Record of Decision

DEC 25-H2

In the Matter of

Applicant	Ontario Power Generation Inc.
Subject	Application to Renew the Power Reactor Operating Licence for the Darlington Nuclear Generating Station
Public Hearing Dates	March 26, 2025 (Part 1) June 24-26, 2025 (Part 2)
Record of Decision Date	September 24, 2025

RECORD OF DECISION – DEC 25-H2

Applicant:	Ontario Power Generation Inc.
Address/Location:	700 University Avenue, Toronto, Ontario M5G 1X6
Purpose:	Application to Renew the Power Reactor Operating Licence for the Darlington Nuclear Generating Station
Application received:	May 30, 2024
Dates of public hearing:	March 26, 2025 (Part 1) June 24-26, 2025 (Part 2)
Location:	Part 1: Virtual Hearing Part 2: Chestnut Hill Developments Recreation Complex 1867 Valley Farm Road Pickering, ON L1V 6K7 And Virtual Hearing
Members present:	P. Tremblay, President M. Lacroix V. Remenda
Registrar:	C. Salmon
Deputy Registrar:	J. Samson
Recording Secretary:	C. Moreau
Commission Counsel:	C. Maheux

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Intervenors		
See Appendix A		
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Decision: Licence renewed for 20 years

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1.0 INTRODUCTION

1. Ontario Power Generation Inc. (OPG) has applied to the Canadian Nuclear Safety Commission[1] for the renewal of the Power Reactor Operating Licence (PROL) for its Darlington Nuclear Generating Station (Darlington NGS). The Darlington NGS is located in the Municipality of Clarington, Ontario, on the traditional territory of the traditional lands and waters of the Michi Saagiig Anishinaabeg, the Gunshot Treaty (1787-88), the Williams Treaties (1923), and the Williams Treaties Settlement Agreement (2018). OPG requested a renewal of the licence for a period of 30 years. The current licence, PROL 13.06/2025, expires on November 30, 2025.

2. The Darlington NGS site consists of a nuclear facility with four Class IA CANDU pressurized heavy water reactors that are rated at 881 MWe (megawatts electrical) and a tritium removal facility. The current PROL is a consolidated licence for both facilities. The Darlington NGS is currently going through a refurbishment to replace key reactor parts, such as pressure tubes, and to modernize and enhance major equipment and systems, which support long term, safe operation of the plant. OPG will have completed refurbishing all four units by 2026. The Darlington NGS site is also home to the Darlington Waste Management Facility and the Darlington New Nuclear Project (DNNP), which are subject to separate CNSC licences.[2]

Matters for Decision

3. The Commission is required to determine, pursuant to paragraphs 24(4)(a) and 24(4)(b) of the *Nuclear Safety and Control Act* (NSCA), whether OPG:

   a) is qualified to carry on the activities authorized by the licence; and

   b) will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

4. The Commission is required to determine whether and what requirements the *Impact Assessment Act* (IAA)[3] imposes in relation to the activities sought to be authorized in OPG's application to renew the licence for Darlington NGS. Satisfying any such requirements can be a prerequisite to licensing.

5. As an agent of the Crown, the Commission recognizes its role in fulfilling the Crown's constitutional obligations, along with advancing reconciliation with Indigenous Peoples of Canada. The Commission's responsibilities include the duty

[1] The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.
[2] The Class IB Darlington Waste Management Facility is subject to a waste facility operating licence, and the Class IA DNNP is subject to a licence to construct a single General Electric Hitachi BWRX-300 reactor.
[3] S.C. 2019, c. 28, s. 1

to consult and, where appropriate, accommodate Indigenous interests when the Crown contemplates conduct which may adversely impact potential or established Aboriginal[4] or treaty rights.[5] As such, the Commission must determine what engagement, consultation steps, and accommodation measures are called for in light of the interests of Indigenous Nations and communities.

Commission Procedures

6. On March 18, 2024, the Commission published a Notice of Public Hearing and Participant Funding[6] for this matter, which invited requests to intervene by May 8, 2025. The Commission subsequently published a revised notice, on May 22, 2025,[7] to announce the location for Part 2 of the hearing.

7. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission over which he would preside, including Commission members Dr. M. Lacroix and Dr. V. Remenda. The Commission, in making its decision, considered information presented for a two-part public hearing held virtually on March 26, 2025, and from June 24 to 26, 2025, in Pickering, Ontario.[8] The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*[9] (the Rules). During the public hearing, the Commission considered written submissions and heard oral presentations from OPG (CMD 25-H2.1, CMD 25-H2.1A, CMD 25-H2.1B, CMD 25-H2.1C) and CNSC staff (CMD 25-H2, CMD 25-H2.A, CMD 25-H2.B, CMD 25-H2.C, CMD 25-H2.D, CMD 25-H2.E and CMD 25-H2.F). The Commission also considered oral and written submissions from 79 intervenors (see Appendix A for a list of interventions). The hearing was webcast live via the CNSC website, and video archives are available on the CNSC's website.

8. The Michi Saagiig Nations of the Williams Treaties First Nations requested that no discussion of Indigenous consultation and engagement occur without them.[10] OPG and CNSC staff supported the Nations' request. The Commission limited the scope of Part 1 to the assessment of OPG's application.

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[4] "Aboriginal" is the term used in this document when referring to the Crown's duty to consult as that is the term used in section 35 of the *Constitution Act, 1982*. In all other cases, "Indigenous" is the preferred terminology and used accordingly.
[5] *Haida Nation v British Columbia (Minister of Forests),* 2004 SCC 73 [*Haida Nation*]; *Taku River Tlingit First Nation v British Columbia (Project Assessment Director)*, 2004 SCC 74.
[6] *CNSC Notice of Public Hearing and Participant Funding*, March 18, 2024.
[7] *CNSC Revised Notice of Public Hearing (Revision 1)*, May 22, 2025.
[8] For reasons beyond the Commission's control, some of Part 2 was held virtually only.
[9] Statutory Orders and Regulations (SOR)/2000-211.
[10] Hearing Transcript March 26, 2025, page 7.

Participant Funding Program

8. Pursuant to paragraph 21(1)(b.1) of the NSCA, the Commission has established a Participant Funding Program (PFP) to facilitate the participation of Indigenous Nations and communities, members of the public and stakeholders in Commission proceedings. In March 2024, up to $100,000 in funding was made available through the CNSC's PFP to review OPG's licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions. A Funding Review Committee (FRC), independent of the CNSC, reviewed the funding applications received and made recommendations on the allocation of funds. Based on the recommendations from the FRC, the CNSC awarded a total of up to $143,719.05 to 8 applicants, as follows:

- Canadian Association of Nuclear Host Communities – up to $20,400
- Mississaugas of Scugog Island First Nation – up to $34,330.23
- Canadian Environmental Law Association (CELA) – up to $20,000
- Saugeen Ojibway Nation – up to $18,855.80
- Nuclear Transparency Project – up to $6,250
- Paul Sedran – up to $1,500
- Curve Lake First Nation – up to $25,278
- Hiawatha First Nation – up to $17,105.02

Procedural Request under Rule 20

9. The requester, Dr. F. Greening, sought a ruling to exclude several other intervenors and, in general, the removal of intervenors who were supportive of OPG's application. Specifically, Dr. F. Greening sought the refusal of interventions from Aecon Group, AtkinsRéalis, Black & McDonald, BWXT Canada, and E.S. Fox or those who may financially benefit from the outcome of the Commission's decision. The Commission dismissed the ruling for reasons given during the hearing.[11] As a transparent regulator, the Commission interprets Rule 19 broadly: it seeks to hear from anyone with an interest, relevant information, or expertise relating to a matter under consideration.

Mandate of the Commission

10. Many intervenors provided the Commission with information about the economic impact of the Darlington NGS. The Commission notes that, as the regulatory authority over nuclear matters in Canada, it has no economic mandate and will not

[11] Transcript, June 26, 2025, pages 30-36.

base its decisions on the economic impact of a facility. It is the health, safety and security of persons, the protection of the environment, national security, and the implementation of the international obligations to which Canada has agreed that guide its decisions, in accordance with the NSCA.

2.0 DECISION

11. Based on its consideration of the matter, and as described in more detail in the following sections of this *Record of Decision,* the Commission is satisfied that:

- no requirements under the IAA are imposed in relation to this matter
- the contemplated licence renewal does not present any novel adverse impact on any potential or established Aboriginal claim or right
- the Commission's responsibility to uphold the honour of the Crown and its constitutional obligations with regard to engagement and consultation respecting Indigenous interests have been satisfied
- OPG is qualified to carry on the activities that the renewed licence will authorize
- OPG, in carrying on these activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed

12. As a result, the Commission renews the PROL issued to Ontario Power Generation Inc. for its Darlington Nuclear Generating Station located in the Municipality of Clarington, Ontario. The renewed licence, PROL 13.00/2045, is valid for 20 years, from December 1, 2025, until November 30, 2045.

13. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 25-H2. The Commission also delegates authority for the purposes of Licence conditions 3.2 and 15.4, as recommended by CNSC staff, to:

- Director, Darlington Regulatory Program Division
- Director General, Directorate of Power Reactor Regulation
- Executive Vice-President and Chief Regulatory Operations Officer

14. With this decision, the Commission directs CNSC staff to continue to report on the performance of OPG and the Darlington NGS as part of its periodic reporting on nuclear generating stations. The Commission also directs CNSC staff to inform the Commission, as part of its reporting, of any changes made to the Licence Conditions Handbook (LCH). CNSC staff may bring any matter to the Commission's attention at any time, as required.

15. The Commission directs that OPG shall provide 2 comprehensive updates to the Commission on the conduct of its licensed activities at the Darlington NGS during the licence period. The update shall include information on:

- OPG's safety and control measures with respect to the 14 safety and control areas (SCAs), including any program updates, and updates on the implementation of new codes, standards or other regulatory requirements
- reportable events, high-risk incidents, and corrective actions implemented during the licence period
- planned operational or organizational changes
- OPG's public and Indigenous engagement
- OPG's financial guarantee and any other topics of regulatory interest

16. The timing of these updates is to be based on the availability of meaningful information from periodic reviews during the licence period, such as the periodic safety review. These updates shall be made at a public proceeding that is to be conducted in the community in proximity to the Darlington NGS and shall allow for the participation, both orally and in writing, of members of the public and Indigenous Nations and communities.

17. At these updates, the Commission also expects CNSC staff to provide information to the Commission about OPG's performance during the licence term across all SCAs, consolidating information from other periodic reports, and to provide a status update on matters of regulatory importance to the Commission and to the community. The Commission intends for these public meetings to allow a meaningful opportunity for members of the public and Indigenous Nations and communities to discuss their views. They will also enable the Commission to be updated and kept apprised of matters of importance, including plans for the future of the Darlington NGS site.

3.0 ISSUES AND COMMISSION FINDINGS

18. In making its licensing decision, the Commission considered specific relevant issues and submissions relating to OPG's qualification to carry on the activities sought to be licensed. The Commission also considered the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.

19. The Commission's analyses for its decision in this matter are set out within the following sections of this *Record of Decision*:

- Section 3.1: Applicability of the *Impact Assessment Act*
- Section 3.2: Assessment of OPG's licence renewal application

- Section 3.3: Summary of views of hearing participants
- Section 3.4: OPG's safety and control measures with respect to the safety and control areas
- Section 3.5: Indigenous engagement and consultation
- Section 3.6: Other matters of regulatory importance
- Section 3.7: Licence length and conditions

20. The applicability of the IAA is a preliminary issue that the Commission will deal with first. The discussion in sections 3.2 to 3.4 of this *Record of Decision* then provides important context and analysis that informs the decisions made in sections 3.5 to 3.7.

3.1 Applicability of the *Impact Assessment Act*

21. In coming to its decision, the Commission must first determine whether any requirement under the IAA applies to OPG's licence renewal application and whether an impact assessment is required.

22. Under the IAA and the *Physical Activities Regulations*,[12] impact assessments are to be conducted in respect of projects identified as having the greatest potential for adverse environmental effects in areas of federal jurisdiction. A licence renewal is not an activity listed in the *Physical Activities Regulations* that requires an impact assessment, or that meet the definition of a project on federal lands.

23. The Commission is satisfied that there is no requirement under the IAA for an impact assessment to be completed for this licence renewal application. The Commission is also satisfied that there are no other applicable requirements of the IAA to be addressed in this matter.[13]

3.2 Assessment of OPG's Licence Renewal Application

24. On May 30, 2024, OPG applied to the CNSC to renew its licence for a period of 30 years, with no changes to the licensed activities.

[12] SOR/2019-285.
[13] The IAA can impose other requirements on federal authorities in respect of authorizing projects that are not designated as requiring an impact assessment, including projects that are to be carried out on federal lands, or projects outside of Canada. This licence renewal does not engage any such applicable IAA requirements.

25. The Commission examined the completeness of OPG's application, and the adequacy of the information submitted by OPG, and finds that it meets the requirements under the NSCA, the *General Nuclear Safety and Control Regulations* (GNSCR),[14] and other applicable regulations made under the NSCA.

26. Section 3 of the GNSCR provides the information required for a licence application, and section 5 specifies the requirements for a licence renewal application. In addition, section 7 of the GNSCR provides that a licence renewal application may incorporate by reference any information that is included in a valid, expired or revoked licence.

27. In section 1.3 of CMD 24-H7, CNSC staff submitted that it assessed OPG's application and determined that it complied with the applicable regulatory requirements and establishes an adequate licensing basis for continued operation. In Appendix B.2 of CMD 25-H2, CNSC staff reported that its assessment of OPG's licence application included a completeness check, a sufficiency check, and a technical assessment against regulatory requirements.

28. The Commission concludes that OPG's licence application to renew the PROL of the Darlington NGS is complete and complies with all regulatory requirements relevant to such an application. OPG has submitted a comprehensive application with suitable reference material and the Commission notes that it is an application for the renewal of an existing licence with no changes to the licensed activities. The only additional proposed licence condition is with respect to ongoing Indigenous engagement.

3.3 Summary of Views of Hearing Participants

29. In determining whether to renew OPG's licence, the Commission gave careful consideration to all submissions and perspectives received, in accordance with its mandate and the scope of this hearing. The Commission appreciates the efforts and contributions of all hearing participants.

30. OPG submitted that it is qualified to continue carrying on the licensed activities and that it would ensure the protection of people and the environment for the requested 30-year licence term and will ensure the maintenance of national security and measures required to implement international obligations to which Canada has agree. In support of this, OPG reported the following:

- it has implemented programs that meet applicable regulatory requirements across all 14 SCAs, which have been proven effective in protecting people and the environment over decades of operation

[14] SOR/2000-202.

- it has consistently applied continuous improvement to its facility and programs and has committed to further enhancements throughout the upcoming licence period
- it is not requesting the authorization of any new licensed activities
- it proposed 2 performance updates during the licence term to provide an opportunity for meaningful engagement

31. CNSC staff recommended that the Commission renew OPG's licence for the Darlington NGS for a period of 30 years. CNSC staff submitted that:

- OPG's performance during the current licence period was satisfactory and consistently met regulatory requirements
- OPG has programs, resources, and measures in place to ensure the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed, during the proposed licence period

32. The Commission received 79 interventions as part of this hearing, including 23 oral presentations. Intervenors expressed views on the following:

- the duty to consult, with an interpretive lens of the *United Nations Declaration on the Rights of Indigenous Peoples*[15], and the adequacy of Indigenous engagement and consultation
- OPG's qualification to carry out the licensed activities
- the proposed licence length, including the adequacy of regulatory oversight and opportunities for engagement
- radiation protection, including unexpected neutron emissions emanating from pressure tube waste containers
- aging management of the irradiated fuel bays
- hydrogen equivalent concentration in pressure tubes
- emergency management, including potassium iodide (KI) pill distribution
- environmental protection, including tritium emissions
- the safety analysis for the Darlington NGS, including the impacts of climate change
- the availability and accessibility of public data
- medical isotope production at the Darlington NGS

[15] The United Nations Department of Economic and Social Affairs, *United Nations Declaration on the Rights of Indigenous Peoples*, September 2007.

33. Five Indigenous Nations made interventions on this matter. The Michi Saagiig Anishinaabeg of the Williams Treaties First Nations, including the Alderville First Nation (AFN), Curve Lake First Nation (CLFN), Hiawatha First Nation (HFN) and the Mississaugas of Scugog Island First Nation (MSIFN), filed a joint submission (CMD 25-H2.76 to CMD 25-H2.79). In their joint submission, the Michi Saagiig Anishinaabeg of the Williams Treaties First Nations expressed the view that the duty to consult and accommodate was triggered but not fulfilled. The Michi Saagiig Anishinaabeg of the Williams Treaties First Nations also expressed that the licence term should not exceed a maximum period of 20 years.

34. The Saugeen Ojibway Nation (SON) (CMD 25-H2.80), noted its concerns related to the management, storage and disposal of radioactive wastes originating from the Darlington NGS that are, or are planned to be, transported to, managed and stored in SON Territory at the OPG-operated Class IB Western Waste Management Facility. The SON submitted that the licence term should not exceed 10 years.

35. The issues raised by hearing participants, and their bearing on the deliberations of the Commission, are discussed in the appropriate subject-specific sections of this *Record of Decision*. Issues raised by Indigenous Nations and communities are further addressed in section 3.5 of this *Record of Decision*.

