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INTEGRATED REGULATORY REVIEW SERVICE (IRRS)

FOLLOW-UP MISSION

TO

CANADA

Ottawa, Canada

4 to 10 June 2024

DEPARTMENT OF NUCLEAR SAFETY AND SECURITY

IAEA Integrated Regulatory Review Service IRRS

CNSC CCSN

Integrated
Regulatory
Review Service

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REPORT OF THE

INTEGRATED REGULATORY REVIEW SERVICE (IRRS) FOLLOW-UP MISSION TO

CANADA

Integrated Regulatory Review Service

IAEA | IRRS

REPORT OF

THE INTEGRATED REGULATORY REVIEW SERVICE (IRRS) FOLLOW-UP MISSION TO

CANADA

Mission dates:	*4 to 10 June 2024*
Regulatory body visited:	*Canadian Nuclear Safety Commission (CNSC) and Health Canada (HC)*
Location:	*Ottawa, Canada*
Regulated facilities, activities, and exposure situations in the mission scope:	*Nuclear Power Plants, Fuel Cycle Facilities, Research Reactors, Waste Management Facilities, Decommissioning Activities, Radiation Sources (Radioactive Sources and Particle Accelerators) Applications, Transport of Radioactive Material, Planned and Existing Occupational and Public Exposure Situations.*
Organized by:	*IAEA*

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IAEA-2024

The number of recommendations, suggestions and good practices is in no way a measure of the status of the national infrastructure for nuclear and radiation safety. Comparisons of such numbers between IRRS reports from different countries should not be attempted.

CONTENT

EXECUTIVE SUMMARY

At the request of the Government of Canada, an international team of senior nuclear and radiation safety experts met with representatives of the Government of Canada from 4 to 10 June 2024 to conduct an Integrated Regulatory Review Service (IRRS) follow-up mission. The mission took place in Ottawa, Canada.

Participating authorities included the Canadian Nuclear Safety Commission (CNSC), the Health Canada (HC) and Natural Resources Canada (NRCan).

The purpose of the follow-up mission was to review the actions taken by Canada to address the recommendations and suggestions made during the IRRS initial mission, which was carried out from 3 to 13 September 2019.

The follow-up mission was formally requested by the Government of Canada in November 2022. A preparatory meeting was held in Ottawa at CNSC headquarters on 19 October 2023. This meeting was held to discuss the purpose, objectives, and detailed preparations of the follow-up review in connection with regulated facilities, activities and exposure situations in Canada and their related safety aspects, and to agree on the scope of the IRRS follow-up mission.

The IRRS follow-up mission team consisted of seven senior regulatory experts from seven IAEA Member States and three IAEA staff members. The IRRS team carried out the review in the areas covered by the initial mission in 2019.

In preparation for the mission, CNSC conducted a self-evaluation of the status of Canada's response to the recommendations and suggestions set out in the initial IRRS mission report and prepared a self-assessment follow-up report accordingly. The results of the self-assessment and supporting documentation were provided to the IRRS team as Advance Reference Material (ARM) two months prior to the mission. During the mission, the IRRS team performed a systematic review of the ARM, including new evidence provided in response to requests from the IRRS team. The IRRS team conducted interviews and discussions with the staff of CNSC and representatives of HC and NRCan.

In addition to the review of the actions taken by CNSC to address the recommendations and suggestions made in 2019, a policy issue discussion was conducted during the mission to share experiences on "Regulatory Efficiency and Effectiveness in an Open and Transparent Environment".

The IRRS follow-up mission scope was the same as the scope of the initial mission covering the following areas: responsibilities and functions of the government, the global safety regime, responsibilities and functions of the regulatory body, the management system of the regulatory body, the activities of the regulatory body including authorization, review and assessment, inspection and enforcement, regulations and guides. The review also included the optional module 11 on nuclear safety and security interface. Module 10 was not included in the initial mission or the follow-up. Facilities, activities and exposure situations within the scope of the mission included all those regulated at the federal level by CNSC: nuclear power plants, fuel cycle facilities, research reactors, waste management facilities, decommissioning activities, transport of radioactive material, radiation sources applications (radioactive sources and particle accelerators), planned and existing occupational and public exposure situations. Facilities and activities with X-ray devices below 1 MV, medical exposure, and specific areas of the existing exposure situations, regulated at provincial or territorial level were out of the scope of the mission.

Canada has a comprehensive and robust regulatory framework for nuclear and radiation safety covering current facilities and activities. The CNSC strives to continuously upgrade its regulatory framework to address new challenges and upcoming technologies.

Overall, the IRRS team concluded that CNSC have considered the recommendations and suggestions made by the 2019 mission and improvements have been made. Of the original four (4) recommendations and sixteen (16) suggestions, two (2) recommendations and ten (10) suggestions have been closed.

The IRRS Team considered the development and implementation of CNSC's human resource plan was a good performance.

The IRRS Team noted achievements in:

- The radioactive waste management framework through revision of Canada's Policy for Radioactive Waste Management and Decommissioning, and the publication of the Integrated Strategy for Radioactive Waste;
- The inspection of facilities and activities where the CNSC program guidance has been further formalized to enhance the conduct and processes of inspections;
- The consolidation of all elements of CNSC's safety policy and the development and implementation of the internal process to conduct the review of regulatory policy analysis;
- The revision and publication of regulatory and guidance documents in the areas of the transport of nuclear and radioactive materials and fuel cycle facilities, so that they are consistent with IAEA safety standards.

Open issues remaining are:

- Justification of facilities and activities (as per IAEA Safety Fundamentals);
- Alignment of radiation protection regulations with IAEA safety standards;
- Application of dose constraints for all Class I facilities.

Throughout the mission, the IRRS team was extended full cooperation in the regulatory, technical and policy issues by all parties in a very open and transparent manner.

At the end of the mission, IAEA issued a press release.

I. INTRODUCTION

At the request of the Government of Canada an international team of senior safety experts met representatives of the Canadian Nuclear Safety Commission (CNSC), Natural Resources Canada (NRCan) and Health Canada (HC) from 4 to 10 June 2024 to conduct an Integrated Regulatory Review Service (IRRS) follow-up mission. The mission took place at CNSC Headquarters in Ottawa, Canada. This peer review focused on Canada's progress against the recommendations and suggestions identified during the initial IRRS mission which was carried out from 3 to 13 September 2019.

The follow-up mission was formally requested by the Government of Canada in November 2022. A preparatory meeting was conducted on 19 October 2023 at CNSC Headquarters in Ottawa to discuss the purpose, objectives, and detailed preparations of the follow-up review in connection with the regulated facilities, activities and exposure situations in Canada regulated by CNSC and their related safety aspects and to agree the scope of the IRRS follow-up mission.

The IRRS team consisted of 7 senior regulatory experts from 7 IAEA Member States and 3 IAEA staff members. The IRRS team carried out the review in the areas covered by the initial mission in 2019. In addition, a policy issue was discussed on "Regulatory Efficiency and Effectiveness in an Open and Transparent Environment".

In preparation for the IRRS follow-up mission, Canada conducted a self-evaluation of the status of recommendations and suggestions set out in the initial IRRS mission report and prepared a self-assessment follow-up report accordingly. This report and supporting documentation were provided to the IRRS team as advance reference material (ARM) two months before the mission. During the mission, the IRRS team performed a systematic overview of all topics by reviewing the advance reference material and additional information provided and by conducting interviews with management and staff of CNSC, Health Canada and NRCan.

Throughout the mission, the IRRS team received full cooperation in regulatory and technical areas by all parties. In particular, the staff of CNSC provided excellent assistance and demonstrated extensive openness and transparency.

II. OBJECTIVE AND SCOPE

The purpose of this IRRS follow-up mission was to conduct a review of Canada's progress against the 4 recommendations and 16 suggestions that were given to Canada during the IRRS initial mission from 3 to 13 September 2019 and to exchange information and experience in the areas covered by that initial mission.

The IRRS follow-up mission scope was the same as the initial mission. It included responsibilities and functions of the government, the global safety regime, responsibilities and functions of the regulatory body, the management system of the regulatory body, the activities of the regulatory body including authorization, review and assessment, inspection and enforcement, regulations and guides. The review also included the optional module 11 on nuclear safety and security interface. Module 10 was excluded from both the initial IRRS mission and the follow-up mission, as Canada hosted an EPREV mission. Facilities, activities and exposure situations within the scope of the mission included all those regulated at the federal level by CNSC: nuclear power plants, fuel cycle facilities, research reactors, waste management facilities, decommissioning activities, transport of radioactive material, radiation sources applications (radioactive sources and particle accelerators), planned and existing occupational and public exposure situations. Facilities and activities with X-ray devices below 1MV, medical exposure, and specific areas of the existing exposure situations, regulated at provincial or territorial level were out of the scope of the mission.

The follow-up mission was carried out by reviewing the progress made by Canada against the recommendations and suggestions of the initial mission and by the comparison of existing arrangements against the IAEA safety standards.

It is expected that the IRRS follow-up mission will facilitate regulatory improvements in Canada and other Member States from the knowledge gained and experiences shared between CNSC counterparts and IRRS reviewers, and through the evaluation of the effectiveness of Canada's regulatory infrastructure for nuclear and radiation safety.

III. BASIS FOR THE REVIEW

A) PREPARATORY WORK AND IRRS TEAM

At the request of the Government of Canada, a preparatory meeting for the IRRS follow-up mission was conducted on 19 October 2023. The preparatory meeting was carried out by the IRRS Team Leader, Ms Marta Ziakova (on-line participation), Ms Ritva Bly, Deputy Team Leader and the IAEA representatives, Mr Geza Macsuga (IAEA Coordinator) and Ms Vasiliki Kamenopoulou (Deputy IAEA Coordinator).

