# Canadian Nuclear Safety Commission

2018–19

**Departmental Results Report**

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

**2018–19 Departmental Results Report**
**Canadian Nuclear Safety Commission**

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# President's message

As the President and Chief Executive Officer of the Canadian Nuclear Safety Commission (CNSC), I am pleased to present our *2018–19 Departmental Results Report*. This report provides parliamentarians and Canadians with information about the CNSC's work and results achieved over the past fiscal year.

Guiding our efforts were the CNSC's four organizational priorities:

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

A modern approach to nuclear regulation follows science-based, risk-informed and technically sound regulatory practices that take into account uncertainties and evolving expectations. Highlights of 2018–19 include two major power reactor licensing hearings, which involved months of preparation, extensive document reviews and complex analysis that led up to the two-part public hearings. The hearing process considered submissions from the applicants, as well as concerns raised by the public, Indigenous groups, civil society, private organizations and stakeholders in approximately 300 interventions. As a result of the hearings, the Commission granted 10-year licence renewals to the Bruce and Pickering nuclear generating stations.

We also made progress on significant environmental assessments, including proposed projects by Canadian Nuclear Laboratories to decommission a former research reactor in Manitoba, to decommission Canada's first nuclear power reactor, and to build a near surface disposal facility in Ontario.

We demonstrated readiness to regulate emerging new technologies by providing vendor design reviews for new small modular reactor (SMR) concepts for vendors who have expressed an interest in obtaining our feedback on how their designs are addressing Canadian regulatory requirements. We even received our first SMR application.

To ensure that the public and Indigenous peoples are confident that the CNSC is an independent, competent and transparent regulator, we have posted more information than ever on our licensing decisions. We also shared our Independent Environmental Monitoring Program results and data online for nine nuclear facilities, giving the public access to review these for themselves. To make sure people have the information they want, we went into the communities, hosting 22

Meet the Nuclear Regulator sessions, which were attended by more than 1,100 Canadians. We also held more than 30 meetings with Indigenous communities and organizations.

On the global stage, our experts led Canada's efforts in fulfilling its obligations under the *Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management*. We also chaired the International Symposium on Communicating Nuclear and Radiological Emergencies to the Public, sharing our own best practices and knowledge, while also learning from our international peers. Providing leadership on global nuclear issues like effective public communication in an emergency is one way that the CNSC is working to help keep Canadians and the world safe.

Finally, to improve management effectiveness and to ensure that the CNSC is agile, highly skilled and representative of Canada's diverse population, we have made an effort to promote careers in science, technology, engineering and mathematics – or STEM disciplines – especially to women and girls. What better way to adapt to a changing world than to infuse our industry with new energy and new perspectives – and to ensure that it is attracting the best and brightest of all genders. I am proud to work for an organization that values diversity and inclusion. To ensure this diverse workforce has the necessary tools, we developed a digital strategy that aligns with the broader Government of Canada approach to leveraging technology to meet changing expectations and implemented a new financial and material management system.

I wish to recognize the CNSC's highly skilled, professional staff who are dedicated and committed in their efforts to regulate Canada's nuclear industry to keep the environment and Canadians safe. Rest assured that we will continue to be true to our goals and to enforce the highest safety standards.

*Original signed by (November 21, 2019)*

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Rumina Velshi

## 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 2018–19 are guided by four organizational priorities.


### CNSC priorities and results


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. In 2018–19, the CNSC held licence renewal hearings for major nuclear facilities, including the licence renewals for the Pickering and Bruce nuclear generating stations. These hearings considered health, safety, security and the environment, as well as Canada's international obligations. In making its decisions, the Commission considered submissions from licensees and intervenors, as well as CNSC staff's recommendations.

The CNSC continued environmental assessments under the *Canadian Environmental Assessment Act, 2012* as well as licensing technical assessments for Canadian Nuclear Laboratories' proposed major projects:

- the Near Surface Disposal Facility at the Chalk River Laboratories
- the decommissioning of the Nuclear Power Demonstration
- the decommissioning of Whiteshell Reactor-1

In 2018–19, as part of the ongoing technical review of the environmental impact statements for the three projects, technical meetings were held to clarify some of the CNSC's and other federal authorities' information requests. Concurrently, consultation and engagement activities within Indigenous communities and with the public were ongoing throughout this period.

In addition, the CNSC maintained its readiness to regulate new nuclear applications through the development of regulatory strategies. In particular, the CNSC made significant strides towards the development of REGDOC-1.1.5,

**First SMR licence application in Canada**

On March 20, 2019, the CNSC received its first application for a licence to prepare site for an SMR from Global First Power and is currently applying its licensing process.

*Supplemental Information for Small Modular Reactor Proponents*,[1] which will be published in 2019–20. Throughout 2018–19, the CNSC also continued its pre-licensing vendor design reviews[2] for new SMR concepts from vendors who have expressed an interest in obtaining feedback on how their designs are addressing Canadian regulatory requirements.


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. Beginning in 2018–19, the CNSC has broadened the scope of information related to public hearings posted on its public website[3], including all licensing Commission member documents (CMDs).

