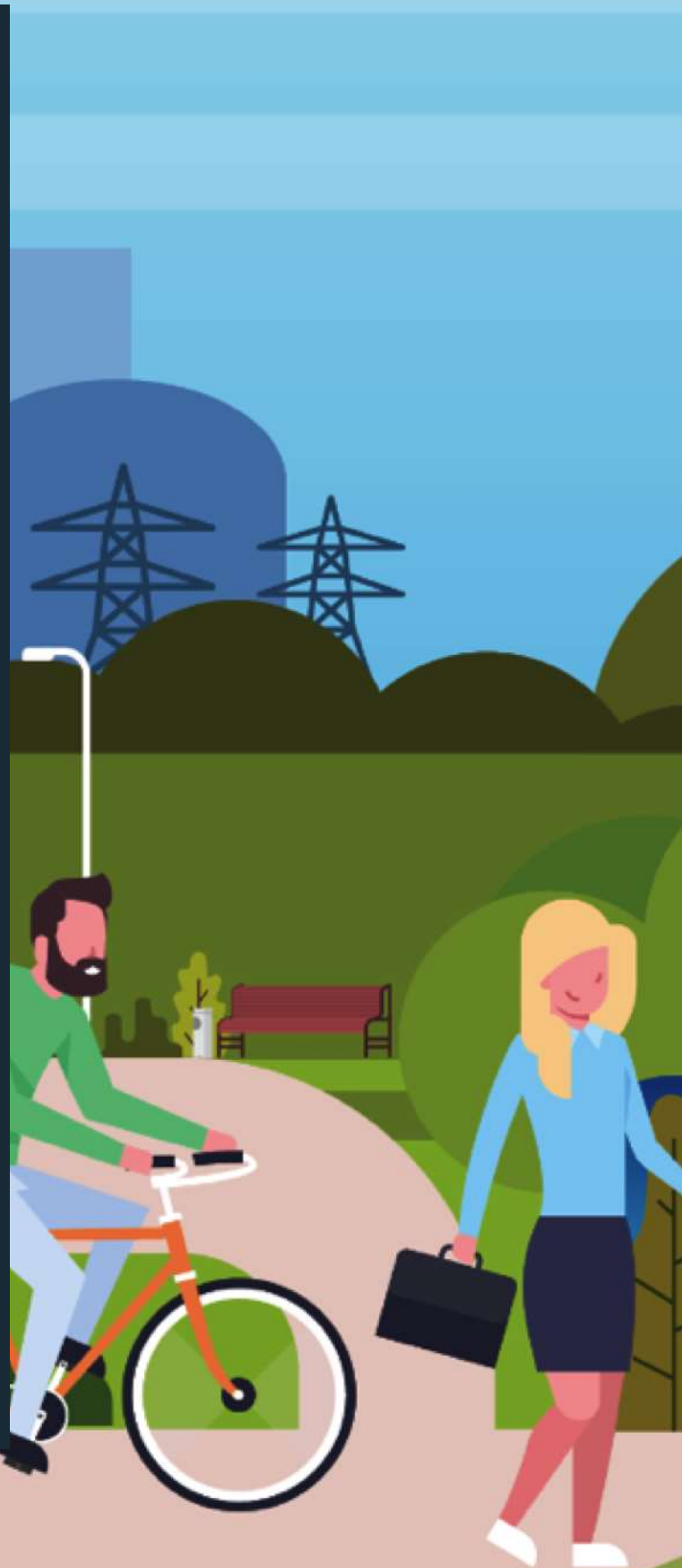
- The CNSC will continue to leverage and influence global nuclear efforts, relevant to Canadian interests and activities, to enhance international nuclear safety, security and non-proliferation.



agile

TO BE AN **AGILE** ORGANIZATION

- The CNSC will take the necessary steps to ensure that it is an agile organization – one that is flexible and inclusive, with an empowered and equipped workforce able to quickly adapt to an evolving operating environment.



RESULTS AT A GLANCE

The commitment to the CNSC’s core responsibility of nuclear regulation, the fulfillment of the organization’s mandate, and the achievement of its departmental results for 2020–21 and beyond are delivered through the CNSC’s [5 programs](#). The programs include the Nuclear Fuel Cycle Program, Nuclear Reactors Program, Nuclear Substances and Prescribed Equipment Program, Nuclear Non-Proliferation Program, and Scientific, Regulatory and Public Information Program (plus Internal Services) and are guided by 4 strategic priorities.



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

In 2021–22, the CNSC:

- continued to make progress on key areas of responsibility in [Canada’s Small Modular Reactor \(SMR\) Action Plan¹](#)
 - international collaboration is one such area, putting the CNSC at the forefront on the global stage in terms of advancing international harmonization, which is essential for the safe and successful broad deployment of SMRs globally
- began the technical review of Global First Power’s documentation in support of its application for a licence to prepare a site for an SMR at the Chalk River Laboratories site, making the CNSC a lead nuclear regulator for SMRs
- moved forward with preliminary licensing activities for emerging technologies, completing Phase 1 of the vendor design review of Moltex Energy’s 300 Megawatts SMR
- worked on establishing agile regulatory practices and clear regulatory requirements that are risk-informed, and on ensuring that it has the capacity, capability and readiness to regulate such technologies and their use
- remained actively engaged in the modernization of Canada’s radioactive waste policy and closely monitored policy developments to ensure that the necessary updates to its regulatory framework are made efficiently
- leveraged its newly created Innovation and Research Hub, a centralized and dedicated function to explore and provide a strategic lens for new and emerging technologies, in order to effectively regulate licensees and applicants
- undertook an assessment of the regulatory framework, led by its Disruptive, Innovative and Emerging Technologies (DIET) Working Group, which concluded that the framework is largely technology-neutral
- conducted an international benchmarking initiative with funding from the Treasury Board of Canada Secretariat’s Centre for Regulatory Innovation
 - the initiative, led by the DIET Working Group in partnership with Kinectrics Inc., concluded that the CNSC’s regulatory framework is ready to license fusion technologies and that a few modifications should be considered to enhance clarity

Modernizing the inspection program in response to COVID-19

The ongoing COVID-19 pandemic continues to impact the CNSC’s inspection plans. As a result, the CNSC continues to recalibrate its mix of onsite and remote inspections. In the first year of the global health crisis, the CNSC established a framework for conducting remote oversight activities and inspections, which included working with licensees to ensure remote access to site information systems. In 2021–22, the CNSC formalized its hybrid inspection approach by undertaking a self-assessment of its inspection process. This assessment will allow the CNSC to ensure that its approach is consistent, while providing opportunities for continuous improvement and flexibility. The CNSC continues to share best practices and lessons learned on the topic of remote inspections with other regulators.

With the pandemic restricting the ability to complete all inspection plans for 2020–21, the CNSC thoroughly reviewed any deferred inspections and ensured that any risk-significant inspections were included in the inspections plans for 2021–22.