3.4 OPG's Safety and Control Measures with Respect to the Safety and Control Areas

36. The Commission examined CNSC staff's assessment of OPG's performance in all 14 SCAs for the purpose of evaluating this application. The Commission also examined CNSC staff's assessment of OPG's Periodic Safety Review (PSR) and associated integrated implementation plan (IIP), conducted in accordance with CNSC regulatory document[16] REGDOC-2.3.3, *Periodic Safety Reviews*.[17] OPG's current PSR is discussed in section 4.3.3. Throughout the current licence period, CNSC staff rated OPG's performance in all 14 SCAs as "satisfactory" with the exception of a "Below Expectations" rating in the security SCA in 2021 and 2022.

3.4.1 Management System

37. The management system SCA covers the framework that establishes the processes and programs required to ensure that OPG achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture. Licence condition 1.1 of PROL 13.06/2025 requires OPG to implement and maintain a management system.

[16] CNSC regulatory documents are typically referred to as REGDOCs
[17] REGDOC-2.3.3, *Periodic Safety Reviews*, CNSC, April 2015

38. Paragraph 3(d) of the *Class I Nuclear Facilities Regulations*[18] (CINFR) requires that an application for a licence to operate a Class I nuclear facility contain "the proposed management system for the activity to be licensed, including measures to promote and support safety culture." Section 3 of the GNSCR contains requirements that form the basis of a management system.

39. CNSC REGDOC-2.1.1, *Management System*[19] addresses the development and implementation of sound management practices and controls, while REGDOC-2.1.2, *Safety Culture*[20] sets out requirements and guidance for fostering a healthy safety culture and conducting safety culture assessments. CSA N286-12, *Management System Requirements for Nuclear Facilities*[21] provides an overall management framework and direction to develop and implement sound management practices and controls for the licensing basis.

40. In section 2.1 of CMD 25-H2.1, OPG provided the Commission with information on its management system, work undertaken during the current licence period, and planned future work, including the following areas:

- Management system
- Organization
- Performance assessment
- Operating experience (OPEX)
- Configuration management and change management
- Safety culture
- Records management
- Supply and contractor management
- Business continuity

41. OPG reported that its management system satisfies the requirements set out in the NSCA, regulations made pursuant to the NSCA and in accordance with the requirements of CSA group[22] (CSA) standard N286-12, *Management System Requirements for Nuclear Facilities* (CSA N286-12). OPG also explained that the fundamental objective of its nuclear management system is to ensure that OPG's nuclear facilities are operated and maintained using sound nuclear safety and defence-in-depth practices to ensure radiological risks to workers, the public, and the environment are As Low As Reasonably Achievable (ALARA).

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[18] SOR/2000-204.
[19] REGDOC-2.1.1, *Management System*, CNSC, May 2019.
[20] REGDOC-2.1.2, *Safety Culture*, CNSC, April 2018.
[21] N286-12, *Management System Requirements for Nuclear Facilities,* CSA Group, 2012 (R2022).
[22] Formerly the Canadian Standards Association, the CSA Group makes its nuclear series standards freely viewable to members of the public on its website by means of a guest account.

42. In section 3.1 of CMD 25-H2, CNSC staff submitted information on its assessment of OPG's management system during the current licence period. CNSC staff confirmed that OPG maintains and implements a management system at the Darlington NGS in accordance with the requirements of CSA N286-12. CNSC staff informed the Commission that OPG had fully implemented REGDOC-2.1.2 and that OPG would be completing a safety culture self-assessment report in early 2025. CNSC staff reported that its compliance verification activities confirm that OPG's management system is satisfactory.

43. CNSC staff found that OPG has implemented business continuity processes to address and minimize the impact of disruptions caused by both internal and external factors, which affect the safe operation of the facility. CNSC staff reported that OPG updated its business continuity processes to include COVID-19 mitigating strategies at the Darlington NGS. CNSC staff determined that OPG's response to the COVID-19 pandemic met all applicable business continuity requirements.

44. Some intervenors, including AtkinsRéalis (CMD 25-H2.42) and the Power Workers' Union (CMD 25-H2.44), whose members include Darlington NGS workers, expressed the view that OPG maintains a strong safety culture at the Darlington NGS. The Society of United Professionals (CMD 25-H2.54) raised concerns about OPG's broader organizational safety culture, noting conventional safety incidents at the DNNP site. The Commission asked for more information on this topic. An OPG representative reported that OPG's conventional safety performance at the Darlington NGS continued to remain at high levels and improve throughout the current licence period. The OPG representative added that OPG includes its vendor partners as part of its nuclear safety culture assessments.[23]

45. Asked about OPG's OPEX program, an OPG representative reported that OPG's OPEX program complied with CSA N286-12. The OPG representative stated that OPG looks at its processes and actions to be taken to improve the reliability and the safety of the nuclear power plant. The OPG representative added that OPG staff does initial screening of all operating experience and that decisions around applicability are approved by managers.[24]

46. The Commission enquired about how OPG would manage uncertainties over a 30-year period. An OPG representative reported that OPG has plans in place for business continuity and also continuous problem identification and resolution. The OPG representative also reported that OPG learns from the broader nuclear industry, operating in different climates, different cultures and different operating philosophies, and applies that learning to build resiliency. The OPG representative also added that new employees can bring new ideas and approaches.[25]

[23] Transcript June 26, 2025, pages 156-157.
[24] Transcript March 26, 2025, pages 86-88.
[25] Transcript June 26, 2025, pages 213-216.

47. The Commission concludes that OPG has appropriate organization and management structures in place to carry on the licensed activities at the Darlington NGS. The Commission bases its conclusion on the following:

- OPG's management system meets regulatory requirements, including CSA N286-12
- the Commission is satisfied that OPG fully implemented REGDOC-2.1.2, and that OPG maintains a healthy safety culture at the Darlington NGS

3.4.2 Human Performance Management

48. The human performance management SCA covers activities that enable effective human performance through the development and implementation of processes that ensure that a sufficient number of workers are in all relevant job areas and have the necessary knowledge, skills, procedures, and tools in place to safely carry out their duties.

49. OPG's current PROL 13.06/2025 includes 3 licence conditions related to the human performance management SCA:

- Licence condition 2.1 requires OPG to implement and maintain a human performance program
- Licence condition 2.2 requires OPG to implement and maintain the minimum shift complement and control room staffing for the nuclear facility
- Licence condition 2.3 requires OPG to implement and maintain training programs

50. Paragraph 12(1)(a) of the GNSCR requires the licensee to ensure that there are sufficient qualified workers to carry on the licensed activity safely and in accordance with the NSCA, its regulations and the licence. Paragraph 12(1)(b) indicates that the licensee must train workers to carry on the licensed activity in accordance with the NSCA, its regulations and the licence.

51. Paragraph 3(d.1) of the CINFR provides that a licence application must include information about the proposed human performance program for the activity to be licensed, including the measures to ensure workers' fitness for duty. Paragraphs 6(m) and 6(n) of the CINFR indicate that a licence application for a licence for a Class I nuclear facility must include information on the proposed responsibilities, qualification requirements, training program, and measures for the requalification of workers, as well as on the results obtained through the application of the program for the recruitment, training and qualification of workers related to the operation and maintenance of the nuclear facility.

52. The following CNSC REGDOCS include requirements and guidance relevant to the human performance management SCA:

- REGDOC-2.2.2, *Personnel Training*, Version 2[26] sets out requirements and guidance for the analysis, design, development, implementation, evaluation, documentation and management of training at nuclear facilities within Canada, including the essential principles and elements of an effective training system
- REGDOC-2.2.3, *Personnel Certification, Volume III: Certification of Reactor Facility Workers, Version 2* [27] sets out requirements aiming to ensure that persons seeking a certification by the CNSC for a position referred to in the licence of a NPP are qualified to carry out the duties of that position in accordance with the NSCA and its regulations
- REGDOC-2.2.4, *Fitness for Duty* (Volumes I, II, and III)[28,29,30] set out the requirements and guidance for managing worker fitness for duty in relation to fatigue, alcohol and drug use, and medical, physical, and psychological fitness, at high security sites

53. In section 2.2 of CMD 25-H2.1, OPG provided the Commission with information on its human performance management program, along with current improvements and initiatives, including the following areas:

- Human performance management
- Personnel training
- Personnel certification
- Work organization and job design
- Fitness for duty

54. With respect to ensuring fitness for duty, OPG reported that comprehensive measures to assess and monitor fitness for duty are in place to comply with REGDOC-2.2.4, *Fitness for Duty* Volumes I, II, and III. The measures also include a Continuous Behaviour Observation Program. OPG noted that the full implementation of REGDOC-2.2.4, *Fitness for Duty, Vol. II: Managing Alcohol and Drug Use, Version 3*, was pending further communication from CNSC staff following the November 6, 2024, decision by the Federal Court of Appeal to uphold

[26] CNSC Regulatory Document, REGDOC-2.2.2, *Performance Training*, Version 2, December 2016.
[27] CNSC Regulatory Document, REGDOC-2.2.3, *Personnel Certification, Volume III: Certification of Reactor Facility Workers, Version 2*, October 2023.
[28] CNSC Regulatory Document, REGDOC-2.2.4, *Fitness for Duty, Managing Worker Fatigue*, March 2017.
[29] CNSC Regulatory Document, REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, Version 3, January 2021.
[30] CNSC Regulatory Document, REGDOC-2.2.4, *Fitness for Duty, Volume III: Nuclear Security Officer Medical, Physical, Psychological Fitness*, September 2018.

the Federal Court's ruling on the validity of the pre-placement and random alcohol and drug testing requirements mandated by the REGDOC.[31]

55. In section 3.2 of CMD 25-H2, CNSC staff submitted information on its assessment of OPG's human performance management system. CNSC staff found that OPG maintains and implements human performance management programs at the Darlington NGS that meet CNSC requirements. CNSC staff reported that OPG's training system continues to be based on a systematic approach to training (SAT) and is compliant with the requirements of REGDOC-2.2.2, *Personnel Training*.[32] CNSC staff also reported that OPG has implemented a personnel certification process, in accordance with REGDOC-2.2.3, *Personnel Certification, Volume III: Certification of Reactor Facility Workers, Version 2*, that ensures workers assigned to positions with a direct impact on the safe operations of the Darlington NGS are fully qualified.

56. Regarding regulatory oversight and compliance verification, CNSC staff noted that its inspection findings in areas such as personnel certification were of negligible or low safety significance. CNSC staff added that all related notices of non-compliance had either been closed or were being addressed by OPG to CNSC staff's satisfaction.

57. Asked about continuous improvement around training, an OPG representative reported that OPG utilizes personal self-assessments of its training, including post-training evaluations and feedback from the trainees. The OPG representative added that OPG continues to employ the use of continuous learning through benchmarking with industry partners, looking for new ways to approach the training programs, and further supplement with activities such as dynamic learning activities. CNSC staff reported that it monitors key performance indicators such as attendance at courses, pass rates, opinions of trainees on training, observing how trainees are doing in the field, and noting trends in operating performance, in accordance with the SAT.[33]

58. On knowledge transfer, an OPG representative explained that OPG has knowledge retention plans in place for its key staff in engineering, operations, and maintenance. The OPG representative added that OPG's procedures contain all requisite information.[34]

59. The Commission noted OPG's use of a monitoring and diagnostic centre and asked about its effect on OPG's training program. An OPG representative reported that the monitoring and diagnostic centre was an important tool, particularly for OPG's engineering staff, in how OPG monitors plant performance in a predictive manner

[31] CMD 25-H2, page 838.
[32] REGDOC-2.2.2, *Personnel Training*, CNSC, December 2016
[33] Transcript March 26, 2025, pages 73-75.
[34] Transcript June 26, 2025, pages 153-155.

using analytics and software tools. The OPG representative added that OPG had incorporated specific training for individuals using software tools.[35]

60. The Commission enquired about OPG's training regarding unplanned transients.[36] An OPG representative explained that OPG had training for workers to respond to an unplanned transient, starting with its recognition. The OPG representative reported that authorized staff in the main control room had a certification program compliant with the SAT. The OPG representative added that field operators and emergency response teams also have the required training.[37]

61. Asked about OPG's equity, diversity, and inclusion strategy, an OPG representative reported that OPG would provide funding over the next 10 years to recruit students from historically underrepresented communities. The OPG representative added that OPG had employee resource groups where employees were helping advance OPG's equity, diversity, and inclusion strategy in fostering an inclusive workplace.[38]

62. Following the presentation by the Canadian Nuclear Association (CMD 25-H2.55), the Commission asked OPG about its workforce development and the kind of training young employees might expect to undertake as they begin a new position at OPG. An OPG representative reported that OPG has a new graduate training program that involve technical training, such as station systems training, nuclear safety training, the nuclear safety and security culture training. The OPG representative added that OPG also has individual development plans through on the job training, leadership training and mentorship.[39]

63. Some intervenors, including the Society of United Professionals (CMD 25-H2.54) and the Organization of Canadian Nuclear Industries (CMD 25-H2.50), expressed views concerning the future workforce for the nuclear industry. On this topic, the Commission asked OPG how it would manage the demand for new workers and the retirement of the existing workforce over the proposed 30-year period. An OPG representative responded that OPG has a workforce planning tool which addresses any critical gaps between key current workforce demands and future. The OPG representative expressed that OPG would be able to continue to drive its culture around nuclear safety.[40]

64. The Commission asked the Ontario Ministry of Labour, Immigration, Training and Skills Development (MLITSD) for its understanding of the future of training and development in the technical and engineering sectors and recruitment of specialized

[35] Transcript March 26, 2025, pages 83-85.
[36] Unplanned transients are situations or events that result in a change of reactor operating state due to unplanned reactor setbacks and stepbacks, and unplanned reactor trips, that occur while the reactor is not in a guaranteed shutdown state. These are events resulting from internal plant equipment failure, spurious signal, human error, or an external event.
[37] Transcript March 26, 2025, pages 89-90.
[38] Transcript March 26, 2025, pages 139-141.
[39] Transcript June 26, 2025, pages 152-153.
[40] Transcript June 26, 2025, pages 156-158.

and technical personnel at OPG in the coming decades. In CMD 25-H2.3, the MLITSD reported that this was not its mandate; however, the MLITSD reported that it provided training related to the *Building Opportunities in the Skilled Trades Act*[41] (BOSTA) to all CNSC nuclear power plant inspectors as well as some regulatory program officers. The MLITSD reported that the goal of the training was to provide an overview of BOSTA and to provide CNSC inspectors a basis for conducting compliance activities for work involving skilled trades, in particular how to confirm required qualifications.

65. The Commission enquired about OPG's views on the staffing priorities of operating plants versus the projects undertaken by OPG. An OPG representative reported that OPG's enterprise operations are a different part of the organization than OPG's enterprise projects to ensure that the operating facilities get the necessary focus and oversight.[42]

66. The Commission asked the NAYGN Durham Chapter (CMD 25-H2.39) for its views on workforce development and training programs at the Darlington NGS. An NAYGN representative reported that young professionals were receiving technical training as well as peer mentorship and different skills training, such as ethics.[43]

67. Based on the information on record as described above, the Commission concludes that OPG has appropriate human performance management programs in place for the conduct of the licensed activities at the Darlington NGS. The Commission finds that OPG's existing programs and processes related to the human performance management SCA meet regulatory requirements, including REGDOC-2.2.2, and REGDOC-2.2.3, and are adequate to support the continued operation at the Darlington NGS. The Commission is also satisfied that:

- OPG's employees are appropriately trained and qualified
- OPG has comprehensive measures to assess and monitor fitness for duty to comply with REGDOC-2.2.4, Volumes I, II, and III
- OPG has committed to the full implementation of the remaining portions of REGDOC-2.2.4, Volume II, following the Federal Court of Appeal's decision to uphold the Federal Court ruling on the validity of the pre-placement and random alcohol and drug testing requirements

3.4.3 Operating Performance

68. The operating performance SCA includes an overall review of the conduct of the licensed activities and the activities that enable effective performance. The operating performance program is expected to establish safe, uniform, and efficient operating

[41] S.O. 2021, c. 28.
[42] Transcript June 26, 2025, pages 160-162.
[43] Transcript June 26, 2025, pages 141-142.

practices within the nuclear facility, under all operating conditions, and provides the ability to ensure the facility is operated in accordance with the licensing basis.

69. OPG's current licence includes 4 licence conditions related to the operating performance SCA:

- Licence condition 3.1 requires OPG to implement and maintain an operations program, which includes a set of operating limits
- Licence condition 3.2 states that OPG shall not restart a reactor after a serious process failure without the prior written approval of the Commission, or the prior written consent of a person authorized by the Commission
- Licence condition 3.3 requires OPG to notify and report in accordance with REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*[44]
- Licence condition 3.4 requires OPG to implement a periodic safety review in support of its subsequent PROL application

70. Paragraph 6(d) of the CINFR provides that an application for a licence to operate a Class I nuclear facility must include information on the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility.

71. The following CNSC REGDOCs include requirements and guidance relevant to the operating performance SCA:

- REGDOC-2.3.2, *Accident Management*[45] sets out requirements and guidance for the development, implementation and validation of integrated accident management for reactor facilities
- REGDOC-2.3.3, *Periodic Safety Reviews* sets out the requirements for the conduct of a periodic safety review for an NPP
- REGDOC-3.1.1 sets out requirements and guidance for reports and notifications that licensees of nuclear power plants must submit to the CNSC

72. In addition, CSA N290.15, *Requirements for the Safe Operating Envelope of Nuclear Power Plants*[46] sets out requirements and guidance for the SOE of NPPs.