The CNSC has continued to work on formalizing long-term engagement relationships with Indigenous groups who have a direct interest in CNSC regulatory activities. Part of the formalization of these relationships includes the collaborative development of terms of reference and associated work plans that establish areas for collaboration, including environmental monitoring throughout the lifecycle of CNSC-regulated facilities and activities of interest.

The CNSC developed a detailed implementation plan in anticipation of the coming into force of the *Impact Assessment Act* (IAA), to ensure that the organization is prepared to move forward efficiently. Under the IAA, the Impact Assessment Agency of Canada 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*.

Such efforts assist the CNSC in ensuring that Canadians, including Indigenous peoples, have meaningful information about, and the opportunity to participate in, the nuclear regulatory process.


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. The CNSC continues to increase collaboration with nuclear regulators from other countries in pursuit of these goals.

In April 2018, the CNSC, on behalf of the Government of Canada, published the sixth *Canadian National Report for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*[4].

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

In October 2018, the CNSC chaired the International Symposium on Communicating Nuclear and Radiological Emergencies to the Public. The symposium brought together 400 participants from 74 International Atomic Energy Agency (IAEA) Member States to discuss challenges and identify key priorities in improving strategies for effectively communicating with the public before, during and after nuclear and radiological emergencies. The final report[5] of the symposium is available online.

As the regional coordinating centre for the North American and Latin American countries' laboratories for radiological analysis, the CNSC contributed to the application of appropriate analytical techniques in 2018–19, and it has improved technical information-sharing capabilities among countries.


The CNSC continues to **improve management effectiveness** to ensure that it is a dynamic, flexible and highly skilled organization that is representative of Canada's diverse population, supported by modern management practices and tools, and that responds to an evolving workforce and industry. Improvements in these areas support the attainment of the CNSC's other priorities and its departmental results.

In 2018–19, the CNSC, in partnership with Agriculture and Agri-Food Canada, implemented a new financial and materiel management system. The CNSC also developed a digital strategy to align with broader Government of Canada efforts in ensuring that organizations evolve their approach to regulation in a way that leverages technology and meets changing expectations.

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

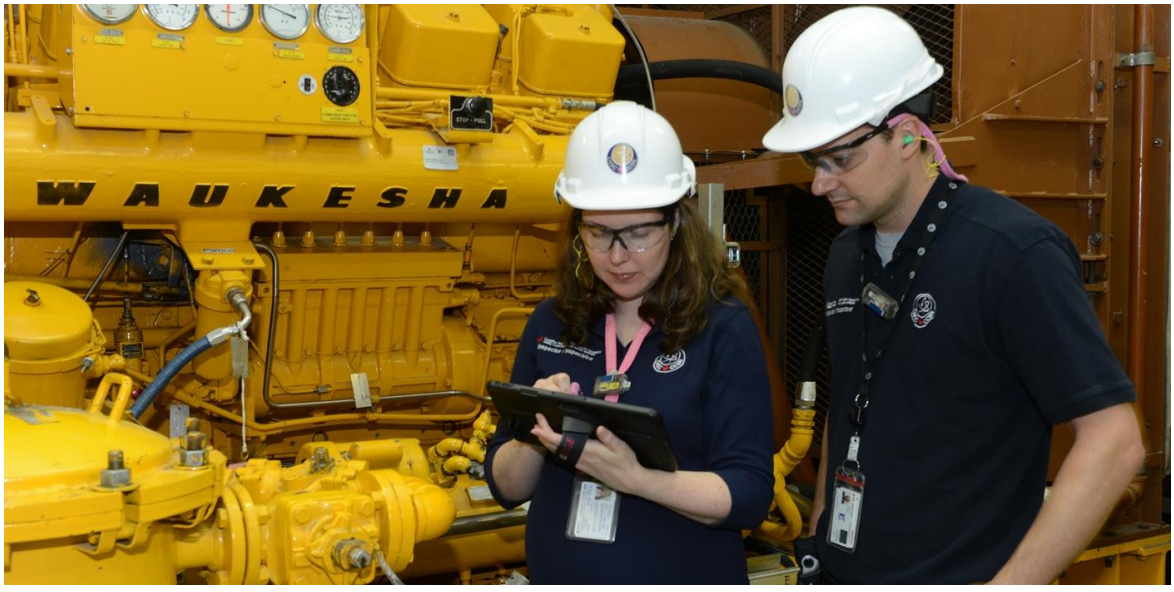
The CNSC regulates the use of nuclear energy and materials to protect health, safety, security and the environment; implements Canada's international commitments on the peaceful use of nuclear energy; and disseminates objective scientific and regulatory information to members of the public. The CNSC maintains a regulatory framework and conducts licensing (including environmental assessments), 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 for nearly 1,700 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[6]. 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.

**Figure 1: CNSC staff conducting an inspection at a nuclear power plant**



In addition to the considerable work related to the licence renewal hearings for the Bruce and Pickering nuclear generating stations, the CNSC also focused on the oversight of the Darlington Refurbishment Project. CNSC staff carried out seven inspections of Darlington Unit 2 in particular, with efforts beginning at the end of the fiscal year to plan for the oversight of the refurbishment of Unit 3.