The IRRS follow-up mission preparatory team had discussions regarding regulatory programmes and policy issues with the senior management of CNSC represented by the appointed Liaison Officer Mr Nhan Tran (Strategic Program Advisor for Directorate of Nuclear Cycle and Facilities Regulation), other senior management and staff. The discussions resulted in agreement that the review will cover the areas covered by the initial mission conducted in 2019.

Mr Nhan Tran made presentations on the national context, the current status of CNSC and the self-assessment results to date.

IAEA staff presented the IRRS principles, follow-up mission process and methodology. This was followed by a discussion on the tentative work plan for the implementation of the IRRS follow-up mission to Canada in June 2024.

The proposed composition of the IRRS Team was discussed and tentatively confirmed. Logistics of the mission, including meetings and workplaces, counterparts and Liaison Officer, proposed site visits, lodging and transportation arrangements were also addressed.

The CNSC Liaison Officer for the IRRS mission was confirmed as Mr Nhan Tran.

CNSC provided IAEA with the advance reference material (ARM) for review at the beginning of April 2024. In preparation for the mission, the IAEA review team members reviewed Canada's ARM and provided their initial impressions to the IAEA Coordinator prior to the commencement of the IRRS follow-up mission.

B) REFERENCES FOR THE REVIEW

The relevant IAEA safety standards, the Code of Conduct on the Safety and Security of Radioactive Sources and the Code of Conduct of Research Reactors were used as review criteria. The complete list of IAEA publications used as the references for this mission is provided in Appendix VII.

C) CONDUCT OF THE REVIEW

As the originally assigned Team Leader, Ms Marta Ziakova was not in the position to participate in the mission, Ms Ritva Bly, the former Deputy Team Leader took over the leadership of the IRRS Team in accordance with the IRRS Guidelines and Mr Igor Sirc was appointed as Deputy Team Leader.

The initial IRRS Team meeting took place on Monday, 3 June 2024 in CNSC Headquarters directed by the IRRS Team Leader and the IAEA Coordinators. Discussions encompassed the general overview, the scope and specific issues of the mission, clarification of the bases for the review and the background, context and objectives of the IRRS programme. The understanding of the methodology for review was reinforced. The schedule of the mission was presented to the team. Following the IRRS Guidelines, the reviewers presented their initial impressions on the ARM and highlighted specific issues to be addressed during the mission.

The host Liaison Officer was present at the initial IRRS team meeting, in accordance with the IRRS Guidelines, and presented logistical arrangements planned for the mission.

The IRRS entrance meeting was held on Tuesday, 4 June 2024, with the participation of Mr Ramzi Jammal (acting Chief Executive Officer) and other senior management and staff of CNSC. Mr Ramzi Jammal gave

the opening remarks together with Mr John Glover (Director of Operations Secretariat). The IRRS Team Leader, Ms Ritva Bly, made her opening remarks and presented the expectations for the mission. Mr Peter Bedrossian (acting Director of Regulatory Policy Analysis Division) presented the Overview of the national context, including the regulatory framework in Canada. A presentation on the self-assessment and its main conclusions conducted in preparation for the follow-up IRRS mission was delivered by Mr Nhan Tran, the Liaison Officer. Mr Geza Macsuga, the IAEA Coordinator presented the mission schedule and Mr Nhan Tran the mission logistics. Finally, the closing remarks were given by Ms Karen Owen-Whitred (Regulatory Operations Branch – acting Executive Vice-President and Chief Regulatory Operations Officer) and the IRRS Team Leader, Ms Ritva Bly.

During the IRRS follow-up mission, an overview was conducted of all areas within the agreed scope with the objective of providing an evaluation of the progress made by Canada against the recommendations and suggestions identified during the initial mission. The overview of the nuclear and radiation safety regulation in Canada and the major changes since 2019 was completed.

The review was conducted through meetings, interviews and discussions on the national legal, governmental and regulatory framework for safety. The IRRS Team performed its review according to the mission programme given in Appendix II.

The IRRS exit meeting was held on Monday, 10 June 2024. The meeting was moderated by Mr John Glover and the opening remarks were presented by Mr Ramzi Jammal. The results of the mission were presented by the IRRS Team Leader. Remarks in response to the mission findings were given by Ms Karen Owen-Whitred. Ms Anna Hajduk Bradford (Director, IAEA, Division of Nuclear Installation Safety) presented the closing remarks and officially closed the IRRS Follow-up Mission to Canada.

An IAEA press release was issued at the end of the mission.

1. RESPONSIBILITIES AND FUNCTIONS OF THE GOVERNMENT

1.1. NATIONAL POLICY AND STRATEGY FOR SAFETY

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *The national policy and strategy for safety does not explicitly mention SF-1 Principle 4: Justification of facilities and activities*	
(1)	**BASIS: GSR Part 1, Requirement 1, states that** *"The government shall establish a national policy and strategy for safety, …to achieve the fundamental safety objective and to apply the fundamental safety principles established in the Safety Fundamentals."*
(2)	**BASIS: GSR Part 1 Requirement 1, para. 2.3 states that** *"In the national policy and strategy, account shall be taken of the following:* *(a) The fundamental safety objective and the fundamental safety principles established in the Fundamental Safety Principles [1]; …"*
S1	**Suggestion: The Government should consider explicitly addressing SF-1, Principle 4 (Justification) in its legal framework.**

Changes since the initial IRRS mission

Suggestion 1: Canada's position remains that: (a) the current legislative and regulatory frameworks are already aligned with the intent of SF-1, Principle 4, (b) this principle is implicitly integrated within the Nuclear Safety and Control Act (NSCA) through the CNSC's mandate to prevent unreasonable risks to the environment and public health and safety, and (c) this principle is embedded in environmental and other assessment-related legislation that consider both positive and negative effects on the environment, people, communities or economics to inform decision-makers and ensure protection of both people and the environment. The IRRS Team was informed that Canada's decision to take no further action on the suggestion was based on an assessment of the suggestion and a review of its legislative and regulatory frameworks. The legal framework has not been amended to address Suggestion 1.

Status of the initial mission finding

Suggestion 1 (S1) remains open as the legal framework has not been amended to explicitly address SF-1, Principle 4.

1.2. ESTABLISHMENT OF A FRAMEWORK FOR SAFETY

There were no findings in this area in the initial IRRS mission.

1.3. ESTABLISHMENT OF A REGULATORY BODY AND ITS INDEPENDENCE

There were no findings in this area in the initial IRRS mission.

1.4. RESPONSIBILITY FOR SAFETY AND COMPLIANCE WITH REGULATIONS

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS
Observation: *The legal framework does not expressly assign the prime responsibility for safety to the person or organization responsible for a facility or an activity.*

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
(1)	**BASIS: GSR Part 1, Requirement 5 states that** "*The government shall expressly assign the prime responsibility for safety to the person or organization responsible for a facility or an activity, … "*
S2	**Suggestion: The Government should consider expressly assigning, in its legal framework, the prime responsibility for safety to the person or organization responsible for a facility or an activity.**
Observation: *The legal framework does not stipulate that compliance with regulations and requirements, established or adopted by the regulatory body, does not relieve the person or organization responsible for a facility or an activity of its prime responsibility for safety.*	
(1)	**BASIS: GSR Part 1, Requirement 6 states that** *"The government shall stipulate that compliance with regulations and requirements established or adopted by the regulatory body does not relieve the person or organization responsible for a facility or an activity of its prime responsibility for safety."*
S3	**Suggestion: The Government should consider enhancing the legal framework to explicitly stipulate that compliance with regulations and requirements established or adopted by the regulatory body does not relieve the person or organization responsible for a facility or an activity of its prime responsibility for safety.**

Changes since the initial IRRS mission

Suggestion 2 and Suggestion 3: Canada's position remains that the primary responsibility for safety is explicitly assigned to the individual or organization responsible for a facility or activity, so these suggestions are already substantively addressed within the existing legislative and regulatory frameworks. The IRRS Team was informed that Canada's decision to take no further action on the suggestions was based on an assessment of the suggestions and a review of its legislative and regulatory frameworks. The legal framework has not been amended to address Suggestions 2 and 3.

Status of the initial mission findings

Suggestion 2 (S2) remains open as the legal framework has not been amended to expressly assign the prime responsibility for safety to the person or organization responsible for a facility or an activity.

Suggestion 3 (S3) remains open as the legal framework has not been amended to explicitly stipulate that compliance with regulations and requirements established or adopted by the regulatory body does not relieve the person or organization responsible for a facility or an activity of its prime responsibility for safety.

1.5. COORDINATION OF AUTHORITIES WITH RESPONSIBILITIES FOR SAFETY WITHIN THE REGULATORY FRAMEWORK

There were no findings in this area in the initial IRRS mission.

1.6 SYSTEM FOR PROTECTIVE ACTIONS TO REDUCE EXISTING OR UNREGULATED RADIATION RISKS

There were no findings in this area in the initial IRRS mission.

1.7. PROVISIONS FOR THE DECOMMISSIONING OF FACILITIES AND THE MANAGEMENT OF RADIOACTIVE WASTE AND OF SPENT FUEL

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *The Canadian Radioactive Waste Management Policy Framework presents the overall principles for radioactive waste management. However, this does not encompass all the needed policy elements nor a detailed strategy or corresponding arrangements that provide a strategy for radioactive waste management in Canada.*	
(1)	**BASIS: GSR Part 5 Requirement 2: National policy and strategy on radioactive waste management states that "***To ensure the effective management and control of radioactive waste, the government shall ensure that a national policy and a strategy for radioactive waste management are established. The policy and strategy shall be appropriate for the nature and the amount of the radioactive waste in the State, shall indicate the regulatory control required, and shall consider relevant societal factors. The policy and strategy shall be compatible with the fundamental safety principles [2] and with international instruments, conventions and codes that have been ratified by the State. The national policy and strategy shall form the basis for decision making with respect to the management of radioactive waste.***"**
(2)	**BASIS: GSR Part 5 paragraph 3.6. states that** *"The national strategy for radioactive waste management has to outline arrangements for ensuring the implementation of the national policy. It has to provide for the coordination of responsibilities. It has to be compatible with other related strategies such as strategies for nuclear safety and for radiation protection."*
R1	**Recommendation: The Government should enhance the existing policy and establish the associated strategy to give effect to the principles stated in the Canadian Radioactive Waste Management Policy Framework.**

Changes since the initial IRRS mission

Recommendation 1: In March 2023, "Canada's Policy for Radioactive Waste Management and Decommissioning" was published by the Government of Canada. The policy applies to radioactive waste from past practices, including historic waste, those accumulated from current practices, future radioactive waste, and to the decommissioning of nuclear facilities and sites. It also applies to radioactive waste generated unintentionally, including from nuclear or radiological emergencies, or unintended releases.