73. In section 2.3 of CMD 25-H2.1, OPG provided the Commission with information on how it ensures licensed activities are conducted safely at the Darlington NGS. This includes its operations program, which, OPG noted, ensures that Darlington NGS

[44] CNSC Regulatory Document, REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*, Version 2, April 2016.
[45] CNSC Regulatory Document, REGDOC-2.3.2, *Accident Management*, Version 2, September 2015.
[46] CSA Group Standard, CSA N290.15, *Requirements for the safe operating envelope of nuclear power plants,* 2010 (R2015)

operation is safe and secure, with adequate regard for health, safety, security, radiation and environmental protection, and international obligations. OPG reported that its operations program meets or exceeds all applicable regulatory requirements and related objectives. OPG also provided the Commission with information on its operating performance program, along with current improvements and initiatives, including the following areas:

- Conduct of licensed activity
- Procedures
- Reporting and trending
- Outage management performance
- Safe operating envelope
- Accident and severe accident management and recovery

74. OPG reported that it maintains an Accident Management program for Darlington NGS, which meets the requirements of REGDOC-2.3.2. OPG also reported that its Periodic Safety Review (PSR)[47] was conducted in accordance with the requirements of REGDOC-2.3.3. OPG added that it submits scheduled and unscheduled reports to the CNSC in accordance with REGDOC-3.1.1

75. In section 3.3 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the operating performance SCA covering the following specific areas:

- Conduct of licensed activity
- Procedures
- Reporting and trending
- Outage management performance
- Safe operating envelope
- Severe accident management and recovery
- Accident management and recovery

76. CNSC staff assessed that OPG's programs within the operating performance SCA met regulatory requirements and would be adequate for continued commercial operation. CNSC staff confirmed that OPG conducted a PSR in accordance with the requirements of REGDOC-2.3.3.

[47] A PSR involves an assessment of the current state of the plant and its performance to determine the extent to which it conforms to applicable modern codes, standards and practices, and to identify any factors that would limit safe long-term operation.

77. CNSC staff found that OPG has implemented and maintains effective operations programs at the Darlington NGS in accordance with regulatory requirements and has a clearly defined safe operating envelope. CNSC staff reported that OPG has committed to implementing measures to meet applicable modern codes and standards.

78. CNSC staff reported that, during the current licensing period, OPG submitted reports for the Darlington NGS in accordance with REGDOC-3.1.1. CNSC staff also reported that OPG completed a compliance assessment on OPG's severe accident management program to demonstrate that OPG has implemented REGDOC-2.3.2, *Accident Management*, *Version 2*.

79. In section 2.7 of CMD 25-H2, CNSC staff reported that OPG had a PSR to the CNSC, in accordance with REGDOC-2.3.3. After review, CNSC staff accepted OPG's PSR IIP, which contains a total of 17 actions for the period of 2025-2035. CNSC staff finds that OPG's latest PSR meets modern codes and standards and will allow for continued safe operation over the defined PSR period until the next comprehensive review.

80. CNSC staff further reported that OPG has a Safe Operating Envelope (SOE) program based on the requirements of CSA N290.15. CNSC staff noted that the SOE program is comprised of a hierarchy of governance, standards, and processes supporting the production, update, and maintenance of SOE documentation. CNSC staff added that it reviews and verifies that changes to the SOE, which OPG communicates through version controlled Operational Safety Requirements documentation, are consistent with the CSA standard.

81. In October 2021,[48] June 2024,[49] and May 2025,[50] the Commission amended OPG's licence for the Darlington NGS, authorizing OPG to produce the medical isotopes molybdenum-99 (Mo-99), cobalt-60 (Co-60), and Lutetium-177 (Lu-177) and Yttrium-90 (Y-90), respectively. Asked for more information on isotope production, an OPG representative explained that the Darlington NGS reactors enable radioisotope production because they are reliable, have high neutron flux, online fuelling capability, and extended operation between planned outages. The OPG representative added that OPG has experience safely harvesting and producing Co-60 at the Pickering NGS.[51]

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[48] Record of Decision DEC 21-H107, In the Matter of Ontario Power Generation Inc., *Application to Amend Power Reactor Operating Licence PROL 13.02/2025 to Authorize the Production of Molybdenum-99 at the Darlington Nuclear Generating Station*, October 26, 2021.
[49] Record of Decision DEC 24-H101, In the Matter of Ontario Power Generation Inc., *Application to Amend Power Reactor Operating Licence PROL 13.03/2025 to Authorize the Production of Cobalt-60 at the Darlington Nuclear Generating Station*, June 5, 2024.
[50] Record of Decision DEC 25-H100, in the Matter of Ontario Power Generation Inc., *Application to Amend Darlington Nuclear Generating Station Power Reactor Operating Licence 13.05/2025 for the Production of Additional Isotopes using the Target Delivery System*, May 23, 2025.
[51] Transcript March 26, 2025, pages 120-121.

82. The Commission asked for comments on the operational effects of isotope production. An OPG representative reported that Darlington NGS reactor cores are analyzed to be safe for isotope production and that OPG has the processes, procedures and training in place to ensure continued operation of the reactor while performing required testing and harvesting of the isotopes. An OPG representative explained the waste production from a Co-60 production perspective and added that, for Mo-99, Lu-177 and Y-90, there was minimal waste that would be generated through routine maintenance and operations. CNSC staff noted that OPG must remain in compliance with its operations program, its maintenance program, as well as its training program to ensure that OPG staff remain qualified for the production of isotopes and for overall operation of the unit during the production of isotopes.[52]

83. CNSC staff submitted that OPG performed severe accident analyses using MAAP-CANDU (Modular Accident Analysis Program) software, which simulates severe accidents in CANDU reactors, to demonstrate how the Darlington NGS containment filtered venting system can effectively mitigate a wide range of accident scenarios. The Commission asked for information about the use of the MAAP-CANDU software, noting the intervention by Dr. S. Nijhawan (CMD 25-H2.67), who expressed the view that it was obsolete. An OPG representative reported that MAAP-CANDU is the primary code used for severe accident analysis, and that it has been maintained and improved through research and development. CNSC staff noted that MAAP-CANDU was an industry benchmark and used by many organizations around the world.[53]

84. With reference to the Northwatch intervention (CMD 25-H2.75), the Commission enquired about OPG's learning from reportable events. An OPG representative responded that reportable events represented learning opportunities and that OPG implements corrective action plans following investigations into the causes of any of these situations. CNSC staff noted that it reviews all reportable events and verifies that corrective actions have been implemented. CNSC staff added that it also assesses whether there are any learnings for other facilities.[54]

85. Having considered the evidence provided for this hearing pertaining to the operating performance of OPG at the Darlington NGS during the current licence period, the Commission concludes that OPG's existing programs and processes related to the operating performance SCA meets regulatory requirements and are adequate to support the continued operation of the Darlington NGS. Further, the Commission is satisfied that:

- OPG has operated the Darlington NGS in accordance with regulatory requirements over the current licence period and that programs and procedures meet regulatory expectations, including those in REGDOC-2.3.2 and REGDOC-3.1.1

[52] Transcript March 26, 2025, pages 121-122.
[53] Transcript June 25, 2025, pages 75-78.
[54] Transcript June 26, 2025, pages 206-207.

- the information provided by CNSC staff and OPG demonstrates that OPG's PSR was conducted in accordance with the requirements of REGDOC-2.3.3
- OPG has committed to implementing measures to meet applicable modern codes and standards, as is required as part of the PSR

3.4.4 Safety Analysis

86. The safety analysis SCA covers the maintenance of the safety analyses that support the overall safety case for the facility. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of the licensed activity or the operation of a facility. Safety analysis also considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards. Licence condition 4.1 of the current licence requires OPG to implement and maintain a safety analysis program.

87. Paragraph 6(c) of the CINFR provides that an application for a licence to operate a Class I nuclear facility must include a final safety analysis report demonstrating the adequacy of the design of the nuclear facility.

88. The following CNSC REGDOCs include requirements and guidance relevant to the safety analysis SCA:

- REGDOC-2.4.1, *Deterministic Safety Analysis*[55] sets out requirements and guidance for the preparation and presentation of a safety analysis that demonstrates the safety of a nuclear facility
- REGDOC-2.4.2, *Probabilistic Safety Assessment (PSA) for Nuclear Power Plants*[56] sets out requirements for a licensee to conduct a probabilistic safety assessment[57] (PSA) for an NPP
- REGDOC-3.1.1 sets out reporting requirements for NPPs, including providing updated safety reports at least every 5 years, or when directed by the CNSC

89. CSA Group standard N286.7, *Quality assurance of analytical, scientific and design computer programs for nuclear power plants*[58] specifies expectations applicable to the development, modification, maintenance, and use of computer programs in analytical, scientific, and design applications during any phase of the nuclear plant lifecycle.

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[55] CNSC Regulatory Document, REGDOC-2.4.1, *Deterministic Safety Analysis*, May 2014.
[56] CNSC Regulatory Document, REGDOC-2.4.2, *Probabilistic Safety Assessment (PSA) for Nuclear Power Plants*, May 2014.
[57] A probabilistic safety assessment is a comprehensive and integrated assessment of the safety of a facility. The PSA considers the probability, progression and consequences of equipment failures or transient conditions to derive numerical estimates that provide a consistent measure of the safety of the facility.
[58] CSA Group Standard, CSA N286.7, *Quality assurance of analytical, scientific and design computer programs for nuclear power plants,* 1999 [R2012].

90. In section 2.4 of CMD 25-H2.1, OPG submitted information on its various safety analyses for the Darlington NGS. OPG detailed its deterministic safety analyses (DSA) and its ongoing work to meet the requirements of REGDOC-2.4.1. OPG reported that its primary heat transport aging management is one of the major programs contributing to maintaining the DSA at Darlington NGS. OPG also detailed its probabilistic safety assessment (PSA) program.

91. OPG also provided the Commission with information on its safety analysis program, including the following areas:

- Hazard analysis
- Severe accident analysis
- Criticality safety
- Management of safety issues

92. OPG reported that it had submitted the PSA Hazard Screening guides to the CNSC for review and that the revised PSA Guides met REGDOC-2.4.2 requirements.

93. In section 3.5 of CMD 25-H2, CNSC staff provided information to the Commission on its assessment of OPG's safety analyses for the Darlington NGS. CNSC staff reported that it was reviewing OPG's implementation plan for REGDOC-2.4.1. As part of this plan, OPG has submitted its progress to align with REGDOC-2.4.1 expectations for the following safety analyses:

- Common cause events
- Loss of moderator heat sink events
- Loss of flow events
- Loss of reactor power regulation
- Loss of Coolant Accident (LOCA) events
- Large break LOCA events
- Small break LOCA events

94. CNSC staff reported that OPG submitted a Large Break LOCA DSA for the Darlington reactors in 2022. CNSC staff noted that, with respect to compliance with REGDOC-2.4.1, further discussion with OPG was needed regarding the operating limits and the level of confidence in the analysis results.

95. During the hearing, an OPG representative reported that resolution of the technical issues related to Darlington NGS's more realistic large break LOCA safety analysis was still in progress. The OPG representative added that the goal of reaching technical agreement on performing a realistic simulation of a large break LOCA

would progress through the end of 2025. CNSC staff noted that while OPG's current REGDOC-2.4.1 implementation plan addressed activities to the end of the year 2024, OPG had committed to updating the implementation plan to address activities beyond 2024. CNSC staff added that it would continue to monitor and review OPG's progress in implementing REGDOC-2.4.1.[59]

Probabilistic Safety Assessment

96. In sections 2.4.2 and 2.4.3 of CMD 25-H2.1, OPG detailed its hazard analysis and probabilistic safety assessment (PSA) program. OPG reported that it was updating the Darlington NGS Hazard Screening Analysis for the 2025 Darlington NGS PSA updates to be compliant with REGDOC-2.4.2.

97. CNSC staff reported that, in 2019, OPG submitted a Hazard Screening Analysis as part of its 2020 PSA update. CNSC staff reported that it completed its review of the updated hazard screening analysis and determined that OPG's submission complied with REGDOC-2.4.2. CNSC staff added that OPG continues to update its PSA for Darlington NGS on a 5-year cycle in accordance with requirements of REGDOC-2.4.2.

98. The Commission asked for more information on how the Darlington refurbishment affected the PSA. An OPG representative reported that the PSA results for internal events at power showed a 26 percent decrease in the core damage frequency and a 21 percent decrease in the large release frequency as a result of the physical design changes made to the station as part of the refurbishment. The OPG representative added that the PSA results show that both internal and external events meet the overall OPG safety goal.[60]

99. The Commission asked OPG to explain how OPG's PSA accounts for the impact of climate change and environmental factors. An OPG representative explained that the five-year update cycle, in accordance with REGDOC-2.4.2, is sufficiently frequent to capture the incremental effects of climate change and environmental factors such as water surface variation and meteorological factors such as temperature and wind.[61]

100. Several intervenors, including CELA, Durham Nuclear Awareness, and Slovenian Home Association (CMD 25-H2.59), Nuclear Transparency Project (CMD 25-H2.74), and J. Fox Lee (CMD 25-H2.72), raised concerns regarding the impacts of climate change on the Darlington NGS during a 30-year licence period. CNSC staff reported in CMD 25-H2.C that periodic assessments and reviews are in place to ensure that any changes in climatic conditions that could have an impact on safety, or the environment are taken into account. CNSC staff noted that these assessments

[59] Transcript March 26, 2025, pages 101-104.
[60] Transcript March 26, 2025, pages 94-95
[61] Transcript March 26, 2025, page 148.

and review included PSRs conducted every 10 years, the PSAs conducted every 5 years, and Environmental Risk Assessments (ERA) conducted every 5 years or more frequently if major changes to the facility are proposed.

101. The Commission asked for more information on OPG's preparedness for the impacts of climate change affecting Lake Ontario on the operation of the Darlington NGS. An OPG representative explained OPG's strategy to address climate change related to Lake Ontario, such as performing hazard assessments as part of the PSA. The OPG representative added that OPG has procedures in place to allow plant operators to take proper actions, such as reducing power output or achieving safe shutdown, as well as procedures in place to monitor and take actions to address issues such as algae runs.[62]

102. Kinectrics Inc. (CMD 25-H2.49) provided information on the work it had undertaken to support OPG's operations. Kinectrics Inc. reported having conducted a climate change resilience assessment to assess all the Darlington NGS Structures, Systems, and Components for their potential vulnerability to the impacts of climate change and identify strategies to mitigate these potential vulnerabilities. The Commission asked for more information on this work. A Kinectrics Inc. representative explained that Kinectrics Inc. looks at applicable climate change data for a given geographic area using a variety of models and projections, and that it assesses systems that may be affected by climate change, like water intake systems or heat exchangers.[63]

103. An OPG representative reported on OPG's climate resilience assessment, noting that the first step was climate hazard identification and projections followed by exposure assessment. The OPG representative reported that OPG would have a list of systems, structures, and components, and would determine if they are going to be exposed to climate hazards. The OPG representative added that OPG would also conduct a vulnerability assessment to determine if the systems, structures, and components would be compromised by being exposed to these assessed climate hazards.[64]

104. The Commission asked OPG whether it was contemplating the construction of cooling towers. An OPG representative reported that OPG was currently performing a climate resilience assessment and that, if the need to construct cooling towers were to arise, OPG would make a risk-based decision.[65]

[62] Transcript June 26, 2025, pages 220-224.
[63] Transcript June 26, 2025, pages 180-181
[64] Transcript June 26, 2025, pages 224-226.
[65] Transcript June 26, 2025, pages 226-227.

105. Dr. Nijhawan (CMD 25-H2.67) expressed concerns about CANDU safety issues, [66] and that some equipment at the Darlington NGS was located under the Lake Ontario water level. Regarding Dr. Nijhawan's intervention, an OPG representative reported that OPG did not identify any new or unaddressed concerns relative to Dr. Nijhawan's past interventions in relation to OPG facilities. CNSC staff reported that, while CNSC staff concludes that there are no immediate or urgent safety concerns associated with the location of equipment, CNSC staff has engaged with an international consultant through a contract to do additional studies.[67]

106. Noting that CANDU safety issues are addressed in 3 safety categories in the severe accident analysis, the Commission enquired about the issues in category 3, which are issues of concern in Canada. CNSC staff reported that there were 3 category 3 issues still pending, for which CNSC staff was seeking further information regarding the magnitude of risk. CNSC staff added that compensatory measures were in place as some issues have taken longer to address than anticipated. An OPG representative reported that OPG has appropriate control measures in place to address all the CANDU safety issues and to maintain safety margins.[68]

107. The Commission asked for more information on OPG's dispositioning of safety issues. An OPG representative described OPG's discovery issue resolution process. The OPG representative noted that, if an issue was discovered, OPG would inform the CNSC and ensure that the reactors are operating safely or shut down. The OPG representative added that OPG would analyze the issue and share results with the industry. The OPG representative also added that the last time OPG invoked a discovery issue resolution process at the Darlington NGS was in 2023, when a safety issue was identified at the Pickering NGS. CNSC staff confirmed that it receives notifications of such information and stated that this process is unrelated to the licence length. CNSC staff noted that OPG can safely shut down the facility in the face of an emerging concern, if necessary.[69]

108. Regarding the Bruce Power intervention (CMD 25-H2.46), the Commission enquired about how other CANDU operators exchange information about beyond design basis accident simulations. A Bruce Power representative reported that CANDU operators have collaborative relationships where they share information and lessons learned to make improvements. An OPG representative agreed with Bruce Power.[70]

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[66] As described in section 2.4.6 of CMD 25-H2.1, a safety issue is defined as an issue related to the design or analysis of a nuclear power plant that has the potential to challenge safety functions, safety barriers or both.
[67] Transcript June 25, 2025, pages 69-71.
[68] Transcript March 26, 2025, pages 108-109.
[69] Transcript June 25, 2025, pages 83-86.
[70] Transcript June 26, 2025, pages 123-127.