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

In 2021–22, the CNSC:

- made progress on implementing its trust-building strategy, centered on the following key activities:
 - transforming stakeholder engagement with plans to engage stakeholders early and in 2-way dialogue
 - demonstrating the CNSC’s independence by developing a public registry to include application information and exchanges between CNSC employees and regulated entities
 - modernizing Commission proceedings by reviewing how participation could be enhanced
- took a proactive approach to communicating about the Bruce Power discovery of higher than predicted measurements of hydrogen equivalent in some of its pressure tubes; the aim was to provide Canadians with nuclear reactor safety information and reduce the impacts of sensationalism in social and traditional media by:
 - posting videos on social media explaining the discovery and the regulatory implications
 - creating plain language web content to explain pressure tubes and the implications of the discovery, including posting all relevant safety information on a single web page
 - working with members of the media to provide technical briefings and interviews, correct misinformation, and advise of Commission proceedings
 - encouraging members of the public and Indigenous Nations and communities to participate in and watch publicly webcast Commission proceedings
- actively worked to advance reconciliation and forge a shared path forward with Indigenous Nations and communities; specifically, in 2021–22, the CNSC:
 - continued to provide funding through its Participant Funding Program to enhance the participation of Indigenous Nations and communities in regulatory processes
 - continued to formalize long-term engagement with Indigenous Nations and communities with an interest in nuclear facilities across Canada

- developed a CNSC-specific approach and completed multiple rights impact assessments in relation to major nuclear projects in collaboration with Indigenous Nations and communities
- conducted early engagement and relationship building for new major projects, including proposed SMRs
- developed and signed multiple project-specific terms of reference for consultation and collaboration with Indigenous Nations and communities
- continued to collaborate with Indigenous Nations and communities on the CNSC’s Independent Environmental Monitoring Program
- continued to host events and offer training opportunities for CNSC staff and management to enhance Indigenous cultural awareness
- finalized the CNSC’s [Indigenous Knowledge Policy Framework²](#)



Chief Kelly LaRocca (seated) and Councillors Jeff Forbes and Laura Colwell of the Mississaugas of Scugog Island First Nation (MSIFN), and Clare Cattrysse, Director of Indigenous and Stakeholder Relations, recently signed terms of reference for long-term engagement. The [agreement³](#) will enhance collaboration and build a stronger relationship between the MSIFN and the CNSC. This key initiative is part of the CNSC’s broader priority of working closely with Indigenous Nations and communities to build trust and establish long-term relationships in the spirit of partnership and reconciliation.



The CNSC leverages and influences **global** nuclear efforts, relevant to Canadian interests and activities, to enhance international nuclear safety, security and non-proliferation.

In 2021–22, the CNSC:

- participated with other nuclear regulators in the 2021 IAEA Fukushima conference to reflect and build on lessons learned from the Fukushima-Daiichi power plant accident; President Velshi chaired a session titled Ensuring the Safety of Nuclear Installations
- supported improvements to safety standards through the chairmanship of the International Atomic Energy Agency’s (IAEA’s) Commission on Safety Standards (CSS), which has taken a more strategic approach to developing standards, including a better integration of committees involved in the preparation and review processes for safety standards

- continued to work on the consultancy on the applicability of IAEA safety standards to advanced reactors, which will set the groundwork for planning and conducting refinements of the IAEA safety framework
- led efforts on the harmonization of regulatory practices and requirements and continued to be active in various international fora while collaborating with like-minded regulators to achieve efficiency and effectiveness in the review of SMR technical assessments
- supported the CSS in prioritizing and establishing harmonized international standards for SMRs that are technology-neutral, commensurate with the risks presented, and minimally sufficient for the needs of all countries
- contributed to the IAEA’s and the Nuclear Energy Agency’s efforts to share lessons learned from the pandemic and participated in a Working Group on Inspection Practices workshop related to inspections during the pandemic, with the CNSC identifying ways to engage and collaborate with international partners
- continued to work with counterparts through memoranda of cooperation (MOC); for example:
 - the CNSC and the United States Nuclear Regulatory Commission published 2 [joint reviews](#)⁴ on SMR technologies, with a third joint review underway
 - through the MOC with the United Kingdom’s Office for Nuclear Regulation, numerous workshops were held to promote knowledge and information exchanges on themes such as proponent engagement and the pre-licensing and licensing processes



CNSC President Rumina Velshi, Executive Vice-President and Chief Regulatory Operations Officer Ramzi Jammal and Interim Vice-President and Chief Communications Officer Liane Sauer at the 2021 IAEA Fukushima Conference.



The CNSC continues to take the necessary steps to ensure that it is an **agile** organization – one that is flexible and inclusive, with an empowered and equipped workforce able to quickly adapt to an evolving operating environment.

In 2021–22, the CNSC:

- completed the Reimagine the Workplace Initiative, which looked at the CNSC’s future workplace; managers and employees will work together to create hybrid work practices that prioritize personal well being and maximize team connection, collaboration and innovation
- launched the Women in Science, Technology, Engineering and Math (WISTEM) coaching and mentoring programs:
 - the mentoring program provides structure and support that enables individuals to form and grow successful mentoring relationships
 - the coaching program empowers women by giving them the opportunity to develop through both individual and small-group coaching
- broadened its connections with universities and schools in the area of STEM, including formalizing its outreach program and piloting a CNSC–university collaborative model to

encourage more women to undertake academic research in STEM – these initiatives also serve to support the Government of Canada’s contribution to the United Nations’ [2030 Agenda for Sustainable Development](#),⁵ specifically Goal 5 (Achieve gender equality and empower all women and girls)

- continued its important work under Project Athena, the organization’s strategic review. A workshop was held with the Executive Team to determine the actions that will help position CNSC for the future. In addition, over 600 staff suggestions received as part of this project were reviewed and served to inform ongoing or new work. This project began in 2019 in anticipation of future changes to the nuclear industry that will likely have an impact on the CNSC’s regulatory work.

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

RESULTS: WHAT WE ACHIEVED

CORE RESPONSIBILITY: NUCLEAR REGULATION

THE CNSC'S DEPARTMENTAL RESULTS

1

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

PAGE 10

2

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

PAGE 10

3

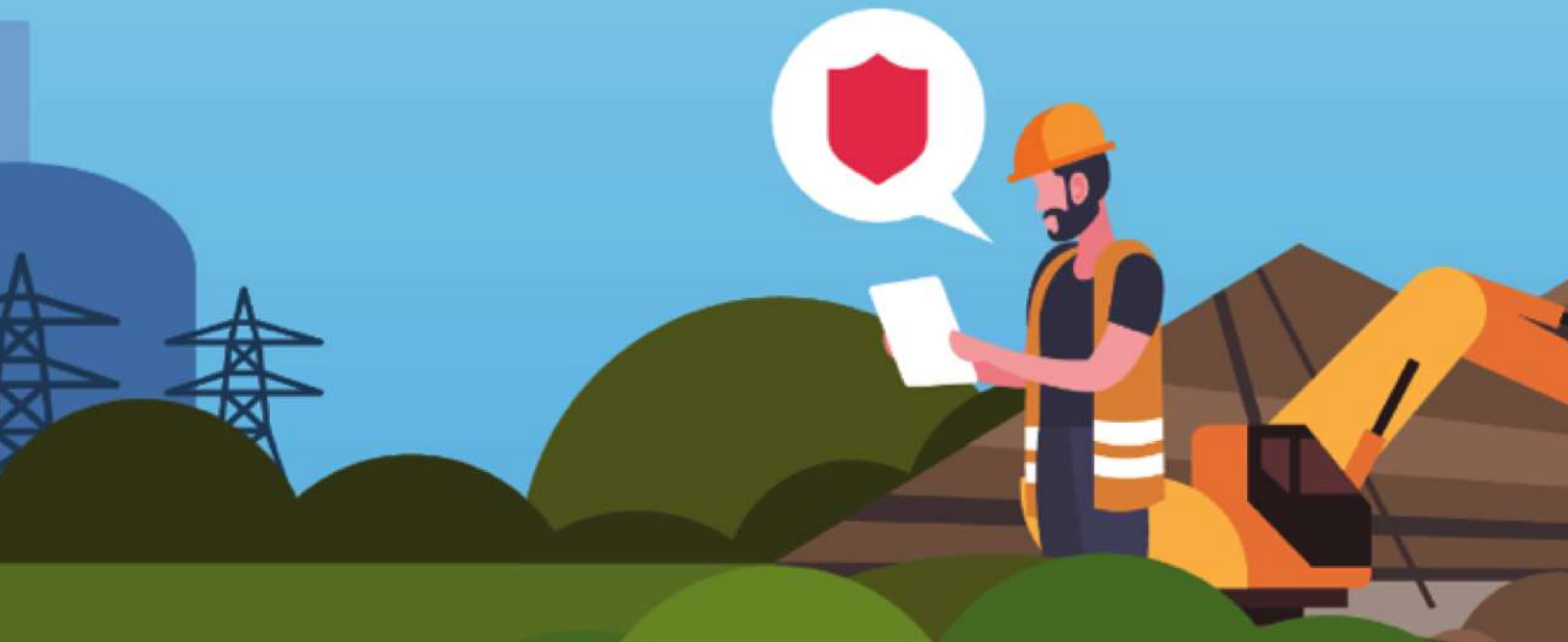
Nuclear material and substances, facilities and activities are secure and used for peaceful purposes.