Furthermore, in October 2023, the Government of Canada accepted the Integrated Strategy for Radioactive Waste, developed by the Nuclear Waste Management Organisation (NWMO). The strategy proposes disposal recommendations related to radioactive waste for which disposal plans were not previously defined and complements existing efforts for the long-term management of radioactive waste, including nuclear fuel waste. In accordance with the Strategy:

(1) Low level waste is recommended to be disposed of in multiple near surface disposal facilities with implementation by the waste generators and waste owners.
(2) Intermediate-level waste and non-fuel high-level waste is recommended to be disposed of in a deep geological repository with implementation by the NWMO.

The IRRS team was informed that:

(1) The Strategy is to be updated, in collaboration with the Indigenous peoples, community partners and other involved parties by 2028.

(2) Radioactive waste owners are expected to, on an annual basis, report to NRCan regarding the progress made in implementing the Strategy, including outlining a plan for their continued collaboration.
(3) NWMO is developing a consent-based site selection process for a recommended deep geological disposal facility for non-fuel high level waste and intermediate level waste by 2025.

Status of the initial mission findings

Recommendation 1 (R1) is closed on the basis of progress made and confidence in effective completion in due time based on revision of Canada's Policy for Radioactive Waste Management and Decommissioning, the published Integrated Strategy for Radioactive Waste, and planned future actions to update the Strategy.

1.8. COMPETENCE FOR SAFETY

There were no findings in this area in the initial IRRS mission.

1.9. PROVISION OF TECHNICAL SERVICES

There were no findings in this area in the initial IRRS mission.

2. THE GLOBAL SAFETY REGIME

2.1. INTERNATIONAL OBLIGATIONS AND ARRANGEMENTS FOR INTERNATIONAL COOPERATION

There were no findings in this area in the initial IRRS mission.

2.2. SHARING OF OPERATING EXPERIENCE AND REGULATORY EXPERIENCE

There were no findings in this area in the initial IRRS mission.

3. RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY

3.1. ORGANIZATIONAL STRUCTURE OF THE REGULATORY BODY AND ALLOCATION OF RESOURCES

There were no findings in this area in the initial IRRS mission.

3.2. EFFECTIVE INDEPENDENCE IN THE PERFORMANCE OF REGULATORY FUNCTIONS

There were no findings in this area in the initial IRRS mission.

3.3. STAFFING AND COMPETENCE OF THE REGULATORY BODY

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *In view of the changing regulatory and technological environment, the CNSC needs to further adapt and update its human resources plan.*	
(1)	**BASIS: GSR Part 1 Requirement 18 and para 4.11 state that** *"The regulatory body shall employ a sufficient number of qualified and competent staff, commensurate with the nature and the number of facilities and activities to be regulated, to perform its functions and to discharge its responsibilities.* *4.11: "The regulatory body has to have appropriately qualified and competent staff. A human resources plan shall be developed that states the number of staff necessary and the essential knowledge, skills and abilities for them to perform all the necessary regulatory functions."*
S4	**Suggestion:** The CNSC should consider continuing to focus on its human resource management plan to ensure that CNSC continues to have access to a sufficient number of qualified and competent staff to regulate existing facilities and activities as well as new and emerging technologies in accordance with the nature of facilities.

Changes since the initial IRRS mission

Suggestion 4:

CNSC had established its two-year strategic human resource management plan (2020-22). This plan outlined the CNSC's operating environment through a SWOT (Strengths, Weaknesses, Opportunities, and Threats,) analysis, identified risks, and established strategies and objectives to mitigate these risks. It also included performance indicators to track and measure outcomes in line with the organization's strategic objectives. This plan has been successfully completed.

In March 2024 a new five-year Strategic Workforce Plan (SWP) for 2024-2029 was approved, replacing the previous two-year plan. The SWP aims to systematically identify current and future gaps and risks, providing insight to support evidence-based decision-making. It details the CNSC's workforce profile, competencies, risks, and mitigation actions for the next five years. The SWP includes strategies and actions to ensure access to the competencies and skills required to regulate existing facilities and activities, as well as to address new and emerging technologies.

CNSC's human resources plans clearly and transparently address challenges and risks and include a wide range of diverse strategies and actions, as well as performance indicators to track and measure outcomes in line with the organization's strategic objectives. The IRRS Team considers this a good performance.

Status of the initial mission finding

Suggestion 4 (S4) is closed as the CNSC's strategic human resources plans address strategies and actions to ensure access to the competencies and skills required to regulate existing facilities and activities, as well as to address new and emerging technologies.

3.4. LIAISON WITH ADVISORY BODIES AND SUPPORT ORGANIZATIONS

There were no findings in this area in the initial IRRS mission.

3.5. LIAISON BETWEEN THE REGULATORY BODY AND AUTHORIZED PARTIES

There were no findings in this area in the initial IRRS mission.

3.6. STABILITY AND CONSISTENCY OF REGULATORY CONTROL

There were no findings in this area in the initial IRRS mission.

3.7. SAFETY RELATED RECORDS

There were no findings in this area in the initial IRRS mission.

3.8. COMMUNICATION AND CONSULTATION WITH INTERESTED PARTIES

There were no findings in this area in the initial IRRS mission.

4. MANAGEMENT OF THE REGULATORY BODY

4.1. RESPONSIBILITY AND LEADERSHIP FOR SAFETY

There were no findings in this area in the initial IRRS mission.

4.2. RESPONSIBILITY FOR INTEGRATION OF SAFETY INTO THE MANAGEMENT SYSTEM

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation*: CNSC addresses individual elements of its safety policy in different documents such as in the Management System Manual, the CNSC Values and Ethics Code, the Values and Ethics Code for the Public Sector and Regulatory Fundamentals. However, the CNSC has not developed a single document where all elements of safety policy are gathered and approved by the senior management.*	
(1)	**BASIS: GSR Part 2, Requirement 3, para 4.2 states that** *"Senior management shall be responsible for establishing safety policy"*
(2)	**BASIS: GSG-12 para 3.1 states that** *"Senior management, managers and leaders at all levels of the regulatory body should demonstrate, by their own behaviour, consistent adherence to the values of the regulatory body. This should typically include the following:* *-* *- Establishing and communicating a clear vision for safety, which is elaborated through a safety policy, strategy, plans and objectives, whereby safety is paramount;"*
S5	**Suggestion: CNSC should consider consolidating all elements of its safety policy into a single document.**

Changes since the initial IRRS mission

Suggestion 5: CNSC has established a high-level single document, called *Summary of CNSC Safety-related Policies* which consolidates all elements of CNSC's safety policy. This short document, validated by the president of CNSC, emphasizes the main principles such as the mandate of CNSC, its values, the responsibilities, etc. This document has been shared with all CNSC staff and also with newcomers during their onboarding.

The *Summary of CNSC Safety-related Policies* is available on the internal CNSC website. The IRRS team encouraged CNSC to make it available on its public website.

Status of the initial mission finding

Suggestion 5 (S5) is closed as CNSC consolidated all elements of its safety policy into a single document.

4.3. THE MANAGEMENT SYSTEM

There were no findings in this area in the initial IRRS mission.

4.4. MANAGEMENT OF RESOURCES

There were no findings in this area in the initial IRRS mission.

4.5. MANAGEMENT OF PROCESSES AND ACTIVITIES

There were no findings in this area in the initial IRRS mission.

4.6. CULTURE FOR SAFETY

There were no findings in this area in the initial IRRS mission.

4.7. MEASUREMENT, ASSESSMENT AND IMPROVEMENT

There were no findings in this area in the initial IRRS mission.

5. AUTHORIZATION

5.1. GENERIC ISSUES

There were no findings in this area in the initial IRRS mission.

5.2. AUTHORIZATION OF NUCLEAR POWER PLANTS

There were no findings in this area in the initial IRRS mission.

5.3. AUTHORIZATION OF RESEARCH REACTORS

There were no findings in this area in the initial IRRS mission.

5.4. AUTHORIZATION OF FUEL CYCLE FACILITIES

There were no findings in this area in the initial IRRS mission.

5.5. AUTHORIZATION OF RADIOACTIVE WASTE MANAGEMENT FACILITIES

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *The CNSC is currently considering two licence applications related to in situ confinement of legacy reactor facilities. This strategy of in-situ confinement is not consistent with SSG-47.*	
(1)	**BASIS: SSG-47 para 5.17states that** *"Entombment, in which all or part of the facility is encased in a structurally long-lived material, should not be considered an acceptable strategy for planned decommissioning. It might be considered as a last option for managing facilities that have been damaged in an accident, if other options are not possible owing to high exposures of workers or technical difficulties".*
S6	**Suggestion: CNSC should consider revising its current and planned requirements in the area of decommissioning to align with the IAEA guidance that entombment is not considered an acceptable strategy for planned decommissioning of existing NPPs and future nuclear facilities.**

Changes since the initial IRRS mission

Suggestion 6: In 2021, the CNSC published REGDOCs representing a revised regulatory framework for waste management and decommissioning, which included revising the requirements and guidance for decommissioning to enhance consistency with IAEA safety standards.

