



Minutes of the Canadian Nuclear Safety  
Commission (CNSC) Meeting held on June 28, 2022

Minutes of the Canadian Nuclear Safety Commission (CNSC) meeting held Thursday, June 28, 2022, starting at 9:00 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  
S. Demeter  
R. Kahgee  
M. Lacroix  
I. Maharaj  
V. Remenda (Observer)

D. Saumure, Registrar  
C. Maheux, Senior Counsel  
C. Moreau, Recording Secretary

CNSC staff advisors were: A. Viktorov, C. Ducros, L. Forrest, S. Eaton, A. Levine, D. Miller, K. Cormier, A. McAllister, V. Khotylev and P. Elder

Other contributors were:

- NB Power: J. Nouwens and N. Reicker
- Bruce Power: M. Burton
- Ontario Power Generation: K. Carew, S. Bagshaw, D. Rogers, S. Irvine, L. Moraru, G. Khawaja, C. Axler, D. Owen and P. Mahdian
- Canadian Nuclear Laboratories: M. Owen and M. Hughey

### Constitution

1. With the notice of meeting [Commission member document \(CMD\) 22-M17](#) having been properly given and a panel of Commission members being present, the meeting was declared to be properly constituted.
2. For the meeting, these documents [CMD 22-M12](#), [CMD 22-M17](#), [CMD 22-M18](#), [CMD 22-M20](#), [CMD 22-M23](#) and [CMD 22-M38](#) were distributed to members. These documents are further detailed in Appendix A of these minutes.

### Adoption of the Agenda

3. The revised agenda, [CMD 22-M18.B](#), was adopted as presented.

### Chair and Registrar

4. The President chaired the meeting of the Commission, assisted by D. Saumure, Commission Registrar, C. Maheux, Commission Counsel, and C. Moreau, Recording Secretary.

### Minutes of the CNSC Meeting Held March 24, 2022

5. The Commission secretarially approved the [minutes of the March 24, 2022 Commission meeting](#) (CMD 22-M19) on June 17, 2022.

### **STATUS REPORT ON POWER REACTORS**

6. With reference to [CMD 22-M20](#), which includes the Status Report on Power Reactors, CNSC staff presented the following updates:
  - Bruce Power Nuclear Generating Station (NGS) Unit 2 is currently operating at 30 percent of full power and is returning to full power following a planned maintenance outage
  - Darlington NGS Unit 2 is currently in a forced outage following a turbine trip. This event is reportable to the CNSC under the requirements of CNSC [REGDOC 3.1.1, Reporting Requirements for Nuclear Power Plants](#)<sup>1</sup>
  - With the removal of the first regulatory hold point, OPG is now authorized to proceed with the installation of equipment for its Molybdenum 99 Isotope Irradiation project at Darlington NGS Unit 2

---

<sup>1</sup> CNSC Regulatory Document REGDOC 3.1.1, *Reporting Requirements for Nuclear Power Plants*, Version 2, 2016.

- Pickering NGS Unit 4 returned to full power following an outage
  - signatories of the [Potassium iodide \(KI\) Pill Working Group](#) met on June 20 to discuss the scope and objectives of Phase II
7. In the Meeting Minutes from the [meeting on January 26, 2022](#), the Commission indicated its expectation for the Working Group to expedite completion of Phase II objectives, particularly those originating from [the 2018 Pickering NGS licence renewal hearing](#). In Appendix A of CMD 22-M20, CNSC staff reported that it continues to work with the signatories and all Working Group members to seek concurrence on the plan and associated timelines for Phase II, specifically focusing on expediting objectives related to Commission direction from the 2018 Pickering NGS renewal hearing.
  8. With respect to the progress of the KI Pill Working Group, the Commission noted its concern that ongoing delays could diminish the utility of any actions taken. CNSC staff and a representative from OPG acknowledged the Commission's concerns and reaffirmed their respective commitments for Phase II.
  9. The Commission asked for more information concerning the cause of the Pickering Unit 4 fuelling deficit mentioned in CMD 22-M20. CNSC staff responded that fuelling deficits are normal occurrences caused when a fuelling machine is not available. An OPG representative explained that, in this case, the outage was related to planned maintenance work on a fuelling machine that went two days longer than planned.
  10. In CMD 22-M20, CNSC staff noted that, in November 2022, it will present an update to the Commission on the progress of the work done by licensees in response to the exceedance of hydrogen equivalent concentrations in Bruce NGS Unit 3 and 6 [pressure tubes](#). The Commission expressed that it would appreciate receiving detailed information regarding the hydrogen uptake modelling, including mathematical analyses.