109. The Commission enquired about the impacts of the DNNP on the Darlington NGS. An OPG representative reported that OPG has updated the Darlington hazard screening analysis for the 2025 Darlington PSA updates in accordance with REGDOC-2.4.2. The OPG representative added that OPG has assessed the DNNP as a hazard to Darlington and its impact on the Darlington NGS. The OPG representative further added that the impact of the operational hazards on Darlington NGS will be included in the scope for a future Darlington NGS PSA when more operational details and the detailed design of the new reactor would be available.[71]

Conclusion on Safety Analysis

110. Based on the information on the record as described above, the Commission concludes that OPG has an adequate safety analysis program in place to accommodate for the licensed activities that the proposed licence renewal would authorize. The Commission finds that OPG's existing programs and processes related to the safety analysis SCA meet regulatory requirements. The Commission also concludes that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards is adequate for the operation of the Darlington NGS and the activities under the proposed licence. The Commission is also satisfied that:

- OPG's safety analysis program for the Darlington NGS meets regulatory requirements, including those defined in REGDOC-2.4.2
- the evidence provided by OPG and CNSC staff demonstrates that climate change, and other changes to the Darlington NGS over time, are accounted for through the routine updating of safety analyses
- OPG has committed to implementing REGDOC-2.4.1, and that CNSC staff continues to monitor OPG's progress in this regard

3.4.5 Physical Design

111. The physical design SCA relates to activities that impact the ability of structures, systems and components to meet and maintain their design basis, with new information arising over time and changes occurring in the external environment. The design basis is the range of conditions and events taken explicitly into account in the design of a nuclear facility, according to established criteria, such that the facility can withstand this range without exceeding authorized limits.

[71] Transcript June 25, 2025, pages 133-135.

112. OPG's current licence includes 3 licence conditions related to the physical design SCA:

- Licence condition 5.1 requires OPG to implement and maintain a design program
- Licence condition 5.2 requires OPG to implement and maintain a pressure boundary program and have in place a formal agreement with an Authorized Inspection Agency
- Licence condition 5.3 requires OPG to implement and maintain an equipment and structure qualification program

113. Paragraph 3(1)(d) of the GNSCR requires that a licence application contain a description of any nuclear facility, prescribed equipment or prescribed information to be encompassed by the licence. Paragraphs 3(a) and 3(b) of the CINFR indicate that a licence application for a Class I nuclear facility must include a description of the site of the activity to be licensed, as well as plans showing the location, perimeter, areas, structures and systems of the nuclear facility. Paragraphs 6(a) and 6(b) of the CINFR provide that an application for a licence to operate a Class I nuclear facility includes a description of the structures, systems and equipment at the nuclear facility, including their design and their design operating conditions.

114. The following CSA Group standards include requirements and guidance relevant to the physical design SCA:

- CSA N285.0, *General requirements for pressure-retaining systems and* components *in CANDU nuclear power plants*[72] specifies the technical requirements for the design, procurement, fabrication, installation, modification, repair, replacement, testing, examination, and inspection of pressure-retaining and containment systems, components, and supports at an NPP
- CSA N290.12, *Human factors in design for nuclear power plants*[73] provides guidance on human factors in design for existing and new NPPs
- CSA N290.13, *Environmental qualification of equipment for CANDU nuclear power plants*[74] specifies the requirements for an environmental qualification (EQ) program for CANDU NPPs

[72] CSA Group Standard, CSA N285.0, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants*, 2008.
[73] CSA Group Standard, CSA N290.12, *Human Factors in Design for Nuclear Power Plants,* 2014 (R2019).
[74] CSA Group Standard, CSA N290.13, *Environmental qualification of equipment for CANDU nuclear power plants*, 2005 (R2015)

- CSA N293, *Fire protection for CANDU nuclear power plants*[75] provides the minimum fire protection requirements for the design, construction, commissioning, operation, and decommissioning of NPPs

115. In section 2.5 of CMD 25-H2.1, OPG provided the Commission with information on its physical design program, along with current improvements and initiatives, including the following areas:

- Design governance
- Site characterization
- Facility and structure design
- System and component design

116. OPG submitted that its Engineering Change Control program, which ensures that design changes are planned, complies with CSA N285.0 and that its software program complies with CSA N286.7, *Quality Assurance of Analytical, Scientific, and Design Computer Programs for Nuclear Power Plants*, and ensures software changes support safe and efficient plant operation. OPG reported that the Darlington NGS is designed and constructed to ensure that the effects of an earthquake do not lead to unacceptable radiological releases as specified in the NSCA. OPG reported that seismic qualification is demonstrated in accordance with the requirements of CSA N289.1, *General requirements for seismic, design and qualification of CANDU nuclear power plants*.[76] OPG noted that the Darlington NGS refurbishment resulted in the complete replacement of all 480 calandria tubes and all 480 pressure tubes during each refurbishment outage.

117. In section 3.5 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the physical design SCA covering the following specific areas:

- Design governance
- Site characterization
- Facility design
- Structure design
- System design
- Component design

[75] CSA Group Standard, CSA N293, *Fire protection for CANDU nuclear power plants*, 2012 (including the 2017 update).
[76] CSA Group Standard, CSA N289.1, *General requirements for seismic, design and qualification of CANDU nuclear power plants,* 2008

118. CNSC staff assessed that OPG's programs within the physical design SCA met regulatory requirements. CNSC staff assessed that OPG's programs within the physical design SCA are adequate and effective to support the continued and safe operation of the Darlington NGS.

119. The Commission, noting the industry's issues regarding hydrogen equivalent (Heq) concentrations ([Heq]) in pressure tubes,[77] enquired about changes to reactor component design to address this issue. An OPG representative reported that OPG's models predicting [Heq] in replaced pressure tubes were highly reliable and have been demonstrated through OPEX. The OPG representative added that OPG took measures to reduce other trace impurities in the pressure tube manufacturing process, such as chlorine, which helped to improve the fracture toughness performance of the pressure tubes over the long term. The OPG representative also reported that OPG made enhancements to the spacer design for the Darlington reactors.[78]

120. The Commission enquired about lessons learned on [Heq] in pressure tubes. An OPG representative responded that the lessons learned would enhance models used for the future projections for the long-term life of the Darlington NGS. The OPG representative added that any lessons learned from this program would be built into the manufacturing activities of pressure tubes. On the same topic, CNSC staff noted the importance of inspecting the components as they age.[79]

121. In its intervention, Conexus (CMD 25-H2.10) provided information on its role in supporting research and development, and joint projects aimed at enhancing the safety, reliability, environmental performance, and cost effectiveness of CANDU nuclear generating stations. The Commission asked Conexus about the kinds of research undertaken and sponsored by Conexus. A Conexus representative reported that Conexus had different areas of research, including a fuel channel program, and that the research was prioritized through technical committees of representatives from participating organizations.[80]

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[77] The 2021 discovery of elevated hydrogen equivalent concentrations ([Heq]) at Bruce Power Inc.'s Bruce NGS A and B, Units 3 and 6 respectively, was considered by a CNSC designated officer to put into question the predictive capability of the model for [Heq] levels in all operating reactors in Canada with pressure tubes in extended operations. Darlington NGS Units 1 and 4 were subject to a CNSC order that required the licensee to obtain authorization from the Commission prior to restart following any outage that results in the cooldown of the heat transport system. In November 2021, the Commission determined that OPG had satisfied the conditions of the order.

[78] Transcript March 26, 2025, pages 116-118.

[79] Transcript March 26, 2025, pages 113-114.

[80] Transcript June 25, 2025, pages 148-149.

122. The Commission concludes that OPG continues to implement and maintain an effective physical design program at the Darlington NGS that meets regulatory requirements. The Commission bases its conclusion on the following:

- the Commission is satisfied that the evidence provided by OPG and CNSC staff sufficiently demonstrates that the design of the Darlington NGS continues to be adequate for the proposed licence period
- the Commission is satisfied that OPG has adequate resources in place to safely manage and implement design changes that are within the licensing basis
- the Commission is satisfied that OPG meets physical design-related regulatory requirements, including, CSA Group standards N285.0, N290.12, N290.13 and N293
- the Commission is satisfied that OPG has maintained adequate seismic qualification that meets CNSC staff expectations and the requirements of CSA N289.1

3.4.6 Fitness for Service

123. The fitness for service SCA covers activities that are performed to ensure that systems, structures, and components (SSC) remain effective over time and are available to perform their intended design functions upon request. Licence condition 6.1 of the current licence requires OPG to implement and maintain a fitness-for-service program.

124. Paragraph 6(d) of the CINFR requires that an application for a licence to operate a Class I nuclear facility contain the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility.

125. The following CNSC REGDOCs include requirements and guidance relevant to the fitness-for-service SCA:

- REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants*[81] sets out the requirements for the development and implementation of a reliability program for a nuclear power plant in Canada
- REGDOC-2.6.2, *Maintenance Programs for Nuclear Power Plants*[82] sets out guidance and requirements for maintaining an effective maintenance program for a nuclear power plant
- REGDOC-2.6.3, *Aging Management*[83] sets out guidance and the requirements for managing aging of SSCs for reactor facilities

[81] CNSC Regulatory Document, REGDOC-2.6.1, *Reliability Programs for Nuclear Power Plants*, August 2017.
[82] CNSC Regulatory Document, REGDOC-2.6.2, *Maintenance Programs for Nuclear Power Plants*, August 2017.
[83] CNSC Regulatory Document, REGDOC-2.6.3, *Aging Management*, March 2014.

126. In section 2.6 of CMD 25-H2.1, OPG provided the Commission with information on its fitness-for-service programs, along with current improvements and initiatives, including the following areas:

- Equipment reliability
- Maintenance
- Aging management
- Chemistry control
- Periodic inspection and testing and structural integrity

127. OPG submitted that its programs and processes related to reliability monitoring and reporting comply with CNSC regulatory document REGDOC-2.6.1. OPG also submitted that the Darlington NGS meets the requirements of REGDOC-2.6.2 for maintenance, ensuring that the Darlington NGS facility is monitored, inspected, tested, assessed and maintained so that systems, structures, and components function as per design. OPG added that OPG has an effective aging management program in accordance with REGDOC-2.6.3.

128. In section 3.6 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the fitness-for-service SCA, covering the following specific areas:

- Equipment fitness for service / equipment performance
- Maintenance
- Structural integrity
- Aging management
- Chemistry control
- Periodic inspection and testing

129. CNSC staff reported that OPG has established and implemented a Reliability Program in accordance with REGDOC-2.6.1. CNSC staff also reported that OPG's Darlington NGS maintenance program meets the requirements and expectations set out in REGDOC-2.6.2, and that OPG has satisfactory policies, processes and procedures in place that provide direction and support for its maintenance program. CNSC staff added that OPG continues to implement its aging and obsolescence management programs and processes within a systematic and integrated framework in accordance with REGDOC-2.6.3.

130. Noting the proposed 30-year licence period, the Commission asked for information on OPG's programs for reinvestment into the facility to counter equipment and system obsolescence and to ensure that equipment remains reliable and fit for service. Representatives from OPG described OPG's Integrated Aging Management program. An OPG representative noted that OPG monitors age-related degradation

on any core structures systems and components and takes appropriate actions, including corrective maintenance or small to large capital investments, as needed.[84]

131. Asked about the reliability of equipment assessment, and how it is benchmarked internationally, an OPG representative stated that OPG has an equipment reliability program as well as an aging management program to assess equipment reliability. The representative explained that OPG receives weekly OPEX from other operators worldwide, including on equipment degradation that OPG may not have observed but that OPG can use in its reliability program. The OPG representative added that OPG also participates in industry peer groups, including with the Canadian nuclear industry.[85]

132. The Commission asked about CNSC staff's compliance oversight of OPG's modifications. CNSC staff explained that OPG is responsible for ensuring that it is meeting requirements. If it is deemed that operation is not safe, or that the licensee is not meeting requirements, CNSC staff inspectors can order OPG to take action, including shutting down the facility, until OPG demonstrates that requirements have been met.[86]

133. In relation to Northwatch's intervention (CMD 25-H2.75), the Commission asked about the fitness for service of the irradiated fuel bays. An OPG representative reported that the fuel bays are included in OPG's integrated aging management program and in a routine monitoring and maintenance program which inspects the concrete of the bays and maintains the instrumentation. The OPG representative also reported that OPG had replaced all the heat exchangers that keep the water in the bays cool, along with the irradiated fuel bay pumps that circulate the water. The OPG representative added that a crane replacement project was also ongoing.[87]

134. The Commission enquired about OPG's ability to repair a leak in a fuel bay. An OPG representative reported that OPG has a monitoring system that detects leaks and that the design of the bay is such that it would contain any leaks from getting into the ground. The OPG representative added that OPG has the ability to deploy various solutions depending on the nature of the leak, such as repairing from the outside.[88]

135. Asked for its view on OPG's irradiated fuel bay life management program, CNSC staff reported that it had reviewed OPG's PSR condition assessments and found that the irradiated fuel bays and cooling and purification systems were in good condition, and able to fulfill their function. The Commission is satisfied with the information provided respecting the fitness for service of the irradiated fuel bays.[89]

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[84] Transcript March 26, 2025, pages 90-92.
[85] Transcript June 24, 2025, pages 58-61.
[86] Transcript March 26, 2025, pages 92-94.
[87] Transcript March 26, 2025, pages 193-195.
[88] Transcript March 26, 2025, page 196.
[89] Transcript March 26, 2025, pages 204-205.

136. The Commission enquired about OPG's plans for refurbishment activities at the Darlington tritium removal facility. An OPG representative reported that the tritium removal facility would complete a major component replacement in a series of six outages, starting in 2026 and onwards to 2037. The OPG representative added that the work would include the replacement of main hydrogen compressors and copper to stainless steel replacement of the cooling water lines.[90]

137. Based on the information on record as described above, the Commission concludes that OPG has appropriate fitness-for-service measures and programs in place to ensure that the systems, structures, and components at the Darlington NGS will remain fit for service throughout the proposed licence period. The Commission finds that the information provided regarding OPG's performance demonstrates that OPG has ensured the systems, structures, and components of the Darlington NGS have remained fit for service. The Commission is also satisfied that OPG meets the regulatory requirements set out in REGDOC-2.6.1, REGDOC-2.6.2, REGDOC-2.6.3, and applicable CSA standards, and maintains adequate programs for the continued safe operation of the Darlington NGS.

3.4.7 Radiation Protection

138. Radiation protection includes measures for protecting the health and safety of persons from hazards associated with ionizing radiation. Radiation protection ensures that contamination levels and radiation doses received by individuals are monitored, controlled, and maintained as low as reasonably achievable (ALARA), while taking into consideration social and economic factors. Licence condition 7.1 of the current licence requires OPG to implement and maintain a radiation protection program.

139. Section 4 of the *Radiation Protection Regulations*[91] requires licensees to implement a radiation protection program. As part of this program, licensees must keep effective and equivalent doses received by, and committed to, persons ALARA, taking into account social and economic factors, and ascertain the quantity and concentration of any nuclear substance released as a result of the licensed activity. Paragraphs 6(e) and 6(h) of the CINFR require that an application for a licence to operate a Class I nuclear facility contains the proposed procedures for handling, storing, loading and transporting nuclear substances and hazardous substances, as well as the effects on the environment and the health and safety of persons that may result from the operation and decommissioning of the nuclear facility, and the measure that will be taken to prevent or mitigate those effects.

[90] Transcript March 26, 2025, pages 105-106.
[91] SOR/2000-203.

140. In section 2.7 of CMD 25-H2.1, OPG provided the Commission with information on its radiation protection program, along with current improvements and initiatives, including the following areas:

- Application of ALARA
- Worker dose control
- Radiation protection program performance
- Radiological hazard control

141. OPG submitted that its radiation protection program meets or exceeds all applicable regulatory requirements and related objectives. OPG reported that during the licence term, OPG implemented a variety of enhancements and methods to improve radiological hazards control, including:

- minimizing worker dose exposure during longer outages
- advanced radiation instrumentation
- real-time hazard monitoring with remote instrumentation

142. OPG added that collective and individual doses were managed well below administrative and regulatory dose limits in the current licence term.

143. In section 3.7 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the radiation protection SCA covering the following specific areas:

- Application of ALARA
- Worker dose control
- Radiation protection program performance
- Radiological hazard control

144. CNSC staff reported that OPG has implemented and maintained an effective radiation protection program at the Darlington NGS, as required by the *Radiation Protection Regulations*. CNSC staff reported that, over the current licensing period, no worker received a radiation dose in excess of regulatory dose limits[92], as a result of the licensed activities conducted at the Darlington NGS. CNSC staff assessed that, during the current licence period, OPG complied with regulatory requirements for implementing measures to keep exposures to sources of radiation to levels that are ALARA. CNSC staff reported that the maximum doses received by a NEW, between 2015 to 2023, ranged from 9.13 mSv/y to 20.20 mSv/y.