PAGE 12

4

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

PAGE 14



RESULTS: WHAT WE ACHIEVED

Nuclear regulation

The CNSC regulates the development, production and use of nuclear energy and substances to protect the health, safety, security of persons 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. The CNSC maintains a regulatory framework and conducts licensing (including environmental protection reviews), compliance verification and enforcement. The CNSC is committed to building and maintaining the confidence of the public and Indigenous peoples through transparent, open and inclusive regulatory processes.

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.

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 1,700 licensees across various sectors.

In 2021–22, the CNSC maintained regulatory oversight of the refurbishment of the Darlington and Bruce nuclear generating stations. In both cases, the refurbishment work is progressing according to schedule, with regular compliance inspections being performed as planned.

- At Unit 6 of the Bruce Nuclear Generating Station, the steam generators have been replaced and the calandria tube installation is underway.
- At Unit 3 of the Darlington Nuclear Generating Station, the removal phase of the refurbishment has been completed and the installation phase has commenced, with calandria tubes now being installed.

Please visit the [Darlington Nuclear Generating Station page](#)⁶ and [Bruce A and B Nuclear Generating Stations page](#)⁷ on the CNSC website for more information on the progress of these projects.

In 2017, Ontario Power Generation (OPG) announced that Pickering Nuclear Generating Station Units 1, 4, and 5 to 8 would end commercial operation by December 31, 2024. The operation of any of those reactor units beyond that date will require Commission authorization. In December 2021, OPG informed the CNSC that it intends to request Commission authorization to operate Pickering Units 5 to 8 until December 31, 2025. OPG’s formal request is expected in late 2022 and will be heard by the Commission at a public hearing. CNSC staff will review OPG’s safety case for this request and will make recommendations to the Commission.

In addition to maintaining regulatory oversight of major projects like refurbishments at nuclear generating stations, the CNSC works to protect the health of Canadians by regulating the nuclear industry and ensuring that nuclear substances are used safely and only in ways that promote good health, such as their use in the medical industry. This work serves to support the Government of Canada's contribution to the United Nations' [2030 Agenda for Sustainable Development](#),⁵ particularly Goal 3, which focuses on good health and well-being.

Moreover, in 2021–22, the CNSC continued with environmental assessments (EAs) begun under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). These included the EAs and licensing technical assessments for Canadian Nuclear Laboratories' proposed decommissioning projects: the decommissioning of the Nuclear Power Demonstration reactor in Rolphton, Ontario, and the decommissioning of Whiteshell Reactor #1 at Whiteshell Laboratories in Pinawa, Manitoba. The CNSC also completed the EA and licensing documentation technical review for the siting and construction of a near surface disposal facility at the Chalk River Laboratories (CRL) site in Deep River, Ontario.

Furthermore, the CNSC continued the EAs under CEAA 2012 for the 2 proposed uranium mines in northern Saskatchewan (Denison Mines' Wheeler River project which leverages the in-situ recovery mining method and NexGen Energy Ltd.'s Rook I project, a conventional underground mine and a uranium mill), as well as Global First Power's proposed micro modular reactor project at the CRL site.

To ensure consistency in licensing and compliance verification, the CNSC's regulatory framework and environmental assessment requirements must be clear and understood by licensees. The regulatory framework consists of [laws](#)⁸ passed by Parliament, regulations, and licences and regulatory documents that are used to regulate Canada's nuclear industry. In 2021–22, the CNSC published [8 regulatory documents](#).⁹ Regulatory documents clarify the CNSC's requirements and may contain practical guidance to licensees and applicants on how to meet the CNSC's regulatory requirements. Such guidance can include information on possible approaches to the design of nuclear facilities, the design and implementation of required management and operational programs, and forms for applying for licences or reporting information to the Commission.

The CNSC Laboratory plays an important role in the CNSC's [Independent Environmental Monitoring Program](#)¹⁰ (IEMP), which helps verify that the public and the environment around CNSC-regulated nuclear facilities are not adversely affected by releases to the environment. The IEMP complements the ongoing compliance verification program and involves taking samples from public areas around nuclear facilities. These samples are measured and analyzed to determine the amount of radiological and hazardous substances and compared to guidelines. The CNSC will continue to post IEMP sample data and resulting conclusions on its [website](#).¹⁰

In addition, the CNSC Laboratory received ISO/IEC 17025:2017 accreditation in 2021–22, the current international standard used to evaluate testing and calibration laboratories. This made the CNSC Laboratory the first in Canada, and the only federal government facility, to receive accreditation for the calibration of working measurement standards and survey instruments for gamma measurement. The accreditation, under [certificate number 2016-05](#),¹¹ was granted by the [Standards Council of Canada](#)¹² and the National Research Council of Canada's [Calibration Laboratory Assessment Service](#).¹³ To obtain accreditation, the CNSC Laboratory was required to demonstrate its ability to produce precise and accurate test and calibration data and to show the technical competence of staff with respect to the

calibration of working measurement standards, gamma survey meters, and personal electronic dosimeters.

Evaluation of recent medical isotope-producing initiatives

Medical isotope-producing initiatives were another area of focus for the CNSC in 2021–22, with plans underway at the Darlington and Bruce sites to make modifications to allow the plants to produce isotopes.

Specifically, OPG has been granted a licence amendment by the Commission authorizing the production of molybdenum-99 (Mo-99) at the Darlington Nuclear Generating Station. Mo-99 – and more precisely, its decay product, technetium-99 (Tc-99m) – is widely used by the medical industry for diagnostic imaging. OPG is also pursuing a licence amendment to authorize the production of cobalt-60 (Co-60) and is expected to submit an amendment application in 2022–23. Co-60, which is currently produced in other CANDU reactors in Ontario, is used in a variety of medical and industrial applications.

Bruce Power has been granted an amendment to its licence to allow for the production of lutetium-177 (Lu-177) at Unit 7 of the Bruce Nuclear Generating Station. The use of Lu-177 in radiation therapy has produced high response rates in the treatment of prostate cancer. There are also potential uses for Lu-177 in the treatment of other types of cancers, such as neuroendocrine tumours. The Lu-177 isotope production system has been installed, and various commissioning activities and equipment checks are underway.