REGDOC 2.11.2, *Decommissioning*, prescribes that in-situ decommissioning may only be considered in exceptional circumstances or in the case of legacy sites. Furthermore, the REGDOC recognises that in-situ decommissioning entails the establishment of a waste disposal facility with the concomitant demonstration of compliance with all requirements for a waste disposal facility.

The IRRS team was informed that

(1) The licence applications for the Nuclear Power Demonstration reactor at Rolphton and the Whiteshell WR-1 reactor in Pinawa, Manitoba, are still in the environmental assessment phase.

(2) CNSC review of the environmental assessment for both projects has identified comments and information requests that must be addressed by the proponent.

Regulatory decision on the potential applications for the in-situ projects are contingent on demonstration that the proposed end states of the sites meet all regulatory requirements for a safety case and post closure safety assessment.

Status of the initial mission finding

Suggestion 6 (S6) is closed in view of the revised regulatory requirements and guidance for the proposed decommissioning end states involving in-situ confinement, as well the CNSC established regulatory authorization process, including the review and assessment for a disposal facility.

5.6. AUTHORIZATION OF RADIATION SOURCES FACILITIES AND ACTIVITIES

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: *There is no systematic evaluation of justification for the various practices involving radiation sources in the licensing process.*	
(1)	**BASIS: GSR Part 3 Requirement 1, para. 2.8 states that** "*For planned exposure situations, each party with responsibilities for protection and safety shall ensure, when relevant requirements apply to that party, that no practice is undertaken unless it is justified".*
(2)	**BASIS: GSR Part 3 Requirement 10 states that** *"The government or the regulatory body shall ensure that only justified practices are authorized".*
S7	**Suggestion: CNSC should consider establishing a procedure to ensure the systematic implementation of justification in the authorisation of all practices involving radiation sources.**
Observation: *The CNSC implements only licensing in the regulatory control of nuclear substances and radiation devices. Notification is not included in the regulatory system as an option.*	
(1)	**BASIS: GSR Part 3 Requirement 3, para. 2.30 states that "***The regulatory body shall establish a regulatory system for protection and safety that includes; (a) Notification and authorization".*
(2)	**BASIS: GSR Part 3 Requirement 7, para. 3.7 states that** *"Any person or organization intending to carry out any of the actions specified in para. 3.5 shall submit a notification to the regulatory body of such an intention. Notification alone is sufficient provided that the exposures expected to be associated with the practice or action are unlikely to exceed a small fraction, as specified by the regulatory body, of the relevant limits, and that the likelihood and magnitude of potential exposures and any other potential detrimental consequences are negligible. Notification is required for consumer products only with respect to manufacture, maintenance, import, export, provision, distribution and, in some cases, disposal".*
(3)	**BASIS: GSR Part 3 Requirement 6 states that** *"The application of the requirements of these Standards in planned exposure situations shall be commensurate with the characteristics of the practice or the source within a practice, and with the likelihood and magnitude of exposures".*
S8	**Suggestion: The CNSC should consider including notification alone as an option for the regulatory control of nuclear substances and radiation devices in accordance with a graded approach.**

Changes since the initial IRRS mission

Suggestion 7: Although CNSC considers that the principle of justification is embedded in its legal framework (see Suggestion 1), in order to improve clarity, wording on justification was incorporated in Section 1.4 of the CNSC management system document, *Regulatory Program Oversight for Nuclear Substances and Radiation Devices*. This section states that, "CNSC staff verify that the proposal falls within the limits and activities outlined in the Nuclear Safety and Control Act (NSCA) and supporting regulations and are therefore justified.*"* This addition cannot be considered as a procedure to ensure the systematic implementation of justification in the authorisation of all practices involving radiation sources.

Suggestion 8: CNSC conducted a comparative assessment of the time used for the current licensing process and the "notification alone" process. The analysis demonstrated that low- risk applications already have a simplified licence application form, application reviews require limited oversight, and the compliance activities are limited to reactive work (minimal) and review of Annual Compliance Reports.

Status of the initial mission findings

Suggestion 7 (S7) remains open as CNSC has not established a procedure to ensure the systematic implementation of justification in the authorisation of all practices involving radiation sources.

Suggestion 8 (S8) remains open as CNSC has not implemented a "notification alone" process.

5.7. AUTHORIZATION OF DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

5.8. AUTHORIZATION OF TRANSPORT

There were no findings in this area in the initial IRRS mission.

5.9. AUTHORIZATION ISSUES FOR OCCUPATIONAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

5.10. AUTHORIZATION ISSUES FOR MEDICAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

5.11. AUTHORIZATION ISSUES FOR PUBLIC EXPOSURE

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: The CNSC imposes dose limits for public exposure for all facility types and also requires BATEA to be demonstrated as part of a licence application. However, *dose constraints have not been established for all Class I facilities and the DRLs for NPPs are based on 1mSv/y.*	
(1)	**BASIS: GSR Part 3 Requirement 29, Para. 3.120 states that** *"The government or the regulatory body shall establish or approve constraints on dose and constraints on risk to be used in the optimization of protection and safety for members of the public."*
(2)	**BASIS: GSR Part 3 Requirement 29, para. 123(b) states that "***The regulatory body shall establish or approve operational limits and conditions relating to public exposure, including authorized limits for discharges. These operational limits and conditions:*

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
	Shall correspond to doses below the dose limits with account taken of the results of optimization of protection and safety;"
R2	**Recommendation: The CNSC should establish or approve dose constraints for all Class I type facilities.**
S9	**Suggestion: The CNSC should consider consistently implementing the concept of dose constraints for all facilities and standardising regulatory practice for derived release limits (DRLs).**

Changes since the initial IRRS mission

Recommendation R2 and Suggestion 9: In 2024 the CNSC published REGDOC 2.9.2 Controlling Releases to the Environment to be in line with GSG-9. The REGDOC introduces the principles and process for establishing and approving dose constraints within the process for optimisation of public doses, continued application of Best Available Technology and Techniques Economically Achievable (BATEA), and establishing release limits, but does not prescribe dose constraints. In line with the approach of being non-prescriptive the CNSC plans to establish facility specific dose constraints on a case-by-case basis, with due consideration of the facility specific optimisation of public exposures.

The IRRS team was informed that the REGDOC introduced new requirements on licensees, consequently, a phased implementation of the new requirements was requested by the licence holders. The new requirements will be imposed immediately for all new applications. An implementation strategy for existing facilities is under consideration by the CNSC. Under this implementation strategy the new requirements will be phased in for existing facilities within the timeframes for licence renewal and/or environmental risk assessment updates.

Status of the initial mission findings

Recommendation 2 (R2) remains open as dose constraints are not established for all Class I facilities.

Suggestion 9 (S9) remains open as an evaluation of the consistent application of the concept of dose constraints is still to be undertaken.

6. REVIEW AND ASSESSMENT

6.1. GENERIC ISSUES

6.1.1. MANAGEMENT OF REVIEW AND ASSESSMENT

There were no findings in this area in the initial IRRS mission.

6.1.2. ORGANIZATION AND TECHNICAL RESOURCES FOR REVIEW AND ASSESSMENT

There were no findings in this area in the initial IRRS mission.

6.1.3. BASES FOR REVIEW AND ASSESSMENT

There were no findings in this area in the initial IRRS mission.

6.1.4. PERFORMANCE OF REVIEW AND ASSESSMENT

There were no findings in this area in the initial IRRS mission.

6.2. REVIEW AND ASSESSMENT FOR NUCLEAR POWER PLANTS

There were no findings in this area in the initial IRRS mission.

6.3. REVIEW AND ASSESSMENT FOR RESEARCH REACTORS

There were no findings in this area in the initial IRRS mission.

6.4. REVIEW AND ASSESSMENT FOR FUEL CYCLE FACILITIES

There were no findings in this area in the initial IRRS mission.

6.5. REVIEW AND ASSESSMENT FOR WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

6.6. REVIEW AND ASSESSMENT FOR RADIATION SOURCES FACILITIES AND ACTIVITIES

There were no findings in this area in the initial IRRS mission.

6.7. REVIEW AND ASSESSMENT FOR DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

6.8. REVIEW AND ASSESSMENT FOR TRANSPORT

There were no findings in this area in the initial IRRS mission.

6.9. REVIEW AND ASSESSMENT FOR OCCUPATIONAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

6.10. REVIEW AND ASSESSMENT FOR MEDICAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

6.11. REVIEW AND ASSESSMENT FOR PUBLIC EXPOSURE

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *No survey has been undertaken to assess potential public exposure indoors from gamma-emitting radionuclides in building materials.*	
(1)	**BASIS: SSG-32, para. 4.14 states that** *"The national authority should use the data generated in surveys of the levels of radionuclides of natural origin in building materials to identify those radionuclides that may make a significant contribution to exposure to gamma radiation indoors. Where there are only limited data available on levels of radionuclides in building materials, the national authority should make arrangements for a survey to be carried out, and/or it should require manufacturers of building materials and suppliers of imported building materials to provide it with such data."*
S10	**Suggestion: HC should consider undertaking a survey of radionuclide levels in building materials or indoor gamma dose rates arising from building materials to determine if they make a significant contribution to public exposure.**

Changes since the initial IRRS mission

Suggestion 10:

HC investigated the concentration of ^{40}K, ^{226}Ra and ^{232}Th decay chains in different building materials used in Canada and concluded that there was no indication that domestically sourced building materials are contributing significantly to public dose. Consequently, HC decided that no further investigation or restrictions were necessary.

