



Minutes of the Canadian Nuclear Safety
Commission (CNSC) Meeting held on
September 15, 2022

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held Thursday, September 15, 2022, starting at 8:30 a.m. EDT. The public portion of the meeting was [webcast live](#) via the CNSC website, and [video archives](#) are available on the CNSC's website. These minutes reflect both the public portion of the meeting and the Commission's determinations made as a result of the meeting.

Present:

R. Velshi, President
T. Berube
S. Demeter
R. Kahgee
M. Lacroix
I. Maharaj
V. Remenda

D. Saumure, Registrar
Lisa Thiele, Senior General Counsel
C. Moreau, Recording Secretary

CNSC staff advisors were: R. Jammal, D. Beaton, K. Sauvé, E. Dagher, L. Forrest, J. Lam, A. Levine, M. McKee, H. Tadros, A. Viktorov, L. Sigouin, L. Casterton, M. Hornof, J. Burta, M. Young, D. MacDonald, P. Bourassa, T. Panichevska and L. Désaulniers.

Other contributors were:

- NB Power: N. Reicker and J. Nouwens
- Bruce Power: M. Burton, Chris Mudrick, J. Phelps and M. Rinker
- Ontario Power Generation: R. McCalla, D. Dickey, S. Irvine, B. Vulcanovic and A. Grace
- Cameco Corporation: L. Mooney
- Canadian Nuclear Laboratories: G. Dolinar
- Environment and Climate Change Canada: N. Ali
- Emergency Management Ontario: R. Reid
- Independent Electricity System Operator: C. Farmer

Constitution

1. With the notice of meeting [Commission member document \(CMD\) 22-M21](#) having been properly given and all Commission members being present, the meeting was declared to be properly constituted.

2. For the meeting, documents [CMD 22-M25 to CMD 22-M28](#), and [CMD 22-M39](#), were distributed to members. These documents are further detailed in Appendix A of these minutes.

Adoption of the Agenda

3. The agenda, [CMD 22-M22](#), was adopted as presented.

Chair and Registrar

4. The President chaired the meeting of the Commission, assisted by D. Saumure, Commission Registrar.

Minutes of the CNSC Meeting Held June 28, 2022

5. The Commission secretarially approved the minutes of the June 28, 2022 Commission meeting (CMD 22-M24) on August 31, 2022.

STATUS REPORT ON POWER REACTORS

6. With reference to [CMD 22-M25](#), which includes the Status Report on Power Reactors, CNSC staff presented the following updates:
 - Bruce Power Nuclear Generating Station (NGS) Unit 4 has been shut down for a planned maintenance outage
 - Pickering NGS Unit 1 has been shut down for a planned maintenance outage
 - Pickering NGS Unit 4 was returned to full power
 - Pickering NGS Unit 5 power has been derated to 97% of full power to maintain the reactor inlet header temperature within design limits.
7. The Commission enquired about the status of Bruce Power's Lutetium-177 Isotope Production System project that was [previously presented to the Commission](#). CNSC staff reported that it had received Bruce Power's final submissions, and was currently in the process of completing its review. A Bruce Power representative explained that Bruce Power intended to start production on October 1, 2022 depending on receiving a decision from CNSC staff respecting release of a regulatory hold point under the licence to begin the activity.
8. With respect to the progress of the Potassium Iodide (KI) Pill Working Group, the Commission asked about the timelines and the next steps. CNSC staff noted that the targeted timeline was to have implementable items in the 2023 revision of the Provincial Nuclear Emergency Response Plan (PNERP) and that the PNERP would

now consider the distribution of KI pills around all Ontario nuclear generating stations and not just focus on Pickering NGS.

9. A representative from Emergency Management Ontario (EMO) confirmed that, as of August 2022, EMO had started an engagement and consultation process with all Indigenous Nations and communities in Ontario regarding the protective measures in the PNERP, including KI pill distribution. On the change in direction for the KI pill project, the EMO representative explained that, in the last fiscal year, EMO had created a new branch dedicated specifically to nuclear emergency management, and that EMO had decided on the appropriate approach going forward as a new organization.
10. The Commission looks forward to receiving further updates on the progress of the KI Pill Working Group as part of the Regulatory Oversight Report on Nuclear Generating Stations to be presented at the Commission meeting in November, 2022.
11. Asked for information concerning the impact of a strike by workers in Technical Standards and Safety Authority (TSSA), industry representatives explained that they were monitoring the situation and defining the priorities to ensure that priority safety-related work would continue to be completed by TSSA supervisors.