DEPARTMENTAL RESULT 3

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

Through the *Nuclear Safety and Control Act (NSCA)*, the CNSC implements Canada’s international commitments on the peaceful use of nuclear energy. The CNSC implements regulatory programs to ensure that CNSC licensees and Canada at large meet the obligations arising from Canada’s international safeguards agreements with the IAEA. Safeguards conclusions drawn by the IAEA assure Canadians and the international community that all nuclear materials in Canada are used for peaceful purposes. In 2021–22, the CNSC:

- engaged with the IAEA through the Canadian Safeguards Support Program on safeguards-by-design for small modular reactors for selected Canadian vendors; efforts continue towards finalizing the practical arrangements for Canadian licensees and the full implementation of the IAEA’s revised State-level approach for Canada
- 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](#)¹⁴ and the [General Nuclear Safety and Control Regulations](#)¹⁵ – a total of 975 import and export licensing decisions were made by the CNSC under these regulations

The exports of significant nuclear items are made subject to [nuclear cooperation agreements \(NCAs\)](#).¹⁶ These are treaty-level agreements designed to minimize the proliferation risk associated with

international transfers of nuclear items. The CNSC implements the terms and conditions of NCAs through [administrative arrangements](#)¹⁶ with its regulatory counterparts in partner countries. The CNSC also implements a licensing and compliance program to ensure that imports and exports of nuclear substances, prescribed equipment and prescribed information (technology) meet regulatory requirements. This allows the CNSC to meet [Canada's nuclear non-proliferation](#)¹⁷ policy and international obligations and commitments. In 2021–22, the CNSC:

- provided technical and operational leadership and support to various initiatives for advancing Canada's international strategic objectives in security, safeguards, non-proliferation, and emergency management and planning
- continued to prepare for and provide support to the Tenth Non-Proliferation Treaty Review Conference, which was postponed and will now be held from August 1 to 26, 2022

Being prepared in the event of an emergency is an essential part of being a responsible nuclear regulator. Because nuclear emergency preparedness and response is a shared responsibility in Canada, the CNSC has a comprehensive emergency preparedness program in place and works with nuclear operators; municipal, provincial and federal government agencies; first responders; and international organizations to ensure readiness. The CNSC established the Potassium Iodide (KI) Pill Working Group and Advisory Committee in 2019 to provide clarity on the existing plans and associated responsible authorities for the distribution of KI pills in the Ingestion Planning Zone in the event of an emergency at the Pickering Nuclear Generating Station. In January 2022, the CNSC presented [Phase I of the KI Pill Working Group Terms of Reference](#)¹⁸ to the Commission. Phase I identifies, among other things, the current provincial and federal requirements for the distribution of KI pills

One way to ensure that the CNSC evaluates its state of readiness to meet worldwide best practices is by participating in international reviews. The Emergency Preparedness Review (EPREV) is a service offered by the IAEA through which a team of international experts appraises a Member State's level of emergency preparedness for nuclear and radiological emergencies. As a follow-up to the [2019 EPREV mission](#)¹⁹ to Canada, in 2021-22 the CNSC participated in the [Synergy Challenge](#),²⁰ led by New Brunswick Power and the Government of New Brunswick. The exercise involved over 40 government agencies and tested the Point Lepreau Nuclear Generating Station, first responders, municipalities, and provincial, federal and international government agencies to verify their ability to respond to a simulated nuclear emergency initiated by a cyber event.

Nuclear security is a major consideration in all CNSC activities. The CNSC is responsible for enforcing Canada's [Nuclear Security Regulations](#)²¹ (NSR) 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. Cyber security remains an important and evolving issue for key stakeholders of nuclear facilities, including design authorities, operating utilities and regulatory bodies. The CNSC is responsible for ensuring strengthened oversight in this area. In 2021–22, the CNSC:

- issued 2 discussion papers related to modernizing the nuclear security regulatory framework, which were tabled for public consultation from April to July 2021

- held a series of consultation sessions with over 150 participants, including members of the public, environmental non-governmental organizations, industry, Government of Canada partners, and representatives from various provincial governments
 - the sessions included a walkthrough of the regulatory amendment process and highlighted the proposed amendments to the NSR
 - as a result of the sessions, the CNSC is now developing a proposed regulatory amendment package that takes into account the feedback received; the amendments are expected to be pre-published in the *Canada Gazette, Part I*, for further consultation between the Government of Canada and Canadians

DEPARTMENTAL RESULT 4

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

The CNSC is a proactive regulator that supports participation by members of the public and Indigenous Nations and communities in the CNSC’s regulatory processes. Public hearings and meetings are open to the public, are sometimes held in the community and are always webcast live on the CNSC’s website. In addition, the CNSC offers funding through its Participant Funding Program (PFP) to help support the participation of Indigenous Nations and communities, members of the public, and stakeholders in bringing valuable information to the Commission. This is recognized internationally as a best practice to emulate. Learn more about the [PFP](#)²² and watch a short [CNSC video](#)²³ about it by visiting the CNSC website.

IN 2021–22, THE CNSC

Paid out **\$1,043,744.58** to **95 recipients**, the majority being **Indigenous Nations and communities**.



The CNSC welcomes input from the public and Indigenous groups on draft regulatory documents that are open for consultation on [Let’s Talk Nuclear Safety](#).²⁴ 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](#)²⁵ 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. In 2021–22, the CNSC posted **4** regulatory documents for public consultation, and **30** people provided comments.

Through “Meet the Nuclear Regulator” sessions, CNSC experts offer the public an opportunity to learn about how to participate in the licensing process, to build understanding of and public confidence in Canada’s nuclear regulation. To participate in an upcoming [“Meet the Nuclear Regulator” or webinar session](#),²⁶ visit the CNSC website.

IN 2021–22, THE CNSC

Had over **1,500 participants** across **36** “Meet the Nuclear Regulator” sessions.



Furthermore, the CNSC frequently participates in community outreach and engagement activities and responds to media calls and public information inquiries. As an agent of the Crown, the CNSC has an

important responsibility to engage and consult with interested Indigenous groups and is committed to developing long-term positive relationships with these communities. The CNSC strives to improve its outreach and engagement strategies by incorporating feedback from all stakeholders and Indigenous

Nations and communities. For example, because of a request from various Indigenous Nations and communities, the CNSC developed an approach to rights impact assessment (RIA) processes in collaboration with each community and as a result, now has completed several RIAs. In 2021–22, the CNSC:

- began updating its web content, changing its templates and refining usability as per international standards and best practices, allowing for better public communication and stronger alignment with modern accessibility and user needs
- expanded the use of the [Let's Talk Nuclear Safety](#)²⁴ platform to facilitate public engagement and education through an “Ask Me Anything” event about tritium
- to promote transparency, consulted with federal, provincial and municipal governments to share best practices on the use of the software underpinning the [Let's Talk Nuclear Safety](#)²⁴ platform

IN 2021–22, THE CNSC

Held **over 220 meetings** with **45 Indigenous groups** representing **over 90 different Indigenous Nations and communities.**



Disseminating information is part of the CNSC's mandate, but that information also has to be accessible and understood. One goal of the CNSC's social media platforms – [YouTube](#),²⁷ [Facebook](#),²⁸ [LinkedIn](#)²⁹ and [Twitter](#)³⁰ – is to provide technical information in plain language that explains complicated nuclear science in simple terms. The CNSC continues to dedicate resources to its social media engagement, not only to share information, but also to answer questions from followers, often with the assistance of a subject-matter expert.

IN 2021–22, THE CNSC

Posted **1,854 times** on social media channels and **engaged** with the public through these platforms **32,477 times.**



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. The organization offers the public a [comprehensive list of relevant scientific and technical information](#)³¹ on its website. Topics can be searched according to the CNSC's 14 [safety and control areas \(SCAs\)](#),³² 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 3 primary functional areas: management; facility and equipment; and core control processes.

RESEARCH AND SUPPORT PROGRAM: \$2,532,199

\$659,250 invested in **20** research contracts

\$1,809,949 invested in **36** contribution agreements

\$63,000 put towards **6** grants



The CNSC funds an external research program to obtain knowledge and information needed to support its regulatory mission. The outcome of these research activities helps the CNSC understand and address new or emerging safety issues, gain third-party perspectives on nuclear science, and share scientific knowledge with the nuclear industry and the public at large. For more information on the outcomes of this program, visit the [CNSC’s website](#).³³

The CNSC, as well as licensees, continue to make progress in ensuring documents and reports are made readily available online to members of the public, including documents submitted for Commission proceedings, which can be found on the [CNSC’s website](#).³⁴ Specifically, in 2021–22, the CNSC:

- further increased the release of information that supports regulatory activities and decisions, and made scientific reports, documents and data more accessible and easier to use by posting them on the facility web pages on the [CNSC website](#)³⁵ as well as on the Government of Canada’s [Open Science and Data Platform](#)³⁶
- sought feedback from the public and from Indigenous Nations and communities on regulatory oversight reports (RORs), which identified efficiencies for future reporting
 - some of the changes already implemented included the use of plain language summaries, the addition of a section on Indigenous consultation and engagement, and the piloting of an easy to read and focused dashboard to complement the RORs
 - an updated approach was proposed to the Commission, a quasi-judicial tribunal independent of the CNSC, in January 2022 for endorsement and, as a result, a questionnaire was developed and will be sent to Commission members for their feedback on future RORs
 - the CNSC will continue to engage with members of the public, stakeholders and Indigenous Nations and communities and will return to the Commission later in 2022 with an update

IN 2021–22, THE CNSC

Responded to **974 public information inquiries** and **78 media inquiries**, posted **16 feature articles** to its website and disseminated **56 new publications**.