Although HC had conducted measurements for gamma-emitters in materials where high levels of natural radionuclides might be found, they did not survey materials susceptible to contamination by artificial gamma-emitters, such as Co-60 and Cs-137. According to IAEA SRS-117, some of the most common sources of artificial radionuclides in building and construction materials are radioactive sources that were melted during steel production. The IRRS Team was informed that measurements on these radionuclides were not investigated because portal monitors are used to monitor scrap metal at scrap metal recycling facilities, as well as imported metal at the customs. However, due to several documented incidents worldwide where significant amounts of artificial radionuclides were found in raw building materials or existing structures, the IRRS Team encourages HC to measure ^{60}Co and ^{137}Cs activity concentrations. Also, as imported materials were excluded from the survey, the IRRS Team encourages HC to conduct a survey with the most used imported materials in the country, to compare with the National results.

Status of the initial mission finding

Suggestion 10 (S10) is closed as HC undertook a survey of the natural radionuclide levels in building materials, and they concluded that as the levels were very low no further actions were needed.

7. INSPECTION

7.1. GENERIC ISSUES

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *The IRRS team observed the practice of sharing operating experience and lessons learned amongst inspectors through multiple means, including exchanges. However, constraints and other priorities may prevent inspectors from performing exchanges at the frequency needed to take full advantage of the benefits achieved from the practice.*	
(1)	**BASIS: GSR Part 1 Requirement 29, para. 4.50 states, in part, that,** *"The regulatory body shall develop and implement a programme of inspection of facilities and activities, to confirm compliance with regulatory requirements …"*
(2)	**BASIS: GSG-13, Para 3.231 (d) states that** *"Operating experience and lessons learned from operating the facility or conducting the activity, and from similar facilities and activities in the State and in other States, as well as results of research and development".*
S11	**Suggestion: CNSC should consider formalizing the practice of inspector exchanges between licensee locations for inspection assistance to ensure the operating experience and lessons learned from assisting other CNSC staff perform inspections at different licensee locations are maximized.**
Observation: *CNSC does not have a comprehensive formal process to regularly review on site inspectors to ensure they remain independent and objective. Inspector observation elements, such as direct management observations, used as methods to review inspector objectivity and independence should be formalised.*	
(1)	**BASIS: GSG-12, Para 6.10, states that** *"Staff assignments should be regularly reviewed to ensure that regulatory independence and objectivity are maintained in dealings with authorized parties."*
S12	**Suggestion: CNSC should consider its process to formalise all elements used to ensure a comprehensive, regular review of the objectivity and independence of the on site inspectors.**

Changes since the initial IRRS mission

Suggestion 11: The CNSC addressed the suggestion by focusing on the capability to increase site inspectors' exposure to multiple sites rather than carrying out physical inspector exchanges (i.e. employee transfers).

The CNSC published the *Directorate of Power Reactor Regulation (DPRR) Inspector Objectivity Principles* in 2021 (revised 2023) to formalize various practices to increase the inspectors' exposure to multiple sites and inspection approaches. Steps are outlined as Principle Elements to implement diverse methods to increase the inspectors' exchange of operating experience and lessons learned.

The CNSC also published the *CNSC Inspector Objectivity Policy* in 2023, to promote objectivity in all tasks performed by inspectors while conducting their duties and exercising their powers. The policy contains Guidance and Best Practices that have been, or will be, implemented within Directorates' process documentation, where applicable. The policy institutionalized the practice of sharing operating experience and lessons learned amongst inspectors through a variety of programs and processes.

Suggestion 12: The CNSC published the *DPRR Inspector Objectivity Principles* in 2021 (revised 2023) to formalize the principles for maintaining inspector objectivity by on site power reactor inspectors.

The CNSC also published the *CNSC Inspector Objectivity Policy* in 2023. This policy applies to all designated CNSC inspectors to ensure the highest level of objectivity by CNSC inspectors in carrying out their duties and exercising their powers under the *Nuclear Safety and Control Act*.

These documents formalize Principle Elements using diverse and comprehensive strategies to ensure inspector objectivity and independence in the conduct of compliance verification activities.

Status of the initial mission findings

Suggestion 11 (S11) is closed as the CNSC formalized practices to facilitate the exchange of inspectors' experiences, operating experience and lessons learned.

Suggestion 12 (S12) is closed as the CNSC formalized the elements used to ensure a regular review of inspector objectivity and independence.

7.2. INSPECTION OF NUCLEAR POWER PLANTS

There were no findings in this area in the initial IRRS mission.

7.3. INSPECTION OF RESEARCH REACTORS

There were no findings in this area in the initial IRRS mission.

7.4. INSPECTION OF FUEL CYCLE FACILITIES

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: *No unannounced inspections have been conducted for uranium fuel fabrication, refining and conversion facilities since 2017.*	
(1)	**BASIS: GSR part 1 Rev.1 para. 4.50 state that:** "*The regulatory body shall develop and implement a programme of inspection of facilities and activities, to confirm compliance with regulatory requirements and with any conditions specified in the authorization. In this programme, it shall specify the types of regulatory inspection (including scheduled inspections and unannounced inspections), and shall stipulate the frequency of inspections and the areas and programmes to be inspected, in accordance with a graded approach".*
S13	**Suggestion: The CNSC should consider performing unannounced inspections for uranium fuel fabrication, refining and conversion facilities.**

Changes since the initial IRRS mission

Suggestion 13: Since 2019 the CNSC has conducted unannounced inspections and updated program document *Nuclear Fuel Cycle and Research Reactors Program- Assure Compliance* to clarify what should be considered when determining the inspection approach to use for inspection activities. The IRRS team was informed that unannounced inspections were performed based on the situational circumstances.

The IRRS team noted that the level of consideration for unannounced inspections during the inspection planning process has improved as the program document outlines consideration factors, such as, the likelihood that the inspection outcome would be affected by advance notification, any recent reportable events, and any new information outlining a potential concern of imminent or immediate safety or security significance. Additionally, the IRRS team was informed that inspector awareness of the different inspection

approaches available has increased through the sharing of operating experience and lessons learned from recent unannounced inspections performed.

Status of the initial mission finding

Suggestion 13 (S13) is closed as the CNSC performs unannounced inspections and has strengthened formal program guidance to ensure proper consideration during inspection planning.

7.5. INSPECTION OF WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

7.6. INSPECTION OF RADIATION SOURCES FACILITIES AND ACTIVITIES

There were no findings in this area in the initial IRRS mission.

7.7. INSPECTION OF DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

7.8. INSPECTION OF TRANSPORT

There were no findings in this area in the initial IRRS mission.

7.9. INSPECTION OF OCCUPATIONAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

7.10. INSPECTION OF MEDICAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

7.11. INSPECTION OF PUBLIC EXPOSURE

There were no findings in this area in the initial IRRS mission.

8. ENFORCEMENT

8.1. ENFORCEMENT POLICY AND PROCESS

There were no findings in this area in the initial IRRS mission.

8.2. ENFORCEMENT IMPLEMENTATIONS

There were no findings in this area in the initial IRRS mission.

9. REGULATIONS AND GUIDES

9.1. GENERIC ISSUES

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *The current radiation protection regulations and requirements are not in accordance with GSR Part 3 with respect to optimization of radiation protection through dose constraints, dose limits and retention of dose records by licensees.*	
(1)	**BASIS: GSR Part 3 Requirement 11, para. 3.25 states that "***For occupational exposure and public exposure, registrants and licensees shall ensure, as appropriate, that relevant constraints are used in the optimization of protection and safety for any particular source within a practice."*
(2)	**BASIS: GSR Part 3 Requirement 12, para. 3.28 states that** *"Registrants and licensees shall ensure that the exposures of individuals due to the practices for which the registrants and licensees are authorized are restricted, so that neither the effective dose nor the equivalent dose to tissues or organs exceeds any relevant dose limit specified in Schedule III."*
(3)	**BASIS: GSR Part 3 Requirement 25, para. 3.104 states that** *"Records of occupational exposure for each worker shall be maintained during and after the worker's working life, at least until the former worker attains or would have attained the age of 75 years, and for not less than 30 years after cessation of the work in which the worker was subject to occupational exposure."*
R3	**Recommendation: CNSC should ensure that the radiation protection requirements are consistent with the requirements of GSR Part 3.**
Observation: CNSC has no *systematic approach to conduct a gap analysis between the new IAEA requirements and the regulatory framework. By identifying the possible gaps, the regulations and guides would be updated.*	
(1)	**BASIS: GSR Part 1 Requirement 33 states that** *"Regulations and guides shall be reviewed and revised as necessary to keep them up to date, with due consideration taken of relevant international safety standards and technical standards and of relevant experience gained."*
S14	**Suggestion: CNSC should consider implementing a systematic gap analysis between the IAEA requirements and the regulatory framework and updating the regulatory framework as necessary.**

Changes since the initial IRRS mission

Recommendation 3: In 2020, the CNSC Radiation Protection Regulations (RPR) were updated. The IRRS team recognized the effort done so far by the CNSC in order to meet the GSR Part 3 requirements, however there are still inconsistencies.

Limits for lens of an eye, skin and hands and feet are included in the RPR. According to the GSR Part 3 the equivalent dose limit for the lens of an eye for occupational exposures in planned exposure situations is 20 mSv in a year, averaged over defined 5-year periods, with no single year exceeding 50 mSv. However, the CNSC sets a different limit, allowing an equivalent dose of up to 50 mSv within a single year. The limits for skin, hands and feet are in line with GSR Part 3.

The revised RPR includes specification of the rights of pregnant and breastfeeding nuclear energy workers, and definitions about accommodation for them that shall be performed by the licensees. The RPR prescribes an effective dose limit of 4 mSv for pregnant nuclear energy workers for the balance of the pregnancy and does not prescribe a limit for the embryo or fetus. According to GSR Part 3 "the employer of a female

worker, who has been notified of her suspected pregnancy or that she is breast-feeding, shall adapt the working conditions in respect of occupational exposure to ensure that the embryo or foetus or the breastfed infant is afforded the same broad level of protection as is required for members of the public".