Complementary to its ongoing compliance verification program, the CNSC also independently verifies that the public, Indigenous communities and the environment around licensed nuclear facilities are safe through its Independent Environmental Monitoring Program (IEMP)[7]. The IEMP process consists of developing site-specific sampling plans for each nuclear facility, and then processing and analyzing the samples collected. The sampling plans focus on measuring concentrations of contaminants in the environment at publicly accessible locations such as parks, residential communities and beaches, and in areas of interest identified in environmental risk assessments (ERAs). As shown in figure 2 as an example, samples may be taken for air, water, soil, sediment, vegetation such as grass and weeds, and some food such as meat and produce. In 2018–19, the CNSC released previous years' IEMP results for the following sites: Cluff Lake, McClean Lake, Port Hope, Port Granby, Nordion, BWXT Nuclear Energy Canada Inc., Blind River Refinery, and the Darlington and Point Lepreau nuclear generating stations.

**Figure 2: CNSC environmental program officers collect samples for analysis**

In addition, the CNSC maintains its regulatory framework, consisting of the laws[8] passed by Parliament that govern the regulation of Canada's nuclear industry, and the regulations, licences and documents that are used to regulate the industry. In 2018–19, the CNSC published or completed 18 regulatory documents[9]. Regulatory documents 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 also uses other internal forms of guidance that can include any other documents and applicable reports, CNSC publications, staff review procedures and CNSC inspection procedures.

**Departmental result 3:** Nuclear material and substances, facilities and activities are secure and used for peaceful purposes.

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[10], a "broader conclusion" is issued for designated states, verifying that nuclear material is not diverted from peaceful uses. In 2018–19, the CNSC maintained the IAEA broader conclusion for Canada, as it has every year since 2005.

In its efforts to enhance nuclear security in Canada, in September 2018, the CNSC announced the updated version of REGDOC-2.12.1, *High-Security Sites: Volume I: Nuclear Response Force.* This document contains prescribed information and is available on a valid need-to-know basis. It sets out the CNSC's expectations with respect to the minimum requirements for establishing, equipping, training, testing and deploying an onsite nuclear response force (NRF). REGDOC-2.12.1 incorporates an updated NRF training plan, firearms qualifications and modern practices. The CNSC also conducted nuclear security training gap analyses for licensees, notably at the Point Lepreau and Bruce nuclear generating stations, Chalk River Laboratories and Gentilly-2.

**Canada-United Kingdom nuclear cooperation agreement**

**CNSC President Rumina Velshi and the ONR's Mark Foy sign a new administrative arrangement for nuclear cooperation.**


In November 2018, the CNSC signed a new administrative arrangement (AA) with the United Kingdom's Department for Business, Energy and Industrial Strategy, and its Office for Nuclear Regulation (ONR), implementing the provisions of the nuclear cooperation agreement (NCA) between Canada and the United Kingdom that assures the peaceful use of nuclear items and technology that are traded between the two countries. Nuclear cooperation between Canada and the United Kingdom is currently governed by the Canada-Euratom (European Atomic Energy Community) NCA. Should the UK withdraw from the EU and Euratom, the new Canada-UK NCA and the AA would come into effect.

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.

During 2018–19, the CNSC conducted technical licensing assessments and made licensing decisions on applications for the import and export of nuclear substances, prescribed equipment and prescribed information, in accordance with the *Nuclear Non-proliferation Import and Export Control Regulations*[11] and the *General Nuclear Safety and Control Regulations*[12]. A total of 942 import and export licences were issued.

**Departmental result 4:** Canadians, including Indigenous peoples, have meaningful information about, and the opportunity to participate in, the nuclear regulatory process.

Scientific information supports regulatory decision making based on high-quality advice provided by CNSC staff to the Commission through internal research, technical assessment and analysis.

The CNSC funds an external research program to obtain knowledge and information needed to support its regulatory mandate. The program provides the CNSC with access to independent advice, expertise, experience, information and other resources from within Canada and elsewhere.


**Health studies at the CNSC**

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

In August 2018, the CNSC published an update of its fact sheet titled *Health Effects of the Chernobyl Accident*[13] to include the latest data collected on the health consequences of radiation exposure from the 1986 accident. The new information is based on the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 2018 white paper titled *Evaluation of data on thyroid cancer in regions affected by the Chernobyl accident*[14].

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, often held in the community and always live webcast. This is recognized internationally as a best practice to emulate. The public and Indigenous peoples are also consulted on draft regulatory

framework documents prior to publication. Furthermore, the CNSC frequently participates in community outreach activities, and responds to media calls and public information inquiries.

The CNSC's Meet the Nuclear Regulator[15] information sessions provide Canadians with the opportunity to learn about the organization's work and how to participate in the licensing process. In particular, building long-term positive relationships and trust with Indigenous communities with an interest in CNSC-regulated activities and facilities is a priority for the CNSC. Many of the meetings with Indigenous groups were related to specific projects or applications, including licence renewal applications for the Pickering and Bruce nuclear generating stations, as well as the Whiteshell Laboratories and Cluff Lake sites.