Experimentation

The CNSC is leveraging advanced technologies to digitize its regulatory framework. The Digital Regulatory Documents pilot project, launched in April 2021, is an initiative that will make it easier for the public to view, in a single document, all requirements and guidance related to a facility or regulatory topic. Having a digital regulatory framework will enable stakeholders to conduct more advanced searches based on their specific information needs and access a comprehensive document collated from the relevant sections of several regulatory documents. In 2021–22, the CNSC identified 70 regulatory documents that will be digitized to enable content reusability and create enhanced search functions. The tools required to carry out this project are currently being reviewed to ensure that the functional needs of the initiative are met.

Results Achieved

Departmental results	Departmental Result Indicators	Target	Date to achieve target	2019–20 Actual results	2020–21 Actual results	2021–22 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, 2022	1 ³⁷	0	0
	Number of instances of hazardous releases that exceeded regulatory limits	≤ 5	March 31, 2022	2	2	0
	Percentage of Independent Environmental Monitoring Program (IEMP) samples (food, water, air and vegetation) that met guidelines	≥ 95%	March 31, 2022	98.9%	94.9% ³⁸	97%
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, 2022	0	0	0
	Number of radiation doses to workers that exceeded regulatory limits	0	March 31, 2022	2 ³⁹	3 ⁴⁰	0
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, 2022	0	0	0
	Number of lost or stolen radioactive sealed sources	≤ 2	March 31, 2022	0	0	0
	Canada's international commitments to the International Atomic Energy Agency (IAEA) with respect to nuclear safeguards and verification are met	IAEA broader conclusion	December 31, 2021	Met	Met	Met
Canadians, including Indigenous peoples, have meaningful information about, and the opportunity to participate in, the nuclear regulatory process.	Percentage of Commission proceedings that were accessible to members of the public and Indigenous peoples	> 90%	March 31, 2022	100%	100%	92%
	Percentage of Commission proceedings for which the Participant Funding Program (PFP) was made available to members of the public and Indigenous peoples	> 90%	March 31, 2022	100%	100%	100%
	Percentage of Commission proceedings documents that were available in a timely manner on the CNSC external website upon request by members of the public and Indigenous peoples	> 90%	March 31, 2022	100%	100%	95%
	Number of self-identified Indigenous groups and organizations who participated in CNSC proceedings	Increasing trend	March 31, 2022	22	18 ⁴¹	23

Budgetary financial resources (dollars)

2021–22 Main Estimates	2021–22 Planned spending	2021–22 Total authorities available for use	2021–22 Actual spending (authorities used)	2021–22 Difference (Actual spending minus Planned spending)
97,749,225	105,302,857	107,725,313	96,598,106	(8,704,751)

Financial, human resources and performance information for the Canadian Nuclear Safety Commission's Program Inventory is available in the [GC InfoBase](#).⁴²

Human resources (full-time equivalents)

2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2021–22 Difference (Actual full-time equivalents minus Planned full-time equivalents)
629	592	(37)

Financial, human resources and performance information for the Canadian Nuclear Safety Commission's Program Inventory is available in the [GC InfoBase](#).⁴²

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 refers to the activities and resources of the 10 distinct services that support Program delivery in the organization, regardless of the Internal Services delivery model in a department. These are:

- ▶ Management and Oversight Services
- ▶ Communications Services
- ▶ Legal Services
- ▶ Human Resources Management Services
- ▶ Financial Management Services
- ▶ Information Management Services
- ▶ Information Technology Services
- ▶ Real Property Management Services
- ▶ Materiel Management Services
- ▶ Acquisition Management Services

Results highlights

The CNSC’s Diversity and Inclusion Plan 2019–22 outlined ongoing and new commitments to leverage diversity and to make progress in creating a safe, inclusive workplace. In 2021–22, the CNSC:

- developed new employment equity hiring goals for women, members of visible minorities, persons with disabilities, and Indigenous peoples through an employment systems review
- drafted an annual update for its diversity and inclusion plan
- worked with the Canadian Centre for Diversity and Inclusion to to:
 - launch a “mentorship plus” program that will support and advocate for employment equity and equity-seeking groups at the CNSC
 - develop a new inclusion advisory committee
- developed 3 new employee networks (Accessibility Network, Pride Network, and Diverse Employees Network) in addition to the 5 employee networks currently in place (Administrative Professionals Network, Young Professionals Network, Women in STEM Network, Black Employees Network and Indigenous Network); these networks bring forward a variety of perspectives that help to improve the workplace for everyone
- submitted its [response](#)⁴³ to the [Call to Action on Anti-Racism, Equity, and Inclusion in the Federal Public Service](#),⁴⁴ including a list of what the CNSC has done, what it has learned, and its path forward

The COVID-19 pandemic has demonstrated that most of the CNSC’s work can be performed remotely and that staff continue to be productive. The CNSC is able to carry out its mandate without skipping a beat. In response to the new remote work environment, the CNSC launched the Reimagine the Workplace Initiative (RWI) to consider the principles for the future of work at the CNSC and focused on

4 pillars: leadership practices and organizational culture; management model, policies and management processes; IT infrastructure; and physical infrastructure. Options and recommendations for long-term workplace solutions that foster safe, productive and enjoyable jobs and lives were generated through engagement activities with staff and management. As a result of the RWI, the CNSC is committed to:

- co-creating flexible in-office and remote work practices that prioritize personal well-being and maximize team connection, collaboration and innovation, regardless of location
- implementing an internal trust strategy to support an organizational culture and leadership cadre that focuses on results, regardless of where work takes place
- providing IT systems and tools to support remote and hybrid work, including updating systems to Microsoft 365 and monitoring developments in security management tools to allow confidential material to be accessed remotely
- implementing the Government of Canada’s GCworkplace vision through an accelerated 5-year plan that will see the conversion of CNSC spaces to modern design standards; in the short term, some steps, such as the transition to unassigned seating, have been taken to support a hybrid workplace

Budgetary financial resources (dollars)

2021–22 Main Estimates	2021–22 Planned spending	2021–22 Total authorities available for use	2021–22 Actual spending (authorities used)	2021–22 Difference (Actual spending minus Planned spending)
45,999,636	49,554,286	48,548,128	46,942,192	(2,612,094)

Human resources (full-time equivalents)