Suggestion 14: CNSC updated the internal process document Conduct Regulatory Policy Analysis to underline the importance of verifying alignment with IAEA standards and including references to IAEA standards in 2019, after the initial IRRS mission. This updated process includes a step to carry out research and benchmarking with additional guidance provided in Benchmarking Guidelines for the Analysis Phase of Regulatory Framework Projects. Principal users of this document are employees in the Regulatory Policy Analysis Division, who identify and analyse policy issues, before the regulatory instruments are developed and published by CNSC. It is applicable to all CNSC regulatory documents, including regulations and guidance materials.

Status of the initial mission findings

Recommendation 3 (R3) remains open as CNSC has not ensured that all the radiation protection requirements are consistent with the requirements of GSR Part 3.

Suggestion 14 (S14) is closed as the internal process document entitled Conduct of Regulatory Policy Analysis has been updated and the new process has been implemented for all new CNSC documents.

9.2. REGULATIONS AND GUIDES FOR NUCLEAR POWER PLANTS

There were no findings in this area in the initial IRRS mission.

9.3. REGULATIONS AND GUIDES FOR RESEARCH REACTORS

There were no findings in this area in the initial IRRS mission.

9.4. REGULATIONS AND GUIDES FOR FUEL CYCLE FACILITIES

2019 MISSION RECOMMENDATIONS AND SUGGESTIONS	
Observation: *CNSC regulatory framework does not entirely specify safety requirements and associated criteria for fuel cycle facilities. However, CNSC Regulatory Framework Plan and Action Plan includes development of the regulatory document regarding safety analysis for Class IB facilities, which intends to establish relevant requirements and criteria for fuel cycle facilities.*	
(1)	**BASIS: GSR Part 1 Requirement 32 states that:** "*The regulatory body shall establish or adopt regulations and guides to specify the principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based".*
S15	**Suggestion: CNSC should consider the requirements of SSR-4 and relevant IAEA guidance when specifying safety requirements and criteria for fuel cycle facilities.**

Changes since the initial IRRS mission

Suggestion 15: In 2022, the CNSC published REGDOC-2.4.4 *Safety Analysis for Class IB Facilities* to establish relevant requirements and criteria for fuel cycle facilities, to define the safety analysis report and program requirements for Class IB nuclear facilities, while also clarifying requirements and providing guidance for licensees and new applicants to demonstrate the safety of Class IB facilities, which includes fuel cycle facilities.

In 2024, the CNSC published REGDOC-1.2.2 *Licence Application Guide: Class IB Processing Facilities*, to clarify requirements and provide guidance to applicants for submitting an application for a Class IB processing facility. REGDOC-2.4.4 and IAEA SSR-4 are both cited in REGDOC-1.2.2.

Status of the initial mission finding

Suggestion 15 (S15) is closed as REGDOCs have been published to specify safety requirements and associated criteria for fuel cycle facilities.

9.5. REGULATIONS AND GUIDES FOR WASTE MANAGEMENT FACILITIES

There were no findings in this area in the initial IRRS mission.

9.6. REGULATIONS AND GUIDES FOR RADIATION SOURCES FACILITIES AND ACTIVITIES

There were no findings in this area in the initial IRRS mission.

9.7. REGULATIONS AND GUIDES FOR DECOMMISSIONING ACTIVITIES

There were no findings in this area in the initial IRRS mission.

9.8. REGULATIONS AND GUIDES FOR TRANSPORT

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
Observation: *The* Joint Canada-United States *RD-364 refers to IAEA TS-R-1, while the PTNSR 2015 incorporate the IAEA SSR-6. This could cause uncertainty during the preparation of the Safety Analysis Report for the certification of Type B(U) or fissile package by the applicant.*	
(1)	**BASIS: IAEA GSR Part 1 Requirement 33 states that** *"Regulations and guides shall be reviewed and revised as necessary to keep them up to date, with due consideration of relevant international safety standards and technical standards and of relevant experience gained".*
R4	**Recommendation: The CNSC should revise its guidance for package design certification applications to align it with IAEA SSR-6.**
Observation: *The IAEA Regulations SSR-6 establish that a management system based on international, national or other standards acceptable to the competent authority shall be established and implemented for all the activities associated to the transport of radioactive material. The CNSC has not explicitly established or adopted guidance regarding management system for transport.*	
(1)	**BASIS: GSR Part 1 Requirement 32 states that** *"The regulatory body shall establish or adopt regulations and guide to specify the principle, requirements and associated criteria for safety upon which its regulatory judgement, decisions and actions are based"*
S16	**Suggestion: The CNSC should consider establishing or adopting guidance aligned with IAEA TS-G-1.4.**

Changes since the initial IRRS mission

Recommendation 4: The Canadian regulations on transport of nuclear substances are consistent with SSR--6 (Rev.1).

The RD-364 Joint Canada – United States Guide is planned to be revised to align with SSR-6 (Rev.1)) once the United States have updated their regulations in February 2025.

Suggestion 16: In 2021, CNSC published a new version of REGDOC-2.14.1 Volume I, which incorporates references to relevant IAEA safety guides including TS-G-1.4.

Status of the initial mission findings

Recommendation 4 (R4) is closed on the basis of progress made and confidence in effective completion in due time considering the incorporation by reference of SSR-6 (Rev.1) in the Canadian transport regulations, and planned update of the Joint Canada – United States Guide by February 2025.
Suggestion 16 (S16) is closed as the updated regulatory document REGDOC 2.14.1, Volume I incorporates references to relevant IAEA safety guides including TS-G-1.4.

9.9. REGULATIONS AND GUIDES FOR OCCUPATIONAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

9.10. REGULATIONS AND GUIDES FOR MEDICAL EXPOSURE

There were no findings in this area in the initial IRRS mission.

9.11. REGULATIONS AND GUIDES FOR PUBLIC EXPOSURE

There were no findings in this area in the initial IRRS mission.

10. EMERGENCY PREPAREDNESS AND RESPONSE – REGULATORY ASPECTS

Module 10 was excluded from both the initial IRRS mission and the follow-up mission, as Canada hosted an EPREV mission.

11. INTERFACE WITH NUCLEAR SECURITY

11.1. LEGAL BASIS

There were no findings in this area in the initial IRRS mission.

11.2. REGULATORY OVERSIGHT ACTIVITIES

There were no findings in this area in the initial IRRS mission.

11.3. INTERFACE AMONG AUTHORITIES

There were no findings in this area in the initial IRRS mission.

Policy Discussion on Regulatory Efficiency and Effectiveness in an Open and Transparent Environment

The IRRS Team met with CNSC managers for a policy discussion on how a nuclear regulator maintains regulatory efficiency and effectiveness in an open and transparent environment. The discussion was observed by CNSC staff.

The policy discussion was structured to prompt a good exchange of experiences and strategies used by the different regulatory bodies in working to achieve common objectives.

Three questions were addressed as follows:

1. Strategies within regulatory bodies that have been proved effective in enhancing trust for parties internal and external to the organization:
    - Make clear in and outside of the organization that safety is the priority;
    - Clearly indicate the independence and non-promotional nature of the regulator;
    - Being proactive and allocate resources to media training, engagement and communication efforts.
    - Performance of peer reviews on regulatory activities and sharing of the outcome;
    - Engage the media, provide them training and facilitate their contacts with the regulator;
    - Train the inspectors on communication skills and ensure correctness and consistency of communications;
    - Use mass media and be deliberate in the use of the social media.
2. Maintain the balance of independence and the necessity of engagement with the industry while managing the potential perception of regulatory capture:
    - Engage with the licensees to a certain extent but maintain clear separation of roles and responsibilities;
    - Apply clear rules and limits of engagement with industry for all activities, including information sharing;
    -
3. Sharing regulatory compliance information:
    - Enhances the public trust, even if not always easy to apply;
    - Contributes to the transparency and engagement.

During a short discussion on how the organizations manage potential staff needs for future applications with new technologies, it was stated that the two important factors are: the early notification of the regulator and the provision of training to the regulatory body staff.

APPENDIX I – RECOMMENDATIONS (R) AND SUGGESTIONS (S) FROM THE PREVIOUS IRRS MISSION THAT REMAIN OPEN

Module	Section	R/S	Recommendations/Suggestions
1	**1.1.**	**S1**	The Government should consider explicitly addressing SF-1, Principle 4 (Justification) in its legal framework.
1	**1.4.**	**S2**	The Government should consider expressly assigning, in its legal framework, the prime responsibility for safety to the person or organization responsible for a facility or an activity.
1	**1.4.**	**S3**	The Government should consider enhancing the legal framework to explicitly stipulate that compliance with regulations and requirements established or adopted by the regulatory body does not relieve the person or organization responsible for a facility or an activity of its prime responsibility for safety.
5	**5.6.**	**S7**	CNSC should consider establishing a procedure to ensure the systematic implementation of justification in the authorisation of all practices involving radiation sources.
5	**5.6.**	**S8**	The CNSC should consider including notification alone as an option for the regulatory control of nuclear substances and radiation devices in accordance with a graded approach.
5	**5.11.**	**R2**	The CNSC should establish or approve dose constraints for all Class I type facilities.
5	**5.11.**	**S9**	The CNSC should consider consistently implementing the concept of dose constraints for all facilities and standardising regulatory practice for derived release limits (DRLs).
9	**9.1.**	**R3**	CNSC should ensure that the radiation protection requirements are consistent with the requirements of GSR Part 3.