**22** Meet the Nuclear Regulator sessions in 2018–19 attended by **1,143** participants

Over **30** meetings with more than **20** Indigenous communities and organizations in 2018–19

In addition, through its Participant Funding Program (PFP), the CNSC continued to provide support to Indigenous groups in conducting Indigenous Knowledge (IK) studies in relation to CNSC-regulated facilities and regulatory reviews. The CNSC is currently funding five IK studies to gather knowledge and land use data with respect to the three major Canadian Nuclear Laboratories projects and facilities as part of the environmental assessment process. The CNSC acknowledges the importance of working with and integrating IK alongside scientific and regulatory information in its assessments and regulatory processes, where appropriate and when authorized by Indigenous communities. Indigenous knowledge and cultural context enhance the CNSC's understanding of potential impacts of projects and strengthens the rigour of project reviews and regulatory oversight.

More than **$1,000,000** awarded to **38** recipients, which included **18** Indigenous communities or organizations

## Results achieved

| Departmental results | Performance indicators | Target | Date to achieve target | 2018–19 Actual results | 2017–18 Actual results | 2016–17 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, 2019 | 0 | 1[16] | 0 |
| | Number of instances of hazardous releases that exceeded regulatory limits | 0 | March 31, 2019 | 9[17] | 2[18] | 1[19] |
| | Percentage of Independent Environmental Monitoring (IEMP) samples (food, water, air and vegetation) that met guidelines | 100% | March 31, 2019 | 97%[20] | 90%[20] | 80%[20] |
| **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, 2019 | 1[21] | 0 | 1[22] |
| | Number of radiation doses to workers that exceeded regulatory limits | 0 | March 31, 2019 | 1[23] | 1[24] | 2[25] |
| **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, 2019 | 0 | 0 | 0 |
| | Number of lost or stolen radioactive sealed sources | ≤2 | March 31, 2019 | 0 | 0 | 1[26] |
| | 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, 2018 | 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, 2019 | 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, 2019 | 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, 2019 | 100% | 100% | 100% |
| | Number of Indigenous peoples who participated in CNSC proceedings | Increasing trend | March 31, 2019 | 18[27] | 20 | 8 |

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)

| 2018–19 Main Estimates | 2018–19 Planned spending | 2018–19 Total authorities available for use | 2018–19 Actual spending (authorities used) | 2018–19 Difference (Actual spending minus Planned spending) |
|---|---|---|---|---|
| 101,640,058 | 105,918,936 | 106,022,368 | 100,067,374 | (5,851,562) |

### Human resources (full-time equivalents)

| 2018–19 Planned full-time equivalents | 2018–19 Actual full-time equivalents | 2018–19 Difference (Actual full-time equivalents minus Planned full-time equivalents) |
|---|---|---|
| 639 | 625 | (14) |

Financial, human resources and performance information for the CNSC's program inventory is available in the GC InfoBase[28].

# 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:

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

**Experimentation**

In 2018–19, the CNSC facilitated four design thinking workshops at the CNSC, which provided staff with an innovative approach to everyday problem solving. Workshop topics included: improvements on the onboarding experience for new CNSC employees and the learning experience at the CNSC, making second-language learning more flexible and accessible, developing a new strategy for the CNSC's library, and increasing public trust in Canada's nuclear regulator.

## Results

### Budgetary financial resources (dollars)

| 2018–19 Main Estimates | 2018–19 Planned spending | 2018–19 Total authorities available for use | 2018–19 Actual spending (authorities used) | 2018–19 Difference (Actual spending minus planned spending) |
|---|---|---|---|---|
| 39,162,347 | 45,741,503 | 49,083,648 | 48,855,732 | 3,114,229 |

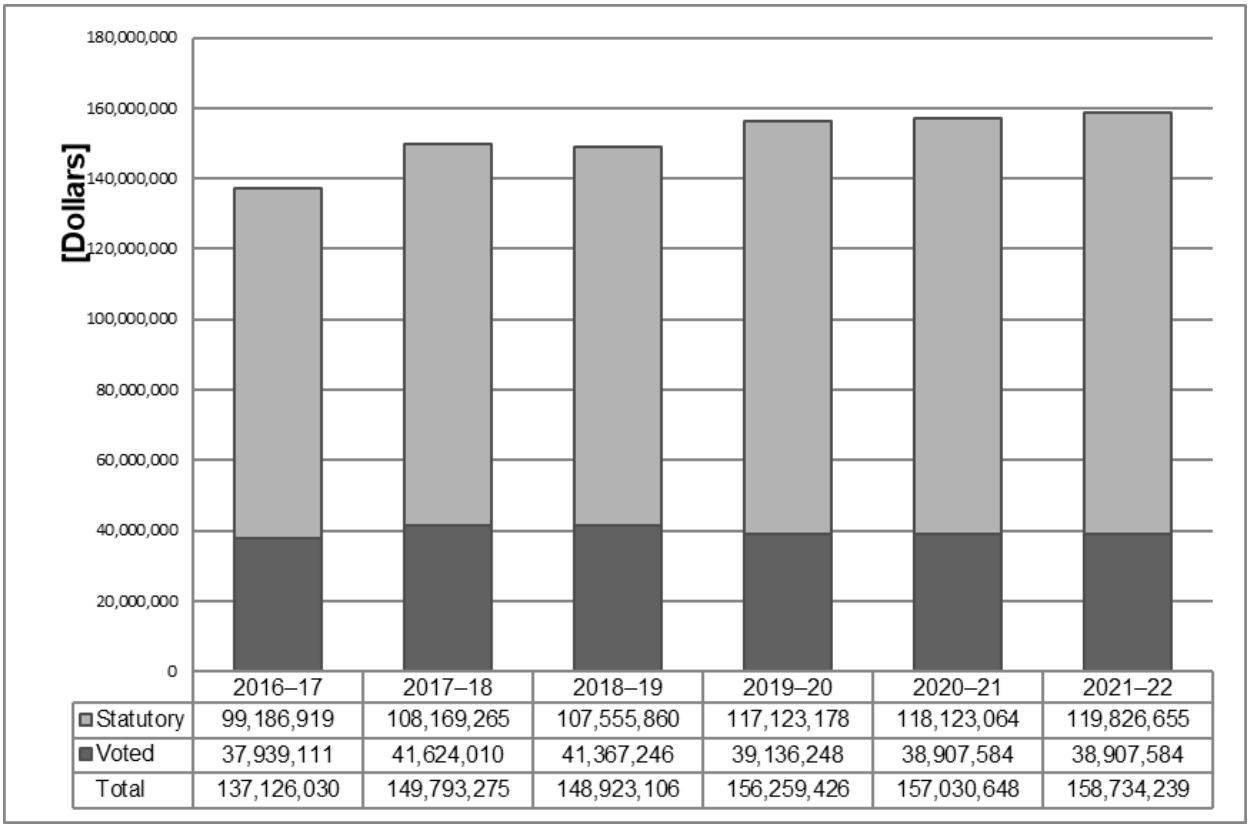
### Human resources (full-time equivalents)