[92] 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.

145. Noting that OPG's radiation protection and engineering programs are interfaced, the Commission asked OPG to describe how it manages reliability and safety at the Darlington NGS. An OPG representative reported that reliability and safety go hand in hand. The OPG representative gave an example of opportunities coming from OPG's refurbishment program where it made improvements to reduce doses to workers and the public.[93]

146. The Commission asked for more information on how OPG manages worker doses. An OPG representative reported that, on top of OPG's radiation protection mechanisms, such as engineering controls and personal protective equipment (PPE), OPG's ALARA program includes a process for equalizing worker doses.[94]

147. The Commission enquired about PPE for workers. An OPG representative reported that OPG provides respiratory protection and radiological PPE to workers. The OPG representative added that OPG also relies on the design features of the station to maintain doses to workers ALARA and does not rely on a single barrier for the protection of workers.[95]

148. The Commission asked who was accounted for in OPG's collective radiation exposure. CNSC staff reported that the collective exposure is for all workers who have a dosimeter, including visitors. An OPG representative noted that, with the use of radiation exposure permits, OPG can map radiation doses for specific locations in the facility.[96]

149. In relation to Dr. F. Greening's intervention (CMD 25-H2.21, CMD 25-H2.21A and CMD 25-H2.21B) the Commission asked for more information concerning the unaccounted dose rate coming from neutron emissions caused by the buildup of californium-252 in heavily irradiated pressure tubes. CNSC staff responded that OPG had determined that the maximum neutron dose that had not been accounted for was 260 microsieverts[97] (µSv). CNSC staff added that no worker would have received a dose in excess of a regulatory limit when including the unaccounted-for dose.[98]

150. The Commission asked the relative contribution to the total equivalent dose rate from californium-252, the transuranic and the neutron activated beryllium in pressure tubes. An OPG representative reported that although Californium-252 represents a very small fraction of the total activity in pressure tubes, it represents 99 percent of the neutron emission rate from the base metal. The OPG representative added that pressure tube and calandria tube components are stored at the Darlington Waste Management Facility in heavily shielded, engineered containers and that the

[93] Transcript March 26, 2025, pages 126-128
[94] Transcript March 26, 2025, pages 128-129.
[95] Transcript June 26, 2025, pages 79-80.
[96] Transcript March 26, 2025, page 135.
[97] 1 µSv is 1/1000th of a millisievert (mSv)
[98] Transcript June, 26, 2025, pages 57-58.

contact dose rate, measured on the outside of these containers, was less than 300 microsieverts. per hour. CNSC staff reported that the neutron dose rate was of about 10 times lower than the gamma dose rate at 200 microsieverts. an hour, versus a gamma dose rate of about 2500 microsieverts an hour.[99]

151. Asked about the average doses received by workers, an OPG representative reported that for normal operations, worker doses are comparable to what a member of the public would receive from normal background radiation and other contributors. The OPG representative added that for planned maintenance outages, doses can range from 0.1 millisievert to 1 millisievert, which are well below the dose limit for nuclear energy workers (NEWs).[100]

152. The Commission concludes that OPG has an adequate radiation protection program in place that meets regulatory requirements to protect the health and safety of persons and the environment from radiation hazards associated with the Darlington NGS. The Commission bases its conclusion on the following:

- the Commission finds that OPG has demonstrated that effective measures and programs are in place at the Darlington NGS to continue to control radiation hazards and doses to workers
- the Commission is satisfied that individual and collective dose information confirms that OPG has kept doses to workers well below regulatory limits during the current licence period
- the Commission is satisfied that the estimated dose to the public demonstrates that OPG adequately controls radiological doses to the public well below regulatory limits
- the Commission is satisfied that OPG's radiation protection program meets regulatory requirements, including the Radiation Protection Regulations.
- the Commission agrees with CNSC staff that OPG has suitably applied the ALARA principle at the Darlington NGS during the current licence period
- the Commission finds that OPG has adequate measures in place and plans for the reduction of the Darlington NGS tritium source term

3.4.8 Conventional Health and Safety

153. The conventional health and safety SCA covers the implementation of a program to manage workplace safety hazards and to protect personnel and equipment. A conventional health and safety program manages conventional (non-radiological) workplace safety hazards and ensures compliance with applicable labour codes.

[99] Transcript June, 26, 2025, pages 51-52.
[100] Transcript June, 26, 2025, pages 56-57.

Licence condition 8.1 of the current licence requires OPG to implement and maintain a conventional health and safety program.

154. Paragraph 3(f) of the CINFR provides that a licence application for a Class I nuclear facility must include a description of the proposed worker health and safety policies and procedures. Paragraph 29(1)(h) of the GNSCR also requires licensees to report to the CNSC on serious illnesses or injuries incurred or possibly incurred as a result of licensed activities.

155. In section 2.8 of CMD 25-H2.1, OPG provided the Commission with information on its conventional health and safety program, along with current improvements and initiatives, including its performance, practices and awareness. OPG submitted that its programs and processes comply with the requirements of the *Ontario Occupational Health and Safety Act*[101] (OHSA). For its refurbishment, OPG reported that it has a dedicated team of advisors who provide daily support and ensure contractors are held accountable to OPG's health and safety expectations.

156. In section 3.8 of CMD 25-H2, CNSC staff reported its assessment of OPG's performance related to the radiation protection SCA covering the following specific areas:

- Performance
- Practices
- Awareness

157. CNSC staff reported that OPG's programs within the conventional health and safety SCA meet regulatory requirements.

158. CNSC staff reported on OPG's performance indicators for the conventional health and safety SCA, including:

- accident severity rate
- accident frequency
- industrial safety accident rate
- serious injury incidence rate

159. CNSC staff noted that there have been no lost-time injuries at the Darlington NGS since 2018.

160. The Commission concludes that OPG's conventional health and safety program at the Darlington NGS satisfies regulatory requirements. The Commission is satisfied that OPG's performance during the current licence period provides a reasonable

[101] R.S.O. 1990, c. O.1.

basis for the Commission's conclusion that the health and safety of persons will continue to be adequately protected throughout the next licence period. The Commission is also satisfied that:

- worker injury statistics demonstrate that OPG has measures in place to adequately protect the safety of workers at the Darlington NGS
- OPG maintains a conventional health and safety program at the Darlington NGS that meets CNSC regulatory requirements

3.4.9 Environmental Protection

161. The Environmental Protection SCA covers programs that identify, control, and monitor all releases of radioactive and hazardous substances and effects on the environment from facilities or as the result of licensed activities. These programs include effluent and emission control, environmental monitoring, and estimated doses to the public. Licence condition 9.1 of the current licence requires OPG to implement and maintain an environmental protection program, including a set of action levels.

162. In accordance with the NSCA, licensees are required to make adequate provision for the protection of the environment. Paragraphs 12(1)(c) and (f) of the GNSCR require each licensee to take all reasonable precautions to protect the environment and the health and safety of persons, and to control the release of radioactive nuclear substances and hazardous substances within the site of the licensed activity and into the environment. The *Radiation Protection Regulations* prescribe dose limits for the public, which, pursuant to subsection 1(3), are 1 mSv per calendar year.

163. REGDOC-2.9.1, *Environmental Principles, Assessments, and Protection Measures*[102] describes the CNSC's principles of environmental protection, the scope of an environmental review, the roles and responsibilities associated with an environmental review, as well as the CNSC's requirements and guidance for developing environmental protection measures, including an environmental risk assessment (ERA) where required.

164. The following CSA Group N288 series of standards provides requirements and guidance for the environmental management of nuclear facilities:

- CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and* liquid *effluents for normal operation*

[102] CNSC Regulatory Document, REGDOC-2.9.1, *Environmental Principles, Assessments and Protection Measures*, September 2020.

of nuclear facilities[103] provides guidelines for calculating derived release limits[104]

- CSA N288.3.4, *Performance testing of nuclear air-cleaning systems at nuclear facilities*[105] provides guidelines around the design, implementation, and management of a nuclear air-cleaning system testing program
- CSA N288.4, *Environmental monitoring programs at nuclear facilities and uranium mines and mills*[106] provides guidance on the design and operation of environmental monitoring programs for nuclear facilities
- CSA N288.5, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills*[107] provides guidelines on the design, implementation, and management of an effluent monitoring program
- CSA N288.6, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills*[108] provides guidance on ERAs for Class I nuclear facilities and uranium mines and mills
- CSA N288.7, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*[109] provides requirements and guidance for the design, implementation, and management of a groundwater protection program to manage risks posed to the environment or the health and safety of humans and non-human biota from groundwater
- CSA N288.8, *Establishing and implementing action levels for releases to the environment from nuclear facilities*[110] provides requirements and guidance to develop and implement action levels for releases from a final discharge point at nuclear facilities

165. Health Canada's *Guidelines for Drinking Water Quality - Summary Tables*[111] and the *Ontario Drinking Water Quality Standards*[112] provide guidelines for radiological parameters for drinking water.

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[103] CSA Group Standard, CSA N288.1, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, 2014 (R2019).
[104] OPG plans to implement the 2020 edition of N288.1 by December 31, 2024. See section 7.0 of CMD 24-H5.1A.
[105] CSA Group Standard, CSA N288.3.4, *Performance testing of nuclear air-cleaning systems at nuclear facilities*, 2013 (R2022).
[106] CSA Group Standard, CSA N288.4, *Environmental monitoring programs at nuclear facilities and uranium mines and mills,* 2019.
[107] CSA Group Standard, CSA N288.5, *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills*, 2011 (R2021).
[108] CSA Group Standard, CSA N288.6, *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills,* 2012 (R2017).
[109] CSA Group Standard, CSA N288.7, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills,* 2015 (R2020).
[110] CSA Group Standard, CSA N288.8, *Establishing and implementing action levels for releases to the environment from nuclear facilities*, 2017 (R2022).
[111] *Guidelines for Drinking Water Quality - Summary Tables*, Health Canada, September 2022.
[112] O. Reg. 169/03: *Ontario Drinking Water Quality Standards*.

166. In section 2.9 of CMD 25-H2.1, OPG provided the Commission with information on its environmental protection-related programs at the Darlington NGS, including the following areas:

- Environmental management system
- ERA
- Assessment and monitoring
- Effluent and emission control
- Protection of people
- Fish impingement and entrainment
- Thermal plume

167. OPG detailed its Environmental Management System (EMS), and reported that Darlington NGS has in place environmental protection programs in accordance with REGDOC-2.9.1. OPG reported that its EMS has been certified as compliant with International Standards Organization (ISO) standard 14001, *Environmental management systems Standard*.[113]

168. In section 3.9 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the environmental protection SCA covering the following specific areas:

- ERA
- Effluent and emissions control (releases)
- Assessment and monitoring
- Protection of the public
- Environmental management system

169. CNSC staff reported that OPG's programs within the environmental protection SCA met regulatory requirements, and that OPG continues to maintain and implement an effective Environmental Protection Program at the Darlington NGS.

170. CNSC staff reported that it conducts Environmental Protection Reviews (EPR) for all licence applications with potential environmental interactions, in accordance with the CNSC's mandate under the NSCA and associated regulations. In part 2 of CMD 25-H2, CNSC staff reported that it determined that the information provided by OPG regarding environmental protection is sufficient to meet the applicable regulatory requirements under the NSCA and associated regulations. Based on its assessment and evaluation of OPG's documentation and data, CNSC staff have found that the potential risks from nuclear and hazardous releases to the

[113] 14001:2015, *Environmental management systems Standard*, ISO, 2015

atmospheric, terrestrial, aquatic and human environments from the Darlington NGS site are low to negligible, and that any releases are at levels similar to natural background.

Environmental Risk Assessment (ERA)

171. In section 2.9.2 of CMD 25-H2.1, OPG reported that its Darlington NGS site ERA, issued in 2021 and last revised in 2022, was in accordance with CSA N288.6. OPG noted that it is required to update the ERA at least once every 5 years, as per REGDOC-2.9.1.

172. CNSC staff reported that it reviewed OPG's revised ERA and is satisfied that the ERA meets the requirements of CSA N288.6-12 and REGDOC-2.9.1. Based on the ERA conclusions, no unreasonable risks to human health and the environment attributable to Darlington NGS operations were identified. CNSC staff noted that no new risks have emerged since the previous ERA revision and no unreasonable risks to human health and the environment attributable to Darlington NGS operations were identified.

173. CNSC staff confirmed that OPG continued to implement and maintain effective environmental protection measures to adequately protect the environment and the health of people living in and around the Darlington NGS over the current licence period. CNSC staff submitted that radiological and non-radiological releases from the Darlington NGS were below established limits and posed no risks to human health and the environment.

174. The Commission asked for CNSC staff's perspective on climate change over the next 30 years in terms of species found around the facility. CNSCs staff reported that the impact of climate change is reviewed every 5 years through the ERA process. CNSC staff further reported that, as part of that review, licensees have to take into account the changes in the species around the facility and how they might be impacted as a result of climate change. CNSC noted that it has a very close working relationship with Environment and Climate Change Canada as well as the Ministry of Environment Conservation and Parks.[114]

175. The Commission enquired about OPG's planned improvements around environmental protection over the licence period. An OPG representative reported that OPG's review of the ERA every five years ensures that the program is current and reflects the releases from OPG's facilities, and how they impact the environment. The OPG representative also reported that OPG reviews its significant environmental aspects on an annual basis.[115]

[114] Transcript June 25, 2025, page 178-180.
[115] Transcript March 26, 2025, pages 141-143.

Effluent and Emission Control (Releases) and Monitoring

176. In section 2.9.4 of CMD 25-H2.1, OPG submitted information pertaining to the effluent control program in place at the Darlington NGS, including the following:

- the Darlington NGS site effluent monitoring program is compliant with CSA N288.5
- the Darlington NGS Derived Release Limits are calculated using CSA N288.1
- the Darlington NGS site has a Groundwater Protection Program and Groundwater Monitoring Program compliant with CSA N288.7
- Darlington NGS has in place environmental protection programs in accordance with REGDOC-2.9.1
- OPG monitors and samples airborne releases to verify that they do not exceed the Darlington NGS operational targets, which are more restrictive than regulatory limits

177. CNSC staff confirmed that OPG continues to adequately control releases of nuclear and hazardous substances to the environment and that OPG has implemented and maintains an effluent and emissions monitoring program at the Darlington NGS compliant with CSA N288.5.

178. CNSC staff reported that, in 2022, OPG updated its derived release limits[116] (DRLs) at the Darlington NGS in accordance with CSA N288.1. CNSC staff reviewed and accepted the new DRLs, which continue to provide adequate protection to the environment and to people from impacts of radionuclides. CNSC staff also reported that OPG implemented a groundwater protection program in accordance with CSA 288.7.

179. The Commission enquired about OPG's monitoring of air, water and groundwater. An OPG representative reported that OPG monitored air, water and groundwater around its facility; beyond the facility, OPG monitored air, lake water and drinking water from the water supply plant. The OPG representative also added that OPG samples eggs, milk and chicken, at various frequencies. The OPG representative reported that all the data go into a modelling tool, utilized to help OPG to assign a dose attributed to the operation of the facility.[117]

[116] The DRL is the release rate that would cause an individual of the most highly exposed group to receive a dose equal to the regulatory annual dose limit due to release of a given radionuclide to air or surface water during normal operation of a nuclear facility over the period of a calendar year.
[117] Transcript June 24, 2025, pages 96-97.