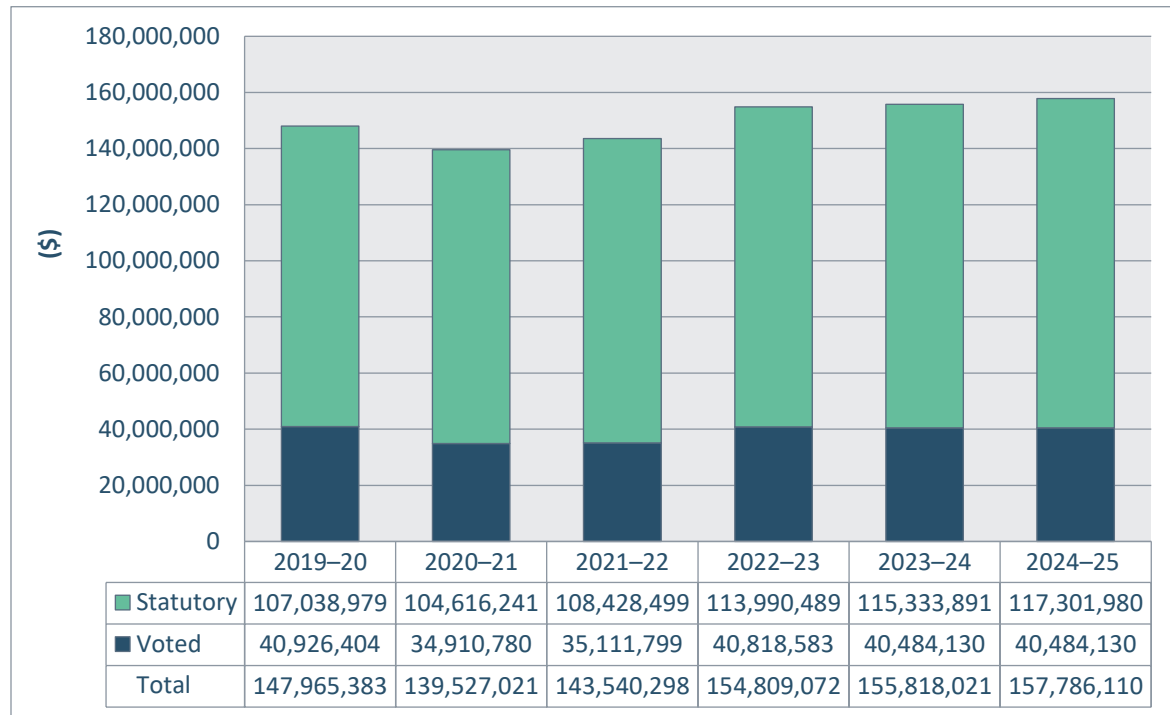
2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2021–22 Difference (Actual full-time equivalents minus Planned full-time equivalents)
284	279	(5)

SPENDING AND HUMAN RESOURCES

Spending

Spending 2019–20 to 2024–25

The following graph presents planned (voted and statutory spending) over time.



The CNSC is financed by the Government of Canada through voted parliamentary and statutory authorities. Included in the statutory appropriation is a revenue-spending authority, which allows the CNSC to spend most licence-fee revenue, as well as funding for contributions to employee benefit plans. The voted authority provides funding for the activities of licensees exempt from paying fees (that is, hospitals and universities) and for activities relating to Canada’s international obligations (including non-proliferation activities), public responsibilities such as emergency management and public information programs, and the updating of the Nuclear Safety and Control Act and its associated regulations.

The budgetary performance summary section provides variance explanations on year-to-year fluctuations in spending.

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

The “Budgetary performance summary for core responsibilities and internal services” table presents the budgetary financial resources allocated for the CNSC’s core responsibilities and for internal services.

Core responsibilities and internal services	2021–22 Main Estimates	2021–22 planned spending	2022–23 planned spending	2023–24 planned spending	2021–22 total authorities available for use	2019–20 actual spending (authorities used)	2020–21 actual spending (authorities used)	2021–22 actual spending (authorities used)
Nuclear Regulation	97,749,225	105,302,857	104,496,124	105,177,164	107,725,313	101,570,723	92,862,646	96,598,106
Subtotal	97,749,225	105,302,857	104,496,124	105,177,164	107,725,313	101,570,723	92,862,646	96,598,106
Internal Services	45,999,636	49,554,286	50,312,948	50,640,857	48,548,128	46,394,660	46,664,375	46,942,192
Total	143,748,861	154,857,143	154,809,072	155,818,021	156,273,441	147,965,383	139,527,021	143,540,298

The CNSC's Main Estimates for fiscal year 2021–22 totalled \$143.7 million, compared to total authorities of \$156.3 million. The \$12.6 million in additional authorities is primarily attributable to:

- contributions to employee benefit plans for personnel expenditures related to subsection 21(3) of the *Nuclear Safety and Control Act* that are not included in the 2021–22 Main Estimates: \$9.0 million
- an operating budget carry-forward from 2020–21 to 2021–22: \$1.8 million
- an increase in revenue spending authority arising from a reduction in the amount available for subsequent years: \$1.1 million
- funds received from the Treasury Board of Canada for negotiated salary adjustments and from the Regulators' Capacity Fund: \$0.5 million
- funding received from the Department of National Defence to support the Canadian Safety and Security Program: \$0.1 million
- funds received from the disposal of surplus Crown assets: \$0.1 million

The \$8.5 million decrease in actual spending from \$148.0 million in 2019–20 to \$139.5 million in 2020–21 is mainly due to a decrease in travel expenditures, with management implementing extensive restrictions as a consequence of the COVID-19 pandemic, and lower personnel costs resulting from a decrease in FTE use related to a halt in hiring during the pandemic.

The \$4.0 million increase in actual spending from \$139.5 million in 2020–21 to \$143.5 million in 2021–22 is mainly due to:

- an increase in personnel costs resulting from a rise in FTE use and from economic increases, including retroactive payments: \$4.7 million
- an increase in professional and special services, primarily management consultants engaged in a strategic review of the CNSC's operations: \$0.8 million
- an increase in travel expenses attributable to the easing of restrictive travel guidelines in mid-year 2021–22: \$0.6 million
- a decrease in equipment expenditures, both capital and non-capital, as 2020–21 included IT equipment costs to support a remote work environment and some lab equipment replacements: \$2.0 million
- a net decrease in other expenditure categories: \$0.1 million

Planned results for 2021–22 were established during uncertain conditions due to the COVID-19 pandemic. As a result, actual spending was \$143.5 million in 2021–22, compared with planned spending of \$154.9 million. Spending on travel, professional services and personnel was lower than forecast in part due to the impact of the pandemic on how the CNSC operates and to delays in IT and facility project spending.

As published in the 2022–23 Departmental Plan, planned spending is forecast to increase to \$154.8 million in 2022–23 and \$155.8 million in 2023–24, primarily as a result of anticipated salary increases and a projected higher level of staffed positions.

Human resources

Human resources summary for core responsibility and internal services

The “Human resources summary for core responsibilities and internal services” table presents the full-time equivalents (FTEs) allocated to the CNSC’s core responsibility and to internal services.

Core responsibilities and Internal Services	2019–20 Actual full-time equivalents	2020–21 Actual full-time equivalents	2021–22 Planned full-time equivalents	2021–22 Actual full-time equivalents	2022–23 Planned full-time equivalents	2023–24 Planned full-time equivalents
Nuclear regulation	605	581	629	592	613	608
Subtotal	605	581	629	592	613	608
Internal Services	281	269	284	279	284	282
Total	886	850	913	871	897	890

The decrease in FTEs from 886 in 2019–20 to 850 in 2020–21 is primarily a result of reduced term staff due to COVID-19. The increase in FTEs from 850 in 2020–21 to 871 in 2021–22 is primarily a result of the staffing of vacant positions. Planned FTE use is forecast to increase to 897 in 2022–23 and 890 in 2023–24 due to the anticipated staffing of vacancies positions.