| 2018–19 Planned full-time equivalents | 2018–19 Actual full-time equivalents | 2018–19 Difference (Actual full-time equivalents minus planned full-time equivalents) |
|---|---|---|
| 295 | 293 | (2) |

# Analysis of trends in spending and human resources

## Actual expenditures

### Departmental spending trend graph




| | 2016–17 | 2017–18 | 2018–19 | 2019–20 | 2020–21 | 2021–22 |
|---|---|---|---|---|---|---|
| Statutory | 99,186,919 | 108,169,265 | 107,555,860 | 117,123,178 | 118,123,064 | 119,826,655 |
| Voted | 37,939,111 | 41,624,010 | 41,367,246 | 39,136,248 | 38,907,584 | 38,907,584 |
| Total | 137,126,030 | 149,793,275 | 148,923,106 | 156,259,426 | 157,030,648 | 158,734,239 |

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

| Core Responsibilities and Internal Services | 2018–19 Main Estimates | 2018–19 Planned spending | 2019–20 Planned spending | 2020–21 Planned spending | 2018–19 Total authorities available for use | 2018–19 Actual spending (authorities used) | 2017–18 Actual spending (authorities used) | 2016–17 Actual spending (authorities used) |
|---|---|---|---|---|---|---|---|---|
| Nuclear regulation | 101,640,058 | 105,918,936 | 107,748,059 | 108,436,742 | 106,022,368 | 100,067,374 | 102,683,841 | 95,726,419 |
| Internal services | 39,162,347 | 45,741,503 | 48,511,367 | 48,593,906 | 49,083,648 | 48,855,732 | 47,109,464 | 41,399,611 |
| **Total** | 140,802,405 | 151,660,439 | 156,259,426 | 157,030,648 | 155,106,016 | 148,923,106 | 149,793,305 | 137,126,030 |

The budgetary performance summary table above provides the following:

- Main Estimates for 2018–19
- planned spending for 2018–19, as reported in CNSC's *2018–19 Departmental Plan*

- planned spending for 2019–20 and 2020–21, as reported in CNSC's *2019–20 Departmental Plan*
- total authorities available for use in 2018–19, which reflects the final authorities received
- actual spending for 2016–17, 2017–18 and 2018–19, as reported in the Public Accounts

The CNSC's Main Estimates for the fiscal year 2018–19 totaled $140.8 million, compared to total authorities of $155.1 million. The $14.3 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 were not included in the 2018–19 Main Estimates, $9.9 million
- funds received from the Treasury Board of Canada Secretariat for negotiated salary adjustments and for the reimbursement of eligible paylist expenses, $2.0 million
- an operating budget carry-forward from 2017–18 to 2018–19, $1.8 million
- an increase of revenue spending authority based on final costs, $0.6 million

As reported in CNSC's *2017–18 Departmental Results Report*, the increase in actual spending from $137.1 million in 2016–17 to $149.8 million in 2017–18 was primarily due to salary increases for 2017–18 and retroactive salary payments covering 2014–15 to 2016–17. 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 the implementation costs to replace the CNSC's financial and material management system, which was operational on April 1, 2019.

Planned spending is forecasted to increase to $156.3 million in 2019–20, from actual spending of $148.9 million in 2018–19 primarily due to anticipated salary increases (including retroactive payments covering 2018–19) as a result of negotiated salary adjustments.