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GROUP PHOTO

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5.	**AUTHORIZATION**		
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6.	**REVIEW AND ASSESSMENT**		
	Camila SALATA	Dana Beaton	Debora Quayle (Health Canada) Jonathan Schmidt

	IRRS EXPERTS	Lead Counterpart	Support Staff
7.	**INSPECTION**		
	Greg WARNICK	John Glover Luc Sigouin	Kimberly Hazelton Mathieu Laflamme Alex Leblanc John Thelen Nhan Tran
9.	**REGULATIONS AND GUIDES**		
	Olivier ALLAIN Camila SALATA Greg WARNICK Sandro TRIVELLONI	Dana Beaton Claire Pike Michael Albert Luc Sigouin	Caroline Purvis Jonathan Schmidt Christina Dodkin Sylvain Faille Jennifer Pyne Jeff Ramsay Peter Bedrossian Lee Casterton Sarah Graham John Thelen Nhan Tran Vladimir Khotylev

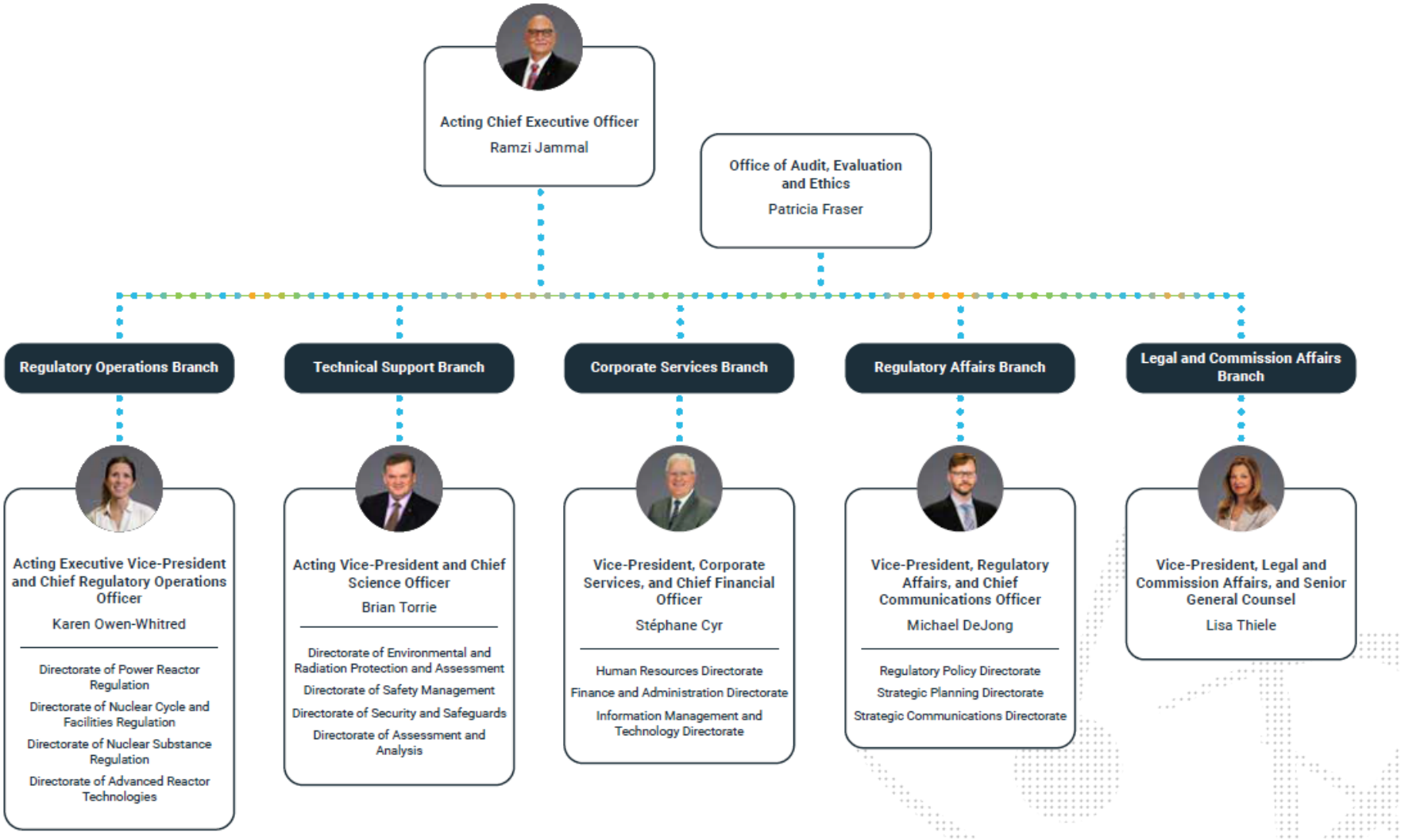
APPENDIX IV – MISSION PROGRAMME

<table>
<tr><th>Time</th><th>MON</th><th>TUE</th><th>WED</th><th>THU</th><th colspan="3">FRI</th><th>SAT</th><th>SUN</th><th>MON</th></tr>
<tr><td>9:00-10:00</td><td rowspan="3">Arrival of Team Members</td><td rowspan="2">Entrance Meeting</td><td rowspan="3">Interviews</td><td rowspan="2">TM write Report
TL and DTL review introductory part</td><td colspan="3" rowspan="2">Discussion Counterpart/Expert

Finalisation</td><td></td><td rowspan="2"></td><td rowspan="2">Exit Meeting

Press release
Farewell</td></tr>
<tr><td>10:00-11:00</td><td rowspan="2">Written comments by the Host</td></tr>
<tr><td>11:00-12:30</td><td>Interviews</td><td>Draft text to TL</td><td rowspan="3">Social Event</td></tr>
<tr><td>12:30-13:30</td><td>Lunch</td><td>Lunch</td><td>Lunch</td><td colspan="3">Lunch</td><td>Lunch</td><td>Lunch</td></tr>
<tr><td>13:30-14:00</td><td rowspan="5">Initial IRRS Team Briefing
(Attended by the LO)</td><td rowspan="5">Interviews</td><td rowspan="4">Interviews</td><td rowspan="3">Cross-reading</td><td colspan="3">Submission of the Draft to the Host</td><td rowspan="2">Team meeting to discuss and resolve Host comments</td><td rowspan="4">Departure of IRRS Team Members</td></tr>
<tr><td>14:00-15:00</td><td rowspan="2">Host reads Draft and prepares written</td><td rowspan="2">TL finalises the presentation</td><td rowspan="2">TC drafts the Press Release</td></tr>
<tr><td>15:00-16:00</td><td>Secretariat edits the report</td><td>Plenary (Team + Host) to discuss Host comments and finalize the report</td></tr>
<tr><td>16:00-17:00</td><td>Written preliminary findings delivered</td><td>Preliminary Draft Report Ready</td><td colspan="3">Discussion of Executive Summary</td><td>Presenting the final Draft of the Report to the Host</td><td rowspan="2">Finalisation of the Report</td></tr>
<tr><td>17:00-18:00</td><td>Daily Team Meeting</td><td>Daily Team Meeting: Discussion of findings</td><td>Daily Team Meeting</td><td colspan="3">Team discusses the Mission and provides IAEA with feedback</td><td></td></tr>
<tr><td>18:00-20:00</td><td rowspan="2">Dinner</td><td>Dinner</td><td>Dinner</td><td>Dinner</td><td colspan="3" rowspan="2">Dinner</td><td rowspan="2">Dinner</td><td rowspan="2">Dinner</td></tr>
<tr><td>20:00</td><td>Writing of the report</td><td>Secretariat edits Report. TM write Report</td><td>TM Read Draft</td></tr>
</table>

APPENDIX V – ORGANIZATIONAL CHART



APPENDIX VI – COUNTERPART'S REFERENCE MATERIAL USED FOR THE REVIEW

#	Referenced in	References
1	S1, S2/3, R1, S7, S13	Nuclear Safety and Control Act, 1997, Justice Laws Website, Accessed on: March 19, 2024
2	S1	Canadian Environmental Assessment Act, 2012, Justice Laws Website, Accessed on: March 19, 2024
3	S1, R1	Impact Assessment Act, 2019, Justice Laws Website, Accessed on: March 19, 2024
4	S2/3	General Nuclear Safety and Control Regulations, Justice Laws Website, Accessed on: March 19, 2024
5	S2/3, S15	REGDCOC-3.5.3, Regulatory Fundamentals, Government of Canada Website, Accessed on: March 19, 2024
6	R1	Canada's Policy for radioactive Waste and Decommissioning, Government of Canada Website, Accessed on: March 19, 2024
7	R1	NOW LIVE – Government of Canada's Modernized Policy for Radioactive Wase and Decommissioning for Canada, Government of Canada Website, Accessed on: March 19, 2024
8	R1	Ministerial Statement Regarding NWMO Integrated Strategy for Radioactive Waste, Government of Canada Website, Accessed on: March 19, 2024
9	R1	Integrated Strategy for Radioactive Waste, Government of Canada Website, Accessed on: March 19, 2024
10	R1	Nuclear Fuel Waste Act, Justice Laws Website, Accessed on: March 19, 2024
11	S4	CNSC HRM Plan 202 to 2022, e-Docs 7206231, v1
12	S4	Amended HRM Plan 2020 – 2021, e-Docs 7206238, v1
13	S5	Summary of CNSC Safety-related Policies, e-Docs 7213112, v1
14	S6	REGDOC – 2.11.2, Decommissioning, Government of Canada Website, Accessed on: March 19, 2024
15	S7, S8	MSD N-4000.01 – Regulatory Program Oversight for Nuclear Substances and Radiation Devices, e-Docs 7193166, v1
16	S8	Review of Suggestion 8 from the 2019 IRRS Mission and Project Athena Suggestion, e-Docs 7193086, v1
17	R2/S9	REGDOC-2.9.2, Environmental Protection – Controlling Releases to the Environment, Government of Canada Website, Accessed on: March 20, 2024