180. On the topic of groundwater at the Darlington NGS site, an OPG representative reported that results from 2023 show a normal variation of tritium as it migrates across the site. The OPG representative added that there was no release of groundwater to the natural environment beyond the site, as demonstrated through the tritium monitoring results.[118] CNSC staff reported that, based on the past 10 years of data, OPG reported a statistically significant upward trend for tritium in monitoring wells located outside of the fence line around the Darlington NGS area. CNSC staff emphasized that, while statistically significant, the levels monitored in these wells are not significant from a public dose perspective.[119]

181. With respect to the Darlington NGS's thermal plume,[120] an OPG representative reported that OPG does not perform an assessment on an annual basis, but rather assesses the potential for change as part of the ERA. The OPG representative added that OPG was required to conduct a thermal assessment, coming out of the refurbishment, to understand whether there were any changes that may have occurred and make any adjustment to the monitoring programs.[121]

182. The Commission enquired about OPG's measures in place at Darlington NGS to face a sudden surge of fish impingement and/or entrainment. An OPG representative reported that OPG was required to monitor, through its *Fisheries Act* authorization, the incidental fish kill that occurs as a result of OPG taking cooling water from Lake Ontario. The OPG representative reported that OPG was required to compensate for its impacts with offset measures. The OPG representative added that for the renewal of OPG's *Fisheries Act* authorization, OPG would be looking at past performance to plan the future authorization. The OPG representative reported that monitoring was done through periodic assessments. The OPG representative also reported that OPG was looking at OPEX from other NGSs but added that the deep-water intake for the Darlington NGS provided a measure of protection against the surge of fish impingement experienced by other NGSs. CNSC staff reported that OPG will perform a best available technology economically achievable (BATEA) assessment, to further mitigate impingement and entrainment losses, associated with the continued operation of the cooling water system.[122]

183. The Commission asked for more information on the assessment of cumulative impacts. An OPG representative reported that OPG was monitoring both the Pickering NGS site as well as the Darlington NGS site. The OPG representative reported that the radiation doses for this current year were 0.85 µSv for the Darlington NGS and 1.4 µSv for the Pickering NGS, and added that the combined effect of both was very low in comparison of the 1000 µSv per year limit.[123] Further

[118] Transcript June 26, 2025, page 5
[119] Transcript June 26, 2025, pages 244-246.
[120] A water thermal plume is a localized area of warmer water rising in a body of water, typically due to a heat source like a power plant discharge.
[121] Transcript June 26, 2025, pages 220-224.
[122] Transcript March 26, 2025, pages 151-152.
[123] Trasncript June 24, 2025, pages 99-101.

on cumulative impacts, CNSC staff noted that there was no radiological hazard from the DNNP during its current construction phase.[124]

184. In its intervention, CELA, Durham Nuclear Awareness, and Slovenian Home Association (CMD 25-H2.59) asserted that OPG's estimates of low radiation doses from releases at the Darlington NGS are unreliable as they contain large uncertainties. Asked for more information on this topic, an OPG representative reported that there are no data to support the view that there are large releases from the Darlington NGS. The OPG representative noted that OPG had the lowest release of tritium of all Canadian nuclear generating stations. The OPG representative added that OPG overall dose attributed to the operation of the Darlington facility for year 2024 was 0.85 microsieverts against the limit of 1,000 microsieverts, demonstrating that OPG's performance and its impact on the environment and the public is very small.[125]

185. The Commission asked about a reported exceedance of the weekly airborne tritium oxide at the tritium removal facility. An OPG representative explained that the exceedance was related to an equipment challenge with a glovebox resulting in the emission of elemental tritium. The OPG representative reported that despite this event, the Darlington NGS annual effective dose limit remained at less than 0.1 percent of the limit.[126]

186. Some intervenors, including the Canadian Coalition for Nuclear Responsibility (CMD 25-H2.73) and Nancy Covington (CMD 25-H2.65), raised concerns regarding routine emissions of tritium at Darlington NGS. The Commission asked about OPG's performance regarding tritium releases. An OPG representative stated that with respect to tritium emissions, OPG ensures that its releases are as low as reasonably achievable through the monitoring and barriers that are in place. The OPG representative noted that over the licence period, OPG's releases were between 0.4 and 0.85 µSv per year, against the limit of 1,000 µSv per year.[127]

187. The Commission asked about OPG's actions to reduce tritium emissions. An OPG representative explained that OPG de-tritiates the moderator and the pressurized heat transport system water using the tritium removal facility at the Darlington NGS. The OPG representative noted that OPG regularly looks for new and innovative tools and techniques to improve its performance, such as reducing the humidity in the air, which removes tritium.[128]

188. With respect to concerns about tritium releases and potential health effects, CNSC staff reported that it had undertaken a tritium studies research project and that it consults with Health Canada with regards to tritium research. CNSC staff added

[124] Transcript June 25, 2025, Pages 133-136.
[125] Transcript June 25, 2025, pages 121-123.
[126] Transcript March 26, 2025, pages 99-100.
[127] Transcript June 24, 2025, pages 93-96.
[128] Transcript June 26, 2025, pages 83-85.

that, as tritium is associated with the CANDU reactor design, CNSC staff give it focused attention to ensure that workers and members of the public, and the environment are safe.[129]

189. The Canadian Coalition for Nuclear Responsibility (CMD 25-H2.73) referred to a 1979 testimony before the Select Committee on Ontario Hydro Affairs regarding health effects on women and their future children from large releases of tritium. CNSC staff noted that while women and children are generally more sensitive to radiation, more and larger studies had been published since that time. CNSC staff noted that it had recently evaluated 561 studies for the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) looking for cancer risk.

190. Further to the intervention from the Canadian Coalition for Nuclear Responsibility (CMD 25-H2.73), the Commission enquired about the emissions of a number of radioisotopes, including cesium-137, and their potential effect on the public. An OPG representative responded that the Radicon study[130] demonstrated that there were no direct linkages between the emissions from a nuclear facility, with respect to cancer clusters. CNSC staff stated that the public was protected as emissions are low, and no adverse health effects are anticipated due to these emissions.[131]

191. CELA, Durham Nuclear Awareness, and Slovenian Home Association (CMD 25-H2.59) submitted that recent international studies have shown an increase in risk from low linear energy transfer radiation, including tritium. The Commission asked for more information on this topic. CNSC staff reported its familiarity with the studies mentioned in the intervention, adding that the CNSC website covers many studies. CNSC staff reported that it does not observe an increase in childhood leukemia or any other type of cancer, around nuclear facilities. CNSC staff added that the UNSCEAR has concluded that the increased incidences of child leukemia and cancer risk are not consistent and cannot be associated with the exposure of radiation from a nuclear facility.[132] CNSC staff further added that it continues to explore any recent developments related to nuclear safety both within Canada and internationally, and that it continually engages with international peers in major nuclear countries, not relying on publications alone.[133]

192. Louis Bertrand (CMD 25-H2.71 and CMD 25-H2.71A), requested that the Commission require that radiation measurements, radiological and conventional releases, accidents and other time-sensitive data be posted on a Web-accessible dashboard and updated in real time. CNSC staff reported that it plans to eventually upload monitoring data regarding groundwater, stormwater, ambient air, surface water, releases to the sewer, soil, and sediment in future updates on the Open

[129] Transcript June 26, 2025, pages 82-83.
[130] *Radiation Exposure and Cancer Incidence (1990 to 2008) around Nuclear Power Plants in Ontario, Canada*, 2013, included in CMD 25-H2.E.
[131] Transcript June 26, 2025, pages 70-72.
[132] Transcript June 25, 2025, pages 120-121.
[133] Transcript June, 25, 2025, pages 129-131.

Government portal. CNSC staff provided details (CMD 25-H2.F) about the multi-stage verification process to ensure that the data posted on the Open Government portal are correct.

Independent Environmental Monitoring Program

193. CNSC staff submitted that, through its Independent Environmental Monitoring Program (IEMP), CNSC staff has analyzed samples from publicly accessible areas around the Darlington NGS site. CNSC staff completed IEMP sampling campaigns around the Darlington NGS in 2014, 2015, 2017, 2021 and 2023. CNSC staff noted that the results from the most recent campaign indicated that the levels of radioactivity measured in soil, sediment, water and vegetation were below applicable guidelines. Further, CNSC staff reported that the results from each of the IEMP campaigns were consistent with the monitoring results submitted by OPG and supported its assessment that OPG's environmental protection program is effective.

194. CNSC staff reported that in 2023, CNSC staff engaged with 3 First Nations who have Aboriginal and Treaty rights in the area of the Darlington NGS, the Mississaugas of Scugog Island First Nation (MSIFN), Curve Lake First Nation (CLFN), and Hiawatha First Nation (HFN), to seek their input into the IEMP. CNSC staff added that it is committed to working with Indigenous Nations and communities to ensure that the IEMP reflects their Indigenous traditional knowledge, land use and values, where possible.

Conclusion on Environmental Protection

195. The Commission concludes that OPG has an environmental protection program in place that meets regulatory requirements, and adequate measures in place at the Darlington NGS to protect the health and safety of persons and the environment. The Commission bases its conclusion on the following:

- the Commission is satisfied that information provided by OPG demonstrates that an adequate EMS is in place at the Darlington NGS
- the Commission is satisfied that OPG's environmental protection programs meet regulatory requirements, including REGDOC-2.9.1 and relevant CSA standards
- the Commission is satisfied that the DRLs for the Darlington NGS have been calculated in accordance with regulatory requirements
- the Commission is satisfied that effluent and monitoring data provided by OPG and CNSC staff demonstrate that releases to the environment have remained well below regulatory limits

- the Commission is satisfied that the releases of tritium to the environment are well below regulatory limits and do not pose an unreasonable risk to the health and safety of persons or the environment
- the Commission was not persuaded by the evidence presented, with respect to health studies, that there are increased risks to the health and safety of persons or the environment in the vicinity of the Darlington NGS
- the Commission is satisfied that the ERA and EPR demonstrate that the potential risks from nuclear and hazardous releases to the atmospheric, terrestrial, aquatic and human environments from the Darlington NGS site are low to negligible
- the Commission is satisfied that information provided by OPG in relation to this hearing demonstrates that the aquatic environment in the vicinity of the Darlington NGS is adequately protected
- the Commission is satisfied that results from the CNSC's IEMP support the conclusion that the public and the environment surrounding the Darlington NGS are protected

3.4.10 Emergency Management and Fire Protection

196. The emergency management and fire protection SCA covers emergency plans and emergency preparedness programs that exist for emergencies and for non-routine conditions.

197. OPG's current licence includes 2 licence conditions related to the emergency management and fire protection SCA:

- Licence condition 10.1 requires OPG to implement and maintain an emergency preparedness program
- Licence condition 10.2 requires OPG to implement and maintain a fire protection program

198. Paragraph 12(1)(c) of the GNSCR states that the licensee shall "take all reasonable precautions to protect the environment, preserve the health and safety of persons and maintain the security of nuclear facilities and of nuclear substances." Paragraph 12(1)(f) states that the licensee shall "take all reasonable precautions to control the release of radioactive nuclear substances or hazardous substances within the site of the licensed activity and into the environment of the licensed activity."

199. Paragraph 6(k) of the CINFR requires that an application for a licence to operate a Class I nuclear facility must include information on the licensee's proposed measures to prevent or mitigate the effects of accidental releases of nuclear substances and hazardous substances on the environment, the health and safety of persons and the maintenance of national security.

200. REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, Version 2[134] sets out the CNSC's requirements and guidance for emergency preparedness and applies to licensees and licence applicants for Class I nuclear facilities. CSA N293, *Fire protection for CANDU nuclear power plants*[135] provides the minimum fire protection requirements for the design, construction, commissioning, operation, and decommissioning of nuclear power plants.[136]

201. In section 2.10 of CMD 25-H2.1, OPG provided information on its emergency management and fire protection programs in its submission, including the following areas:

- Conventional emergency preparedness and response
- Nuclear emergency preparedness and response
- Fire emergency preparedness and response

202. OPG submitted that its Nuclear Emergency Preparedness program implements the requirements of REGDOC- 2.10.1 and serves as the basis for the site-specific nuclear emergency preparedness and response arrangements at OPG's nuclear generating stations.

203. Regarding Potassium Iodide (KI) pills,[137] OPG reported that it continues to provide the Regional Municipality of Durham with the necessary resources and support to pre-distribute KI pills in the 10 km Detailed Planning Zone, to meet the requirements of REGDOC-2.10.1.

204. In section 3.10 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the emergency management and fire protection SCA covering the following specific areas:

- Conventional emergency preparedness and response
- Nuclear emergency preparedness and response
- Fire emergency preparedness and response
- Fire protection

205. CNSC staff submitted that OPG's fire response program meets the regulatory requirements set out in CSA N293 and continues to evolve through a comprehensive training and drill program.

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[134] CNSC Regulatory Document, REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, Version 2, February 2016.
[135] CSA Group Standard, CSA N293, *Fire protection for CANDU nuclear power plants*, 2012 (R2022).
[136] In 2023, OPG implemented Update No. 1 to the 2012 edition of CSA N293 at the PNGS.
[137] Potassium iodide (KI) can be used to protect the thyroid gland from radioactive iodine that may be released into the air in the unlikely event of a radiological emergency

206. The Commission asked for clarification regarding the jurisdictional framework for emergency management. An OPG representative reported that, in Ontario, the overall emergency management framework was defined and governed by the Provincial Nuclear Emergency Response Plan (PNERP), which defines the roles and accountabilities across different governmental agencies and utilities in the province. The OPG representative explained that the Province has the sole accountability and authority to direct public protective actions for the communities around the Darlington NGS, while OPG is accountable for maintaining safe operations. An Emergency Management Ontario representative confirmed OPG's statements.[138]

207. Intervenors, including CELA, Durham Nuclear Awareness, and Slovenian Home Association (CMD 25-H2.59),Linda Gasser (CMD 25-H2.64), Gail Wylie (CMD 25-H2.19) and Catherine Vakil (CMD 25-H2.57), raised concerns regarding KI pill distribution, recommending that the distribution radius should be extended to upwards of 50 km around the Darlington NGS. An OPG representative reported that determining the size of emergency planning zones was under the authority of the Province of Ontario, in consultation with the CNSC. The OPG representative added that for KI pill distribution, OPG has fulfilled its requirements under both the PNERP and REGDOC 2.10.1.[139]

208. Dr. S. Nijhawan (CMD 25-H2.67) expressed concerns that backup diesel generators being located low and close to Lake Ontario posed a risk, potentially being unavailable in the event of a severe accident. The Commission enquired about the potential for a loss of offsite power from natural hazards. An OPG representative described the course of events following a loss of offsite power and the redundancy of equipment, including equipment stored offsite.[140]

209. The Commission further enquired whether the equipment staged in protected areas was vulnerable to flooding that might be caused by an extreme weather event or a seismic event. An OPG representative reported that the equipment was staged in an area where it was accessible and protected. The OPG representative added that the equipment was on high ground and in a building resistant to potential seismic events.[141]

210. The Commission asked for more information on OPG's reliance on outside nuclear facilities, equipment and personnel to manage emergencies. An OPG representative reported that OPG holds an emergency mutual aid agreement with the other Canadian NGS operators which provides a framework and an agreement for cooperation between utilities. The OPG representative reported that the mutual aid agreement provides OPG access to expertise, equipment, capabilities of other utilities in case of a nuclear emergency event. CNSC staff reported that it verifies that the emergency mitigating equipment is being stored adequately and being

[138] Transcript June 24, 2025, pages 90-93.
[139] Transcript June 24, 2025, page 103.
[140] Transcript June 25, 2025, pages 60-61.
[141] Transcript June 25, 2025, pages 63-65.

maintained to manufacturer requirements. An EMO representative reported that EMO practises with the NGS operators and municipal partners with respect to interoperability, as well as the ability to exercise all mitigating measures.[142]

211. The Commission asked what the impact of the population growth around the Darlington NGS will be, over the next three decades, on the evacuation plans devised by OPG. An OPG representative reported that evacuation was one of many different public protective actions that could be used by commanders at the Provincial Emergency Operations Centre. The OPG representative explained that OPG was required to perform an evacuation time estimate, using the most up-to-date federal census data, nominally every five years. The OPG representative added that the analyses are produced and made publicly available on OPG's website.[143]

212. Further on evacuation during a nuclear emergency, the Commission asked OPG for lessons learned from the Fukushima events.[144] An OPG representative reported that OPG has taken a number of actions and applied lessons learned following the events at Fukushima. The OPG representative added that while OPG has taken significant lessons from that event, OPG would continue to learn and improve as the industry evolves. CNSC staff noted that evacuated populations were generally subjected to significant stress and emotional disturbances. CNSC staff noted that it updated REGDOC 2.10.1 to incorporate lessons learned from the Fukushima events, including incorporating contingency planning zones and having a process in place to implement protective actions such as evacuation.[145]

213. In relation to the intervention by the Canadian Association of Nuclear Host Communities and the Municipality of Clarington (CMD 25-H2.27), the Commission asked about the Municipality's preparedness for a nuclear emergency. The Municipality of Clarington fire chief reported that the fire department performs annual inspections and inspects the Darlington NGS for compliance with the fire code. The fire chief also reported that the Clarington fire department has annual exercises with OPG to practice emergency response.[146]

214. The Commission concludes that OPG has adequate emergency management and fire protection programs in place at the Darlington NGS to protect the health and safety of persons and the environment. The Commission also concludes that OPG's existing programs and processes related to the emergency management and fire protection SCA meet regulatory requirements, including REGDOC-2.10.1 and CSA N293, and are adequate to support the continued operation of the Darlington NGS. The Commission is satisfied that:

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[142] Transcript March 26, 2025, pages 157-159.
[143] Transcript March 26, 2025, pages 172-174.
[144] On March 11, 2011, an earthquake and tsunami struck the coast of Japan, resulting in an accident at the Fukushima Daiichi nuclear power plant.
[145] Transcript March 26, 2025, pages 175-176.
[146] Transcript March 25, 2025, pages 100-101.

- the information provided by OPG and the EMO demonstrates that adequate response plans have been, and will continue to be, maintained for the protection of persons in the vicinity of the Darlington NGS
- OPG maintains emergency management and fire protection programs, as well as mutual aid agreements, in accordance with regulatory requirements, including REGDOC-2.10.1
- OPG fulfils its duty for KI pill distribution under the requirements of both the PNERP and REGDOC 2.10.1

3.4.11 Waste Management

215. The waste management SCA covers internal waste-related programs that form part of the facility's operations up to the point where the waste is removed from the facility to a separate waste management facility. It also covers the planning for decommissioning.

216. OPG's current licence includes 2 licence conditions related to the waste management SCA:

- Licence condition 11.1 requires OPG to implement and maintain a waste management program
- Licence condition 11.2 requires OPG to implement and maintain a decommissioning strategy

217. Paragraph 3(1)(j) of the GNSCR provides that a licence application must include the name, quantity, form, origin and volume of any radioactive waste or hazardous waste that may result from the activity to be licensed, including wastes that may be stored, managed, processed, or disposed of at the site of the activity to be licensed, and the proposed method for managing and disposing of that waste. Paragraph 3(k) of the CINFR also requires that a licence application contain the proposed plan for the decommissioning of the nuclear facility or of the site.