## Actual human resources

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

| Core responsibilities and internal services | 2016–17 Actual full-time equivalents | 2017–18 Actual full-time equivalents | 2018–19 Planned full-time equivalents | 2018–19 Actual full-time equivalents | 2019–20 Planned full-time equivalents | 2020–21 Planned full-time equivalents |
|---|---|---|---|---|---|---|
| Nuclear regulation | 576 | 585 | 639 | 625 | 639 | 635 |
| Internal services | 247 | 269 | 295 | 293 | 296 | 293 |
| **Total** | 823 | 854 | 934 | 918 | 935 | 928 |

The increase in full-time equivalents (FTEs) from 823 in 2016–17 to 854 FTEs in 2017–18 and to 918 FTEs in 2018–19 was mainly due to the implementation of the workforce renewal initiative, which focuses on the recruitment and development of new graduates to meet the organization's future needs for senior regulatory and technical officers. The CNSC amended the calculation of FTEs to include students and alumni personnel commencing in 2018–19 and modified the approach to allocate costs and FTEs by program.

## Expenditures by vote

For information on the CNSC's organizational voted and statutory expenditures, consult the Public Accounts of Canada 2018–2019[29].

## 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 InfoBase[28].

## Financial statements and financial statements highlights

## Financial statements

The CNSC's financial statements for the year ended March 31, 2019, are available on the departmental website[30].

## Financial statements highlights

Condensed statement of operations for the year ended March 31, 2019 (dollars)

| Financial information | 2018–19 Planned results | 2018–19 Actual results | 2017–18 Actual results | Difference (2018–19 Actual results minus 2018–19 Planned results) | Difference (2018–19 Actual results minus 2017–18 Actual results) |
|---|---|---|---|---|---|
| Total expenses | 170,129,000 | 165,533,480 | 163,143,631 | (4,595,520) | 2,389,849 |
| Total revenues | 123,484,000 | 117,090,114 | 113,322,728 | (6,393,886) | 3,767,386 |
| Net cost of operations before government funding and transfers | 46,645,000 | 48,443,366 | 49,820,903 | 1,798,366 | (1,377,537) |

The actual total revenues of $117.1 million were 5.2% or $6.4 million lower than planned revenues of $123.5 million, as a result of lower than initially forecast salaries and employee benefits expenses as well as lower than planned fees for special projects. The actual total expenses of $165.5 million were 2.7% or $4.6 million less than planned expenses of $170.1 million as a result of lower than forecasted expenses for salaries and employee benefits, travel and relocation expenses.

The CNSC's total expenses increased by 1.5% or $2.4 million and revenues increased by 3.3% or $3.8 million from 2017–18 to 2018–19. The increase in expenses was primarily due to anticipated salary increases, an increase in the number of FTEs, and the impact of a one-time credit in employees vacation balances for damages caused by the Phoenix pay system. The increase in revenue was attributable to cost recovery of increases in salaries and wages, increases in regulatory oversight activities, and 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.

Condensed statement of financial position as of March 31, 2019 (dollars)

| Financial Information | 2018–19 | 2017–18 | Difference (2018–19 minus 2017–18) |
|---|---|---|---|
| Total net liabilities | 45,320,297 | 42,516,893 | 2,803,404 |
| Total net financial assets | 28,499,853 | 27,464,509 | 1,035,344 |
| Departmental net debt | 16,820,444 | 15,052,384 | 1,768,060 |
| Total non-financial assets | 16,815,543 | 13,613,468 | 3,202,075 |
| Departmental net financial position | (4,901) | (1,438,916) | 1,434,015 |

The increase of $2.8 million in the CNSC's net liabilities is mainly due to a one-time credit in employees vacation balances for damages caused by the Phoenix pay system, employees deferring vacation, and an increase in the payable amounts due to other government departments.

The increase of $1.0 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 government that may be disbursed without further charges to the CNSC's authorities.

The increase of $1.8 million in departmental net debt is a result of the increase of net liabilities offset by an increase in total net financial assets.

The increase of $3.2 million in non-financial assets is a result of an increase in the net book value of tangible capital assets due to the implementation of the CNSC's new financial and material management system.

The decrease of $1.4 million in CNSC's departmental net financial position, which is the difference between total non-financial assets and the departmental net debt, is therefore attributable to the increase in tangible capital assets, which is partially offset by the increase in accrued liabilities to be paid from future authorities.