### **EVENT INITIAL REPORT (EIR)**

#### **Canadian Nuclear Laboratories Port Hope Project Waste Water Treatment Plant - Exceedance of Copper Discharge Criteria in Plant Effluent**

1. With reference to [CMD 22-M38](#), CNSC staff provided information regarding an exceedance of copper discharge criteria and the zinc action level in plant effluent at the wastewater treatment plant for Canadian Nuclear Laboratories' (CNL) Port Hope Project. CNSC

staff's submission indicates that the likely cause of the exceedances was the corrosion of brass components on the treated effluent side of the treatment process.

2. A CNL representative stated that the corroded brass components are located in a cooling loop on the downstream side of the wastewater treatment plant. The CNL representative explained that treated water was picking up copper and zinc from the brass components in that cooling loop and carrying them to the final effluent tank before being discharged to Lake Ontario.
3. Asked for information on the volume of water exceeding the copper discharge criteria that was released, and possible remediation measures, a CNL representative responded that CNL estimated the volume of discharged contaminated water to be approximately 2,500 cubic metres. The CNL representative added that CNL planned to replace any copper-containing components from the water treatment system with stainless steel in July 2022.
4. The Commission enquired about CNL's water sampling at the final effluent tank. A CNL representative reported that the final effluent that gets discharged to Lake Ontario is a continuous discharge, with a machine taking a sample approximately every 15 minutes. The CNL representative added that those samples are mixed into a composite sample that is analyzed weekly.
5. The Commission asked whether CNL had observed a gradual increase in copper concentrations before the exceedance. A CNL representative responded that there was no indication in any of the previous week's composite samples. The CNL representative noted that the activation of an evaporator loop that had not been running at the time might have released accumulated copper into the final effluent tank. The CNL representative added that the following week's composite sample had a normal copper concentration after CNL took the evaporator loop offline.
6. The Commission is satisfied with the preliminary information provided pertaining to this item.

## **DECISION ITEMS – REGULATORY DOCUMENTS**

### **Regulatory Document REGDOC 1.1.2, *Licence Application Guide: Guide to Construct a Reactor Facility***

7. With reference to [CMD 22-M23](#) and [CMD 22-M23.A](#), CNSC staff presented regulatory document (REGDOC<sup>2</sup>), REGDOC-1.1.2, *Licence Application Guide: Guide to Construct a Reactor Facility*, Version 2 for the Commission’s consideration and approval. Version 2 would replace [version 1](#), which was approved by the Commission in 2019.
8. CNSC staff explained that REGDOC-1.1.2, version 2 sets out requirements and guidance on submitting an application to the CNSC to obtain a licence to construct a reactor facility in Canada, and identifies the information that should be included in the application. CNSC staff noted that, given that reactor facilities have different risk profiles depending on the design, the applicant can apply a risk-informed approach to its application, in accordance with [REGDOC-1.1.5, \*Supplemental Information for Small Modular Reactor Proponents\*](#),<sup>3</sup> and [REGDOC-3.5.3, \*Regulatory Fundamentals\*](#).<sup>4</sup>
9. CNSC staff stated that the proposed REGDOC would cover facility design, construction and fuel-out commissioning, and that the purpose of the amendments to version 2 is to:
  - restructure the information from version 1 into the CNSC’s [Safety and Control Area](#) (SCA) framework
  - clarify the information to be submitted for an application for a licence to construct a reactor facility
  - clarify the application of the risk-informed, graded approach to new technologies and alternative ways to meet a requirement.
10. CNSC staff also provided information regarding the public consultation for REGDOC-1.1.2, version 2. CNSC staff noted that the consultation focused on the proposed changes. During the 90-day consultation period, from October 2, 2020 to January 13, 2021, CNSC staff received 88 distinct comments from 5 respondents:

---

<sup>2</sup> [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, REGDOC requirements are mandatory and must be met to obtain or renew a licence or to operate a nuclear facility.

<sup>3</sup> CNSC Regulatory Document REGDOC-1.1.5, *Supplemental Information for Small Modular Reactor Proponents*, 2019.

<sup>4</sup> CNSC Regulatory REGDOC-3.5.3, *Regulatory Fundamentals*, 2022.

- Bruce Power
  - Canadian Nuclear Laboratories
  - Global First Power
  - New Brunswick Power Corporation
  - Ontario Power Generation
11. The feedback on comments period was from January 14 to February 16, 2021. CNSC staff reported that no additional feedback was received. CNSC staff held a workshop with the 5 commenters on November 22, 2021, to discuss the comments received during public consultation and the CNSC's draft responses.
  12. CNSC staff noted that the key issues raised during public consultation were:
    - concerns that some requirements and guidance were duplicated from [REGDOC-1.1.3, Licence Application Guide: Licence to Operate a Nuclear Power Plant](#)
    - applicable approach to small modular reactor (SMR) designs that have reduced risk profiles due to enhanced safety features.
  13. The Commission is satisfied with the comprehensive two-step consultation conducted by CNSC staff on the proposed amendments, with the changes that were made following the consultation, and with how CNSC staff addressed the key issues raised.
  14. On the topic of engagement with Indigenous nations and communities regarding REGDOCs, CNSC staff described its engagement and outreach activities, and noted that it provides information about participation opportunities for upcoming REGDOCs. CNSC staff reported that REGDOC 1.1.2 was not raised as a particular interest or concern for Indigenous nations and communities.
  15. The Commission noted that the workshop on REGDOC-1.1.2 only included attendees from the nuclear industry, and asked whether members of the public and Indigenous nations and communities had been invited. CNSC staff responded that its REGDOC workshops are specifically targeted at commentors to disposition their comments; in this case, the only commentors were from the nuclear industry. CNSC staff noted that public interest in the review of the CNSC's regulatory documents is generally low, and that the CNSC's engagement with the public and Indigenous nations and communities is usually focused on specific projects.