Expenditures by vote

For information on the Canadian Nuclear Safety Commission’s organizational voted and statutory expenditures, consult the [Public Accounts of Canada 2021](#).⁴⁵

Government of Canada spending and activities

Information on the alignment of the Canadian Nuclear Safety Commission’s spending with Government of Canada’s spending and activities is available in [GC InfoBase](#).⁴²

Financial statements and financial statements highlights

Financial statements

The Canadian Nuclear Safety Commission's financial statements (audited) for the year ended March 31, 2022 are available on the [departmental website](#).⁴⁶

Financial statement highlights

Condensed Statement of Operations (unaudited) for the year ending March 31, 2022 (dollars)

Financial information	2021–22 Planned results	2021–22 Actual results	2020–21 Actual results	Difference (2021–22 Actual results minus 2021–22 Planned results)	Difference (2021–22 Actual results minus 2020–21 Actual results)
Total expenses	174,595,000	157,653,268	157,861,636	(16,941,732)	(208,368)
Total revenues	124,506,000	115,676,030	114,037,050	(8,829,970)	1,638,980
Net cost of operations before government funding and transfers	50,089,000	41,977,238	43,824,586	(8,111,762)	(1,847,348)

The total actual expenses of \$157.7 million were 9.7% or \$16.9 million less than the planned expenses of \$174.6 million. Planned results for 2021–22 were established during uncertain conditions due to the COVID-19 pandemic, resulting in lower-than-planned expenditures for salaries and associated employee benefit costs, travel, and professional and special services. The actual total revenues of \$115.7 million were 7.1% or \$8.8 million lower than planned revenues of \$124.5 million due to the reduced levels of spending and resulting cost recovery.

The CNSC's total expenses decreased by 0.1% or \$0.2 million and revenues increased by 1.4% or \$1.6 million largely as a result of a reduction in the salary adjustment for COVID-19 lost productivity from 2020–21.

Condensed Statement of Financial Position (unaudited) as of March 31, 2022 (dollars)

Financial information	2021–22	2020–21	Difference (2021–22 minus 2020–21)
Total net liabilities	50,753,285	52,015,686	(1,262,401)
Total net financial assets	34,533,170	35,829,557	(1,296,387)

Departmental net debt	16,220,115	16,186,129	33,986
Total non-financial assets	9,973,337	11,610,242	(1,636,905)
Departmental net financial position	(6,246,778)	(4,575,887)	(1,670,891)

The decrease of \$1.3 million in the CNSC's net liabilities is mainly due to decreases in vacation liabilities, Phoenix damages payable, and employee future benefits.

The decrease of \$1.3 million in the CNSC's net financial assets is the result of a decrease in accounts receivable and a decrease in the amount due from the Consolidated Revenue Fund, which is an amount due from the federal government that may be disbursed without further charges to the CNSC's authorities.

The decrease of \$1.6 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 costs of new capital acquisitions.

The decrease of \$1.7 million in the 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.

CORPORATE INFORMATION

Organizational profile

Appropriate minister: Jonathan Wilkinson

Institutional head: [Rumina Velshi](#)⁴⁷

Ministerial portfolio: [Natural Resources Canada](#)⁴⁸

Enabling instrument: [Nuclear Safety and Control Act](#)⁴⁹

Year of incorporation: 2000

Other: The CNSC's headquarters is 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 [Canadian Nuclear Safety Commission's website](#).⁵⁰

Operating context

Information on the operating context is available on the [Canadian Nuclear Safety Commission's website](#).⁵⁰

Reporting framework

The Canadian Nuclear Safety Commission's Departmental Results Framework and Program Inventory of record for 2021–22 are shown below.

Core Responsibility: Nuclear Regulation	
Description: The CNSC regulates the development, production and use of nuclear energy and substances to protect health, safety, security of persons 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. The CNSC maintains a regulatory framework and conducts licensing (including environmental protection reviews), compliance verification and enforcement. The CNSC is committed to building and maintaining the confidence of the public and Indigenous peoples through transparent, open and inclusive regulatory processes.	
Departmental Results	Indicators
R 1: 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, soil, sediment, sand and vegetation) that met guidelines
R 2: 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

R 3: 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
R 4: 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 self-identified Indigenous groups and organizations 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
Internal Services				

SUPPORTING INFORMATION ON THE PROGRAM INVENTORY

Supporting information on planned expenditures, human resources, and results related to the Canadian Nuclear Safety Commission's program inventory is available in the [GC InfoBase](#).⁴²

SUPPLEMENTARY INFORMATION TABLES

The following supplementary information tables are available on the [Canadian Nuclear Safety Commission's website](#):⁵⁰

- ▶ Reporting on Green Procurement
- ▶ Details on transfer payment programs
- ▶ Gender-based analysis plus

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](#).⁵¹ This report also provides detailed background information on tax expenditures, including descriptions, objectives, historical information and references to related federal spending programs as well as evaluations and GBA Plus of tax expenditures.

ORGANIZATIONAL CONTACT INFORMATION

Mailing address

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PO Box 1046 Stn B
Ottawa ON K1P 5S9
Canada

Telephone: 613-995-5894

Toll free: 1-800-668-5284

Fax: 613-995-5086

Email: cpsc.info.ccsn@cpsc-ccsn.gc.ca

Website: www.nuclearsafety.gc.ca⁵²

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 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 tool used to support the development of responsive and inclusive policies, programs and other initiatives; and understand how factors such as sex, race, national and ethnic origin, Indigenous origin or identity, age, sexual orientation, socio-economic conditions, geography, culture and disability, impact experiences and outcomes, and can affect access to and experience of government programs.

GOVERNMENT-WIDE PRIORITIES (PRIORITÉS PANGOUVERNEMENTALES)

For the purpose of the 2021–22 Departmental Results Report, government-wide priorities refers to those high-level themes outlining the government’s agenda in the 2020 Speech from the Throne, namely: Protecting Canadians from COVID-19; Helping Canadians through the pandemic; Building back better – a resiliency agenda for the middle class; The Canada we’re fighting for.

HORIZONTAL INITIATIVE (INITIATIVE HORIZONTALE)

An initiative where two or more departments 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 up 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.

ENDNOTES

- 1 Canada's Small Modular Reactor, SMR Action Plan, <https://smractionplan.ca/>
- 2 Canadian Nuclear Safety Commission, Indigenous Knowledge Policy Framework, <https://nuclearsafety.gc.ca/eng/resources/aboriginal-consultation/indigenous-knowledge-policy.cfm>
- 3 Canadian Nuclear Safety Commission, Arrangements with Indigenous groups, <http://www.nuclearsafety.gc.ca/eng/acts-and-regulations/memorandums-of-understanding/indigenous-arrangements.cfm>
- 4 Canadian Nuclear Safety Commission, Sharing our expertise with the U.S. Nuclear Regulatory Commission: Signing of a memorandum of cooperation to strengthen regulation of nuclear safety, <https://nuclearsafety.gc.ca/eng/resources/news-room/feature-articles/sharing-our-expertise-with-the-us-nuclear-regulatory-commission.cfm>
- 5 United Nations, Transforming our world: the 2030 Agenda for Sustainable Development, <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- 6 Canadian Nuclear Safety Commission, Darlington Nuclear Generating Station, <https://nuclearsafety.gc.ca/eng/reactors/power-plants/nuclear-facilities/darlington-nuclear-generating-station/index.cfm>
- 7 Canadian Nuclear Safety Commission, Bruce A and B Nuclear Generating Stations, <http://nuclearsafety.gc.ca/eng/reactors/power-plants/nuclear-facilities/bruce-nuclear-generating-station/index.cfm>
- 8 Canadian Nuclear Safety Commission, Acts and Regulations, www.nuclearsafety.gc.ca/eng/acts-and-regulations/acts/index.cfm
- 9 Canadian Nuclear Safety Commission, Regulatory Documents, www.nuclearsafety.gc.ca/eng/acts-and-regulations/regulatory-documents/index.cfm
- 10 Canadian Nuclear Safety Commission, Independent Environmental Monitoring Program (IEMP), www.nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index-iemp.cfm
- 11 National Research Council, CLAS Certificate Number 2016-05, <https://nrc.canada.ca/en/certifications-evaluations-standards/calibration-laboratory-assessment-service/directory-accredited-calibration-laboratories/clas-certificate-number-2016-05>
- 12 Standards Council of Canada, <https://www.scc.ca/>
- 13 National Research Council, Calibration Laboratory Assessment Service, <https://nrc.canada.ca/en/certifications-evaluations-standards/calibration-laboratory-assessment-service>
- 14 Justice Laws Website, Nuclear Non-proliferation Import and Export Control Regulations, <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2000-210/page-1.html>
- 15 Justice Laws Website, General Nuclear Safety and Control Regulations, <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2000-202/index.html>
- 16 Canadian Nuclear Safety Commission, International agreements, www.nuclearsafety.gc.ca/eng/resources/international-cooperation/international-agreements.cfm
- 17 Canadian Nuclear Safety Commission, Non-proliferation: import/export controls and safeguards, www.nuclearsafety.gc.ca/eng/resources/non-proliferation/index.cfm