# Supplementary information

## Corporate information

## Organizational profile

**Appropriate minister:** Amarjeet Sohi

**Institutional head:** Rumina Velshi

**Ministerial portfolio:** *Natural Resources Canada*[31]

**Enabling instrument:** *Nuclear Safety and Control Act*[32]

**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

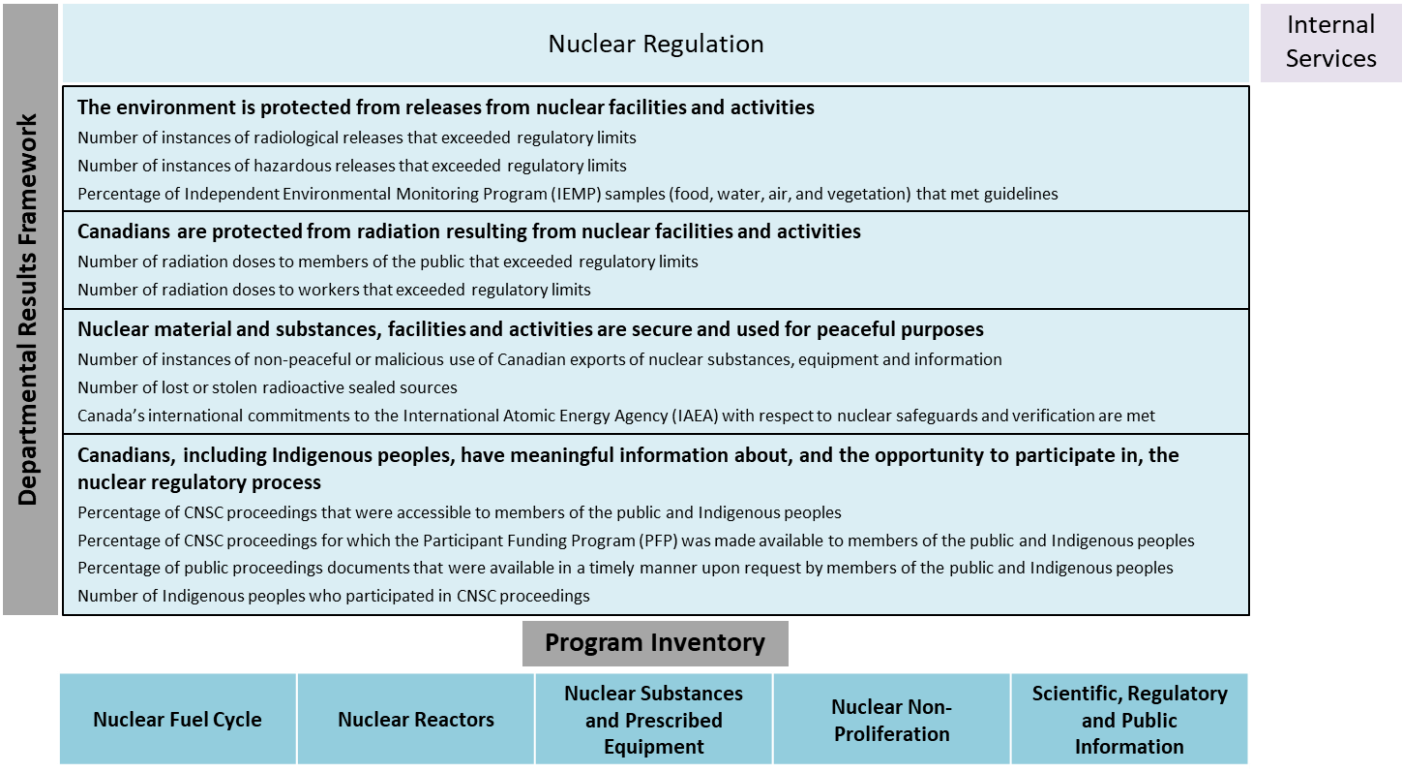
"Raison d'être, mandate and role: who we are and what we do" is available on the CNSC's website[33].

## Operating context and key risks

Information on operating context and key risks is available on the CNSC's website[33].

## Reporting framework

The CNSC's departmental results framework and program inventory of record for 2018–19 are shown below.




## Supporting information on the program inventory

Financial, human resources and performance information for the CNSC's program inventory is available in the GC InfoBase[28].

## Supplementary information tables

The following supplementary information tables are available on the CNSC's website[33]:

- Departmental Sustainable Development Strategy
- Gender-based analysis plus (GBA+)
- Response to parliamentary committees and external audits

## 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[34]. 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.

## Organizational contact information

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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 three-year period. Departmental Plans are tabled in Parliament each spring.

**Departmental Result (résultat ministériel)**

A Departmental Result represents the change or changes that the department seeks to influence. 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 factor or variable that provides a valid and reliable means to measure or describe progress on a Departmental Result.

**Departmental Results Framework (cadre ministériel des résultats)**

Consists of the department's Core Responsibilities, Departmental Results and Departmental Result Indicators.

**Departmental Results Report (rapport sur les résultats ministériels)**

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

**experimentation (expérimentation)**

Activities that seek to explore, test and compare the effects and impacts of policies, interventions and approaches, to inform evidence-based decision-making, by learning what works and what does not.

**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. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

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

An analytical process used to help identify the potential impacts of policies, Programs and services on diverse groups of women, men and gender differences. We all have multiple identity factors that intersect to make us who we are; GBA+ considers many other identity factors, such as race, ethnicity, religion, age, and mental or physical disability.

**government-wide priorities (priorités pangouvernementales)**

For the purpose of the 2018–19 Departmental Results Report, those high-level themes outlining the government's agenda in the 2015 Speech from the Throne, namely: Growth for the Middle Class; Open and Transparent Government; A Clean Environment and a Strong Economy; Diversity is Canada's Strength; and Security and Opportunity.

**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.

**priority (priorité)**

A plan or project that an organization 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 Strategic Outcome(s) or Departmental Results.

**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.

**result (résultat)**

An external 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.

**Strategic Outcome (résultat stratégique)**

A long-term and enduring benefit to Canadians that is linked to the organization's mandate, vision and core functions.