EVENT INITIAL REPORT (EIR)

Bruce Power - Discovery of and inadequate control over suspect items, Bruce B Unit 6 Major Component Replacement

12. In [CMD 22-M28](#), CNSC staff informed the Commission of the discovery of and inadequate control over suspect items at the Bruce B Unit 6 Major Component Replacement (MCR) project. The suspect items were end fittings that did not have the proper quality assurance documentation when received by Bruce Power from the manufacturer. According to CNSC staff's submission, Bruce Power reported that, following the discovery of the issue through an anonymous tip, it was determined that 6 suspect end fittings had already been installed on the reactor and 3 suspect end fittings were made into sub-assemblies and were ready for installation. Bruce Power also reported that the remaining in-stock suspect end fittings had been quarantined while Bruce Power verified that they met technical requirements. Bruce Power informed CNSC staff that the suspect end fittings were later found to conform to the requirements of CSA N285.6.8-12, *Martensitic stainless steel for fuel-channel end fittings*.

13. CNSC staff's submission indicates that although the suspect end fittings were quarantined through identification and tagging, they were not physically segregated from the conforming end fittings. As a result, a worker retrieved a suspect end fitting for installation on two separate occasions. During a follow-up inspection, CNSC inspectors concluded that Bruce Power had elected not to segregate the suspect items, as required under CSA Group standard N286-12, *Management system requirements for nuclear facilities*.
14. The failure to take proper action to remedy the non-compliance identified by CNSC staff and failure to comply with licence condition 1.1 of its Operating Licence PROL 18.02/2028, resulted in the CNSC issuing Bruce Power [a Notice of Violation and Administrative Monetary Penalty](#) (AMP) in the amount of \$24,760. CNSC staff noted that the purpose of the AMP was to promote compliance and to deter reoccurrence.
15. A Bruce Power representative acknowledged that the licensee had not met CNSC requirements for the segregation of replacement components while quality assurance checks were being completed. The Bruce Power representative told the Commission that Bruce Power took interim and immediate actions following the incident, including:
 - immediately stopping all work on the end fittings until documentation was completed to demonstrate that the components conformed to requirements
 - ensuring that material that is non-conformant is physically segregated to prevent unauthorized use, not simply identified and tagged
 - improving communication and issue tracking between the Bruce Power MCR team and the CNSC
 - undertaking a nuclear safety and security culture assessment to identify and address gaps in nuclear safety culture by the end of 2022

The Bruce Power representative noted that, in retrospect, the installed end fitting was found to have met the quality standard.
16. The Bruce Power representative added that Bruce Power was evaluating the event to determine additional corrective actions to prevent recurrence. The Bruce Power representative stated that Bruce Power would update CNSC staff on the status of the corrective actions by December 15, 2022.
17. The Commission enquired whether Bruce Power had identified any internal areas for improvement with respect to the oversight of contractors. A Bruce Power representative explained that the equipment supplier did not fully understand the requirements of

- Bruce Power's quality assurance process. Another Bruce Power representative told the Commission that the documentation had been found to be adequate for the individual end fittings, and that Bruce Power's investigation was also looking at the test criteria.
18. On the AMP [received by Bruce Power for this infraction](#), CNSC staff provided information on the AMP program and the calculation of the monetary amount. A Bruce Power representative indicated that Bruce Power would not be pursuing a review of the AMP; Bruce Power recognizes its failure to comply with regulatory requirements and need to improve.
 19. Noting that the suspect components were identified through an anonymous tip, the Commission asked about Bruce Power's process regarding whistle-blowers. A Bruce Power representative stated that Bruce Power is responsive to and investigates concerns raised. The Bruce Power representative added that, in this case, a Bruce Power executive responsible for quality assurance would be following up with the manufacturer.
 20. Asked about Bruce Power's process for receiving and accepting material, a Bruce Power representative described the receiving process, explaining that vendors are required to review acceptance criteria before making shipments. The Bruce Power representative added that Bruce Power has independent oversight at vendor facilities, and the information is validated at multiple steps throughout the process.
 21. The Commission asked Bruce Power to comment on the safety culture aspect of this event. The Bruce Power representative explained that communication failed between Bruce Power staff, Bruce Power management and CNSC staff, leading to Bruce Power not taking action after CNSC staff initially raised the matter to Bruce Power's attention.
 22. The Commission is satisfied with the preliminary information provided pertaining to this item. The Commission expects to be informed of any notable developments in this matter.