218. The following CNSC REGDOCs include requirements and guidance relevant to the waste management SCA:

- REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*[147] sets out the CNSC's requirements and guidance for managing radioactive waste
- REGDOC-3.1.1 sets out reporting requirements for NPPs including periodic reports on safety performance indicators, including low- and intermediate-level radioactive solid waste generated at the PNGS

[147] CNSC Regulatory Document, REGDOC-2.11.1, *Waste Management, Volume I: Management of Radioactive Waste*, January 2021.

219. The following CSA Group standards include requirements and guidance relevant to the waste management SCA:

- CSA N292.0, *General principles for the management of radioactive waste and irradiated fuel*[148] specifies common requirements for the management of radioactive waste and irradiated fuel from generation to storage or disposal
- CSA N292.2, *Interim dry storage of irradiated fuel*[149] specifies requirements for the site selection, design, construction, commissioning, operation, and planning for decommissioning of dry storage systems
- CSA N292.3, *Management of low- and intermediate-level radioactive waste*[150] specifies requirements for the management of radioactive waste to protect the health and safety of people, physical security, and the environment
- CSA N294, *Decommissioning of facilities containing nuclear substances*[151] provides direction on defining, planning, and executing decommissioning work

220. In section 2.11 of CMD 25-H2.1, OPG provided the Commission with information on its waste management program, along with current improvements and initiatives, including the following areas:

- Waste management practices
- Waste characterization
- Waste minimization
- Decommissioning plans

221. OPG submitted that, since 2018, refurbishment activities have contributed to approximately 66% of the total low[152] and intermediate-level waste[153] generated at Darlington NGS. OPG submitted that, when refurbishment activities would be completed in 2026, the volume of low and intermediate-level waste generated annually is expected to be closer to pre-refurbishment averages.

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[148] CSA Group Standard, CSA N292.0, *General principles for the management of radioactive waste and irradiated fuel*, 2019 (R2024).
[149] CSA Group Standard, CSA N292.2, *Interim dry storage of irradiated fuel*, 2013 (R2023).
[150] CSA Group Standard, CSA N292.3, *Management of low- and intermediate-level radioactive waste*, 2014 (R2024).
[151] CSA Group Standard, CSA N294, *Decommissioning of facilities containing nuclear substances*, 2019.
[152] Low-level waste (LLW): Radioactive solid waste that contains material with radionuclide content above established clearance levels and exemption quantities, but that generally has limited amounts of long-lived activity.
[153] Intermediate-level waste (ILW): Radioactive solid waste that typically exhibits levels of penetrating radiation sufficient to require shielding during handling and interim storage.

222. In section 3.11 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the waste management SCA covering the following specific areas:

- Waste characterization
- Waste minimization
- Waste management practices
- Decommissioning

223. CNSC staff confirmed that OPG maintains a nuclear waste management program at the Darlington NGS that meets CNSC requirements. CNSC staff reported that OPG will provide CNSC staff with an implementation plan for CSA N292.3-2014 (R2019), CSA N292.0-2019, and CNSC REGDOC-2.11.1 (2021).

224. CNSC staff noted that, based on its assessment of the 2022 version of OPG's PDP, OPG's PDP meets the regulatory requirements in CSA N294-19, and CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities*.

225. Following a statement by OPG that low-level radioactive wastes were reduced, compacted, recycled, and incinerated, the Commission enquired about recycled and incinerated waste. An OPG representative noted that recycled waste can be reused for other purposes and that residual ashes from incinerated waste were stored as low-level waste in containers.[154]

226. The Commission enquired about OPG's need for additional storage buildings for used fuel dry storage containers. An OPG representative reported that the storage of used fuel in dry storage containers was under a separate licence[155] and that under that licence, OPG was authorized to build up to four storage buildings for the storage of used fuel. The OPG representative noted that the International Atomic Energy Agency (IAEA), CNSC staff and OPG regularly monitor the dry storage containers.[156]

227. Asked about waste reduction at the Darlington NGS, an OPG representative reported that OPG has learned, over the past 50 years, about the various processing techniques, decontamination efforts on how to ensure that OPG is minimizing both the volume of waste that is generated and reducing the quantity of radioactive waste generated. The OPG representative reported that since the 1970s, OPG has improved its volume reduction by approximately 60 percent through processes like incineration and compaction. The OPG representative added that OPG recently entered a partnership with vendor partners with the goal of further minimizing the low-level wastes that are stored at OPG's Western Waste Management Facility

[154] Transcript June 25, 2025, page 40.
[155] OPG's Darlington Waste Management Facility
[156] Transcript June 25, 2025, page 97.

(WWMF).[157] CNSC staff noted that preventing the unnecessary generation of low-level waste in the first place was an important waste minimization strategy.[158]

228. In relation to the intervention by the SON (CMD 25-H2.80), the Commission enquired about the types and characterization of waste stored at the WWMF that comes from OPG's facilities. An OPG representative reported that about 90 percent of the volumes generated are low-level radioactive waste. The OPG representative added that these low-level wastes were materials that have become contaminated with radionuclides during operations and maintenance activities. The OPG representative added that intermediate-level waste, which represents about 7 percent of OPG's nuclear waste, consisted primarily of used reactor core components from refurbishment projects, resins and filters. The OPG representative also reported that, for the next 30 years of operation for the Darlington NGS, OPG would require the storage of approximately the size of three Olympic-sized swimming pools of low-level radioactive waste, after volume reduction, and approximately 200 cubic metres of intermediate-level radioactive waste. The OPG representative noted that used fuel, which is high-level radioactive waste, is stored at the Darlington NGS site.[159]

229. In relation to the intervention from the Nuclear Waste Management Organization (NWMO) (CMD 25-H2.33 and CMD 25-H2.33A), and in recognition of intervenors' interest in the future disposal of used fuel, the Commission asked for more information on the NWMO's planned deep geological repository. An NWMO representative reported that the fuel bundles would be put into a steel container with copper that is specifically designed to last for a very long period. The NWMO representative added that the container would be placed inside a formed bentonite clay box and surrounded by more bentonite to absorb water. The NWMO representative also added that the repository would go through an operating period, followed by a long-term monitoring period, decommissioning and closure.[160]

230. The Commission asked whether the life extension of the Darlington NGS, through the refurbishment, was considered in the NWMO's estimated volume of waste. An NWMO representative reported that the NWMO updates its waste estimate every year, and that the Darlington NGS refurbishment was accounted for in the estimate.[161]

231. The Commission enquired about the timeline for the NWMO's planned deep geological repository for intermediate-level waste. A NWMO representative reported that NWMO was in the process of a dialogue with Canadians and Indigenous peoples on the site selection process. The NWMO representative added

[157] The Western Waste Management Facility (WWMF) is a facility located at the Bruce Nuclear Generating Station in Tiverton, Ontario, Canada. It is used to store low-level and intermediate-level nuclear waste from OPG's reactors.
[158] Transcript March 26, 2025, pages 165-167.
[159] Transcript June 25, 2025, pages 21-24.
[160] Transcript June 26, 2025, page 77.
[161] Transcript June 26, 2025, page 20.

that, based on NWMO's experience with the used fuel repository, the site selection process could be up to 10 years.[162]

232. The Commission asked about expected changes regarding waste management that could come before the Commission. An OPG representative reported that, as the NWMO prepares for the deep geological repository for intermediate-level waste, OPG would provide information on waste characteristics and the volumes. The OPG representative noted that updates to its safety analysis could be part of a licence renewal for the Darlington Waste Management Facility.[163]

233. Based on the information on record, as described above, the Commission concludes that OPG has an adequate waste management program in place and sufficient measures in place to safely manage waste at the Darlington NGS. The Commission finds that OPG's existing programs and processes related to the waste management SCA meet regulatory requirements, including REGDOC-2.11.1 The Commission is satisfied that:

- the information submitted by OPG demonstrates that waste is adequately minimized at the Darlington NGS
- the information provided by OPG regarding its waste management programs shows that measures are in place to adequately manage conventional and radiological waste at the Darlington NGS
- the waste management program in place at the Darlington NGS meets regulatory requirements
- the information provided by OPG and CNSC staff demonstrates that OPG is committed to implementing updated regulatory documents, including REGDOC-2.11.1 (2021), and CSA Group standards N292.3-2014 (R2019) and N292.0-2019

3.4.12 Security

234. The security SCA covers the programs required to implement and support the security requirements stipulated in the regulations, the licence, orders, or expectations for the facility or activity. Licence condition 12.1 of the current licence requires OPG to implement and maintain a security program.

235. Paragraph 12(1)(c) of the GNSCR requires the licensee to take all reasonable precautions to protect the environment and the health and safety of persons, and to maintain the security of nuclear facilities and of nuclear substances. Paragraphs 12(1)(g) and 12(1)(h) require the licensee to implement measures for alerting the licensee to the illegal use or removal of a nuclear substance, prescribed equipment

[162] Transcript June 26, 2025, page 25.
[163] Transcript June 26, 2025, page 26.

or prescribed information, or the illegal use of a nuclear facility, and measures for alerting it to acts or attempts of sabotage, anywhere at the site of the licensed activity. Section 12(1)(j) requires the licensee to instruct workers on the physical security program at the site of the licensed activity and on their obligations under that program.

236. The following CNSC REGDOCs include requirements and guidance relevant to the security SCA:

- REGDOC-2.2.4, *Volume III* sets out expectations concerning minimum requirements for Nuclear Security Officer medical, physical, and psychological certificates
- REGDOC-2.12.1, *High Security Facilities, Volume I: Nuclear Response Force*, Version 2[164] sets out expectations with respect to the minimum requirements for establishing, equipping, training, testing, and deploying an onsite nuclear response force
- REGDOC-2.12.1, *High-Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices*[165] provides an approach for meeting the requirements in the *Nuclear Security Regulations*[166] aimed at preventing and detecting unauthorized entry into a protected area or inner area at high-security sites, including the unauthorized entry of weapons or explosive substances
- REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material*, Version 2.1[167] provides regulatory expectations and guidance for licensees regarding the CNSC's expectations under the GNSCR for security

237. In addition, CSA Group standard CSA N290.7, *Cyber security for nuclear power plants and small reactor facilities*[168] covers the cyber security of new and existing nuclear power plants and small reactor facilities.

238. In section 2.12 of CMD 25-H2.1, OPG provided the Commission with information on its security program, including the nuclear security program and the cyber security program, along with current improvements and initiatives. OPG reported that its security program ensures that the possession, deployment and operation of required facilities and equipment at Darlington NGS comply with the *Nuclear*

[164] CNSC Regulatory Document, REGDOC-2.12.1, *High Security Facilities, Volume I: Nuclear Response Force*, Version 2, September 2018. This REGDOC contains prescribed information and is not publicly available.
[165] CNSC Regulatory Document, REGDOC-2.12.1, *High Security Facilities, Volume II: Criteria for Nuclear Security Systems and Devices*, April 2018. This REGDOC contains prescribed information and is not publicly available.
[166] SOR/2000-209.
[167] CNSC Regulatory Document, REGDOC-2.12.3, *Security of Nuclear Substances: Sealed Sources and Category I, II and III Nuclear Material,* Version 2.1, September 2020.
[168] CSA Group Standard, CSA N290.7, *Cyber security for nuclear power plants and small reactor facilities*, 2014 (R2021).

Security Regulations, and REGDOC-2.12.1 Volume II. OPG also reported that its sealed sources and nuclear fuel are protected, stored and managed in compliance with REGDOC 2.12.3. OPG added that it has established an enterprise-wide cyber security program which provides processes, procedures and controls to ensure OPG meets or exceeds regulatory requirements for cyber security, specifically CSA N290.7.

239. In section 3.12 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the security SCA covering the following specific areas:

- Facilities and equipment
- Response arrangements
- Security practices
- Drills and exercises
- Cyber security

240. CNSC staff reported that, except for in 2021 and 2022 when it was below expectations, CNSC staff rated OPG's performance in the Security SCA as satisfactory throughout the licence period. CNSC staff explained that it had increased regulatory scrutiny in this SCA following the identification of performance issues, and that OPG had since made satisfactory progress in addressing the identified issues. CNSC staff assessed that, while OPG continues to work through its corrective action program, OPG's programs within the security SCA are suitable for continued operation.

241. CNSC staff reported that OPG's Security Program at Darlington NGS was in accordance with the *Nuclear Security Regulations*, and REGDOC-2.12.1, Volume II. CNSC staff added that OPG maintains an onsite response force, in accordance with the *Nuclear Security Regulations* and REGDOC-2.12.1, Volume I. CNSC staff noted that OPG's security clearance process ensures that personnel requiring access to OPG locations or access to OPG security protected information do not pose a risk to the facilities, in accordance with REGDOC-2.12.2.

242. CNSC staff reported that, in February 2023, CNSC staff issued an action for OPG to update its cyber security program to comply with a new revision of N290.7 published in 2021. CNSC staff added that OPG submitted a gap analysis and implementation plan to CNSC staff that was accepted with plans to complete the implementation by March 31, 2027.

243. Based on the information on record as described above, the Commission concludes that OPG has adequate security programs and measures in place to provide for the physical and cyber security of the Darlington NGS during the proposed licence period. The Commission finds that OPG's existing programs and processes related to the security SCA meet regulatory requirements and the *Nuclear Security*

Regulations, and are adequate to support the continued operation of the Darlington NGS. The Commission is also satisfied that:

- the information provided by CNSC staff and OPG demonstrates that adequate measures are in place at the Darlington NGS to ensure the security of nuclear substances, prescribed equipment, and prescribed information from threats defined by the design basis threat
- the information provided by OPG and confirmed by CNSC staff demonstrates that cyber security is adequately addressed at the Darlington NGS, in accordance with CSA N290.7-14
- the Commission is satisfied that OPG has submitted a gap analysis and has committed to fully implementing CSA N290.7-21 by March 31, 2027
- the Commission is satisfied that OPG's security program meets regulatory requirements, including REGDOC-2.12.1, Volume I
- the Commission is satisfied that OPG has made progress to address the performance issues identified in 2021 and 2022

3.4.13 Safeguards and Non-Proliferation

244. The safeguards and non-proliferation SCA covers the programs and activities required for the successful implementation of the obligations arising from the Canada/International Atomic Energy Agency (IAEA) safeguards agreements, as well as all other measures arising from the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT)[169]. Pursuant to the NPT, Canada has entered into a *Comprehensive Safeguards Agreement*[170] and an *Additional Protocol*[171] (safeguards agreements) with the IAEA. The objective of these safeguards agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activity in this country. Licence condition 13.1 of PROL 13.06/2025 requires OPG to implement and maintain a safeguards program.

245. REGDOC-2.13.1, *Safeguards and Nuclear Materials Accountancy*[172] sets out requirements and guidance for safeguards programs for applicants and licensees who possess nuclear material, operate a uranium and/or thorium mine, carry out specified types of nuclear fuel-cycle related research and development work, and/or carry out specified types of nuclear-related manufacturing activities.

[169] INFCIRC/140.
[170] INFCIRC/164.
[171] INFCIRC/164/Add.1.
[172] CNSC Regulatory Document, REGDOC-2.13.1, *Safeguards and Nuclear Material Accountancy*, February 2018.

246. In section 2.13 of CMD 25-H2.1, OPG provided the Commission with information on its safeguards and non-proliferation program, along with current improvements and initiatives, covering the following areas:

- Nuclear material accountancy and control
- Access and assistance to the IAEA
- Operational and design information
- Safeguards equipment, containment, and surveillance
- Import and export

247. OPG submitted that it is submitting reports of inventory status to the CNSC and IAEA as required by the licence and REGDOC-2.13.1.

248. In section 3.13 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the safeguards and non-proliferation SCA covering the following specific areas:

- Nuclear material accountancy and control
- Access and assistance to the IAEA
- Operational and design information
- Safeguards equipment, containment and surveillance
- Import and export

249. CNSC staff assessed that OPG's programs within the safeguards and non-proliferation SCA met regulatory requirements. CNSC staff reported that OPG complied with the CNSC's regulatory requirements in accordance with REGDOC-2.13.1. CNSC staff also found that OPG granted timely access and provided adequate assistance to the IAEA for safeguards activities at the Darlington NGS.

250. The Commission concludes that OPG has adequate safeguards programs and processes related to the safeguards and non-proliferation SCA that meet regulatory requirements, including REGDOC-2.13.1, and are adequate to support the continued operation of the Darlington NGS. The Commission is also satisfied that:

- the information submitted by OPG and CNSC staff demonstrates that OPG has provided for the implementation of measures that are necessary for maintaining national security and for implementing international agreements to which Canada has agreed
- OPG's safeguards and non-proliferation program meets regulatory requirements, including REGDOC-2.13.1

3.4.14 Packaging and Transport

251. The packaging and transport SCA covers the safe packaging and transport of nuclear substances to and from the licensed facility. Licence condition 14.1 of PROL 13.06/2025 requires OPG to implement and maintain a packaging and transport program.

252. The *Packaging and Transport of Nuclear Substances Regulations, 2015*[173] (PTNSR 2015) provides requirements for the packaging and transport of nuclear substances, including the design, production, use, inspection, maintenance and repair of packages, and the preparation, consigning, handling, loading, carriage and unloading of packages. The *Transportation of Dangerous Goods Regulations*[174] (TDGR) provides requirements for the handling and transport of dangerous goods for all shipments.