18	S10	SSG-32 Protection of the Public against Exposure Indoors due to Radon and Other Natural Sources of Radiation, IAEA Website, Accessed on: March 19, 2024
19	S10	Gamma Emissions from Building Material Report, e-Docs 7223886, v1
20	S11, S12	DPRR Inspector Objectivity Principles, e-Docs 7203625, v1
21	S11	Inspection Process Self-Assessment Report, e-Docs 7203772, v1
22	S11	Improvement Action Plan, e-Docs 7203780, v1
23	S12	CNSC Inspector Objectivity Policy, e-Docs 7203633, v1
24	S13	Nuclear Fuel Cycle and Research Reactors Program - Assure Compliance, e-Docs 7228357, v1
25	S13	Outcome of Security Inspection held at the Cameco Corporation Port Hope Conversion Facility on October 26, 2020 (CAMECO-PHCF-2020-03), e-Docs 7228205, v1
26	S13	Notice of Inspection Letter – CAMECO PHCF-2020-03, e-Docs 7228207, v1
27	S13	CAMECO PHCF 2023-04 Inspection Report (Reactive Unannounced General), e-Docs 7228208, v1
28	R3	Radiation Protection Regulations, Justice Laws Website, Accessed on: March 20, 2024
29	R3	Canada Gazette, Part II, Vol. 154, n 24, page 59, Government of Canada Website, Accessed on: March 20, 2024
30	R3	History of Regulations, Government of Canada Website, Accessed on: March 20, 2024
31	R3	REGDOC 2.7.1, Radiation Protection, Government of Canada Website, Accessed on: March 20, 2024
32	R3	REGDOC 2.7.2, Dosimetry, Volume I: Ascertaining Occupational Dose, Government of Canada Website, Accessed on: March 20, 2024
33	R3	REGDOC-2.7.2, Dosimetry, Volume II: Technical and Management System Requirements for Dosimetry Services, Government of Canada Website, Accessed on: March 20, 2024
34	S14	RPD Process Conduct Regulatory Policy Analysis, e-Docs 7227988, v1
35	S14	Regulatory Framework Project proposal and Plan Template, e-Docs 7227991, v1
36	S14	Benchmarking Guidelines for Analysis Phase of Regulatory Framework Projects, e-Docs 7227994, v1
37	S14	Result of Regulatory Policy Analysis Template, e-Docs 7229947, v1

38	S15	REGDOC-2.4.4, Safety Analysis for Class IB Nuclear Facilities, Government of Canada Website, Accessed on: March 20, 2024
39	S15	Technical Assessment Reference Matrix (TARM) for Uranium Processing Facilities, e-Docs 7229764, v1
40	S15	Technical Assessment Reference Matrix (TARM) for Nuclear Substance Processing Facilities, e-Docs 7229806, v1
41	S15	REGDOC-1.2.2, Licensing Application Guide: Class IB processing Facilities Regulatory document, Government of Canada Website, Accessed on: March 20, 2024
42	R4	RD-364: Joint Canada - United States Guide for Approval of Type B(U) and Fissile Material Transportation Packages, Government of Canada Website, Accessed on: March 20, 2024
43	R4	Packaging and Transport of Nuclear Substance Regulations, 2015, Justice Laws Website, Accessed on: March 20, 2024
44	R4, S16	IAEA SSR-6. Regulations for the Safe Transport of Radioactive Material, 2018 edition, IAEA Website, Accessed on: March 20, 2024
45	R4	U.S. NRC Planned Rulemaking. U.S. NRC Website, Accessed on: March 20, 2024
46	S16	REGDOC-2.14.1, Information Incorporated by Reference in Canada's Packaging and Transport of Nuclear Substances Regulations, 2015, Government of Canada Website, Accessed on: March 20, 2024
47	S2/S3	Nuclear Liability and Compensation Act, Justice Laws Website
48		FINAL REPORT IRRS Canada 2019, Government of Canada Website
49		Canada's response to the 2019 IRRS Report, Government of Canada Website
50	S4	Action Updates - CNSC HRM Plan 2020 to 2022, e-Docs 7296625, v1
51	S11,S12	Attendance Sheet - DPRR All Staff - Sept 12 2023, e-Docs 7296631, v1
52	S11,S12	CNSC Inspection Process, e-Docs7296669, v1
53	S11,S12	Discuss DPRR Training, e-Docs7297633, v1
54	S11,S12	Documentation of DPRR Objectivity Training in LMS, e-Docs 7297638, v1
55	S11,S12	DPRR-CAP-PRI-02 Inspector Objectivity Principles, e-Docs 7296653, v1
56	S11,S12	DPRR Workshop Topics, e-Docs 7298225, v1
57	S10	FINAL - Gamma emissions from building materials report, e-Docs 7223886, v1
58	S6	FW DGR timelines, e-Docs 7297614, v1
59	S4	HRD - Strategic Workforce Plan 2024-2029, e-Docs 7296617, v1
60	S11,S12	Inspector Community Forum - June 12 2024, e-Docs 7296671, v1

61	S11,S12	Inspector Objectivity as part of the Inspection Fundamentals Course, e-Docs 7296686, v1
62	S5	IRRS - Topical Discussion - Suggestion 5, e-Docs 7296628, v1
63	S6	IRRS Follow - up information on in situ, e-Docs 7296659, v1
64	R2/S9	IRRS Topical Interview For Recommendation 2 and Suggestion 9, e-Docs 7297578, v1
65	S11,S12	Meeting Notice DPRR All-Staff September 12 2023, e-Docs 7296674, v1
66	S5	MEMORANDUM TO THE PRESIDENT FOR APPROVAL Summary of CNSC Safety-related Policies, e-Docs 7296574, v1
67	S6	REGDOC 2.11.1 volume I management of radioactive waste, Government of Canada, Accessed on June 7, 2024
68	S6	REGDOC 2.11.1 volume III safety case for the disposal of radioactive waste version 2, Government of Canada, Accessed on June 7, 2024
69	S6	S6 IRRS 2024 IRRS follow-up mission to Canada, e-Docs 7296630, v1

APPENDIX VII – IAEA REFERENCE MATERIAL USED FOR THE REVIEW

1.	**IAEA SAFETY STANDARDS SERIES No. SF-1** – Fundamental Safety Principles
2.	**IAEA SAFETY STANDARDS SERIES No. GSR PART 1 (Rev. 1)** – Governmental, Legal and Regulatory Framework for Safety
3.	**IAEA SAFETY STANDARDS SERIES No. GSR PART 2** – Leadership and Management for Safety
4.	**IAEA SAFETY STANDARDS SERIES No. GSR PART 3** – Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards
5.	**IAEA SAFETY STANDARDS SERIES No. GSR PART 4 (Rev. 1)** – Safety Assessment for Facilities and Activities
6.	**IAEA SAFETY STANDARDS SERIES No. GSR PART 6** – Decommissioning of Facilities
7.	**IAEA SAFETY STANDARDS SERIES No. GSR PART 7** – **Preparedness and Response for a Nuclear or Radiological Emergency**
8.	**IAEA SAFETY STANDARDS SERIES No. SSR-2/1** – Safety of Nuclear Power Plants: Design
9.	**IAEA SAFETY STANDARDS SERIES No. SSR-2/2** – Safety of Nuclear Power Plants: Commissioning and Operation
10.	**IAEA SAFETY STANDARDS SERIES No. SSR-4** – Safety of Nuclear Fuel Cycle Facilities
11.	**IAEA SAFETY STANDARDS SERIES No. SSR-5** – **Disposal of Radioactive Waste**
12.	**IAEA SAFETY STANDARDS SERIES No. SSR-6** – **Regulations for the Safe Transport of Radioactive Material**
13.	**IAEA SAFETY STANDARDS SERIES No. TS-R-1** – **Regulations for the Safe Transport of Radioactive Material**
14.	**IAEA SAFETY STANDARDS SERIES No. GSG-6** – Communication and Consultation with Interested Parties by the Regulatory Body
15.	**IAEA SAFETY STANDARDS SERIES No. GSG-12** – Organization, Management and Staffing of the Regulatory Body for Safety

16. **IAEA SAFETY STANDARDS SERIES No. GSG-13** – Functions and Processes of the Regulatory Body for Safety

17. **IAEA SAFETY STANDARDS SERIES No. GS-G-2.1** – Arrangements for Preparedness for a Nuclear or Radiological Emergency

18. **IAEA SAFETY STANDARDS SERIES No. GS-G-3.1 -** Application of the Management System for Facilities and Activities

19. **IAEA SAFETY STANDARDS SERIES No. GS-G-3.2 -** The Management System for Technical Services in Radiation Safety

20. **IAEA SAFETY STANDARDS SERIES No. RS-G-1.3 -** Assessment of Occupational Exposure Due to External Sources of Radiation

21. **IAEA SAFETY STANDARDS SERIES No. RS-G-1.4 -** Building Competence in Radiation Protection and the Safe Use of Radiation Sources

22. **IAEA SAFETY STANDARDS SERIES No.** SSG-25 **-** Periodic Safety Review for Nuclear Power Plants

23. **IAEA SAFETY STANDARDS SERIES No. SSG-50 –** Operating Experience Feedback for Nuclear Installations

24. **INTERNATIONAL ATOMIC ENERGY AGENCY** - Convention on Early Notification of a Nuclear Accident (1986) and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1987), Legal Series No. 14, Vienna (1987).

25. **INTERNATIONAL ATOMIC ENERGY AGENCY** - Generic Assessment Procedures for Determining Protective Actions during a Reactor Accident, IAEA-TECDOC-955, IAEA, Vienna (1997)

26. **INTERNATIONAL ATOMIC ENERGY AGENCY -** General Safety Guide SGS-7 Occupational Radiation Protection

27. **INTERNATIONAL ATOMIC ENERGY AGENCY -** Specific Safety Guide -46 Radiation Protection and Safety in Medical uses of Ionization Radiation