- 18 Canadian Nuclear Safety Commission, Potassium iodide (KI) Pill Working Group, <https://nuclearsafety.gc.ca/eng/resources/emergency-management-and-safety/potassium-iodide-pill-working-group.cfm>
- 19 Canadian Nuclear Safety Commission, IAEA Emergency Preparedness Review (EPREV) mission to Canada, <https://nuclearsafety.gc.ca/eng/resources/international-cooperation/index.cfm#eprev>
- 20 Canadian Nuclear Safety Commission, Synergy Challenge 2021: Testing cyber security and nuclear emergency response, <http://nuclearsafety.gc.ca/eng/resources/news-room/feature-articles/synergy-challenge-2021.cfm>
- 21 Justice Laws Website, Nuclear Security Regulations, <https://laws-lois.justice.gc.ca/eng/regulations/sor-2000-209/page-1.html>
- 22 Canadian Nuclear Safety Commission, Participant Funding Program, <https://nuclearsafety.gc.ca/eng/the-commission/participant-funding-program/index.cfm>
- 23 Canadian Nuclear Safety Commission, CNSC Videos, <https://nuclearsafety.gc.ca/eng/resources/videos/player/index.cfm?videoid=participant-funding-program>
- 24 Canada, Let's Talk Nuclear Safety, <https://www.letstalknuclearsafety.ca/>
- 25 Canadian Nuclear Safety Commission, Consultation, <http://www.nuclearsafety.gc.ca/eng/acts-and-regulations/consultation/index.cfm>
- 26 Canadian Nuclear Safety Commission, Engaging the public through webinars, <https://nuclearsafety.gc.ca/eng/stay-connected/get-involved/meet-the-nuclear-regulator/index.cfm>
- 27 Canadian Nuclear Safety Commission, YouTube channel, <https://www.youtube.com/user/cnsccsn>
- 28 Canadian Nuclear Safety Commission, Facebook page, <https://www.facebook.com/CanadianNuclearSafetyCommission>
- 29 Canadian Nuclear Safety Commission, LinkedIn account, <https://ca.linkedin.com/company/cnsc-ccsn>
- 30 Canadian Nuclear Safety Commission, Twitter account, https://twitter.com/CNSC_CCSN
- 31 Canadian Nuclear Safety Commission, Science and Technical Information, <http://www.nuclearsafety.gc.ca/eng/resources/research/index.cfm>
- 32 Canadian Nuclear Safety Commission, Safety and control areas, <http://www.nuclearsafety.gc.ca/eng/resources/publications/reports/powerindustry/safety-and-control-areas.cfm>
- 33 Canadian Nuclear Safety Commission, Research and Support Program, <http://www.nuclearsafety.gc.ca/eng/resources/research/research-and-support-program/index.cfm>
- 34 Canadian Nuclear Safety Commission, Public Commission hearings, <http://www.nuclearsafety.gc.ca/eng/the-commission/hearings/>
- 35 Canadian Nuclear Safety Commission, Nuclear licensees across Canada, <http://www.nuclearsafety.gc.ca/eng/resources/nuclear-facilities/index.cfm>
- 36 Government of Canada, Open Science and Data Platform, <https://osdp-psdo.canada.ca/dp/en>
- 37 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.
- 38 In fiscal year 2020–21, 94.9% of IEMP results met the guidelines. Exceedances for the 2020–21 fiscal year were expected, and similar to the values reported by CNSC licensees' environmental monitoring programs. No unexpected exceedances were noted. There were 3 exceedances at Port Hope Conversion Facility. Three

fluoride concentrations measured in lake water samples were slightly above the CCME freshwater quality guideline for the protection of aquatic life but were below Health Canada's guidelines for drinking water quality and well below the CCME toxicity benchmark for sensitive aquatic biota. Thus, adverse effects are not expected. There were 26 exceedances at Cigar Lake out of 468 samples. The exceedances were selenium and polonium-210 in fish tissue samples collected at both the exposure station, which could potentially be impacted by the operation of the facility, and the reference station, which is not impacted by the operation of the facility. Thus, the exceedances are not attributed to the facility. These results were also within the natural background range for the region. 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 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](#).

- 39 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.
- 40 In 2020–21, there were 3 occurrences of a worker exceeding a regulatory dose limit. The first instance involved a non-NEW who received an effective dose of 1.28 mSv, which exceeded the annual dose limit of 1 mSv/year. The second instance involved a non-NEW who received an effective dose of 1.3 mSv, which exceeded the annual dose limit of 1 mSv/year. This event was reported to the Commission in January 2021 in CMD 21-M10. The third instance involved a non-NEW who received an effective dose of 1.05 mSv, which exceeded the annual dose limit of 1 mSv/year. Note that there was a fourth event reported to the Commission in 2020/21, although the event occurred in 2019/20. This case involved a non-Nuclear Energy Worker (NEW) who recorded a non-occupational effective dose of 3.54 mSv on their dosimeter. This exceeded the annual dose limit for non-NEWs of 1 mSv/year. This event was reported to the Commission in September 2020 in CMD 20-M27. In all cases, there was no health effect to the worker from the exposures.
- 41 The decrease in Indigenous participation in 2020–21 relative to 2019–20 is due to less overall total number of proceedings, including public proceedings because of the COVID-19 pandemic.
- 42 GC InfoBase, <https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start>
- 43 Privy Council Office, Canadian Nuclear Safety Commission: Letter on Implementation of the Call to Action on Anti-Racism, Equity and Inclusion, <https://www.canada.ca/en/privy-council/corporate/clerk/call-to-action-anti-racism-equity-inclusion-federal-public-service/letters-implementation/1/canadian-nuclear-safety-commission.html>
- 44 Privy Council Office, Call to Action on Anti-Racism, Equity, and Inclusion in the Federal Public Service, <https://www.canada.ca/en/privy-council/corporate/clerk/call-to-action-anti-racism-equity-inclusion-federal-public-service.html>
- 45 Public Accounts of Canada 2020–21, <https://www.tpsgc-pwgsc.gc.ca/recgen/cpc-pac/index-eng.html>
- 46 Canadian Nuclear Safety Commission, Financial and performance reporting, <https://www.nuclearsafety.gc.ca/eng/resources/publications/reports/quarterly-financial-reports/index.cfm>
- 47 Canadian Nuclear Safety Commission, President, <https://nuclearsafety.gc.ca/eng/about-us/organization/president.cfm>
- 48 Natural Resources Canada, www.nrcan.gc.ca/home

- 49 Justice Laws Website, *Nuclear Safety and Control Act*, www.laws-lois.justice.gc.ca/eng/acts/N-28.3/
- 50 Canadian Nuclear Safety Commission, Departmental Results Reports, <http://nuclearsafety.gc.ca/eng/resources/publications/reports/quarterly-financial-reports/index.cfm>
- 51 Report on Federal Tax Expenditures, <https://www.canada.ca/en/department-finance/services/publications/federal-tax-expenditures.html>
- 52 Canadian Nuclear Safety Commission, www.nuclearsafety.gc.ca/