16. The Commission asked whether CNSC staff's outreach on REGDOCs included plain language summaries for the public and Indigenous nations and communities. CNSC staff stated that it had followed its usual practice for communicating and promoting REGDOC engagement opportunities, including email notifications and through community engagement. With respect to specific projects, CNSC staff noted that potential licence applicants are encouraged to engage with the public and Indigenous Nations and communities well in advance of submitting a licence application.
17. The Commission, seeing that the issues raised by commentors concerned the development of new reactor technologies such as SMRs, asked whether CNSC staff foresaw any challenges to the implementation of the revised REGDOC. CNSC staff explained that novel reactor technologies can be addressed through the application of a risk-informed graded approach. CNSC staff added that it updates its regulatory documents through feedback and compared its approach to processes used by international nuclear regulatory agencies.
18. Asked about the regulatory oversight of the SMR manufacturing process and supply chain, CNSC staff reported that applicants would have to demonstrate that they meet regulatory requirements. CNSC staff noted that regulatory requirements for manufacturing and supply chain are covered in REGDOC-1.1.2, other regulatory documents such as [REGDOC 2.3.1, \*Conduct of Licensed Activities: Construction and Commissioning Programs\*](#),<sup>5</sup> as well as CSA Standard N286, *Management system requirements for nuclear facilities*<sup>6</sup>.
19. The Commission, noting an example where a licence application in the United States was rejected for being incomplete, asked CNSC staff to comment on the CNSC's licensing process. CNSC staff described the CNSC's iterative process to review applications, which allows for additional information to be submitted until CNSC staff is satisfied that it has all the necessary information to make a recommendation to the Commission.

#### Decision on REGDOC-1.1.2

20. After considering the recommendations submitted by CNSC staff, the Commission approves REGDOC-1.1.2, *Licence Application Guide: Guide to Construct a Reactor Facility*, Version 2 for publication and use. **DECISION**

---

<sup>5</sup> CNSC Regulatory Document REGDOC 2.3.1, *Conduct of Licensed Activities: Construction and Commissioning Programs*, 2016.

<sup>6</sup> N286, *Management system requirements for nuclear facilities*, CSA Group, 2012.



Regulatory Document REGDOC 2.4.4, *Safety Analysis for Class IB Nuclear Facilities*

21. With reference to [CMD 22-M12](#) and [CMD 22-M12.A](#), CNSC staff presented the regulatory document, REGDOC-2.4.4, *Safety Analysis for Class IB Nuclear Facilities* to the Commission for consideration and approval.
22. CNSC staff explained that REGDOC-2.4.4 is a new REGDOC that:
  - defines the safety analysis report and the safety analysis program for Class IB facilities.
  - clarifies requirements and provides guidance for applicants and licensees to demonstrate the safety of a Class IB nuclear facility.
23. CNSC staff described the public consultation for REGDOC-2.4.4. During the 100-day consultation period, from August 28, 2020 to December 5, 2020, CNSC staff received 69 distinct comments from 14 commenters:
  - B. Beaton, Coalition for Responsible Energy Development in New Brunswick
  - Bruce Power
  - Cameco Corporation
  - Canadian Nuclear Association (CNA)
  - Canadian Nuclear Laboratories (CNL)
  - Canadian Nuclear Workers Council
  - Énergie New Brunswick Power (NB Power)
  - P. Hader, consultant
  - Nordion (Canada) Inc.
  - Nuclear Waste Management Organization (NWMO)
  - Ontario Power Generation (OPG)
  - Safety Probe International
  - SRB Technologies
  - M. Stephens, AECL
24. Following the public consultation period, submissions from respondents were posted on the CNSC's website, from December 6, 2020, to January 12, 2021, for feedback on the comments received. CNSC staff reported that no additional feedback was received.