DECISION ITEMS – REGULATORY DOCUMENTS

Regulatory Document REGDOC 2.9.2, *Controlling Releases to the Environment*

23. With reference to [CMD 22-M27](#) and [CMD 22-M27.A](#), CNSC staff presented regulatory document (REGDOC¹), REGDOC-2.9.2, *Controlling Releases to the Environment*, for the Commission's consideration and approval for publication and use. CNSC staff explained that REGDOC-2.9.2 is intended to clarify the requirements and provide guidance for controlling releases to the environment, through:

- applying the concept of best available technology and techniques, economically achievable (BATEA)
- establishing and implementing licensed release limits and action levels for releases to the environment
- commissioning of new treatment systems and confirming their performance
- implementing adaptive management where required

CNSC staff stated that the proposed REGDOC would apply to nuclear facilities or activities that release nuclear or hazardous substances under normal operation, including Class I nuclear facilities and uranium mines and mills. For other facilities or activities, the REGDOC would apply on a graded approach.

24. For requirements and expectations related to the release of nuclear substances, CNSC staff explained that it presently relies on CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*², and that derived release limits (DRLs) are currently applied as licensed release limits for most nuclear substances. CNSC staff noted that the reliance on DRLs has two shortcomings:

- DRLs only apply to releases of nuclear substances, not hazardous substances, and

¹ [REGDOCs](#) play a key role in the CNSC's regulatory framework. They explain to licensees and applicants what they must achieve in order to meet the requirements set out in the [Nuclear Safety and Control Act](#) (NSCA) and the regulations made under the NSCA. When included in the licensing basis, in respect of a licensed facility or activity, REGDOC specifications become compliance verification criteria against which CNSC staff measure licensee compliance with licence requirements. .

² As of 2020, the title of the standard has changed to CSA N288.1, *Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities*.

- each DRL is based on a critical receptor receiving an effective dose equal to the public dose limit of 1 millisievert per year (mSv/yr).³

CNSC staff submitted that this approach is not in-line with international best practices, and that the publication of REGDOC-2.9.2 would address these shortcomings.

25. CNSC staff provided information on the development of REGDOC-2.9.2, which began in 2012 with a discussion paper, and public consultation. CNSC staff noted that it held information sessions, in English and French, to explain the draft document in advance of the formal comment period. CNSC staff reported that during the 90-day consultation period, from March 29, 2021 to June 27, 2021, the CNSC received 49 distinct comments from 9 respondents:

- Bruce Power
- Cameco
- Canadian Nuclear Association (CNA)
- Canadian Nuclear Laboratories (CNL)
- Ecometrix
- Gilles Provost, Ralliement contre la pollution radioactive
- Hydro-Quebec
- New Brunswick Power (NB Power)
- Ontario Power Generation (OPG)

CNSC staff noted that no comments were received from Indigenous nations or communities.

26. CNSC staff further reported that no additional comments were received during the feedback on comments period from July 28 to August 11, 2021. CNSC staff also held a workshop with the commenters on February 18, 2022, to discuss the comments received during public consultation and the CNSC's draft responses.
27. CNSC staff noted that the key issues raised during public consultation were:
- concern about duplication of authority with provincial regulators
 - concern that the term "maximum predicted design release" could be confused with the term "upper value of normal operation", which is used in the development of action levels

³ [Radiation Protection Regulations \(SOR/2000-203\)](#) The regulatory dose limits for nuclear energy workers are 50 mSv in any one year and 100 mSv in a five-year dosimetry period. The regulatory dose limit for members of the public is 1 mSv in one calendar year.