**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 Canadian Nuclear Safety Commission, REGDOC-1.1.5, *Supplemental Information for Small Modular Reactor Proponents*, www.nuclearsafety.gc.ca/pubs_catalogue/uploads/REGDOC-1-1-5-Supplemental-Information-for-Small-Modular-Reactor-Proponents-eng.pdf

2 Canadian Nuclear Safety Commission, Pre-Licensing Vendor Design Review, www.nuclearsafety.gc.ca/eng/reactors/power-plants/pre-licensing-vendor-design-review/index.cfm

3 Canadian Nuclear Safety Commission, Public Commission hearings, www.nuclearsafety.gc.ca/eng/the-commission/hearings/documents_browse/index.cfm

4 Canadian Nuclear Safety Commission, *Canadian National Report for the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*, www.nuclearsafety.gc.ca/pubs_catalogue/uploads/joint-convention-sixth-national-report-oct-2017-eng.pdf

5 International Atomic Energy Agency, International Symposium on Communicating Nuclear and Radiological Emergencies to the Public, www.iaea.org/sites/default/files/19/01/cn-265-report.pdf

6 Canadian Nuclear Safety Commission, The CNSC's approach to compliance verification and enforcement, www.nuclearsafety.gc.ca/eng/acts-and-regulations/compliance-verification-and-enforcement/index.cfm#sec2

7 Canadian Nuclear Safety Commission, Independent Environmental Monitoring Program (IEMP), www.nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index-iemp.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 International Atomic Energy Agency, *Safeguards Statement for 2018*, www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf

11 Justice Laws, *Nuclear Non-proliferation Import and Export Control Regulations*, www.laws-lois.justice.gc.ca/eng/regulations/SOR-2000-210/page-1.html

12 Justice Laws, *General Nuclear Safety and Control Regulations*, www.laws-lois.justice.gc.ca/eng/regulations/SOR-2000-202/index.html

13 Canadian Nuclear Safety Commission, Health Effects of the Chernobyl Accident, www.nuclearsafety.gc.ca/eng/resources/health/health-effects-chernobyl-accident.cfm

14 United Nations Scientific Committee on the Effects of Atomic Radiation, *Evaluation of Data on Thyroid Cancer in Regions Affected by the Chernobyl Accident*, www.unscear.org/docs/publications/2017/Chernobyl_WP_2017.pdf

15 Canadian Nuclear Safety Commission, Meet the Nuclear Regulator, www.nuclearsafety.gc.ca/eng/stay-connected/get-involved/meet-the-nuclear-regulator/index.cfm

16 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.

17 In 2018–19, there were nine total exceedances of provincial hazardous substances limits, all at nuclear power plants. At Pickering 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 will be 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.

18 In 2017–18, there were two exceedances, 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 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.

19 In 2016–17, there was one exceedance at the Pickering NGS where a morpholine release was slightly above provincial regulatory limits. CNSC staff reviewed the event and concluded that the licensee took appropriate corrective actions. The exceedance was reported to the Commission in CMD 17-M15 on August 16, 2018. CNSC staff confirmed that the public in the vicinity of the Pickering NGS were protected and that there were no expected health impacts resulting from exceedances of provincial hazardous substances limits at the Pickering NGS.

20 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.

21 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.

22 On September 24, 2016, a member of the public received a dose of approximately 1.62 mSv, which 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. The member of the public was a passenger in a vehicle operated by a driver that was under contract with a carrier company, transporting packages that contained nuclear substances. This practice is not authorized under the *Packaging and Transport of Nuclear Substances Regulations, 2015* and involved a number of instances of non-compliance with the aforementioned regulations as well as the *Transportation of Dangerous Goods Regulations*. The incident was reported to the Commission in CMD 16-M69 on December 14, 2016.

23 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.

24 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 CMD 16-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.

25 In February 2018, a nuclear energy worker received a dose of approximately 3 600 mSv to the right wrist, 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-M18 on March 15, 2018.

26 A Category 2 (high-risk) exposure device was lost on August 3, 2016 and recovered on August 4, 2016. CNSC packaging requirements for this type of device are designed to withstand extreme drops, fire and direct impacts. Therefore, the device was in safe condition to be transported back to a secure storage location for inspection. There was no impact to members of the public or the environment, and the CNSC was in constant contact with the licensee and local response authorities to ensure that appropriate follow up actions were taken. The risk categorization of the sealed source at the time of the event – Category 1 (highest risk) to Category 5 (lowest risk) – is based on the IAEA document titled *Categorization of Radioactive Sources*. Only Categories 1 and 2 are included in this indicator. More information on lost and stolen sources is available on the CNSC's website.

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

28 GC InfoBase, www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start

29 Public Accounts of Canada, www.tpsgc-pwgsc.gc.ca/recgen/cpc-pac/index-eng.html

30 Canadian Nuclear Safety Commission, annual reports, www.nuclearsafety.gc.ca/eng/resources/publications/reports/annual-reports/index.cfm

31 Natural Resources Canada, www.nrcan.gc.ca/home

32 Justice Laws, *Nuclear Safety and Control Act*, www.laws-lois.justice.gc.ca/eng/acts/N-28.3/

33 Canadian Nuclear Safety Commission, Departmental Plans, www.nuclearsafety.gc.ca/eng/resources/publications/reports/rpp/index.cfm

34 Finance Canada, Report on Federal Tax Expenditures, www.fin.gc.ca/purl/taxexp-eng.asp

35 Canadian Nuclear Safety Commission website, www.nuclearsafety.gc.ca/eng/