25. Following the initial disposition of comments by CNSC staff, CNSC staff held a workshop on December 13, 2021. Representatives from the following organizations attended:
- Bruce Power
  - BWXT
  - CANDU Owner's Group
  - Cameco Corporation
  - CNA
  - CNL
  - NB Power
  - NWMO
  - OPG
  - SRB Technologies
26. CNSC staff highlighted key issues raised during public consultation, including:
- the prescriptiveness of requirements with respect to the concepts of environmental qualification, minimum staff complement and credited operator actions
  - the treatment of external hazards and postulated initiating events
  - clarity on the application of a risk-informed graded approach to safety analysis.
27. The Commission is satisfied with the comprehensive two-step consultation conducted by CNSC staff on the proposed amendments, with the changes that were made following the consultation, and with how CNSC staff addressed the key issues raised.
28. The Commission enquired how REGDOC-2.4.4 balances prescriptive and risk-informed requirements, given that it applies to a wide range of facilities. CNSC staff explained that the following factors informed the approach to balancing the requirements:
- consistency with International Atomic Energy Agency (IAEA) documents
  - consistency with Canadian standards, such as CSA Group standards
  - consistency with best practices established by Canadian licensees.
29. Asked how CNSC staff validates if the level of prescriptiveness in REGDOCs is adequate, CNSC staff responded that it performs a periodic review of every regulatory document and gathers feedback from licensees. CNSC staff noted that it considered feedback from existing Class IB licensees for the development of REGDOC 2.4.4.

30. The Commission asked about how the proposed REGDOC would address a comment from the IAEA's [Integrated Regulatory Review Service \(IRRS\) mission in 2019](#) regarding the CNSC's regulatory requirements for the safety of fuel cycle facilities. CNSC staff explained that while the IRRS mission concluded that the safety analysis for existing Class IB facilities in Canada was satisfactory, it found that the CNSC's regulatory framework lacked adequate guidance for new applicants. CNSC staff submitted that REGDOC 2.4.4 would provide additional clarity, and noted that CNSC staff was in discussions with the IAEA about a follow-up IRRS mission to review the updated Canadian regulatory framework.
31. Asked whether an implementation period would be required for REGDOC 2.4.4, CNSC staff told the Commission that existing Class IB licensees are already in compliance with the intent of the regulatory document. CNSC staff added that, as licensees are required to update their safety analysis reports on a five-year basis, licensees would be required to align with REGDOC 2.4.4 depending on their update cycle.

#### Decision on REGDOC-2.4.4

32. After considering the recommendations submitted by CNSC staff, **DECISION** the Commission approves regulatory document REGDOC-2.4.4, *Safety Analysis for Class IB Nuclear Facilities*, for publication and use.

#### Closure of the Public Meeting

33. The public meeting closed at 10:53 a.m.



\_\_\_\_\_  
Recording Secretary

\_\_\_\_\_  
September 7, 2022

Date

**Saumure, Denis**

Digitally signed by Saumure, Denis  
DN: C=CA, O=GC, OU=CNSC-CCSN, CN="Saumure, Denis"  
Reason: I have reviewed this document  
Location: your signing location here  
Date: 2022-09-08 09:28:41  
Foxit Reader Version: 9.7.1

\_\_\_\_\_  
Registrar

\_\_\_\_\_  
September 7, 2022

Date

## APPENDIX A

CMD	Date	e-Docs No.
22-M17	2022-06-01	6809279
Notice of Virtual Meeting of the Commission on June 28, 2022		
22-M18	2022-06-01	6809374
Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held remotely on June 28, 2022		
22-M18.A	2022-06-21	6821415
Revised Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held remotely on June 28, 2022		
22-M18.B	2022-06-25	6824233
Revised Agenda of the Meeting of the Canadian Nuclear Safety Commission (CNSC) to be held remotely on June 28, 2022		
22-M19	2022-06-21	6821544
Approval of the Minutes of Commission Meetings held on March 24, 2021		
22-M20	2022-06-17	6819912
Status Report  Status Report on Power Reactors  Written submission from CNSC Staff		
22-M38	2022-06-24	6824240
Event Initial Report  Canadian Nuclear Laboratories (CNL) – Port Hope Project – Port Hope Wastewater Treatment Plant - Exceedance of copper discharge criteria in plant effluent  Written submission from CNSC Staff		
22-M23	2022-06-01	6809096
Decision Item  REGDOC 1.1.2 Licence Application Guide: Guide to Construct a Reactor Facility  Written submission from CNSC Staff		
22-M23.A	2022-06-20	6821056
Decision Item  REGDOC 1.1.2 Licence Application Guide: Guide to Construct a Reactor Facility  Presentation from CNSC Staff		

22-M12	2022-03-24	6757506
Decision Item		
REGDOC-2.4.4, Safety Analysis for Class IB Facilities		
Written submission from CNSC Staff		
22-M12.A	2022-06-01	6809100
Decision Item		
REGDOC-2.4.4, Safety Analysis for Class IB Facilities		
Presentation from CNSC Staff		