- concern that the scope and methodology for proposing a licensed release limit was not fully clear
 - concern that there was a lack of clarity regarding the meaning of environmental release targets and how they are to be applied
28. CNSC staff explained that Paragraph 12(1)(f) of the [*General Nuclear Safety and Control Regulations*](#), deals with “reasonable precautions” regarding control of releases. CNSC staff added that REGDOC-2.9.1 *Environmental Principles, Assessments and Protection Measures*, specifies that reasonable precaution in the context of controlling releases involves the application of the BATEA principle, and that licensees would be required to demonstrate the application of BATEA.
29. With respect to the BATEA assessment, the Commission asked whether it is technology that should be adapted to comply with environmental release targets or whether environmental release targets should be set based on technology. CNSC staff stated that a BATEA assessment uses both an exposure-based approach and a technology-based approach. CNSC staff noted that the goal of REGDOC-2.9.2 is for the industry to strive to achieve environmental release targets, and that the REGDOC includes provisions if available technology cannot comply with such targets.
30. The Commission noted the requirement for existing facilities having to re-evaluate the BATEA assessment after a major system upgrade, and asked how CNSC staff intended to determine what is considered a major change. CNSC staff responded that it would verify whether a change is:
- captured within the existing licensing basis and,
 - whether the influent concentrations increase above the original maximum predicted design releases.
31. The Commission asked which environment release target would prevail in cases where contaminants present both chemical and radiological hazards. CNSC staff responded that it would be the more restrictive release target. CNSC staff noted the example of uranium, which is more chemically toxic than radiologically so.
32. On the question of cumulative impacts – more particularly if the REGDOC2.9.2 accounts for cumulative impacts on the receiving environment and how that interfaces with the concept of adaptive management, CNSC staff explained that cumulative impacts are covered through environmental assessments and environmental risk assessments (ERA) that are periodically reviewed based on environmental monitoring data. CNSC staff noted that, in

- accordance with REGDOC-2.9.2, if a cumulative impact were identified in a revised ERA, the licensee would have to develop an adaptive management plan and take action to restore the effectiveness of its environmental protection program.
33. The Commission noted that scientific understanding of any particular substance can improve over time and asked for more information on how scientific developments are factored into the regulatory approach. CNSC staff acknowledged that it generally takes many years for improved scientific understanding to result in a change in legislation. CNSC staff explained that the CNSC's approach addresses scientific developments through periodic updates to risk assessments that incorporate new and developing science. CNSC staff added that a performance-based approach is more flexible than one based solely on legislative limits.
 34. The Commission sought additional information on the protocols to communicate with Indigenous nations and communities when there are releases from licensed facilities. CNSC staff stated that licensees are required to inform Indigenous nations and communities, and other targeted audiences, of specific events, such as environmental releases. CNSC staff also noted that the CNSC has relationship agreements with several Indigenous nations and communities, which specify issues to discuss during regular meetings including information on releases.
 35. Further, licensee representatives informed the Commission that they meet regularly with local Indigenous nations and communities to discuss environmental issues during regular meetings, and that releases are discussed in a timely manner. Licensee representatives noted that, in accordance with their public information programs, they also post information on their websites.
 36. When asked by the Commission to express their views on the proposed REGDOC 2.9.2, industry representatives explained that their main remaining concerns were:
 - the methodology related to calculating the licensed release limit for radiological releases, which could lead to a situation where a new release limit is below an existing action level
 - the potential duplication of effort with other regulatory bodies for the management of hazardous releases, which could add regulatory burden without providing additional protection or benefit to the environment
 - the use of environmental risk assessment in REGDOC-2.9.2 to demonstrate that licensed release limits do not pose unacceptable risk to people and environment, as this is not an objective of environmental risk assessments

- the lack of a cost/benefit analysis for implementing the REGDOC, given that releases are already low
- the uncertainty in the methodology and decision-making for the selection of technology through a BATEA assessment

Industry representatives also expressed concern that the introduction of REGDOC-2.9.2 could erode public confidence in their environment management programs by suggesting that improvements are required.

37. In response, CNSC staff stated that REGDOC-2.9.2 codifies existing practices and improves the existing regulatory framework for environmental protection. CNSC staff noted that some licensees have already implemented practices outlined in the REGDOC. In addition, CNSC staff confirmed that the REGDOC aligns with CSA Group standards,⁴ including N288.8, *Establishing and Implementing Action Levels for Releases to the Environment from Nuclear Facilities*.⁵ CNSC staff also expressed that the impact on licensee resources was expected to be limited as licensees regularly update training and procedures as part of ongoing operations.
38. On the potential duplication of effort with other regulatory bodies for the management of hazardous releases, CNSC staff noted that it has a memorandum of understanding with Environment and Climate Change Canada (ECCC), and that ECCC reviewed and endorsed REGDOC-2.9.2. CNSC staff added that it engaged with a number of provincial environmental regulators during the development of REGDOC-2.9.2, including the Quebec Ministry of Environment and the Saskatchewan Ministry of Environment.
39. A representative from ECCC shared that REGDOC-2.9.2 clarifies and lays out the procedure for setting effluent release limits. The ECCC representative added that REGDOC-2.9.2 is aligned with the requirements of Section 36 of the *Fisheries Act*.⁶
40. Asked about its methodology for assessing the regulatory impact of new requirements for existing facilities, CNSC staff explained that, while it conducts formal regulatory impact analyses for new regulations, such analyses are not performed for REGDOCs. CNSC staff added that it expects that the implementation of REGDOC-2.9.2 would not create significant additional administrative burden.

⁴ The CSA Group makes its nuclear series standards freely viewable to members of the public on its [website](#) by means of a guest account.

⁵ CSA N288.8, *Establishing and Implementing Action Levels for Releases to the Environment from Nuclear Facilities* CSA group, 2017.

⁶ R.S.C., 1985, c. F-14.

41. In response, an industry representative stated that CNSC staff's view of the impact of the implementation of REGDOC-2.9.2 was overly simplistic as industries would have to make physical changes in their facilities, and update training and documentation. The industry representative acknowledged that REGDOC-2.9.2 could be beneficial for new facilities.
42. Asked about the impact that REGDOC-2.9.2 would have on new facilities, CNSC staff reported that REGDOC-2.9.2 would provide clarity on the processes that would have to be followed for a new facility to meet CNSC regulatory requirements.

Decision on REGDOC-2.9.2

43. The Commission acknowledges the comprehensive consultation conducted by CNSC staff on the proposed REGDOC-2.9.2. The Commission also appreciates and agrees with the rationale provided by CNSC staff on the development and need for the REGDOC. The Commission is supportive of the objectives of the REGDOC, which are to address shortcomings with the current DRLs and to clarify requirements while providing guidance for controlling releases to the environment. The Commission is satisfied with the proposed approaches to achieve these objectives as presented in REGDOC-2.9.2 and described in Appendix B: Establishing Environment Release Targets. The Commission is also satisfied that the proposed REGDOC aligns with CSA Group standards.
44. The Commission acknowledges the strongly worded consistent opposition expressed by licensees regarding REGDOC-2.9.2. With respect to the issues raised by licensees, the Commission is of the view that, while it agrees with CNSC staff's proposed approach to redefining licence limits, additional work is required to:
 - clarify terms used in the REGDOC
 - clarify expectations for implementing the REGDOC
 - address concerns regarding regulatory impacts and cost/benefit analysis.

DECISION

Therefore, the Commission directs CNSC staff to re-engage with licensees to address the aforementioned issues in a timely manner. The Commission expects licensees to clearly identify gaps and impacts, and articulate their specific concerns in order for them to be addressed. CNSC staff shall report on the resolution of these issues as soon as possible. The Commission will then reconsider whether to approve REGDOC-2.9.2 for publication and use.

INFORMATION ITEMS

Presentation from the Independent Electricity System Operator (IESO) on the duties and role of the IESO in Ontario

45. The Independent Electricity System Operator (IESO), which performs a central coordinating role in the Ontario electricity sector, presented an overview of the supply and demand of electricity in Ontario. Key elements of the presentation were:
- Demand for electricity is rising
 - Existing and new resources will be required to maintain reliability
 - Technological evolution is leading to a more decentralized electrical grid
 - Interest in decarbonization continues to grow
 - Nuclear refurbishments and retirements are contributing to new supply needs
46. The Commission asked the IESO questions about energy forecasts, and appreciated the information it received in response. The Commission looks forward to receiving presentations from the IESO at future Commission meetings.
47. Asked for OPG's plans for the future of the Pickering nuclear generating station, an OPG representative reported that OPG's current business plan is to operate Pickering units five and eight through 2025, recognizing that regulatory approval will be required for any operation beyond December 2024. The OPG representative stated that regulatory requirements included the need to communicate OPG's planned operating dates by the end of 2022, as well as submit a periodic safety review that covers any extended operations.
48. The Commission, noting the planned end of operations for the Pickering NGS, asked the IESO about the projected stable generation of electricity from nuclear generating stations. An IESO representative explained that the planned end of operations for the Pickering NGS was expected to be offset by the projected return to service of reactor units currently being refurbished at the Darlington and Bruce NGSs.

Status of the Designated Officer Program for 2021

49. With reference to [CMD 21-M39](#), CNSC staff presented the status of the designated officer (DO) program for 2021. CNSC staff provided information on the number of CNSC DOs and their

authorities under the [*Nuclear Safety and Control Act*](#) (NSCA), and reported on the DO authorities carried out in 2021. CNSC staff also presented information focussed on the DO authorities carried out by the CNSC's Non-Proliferation and Export Controls Division.

50. The Commission asked for additional information regarding denied applications for licences with respect to the export of materials. CNSC staff explained that licences were denied where there was reasonable indication that the material could contribute to a strategic program in the country to which the material was to be exported. CNSC staff added that it works in collaboration with other government departments, including:
- Global Affairs Canada,
 - Canada Border Services Agency,
 - Canadian Security Intelligence Services.

CNSC staff added that denied applicants are offered an opportunity to be heard to provide further information before a DO reaches a final decision.

51. The Commission asked whether compliance enforcement measures are applied to exporters whose export licence application has been denied. CNSC staff explained that there is no consideration of enforcement measures respecting such licence applicants as they are following regulatory requirements in making their applications. CNSC staff clarified that it is not the status of the exporter that is the reason for denial, but rather that the exported item could potentially contribute to a nuclear weapons program. CNSC staff added that, for awareness purposes, it communicates information on denied applications with other government departments and regulatory agencies.
52. The Commission asked for clarification regarding the number of certification actions taken by DOs. CNSC staff explained that exposure device operators, for example, are required to be recertified on a five-year basis. CNSC staff added that out of 400 yearly applicants, about 20 per cent are initial certifications and the rest are renewals.
53. On the decertification of exposure device operators, CNSC staff reported that it was rare; the main reason for someone to be decertified would be that they are not competent to do the job. CNSC staff noted that decertified persons could re-apply, having to demonstrate their competency through possessing the appropriate knowledge and skills. The Commission appreciated the report on DO activities.

Closure of the Public Meeting

54. The public meeting closed at 12:39 p.m.

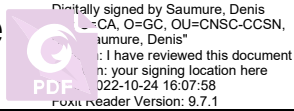
Charles Noe

Recording Secretary

October 24, 2022

Date

**Saumure
Denis**



Registrar

October 24, 2022

Date

APPENDIX A

CMD	Date	e-Docs No.
22-M21	2022-08-08	6837003
Notice of Meeting of the Commission on September 15, 2022		
22-M22	2022-09-01	6841034
Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held remotely on June 28, 2022		
22-M24	2022-08-31	6772576
Approval of the Minutes of Commission Meetings held on June 28, 2022		
22-M27	2022-08-30	6860595
Decision Item REGDOC-2.9.2, Controlling Releases to the Environment Written submission from CNSC Staff		
22-M27.A	2022-09-14	6870199
Decision Item REGDOC-2.9.2, Controlling Releases to the Environment Presentation from CNSC Staff		
22-M28	2022-09-06	6865960
Event Initial Report Bruce Power - Discovery and inadequate control of suspect items, Bruce B Unit 6 Major Component Replacement Written submission from CNSC Staff		
22-M26	2022-09-02	6772285
Information Items Presentation from the Independent Electricity System Operator (IESO) on the duties and role of the IESO in Ontario Presentation from CNSC Staff Presentation from the IESO		
22-M39	2022-09-07	6862830
Information Item Designated Officer Program Update: 2021 Presentation from CNSC Staff		