253. In section 2.14 of CMD 25-H2.1, OPG provided the Commission with information on its packaging and transport program. OPG submitted that its packaging and transport program meets or exceeds all applicable regulatory requirements and related objectives and ensure that packaging and transport of nuclear substances is conducted safely. OPG reported that there have been hundreds of radioactive material shipments to and from the Darlington NGS site during the current licence term and none have been involved in any accidents or any other dangerous occurrences.

254. In section 3.14 of CMD 25-H2, CNSC staff submitted its assessment of OPG's performance related to the packaging and transport SCA covering the following specific areas:

- Package design and maintenance
- Packaging and transport
- Registration for use

255. CNSC staff submitted that OPG has programs in place to ensure compliance with the requirements of both the PTNSR 2015 and the TDGR for all shipments of nuclear substances to and from the Darlington NGS site. CNSC staff assessed that OPG's programs within the packaging and transport SCA met regulatory requirements. CNSC staff noted that shipments of nuclear substances within the Darlington NGS, where access to the property is controlled, are exempted from the application of the PTNSR 2015 and the TDGR.

[173] SOR/2015-145.
[174] SOR/2001-286.

256. Following Northwatch's intervention (CMD 25-H2.75), the Commission asked how used nuclear fuel might be moved from the Darlington NGS to the planned NWMO deep geological repository. CNSC staff responded that any proposed method for such transport activities would be described as part of a future licence application for that project.[175]

257. Based on the information on record as described above, the Commission concludes that OPG has adequate packaging and transport programs and measures in place at the Darlington NGS. The Commission finds that OPG's existing programs and processes related to the packaging and transport SCA meet regulatory requirements and are adequate to support the continued operation of the Darlington NGS. The Commission is also satisfied that:

- the information provided by CNSC staff and OPG demonstrates that OPG has suitable programs in place to safely package and transport nuclear substances to and from the Darlington NGS
- OPG meets all regulatory requirements for packaging and transport, including the PTNSR and TDG Regulations

3.4.15 Conclusions on Safety and Control Areas

258. Based on its analysis of the information provided and discussed above, the Commission is satisfied that OPG is qualified to carry on the licensed activities that the renewed licence would authorize.

259. In addition, the Commission finds that OPG has adequate programs and measures in place with respect to the 14 SCAs to ensure that the health and safety of workers, the public, and the environment will be protected over the licence term.

260. The Commission also finds that OPG has measures in place to provide for the maintenance of national security and to implement international obligations to which Canada has agreed.

261. Finally, the Commission is satisfied that OPG has adequate processes and plans in place to implement new and updated REGDOCs and CSA standards, as applicable. The Commission takes note that CNSC staff will continue to provide regulatory oversight through ongoing compliance verification activities, including inspections, and that CNSC staff will verify that OPG implements new and updated REGDOCs and standards as required.

[175] Transcript June 26, 2025, pages 197-198.

3.5 Indigenous Engagement and Consultation

262. The common law duty to consult stems from section 35 of the *Constitution Act, 1982*[176] and is grounded in the principle of the honour of the Crown, which requires that the Crown act with integrity and in good faith in its dealings with Indigenous people. As an agent of the Crown, the Commission must uphold the honour of the Crown and ensure the duty to consult and accommodate, if applicable, is discharged.

263. The duty to consult is engaged when the Crown has "knowledge, real or constructive, of the potential existence of an Aboriginal right or title and contemplates conduct that might adversely affect it."[177] Specifically, the duty to consult is triggered when the following three elements are met:[178]

- the Crown has knowledge, actual or constructive, of a potential Aboriginal claim or right
- the Crown is contemplating a certain conduct that may engage a potential Aboriginal right
- the Crown's decision or action has the potential to adversely affect an Aboriginal claim or right

264. Licensing decisions of the Commission, where Indigenous interests may be adversely impacted, can engage the duty to consult. In those cases, the Commission must be satisfied that it has met the duty prior to making the relevant licensing decision. The duty to consult is not triggered by historical impacts and is not meant to address past grievances, but rather is designed to address potential impacts flowing from a current proposed project.[179]

265. The determination of what the duty to consult and accommodate requires is informed by the principles and the provisions of the *United Nations Declaration on the Rights of Indigenous Peoples*[180] (UNDRIP), which Parliament adopted into Canadian law via the *United Nations Declaration on the Rights of Indigenous Peoples Act*[181] (UNDA). UNDRIP is to be used as a lens to interpret the Crown's duty to consult and accommodate.[182]

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[176] *Constitution Act, 1982,* Schedule B to the *Canada Act 1982* (UK), 1982, c 11.
[177] *Haida Nation* at para 35.
[178] *Rio Tinto Alcan Inc. v Carrier Sekani Tribal Council,* 2010 SCC 43 at para 31[*Rio Tinto*].
[179] *Rio Tinto* at para 49; *Chippewas of the Thames First Nation v Enbridge Pipelines Inc.*, 2017 SCC 41 at para 41 [*Chippewas of the Thames*].
[180] The United Nations Department of Economic and Social Affairs, *United Nations Declaration on the Rights of Indigenous Peoples*, September 2007.
[181] S.C. 2021, c.14
[182] *Kebaowek First Nation v Canadian Nuclear Laboratories*, 2025 FC 319 [*Kebaowek First Nation*].

266. In meeting its obligations towards Indigenous Nations and communities, the Commission may rely on consultation efforts undertaken by CNSC staff as well as providing the opportunities for Indigenous Nations and communities to make submissions directly to the Commission and to participate in the hearing process. While the Commission cannot delegate its duties, and is ultimately responsible for ensuring that its duties are fulfilled, the Commission may also consider the engagement work undertaken by OPG.[183]

267. The CNSC's consultation process provides for Indigenous Nations and communities to:

- receive and assess project information
- share information and discuss topics of interest
- seek feedback and input on the CNSC processes
- participate in environmental monitoring programs, such as the CNSC IEMP
- apply for funding, such as the PFP and the Stakeholder Capacity Fund, to meaningfully participate in Commission proceedings and ongoing regulatory activities
- participate in public proceedings
- make submissions—both oral and written—about potential or actual impacts to Aboriginal and/or treaty rights, as well as other concerns, and about how those impacts could be mitigated or accommodated
- integrate Indigenous ceremony/tradition into public proceedings

268. The Commission also made changes to the hearing process to foster an environment that encourages working together in partnership and respect, and to more fully incorporate Indigenous cultural traditions. Accommodations included:

- arranging the hearing room so that participants and the Commission were facing each other and were seated on the same level, as closely to a circle-style as possible
- inviting an Elder to deliver an opening prayer during part 1[184] and part 2[185] of the hearing
- inviting an Elder to perform a smudge ceremony during part 2 of the hearing

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[183] Aboriginal Consultation and Accommodation - Updated Guidelines for Federal Officials to Fulfill the Duty to Consult - March 2011 and CNSC Regulatory Document, REGDOC-3.2.2, Indigenous Engagement, February 2022.
[184] Transcript March 26, 2025, pages 4-6
[185] Transcript June 24, 2025, page 5

- providing additional time for rights-holding Nations to share their knowledge and express their views during part 2 of the hearing
- inviting an Elder to make closing remarks at the end of the hearing

269. In section 3.1.3.1 of its supplemental CMD, CMD 25-H2.C, CNSC staff reported that its approach to engagement and consultation is guided by the principles of UNDRIP and is consistent with the whole-of-government approach by:

- building long-term relationships
- providing meaningful opportunities to participate
- incorporating and reflecting Indigenous Knowledge
- reducing financial and capacity barriers
- updating regulatory documents
- increasing cultural competency
- working with Indigenous Nations and communities

3.5.1 Indigenous Engagement by CNSC Staff

270. OPG's Darlington facility falls within the area of historic Southern Treaties (1764 - 1862) entered into following the Royal Proclamation of 1763.[186] These treaties include the Niagara Treaty (1764), the Treaty of Paris (1783), and the Upper Canada Treaties of 1764-1846. The most recent treaty agreements are the Williams Treaties, signed in 1923.

271. In 2018, a settlement agreement was reached between the Crown and the Chippewa and Mississauga peoples who signed the Williams Treaties. The agreement reaffirmed pre-existing rights to fish, hunt, gather, and harvest in certain areas. The agreement also included apologies from Canada and Ontario for their narrow interpretation which denied Chippewa and Mississauga peoples of the rights solidified in the 1923 treaties.[187] The signatories to the Williams Treaties are:

- Alderville First Nation (AFN)
- Curve Lake First Nation (CLFN)

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[186] On October 7, 1763, King George III issued a Royal Proclamation for the administration of British territories in North America, which set out the core elements of the relationship between First Nations and the Crown, established the recognition of First Nation rights in Canada, and laid the foundation of the treaty-making process and Canada's territorial evolution. Retrieved online from the Government of Canada website - Indigenous History in Canada - Royal Proclamation of 1763.

[187] Honourable Carolyn Bennett, Minister of Crown-Indigenous Relations on behalf of the Government of Canada Statement of Apology for the Impacts of the 1923 Williams Treaties, November 17, 2018, Rama, Ontario

- Hiawatha First Nation (HFN)
- Mississaugas of Scugog Island First Nation (MSIFN)
- Chippewas of Georgina Island First Nation
- Chippewas of Beausoleil First Nation
- Chippewas of Rama First Nation

272. In section 3.1.2 of CMD 25-H2, CNSC staff identified the Williams Treaties First Nations (listed above) as having Aboriginal and/or treaty rights in the area of the Darlington NGS. They are also sometimes referred to as the "potentially impacted" Indigenous Nations and communities.

273. CNSC staff also recognized that the following Indigenous Nations and communities have expressed an interest in the licence renewal:

- Métis Nation of Ontario (MNO)
- Mississaugas of the Credit First Nation (MCFN)
- Mohawks of the Bay of Quinte
- Saugeen Ojibway Nation (SON)
- Six Nations of the Grand River (SNGR)

274. CNSC staff reported that, of all identified Indigenous Nations and communities,[188] HFN, CLFN, MSIFN and MCFN accepted the CNSC's offer for specific Darlington NGS licence renewal meetings. CNSC staff also summarized specific topics of interest that were mentioned during their discussions, including concerns on the length of the proposed licence. CNSC staff further reported that the SNGR have expressed concerns regarding how they have been scoped for engagement in the Darlington area. CNSC staff noted that it is committed to working with SNGR on a path forward that addresses SNGR's perspectives and ensures meaningful engagement.

275. CNSC staff provided the Commission with information about its consultation and engagement activities with the identified Indigenous Nations and communities in section 4.1 of CMD 25-H2, section 3.1 of CMD 25-H2.C, and orally at the hearing. CNSC staff highlighted that, based on their engagement activities to date, they had not identified any potential new impacts to Indigenous or treaty rights in relation to the licence renewal application. Nevertheless, CNSC staff submitted that it remains committed to ongoing engagement with all identified Indigenous Nations and communities.

[188] The term "identified Indigenous Nations and communities" refers to the potentially impacted and the interested Indigenous Nations and communities.

276. CNSC staff informed the Commission about its engagement on the Environmental Protection Review Report (EPRR), included as part 2 of CMD 25-H2. CNSC staff reported that it shared the Darlington Nuclear Site EPRR with the Nations most engaged and interested in the report – HFN, CLFN and MSIFN – to review and add comments to ensure it appropriately reflected information about Indigenous Knowledge, as well as Indigenous and/or Treaty rights. CNSC staff highlighted how it updated the report based on the feedback received and worked with MSIFN and CLFN to include 'views expressed' sections within the EPRR.

277. CNSC staff also underscored its collaboration on environmental monitoring activities. CNSC staff reported that MSIFN, CLFN and HFN representatives participated in IEMP sampling, which provided an opportunity for mutual learning and understanding while supporting transparency and building trust.

278. Based on the information in OPG's application, CNSC staff is of the view that the licence renewal is unlikely to cause new adverse impacts on the exercise of any potential or established Aboriginal claim or right: the licence renewal will not change the Darlington NGS site characterization, authorize new activities or result in the construction of new facilities at the site.

279. CNSC staff added that, although the requirements of REGDOC-3.2.2: *Indigenous Engagement*[189] were not engaged for OPG's licence renewal application, they reviewed OPG's Indigenous engagement activities during the current licence period and are satisfied that OPG met the regulatory requirements for Indigenous engagement and public outreach.

280. Regardless of CNSC staff's position regarding the lack of novel adverse impacts to any potential or established Aboriginal claim or right, they recognized the importance of Indigenous engagement in the context of this renewal. As a result, CNSC staff proposed the introduction of a new licence condition for OPG to conduct Indigenous engagement activities. This is aimed at ensuring that OPG will continue meaningful engagement with Indigenous Nations and communities throughout the licence period. The proposed licence condition, which is further discussed in section 3.7 of this *Record of Decision*, states:

> "G.7 The licensee shall implement and maintain an Indigenous engagement program."

3.5.2 Indigenous Engagement by OPG

281. The Commission examined the information submitted by OPG regarding its ongoing engagement with Indigenous Nations and communities near the Darlington NGS. OPG provided this information in section 4 of CMD 25-H2.1, and orally at

[189] CNSC Regulatory Document, REGDOC-3.2.2: *Indigenous Engagement*, February 2022.

the hearing. OPG noted that it engaged with the local rights holders of the Williams Treaties First Nations, including AFN, CLFN, HFN, MSIFN, and SNGR.

282. In addition to the local rights holders above, OPG also noted that it provided licence renewal information to the following Indigenous Nations and communities and invited them to engage on OPG's licence renewal application:

- Rama First Nation
- Beausoleil First Nation
- Georgina Island First Nation
- Huron-Wendat Nation
- Mohawks of the Bay of Quinte
- MNO Region 8
- SON
- MCFN
- Kawartha Nishnawbe

283. OPG reported that it has established framework agreements with the CLFN, HFN, MSIFN, AFN, and the SNGR. The framework agreements allow for dedicated time and capacity funding to support ongoing, regular engagement on OPG's nuclear and renewable generation operations.

284. OPG described how it engages with the Indigenous Nations and communities with whom there are established framework agreements on a regular basis to discuss station operations, environmental reporting, employment/procurement opportunities and other topics viewed as priorities by the communities. For those Indigenous Nations and communities with whom there are no established agreements, OPG said that it shares information and is open to engaging as requested and as interest and schedules allow.

285. OPG reported that it developed a draft Indigenous Engagement Plan (IEP) to guide engagement activities on the licence renewal application and that the IEP was updated based on feedback received from Indigenous Nations and communities. OPG added that the IEP is intended to be a dynamic document that can be updated to respond to new comments that come forward from Indigenous Nations and communities and/or any shifts in engagement priorities and needs.

286. OPG argued that the continued operation of the Darlington NGS would not create any new adverse impacts on Aboriginal and/or Treaty rights held by local Indigenous Nations and communities. OPG added that the continued operation of the Darlington NGS would extend known impacts and ongoing mitigation efforts.

3.5.3 Interventions by Indigenous Nations and Communities, and Individuals

287. Five Indigenous Nations and communities submitted written or oral interventions on this matter:

- AFN (CMD 25-H2.78, CMD 25-H2.78A)
- CLFN (CMD 25-H2.79, CMD 25-H2.79A)
- HFN (CMD 25-H2.77, CMD 25-H2.77A)
- MSIFN (CMD 25-H2.76, CMD 25- H2.76A)
- SON (CMD 25-H2.80)

288. AFN, CLFN, HFN, and MSIFN collectively make up the Michi Saagiig Nations. They are part of the Williams Treaties First Nations.

3.5.3.1 Submission by the Michi Saagiig Nations

289. In their joint written intervention (CMD 25-H2.76-79), the Michi Saagiig Nations detailed concerns relating to the relicensing of the Darlington NGS and provided the Commission with comments and recommendations across a variety of topic areas.

290. The Michi Saagiig Nations acknowledge the importance associated with the present application being the renewal of an existing operation. Nevertheless, they argue that this licence renewal application triggers the duty to consult and accommodate for the following reasons:

- in 2024, the Michi Saagiig Nations asserted a new title claim to Lake Ontario and its lakebed near the Darlington NGS, which the CNSC could not have considered as part of previous licensing decisions relating to this facility
- the current application includes expanded activities – particularly, the production of medical isotopes – that were not considered as part of earlier licence applications for the Darlington NGS[190]
- the proposed 30-year renewal raises potential new adverse impacts, including on the population of lake sturgeon (an endangered yet culturally significant species of fish), the increased risk associated with greater amounts of nuclear waste, and the loss of traditional knowledge associated with a prolonged loss of access to traditional lands
- OPG is asking for a precedent-setting 30-year licence, which is a strategic, higher-level decision that triggers the duty to consult[191]

[190] The Darlington NGS was licensed to produce the medical isotope molybdenum-99 (Mo-99) in 2021.
[191] *Rio Tinto* at para 44.

291. The Michi Saagiig Nations also submitted that the duty to consult and accommodate is governed by context. In this case, the Michi Saagiig Nations highlight how the Crown, for many years, interpreted the 1923 Williams Treaties as extinguishing their rights. Indeed, it was not until the settlement agreement of 2018 that the Governments of Canada and Ontario issued apologies and reaffirmed the Michi Saagiig Nation's right to fish, hunt, gather and harvest within parts of their territory. According to the Michi Saagiig Nations, therefore, previous licensing decisions concerning the Darlington NGS were made on the incorrect assumption that the Michi Saagiig Nations rights had been extinguished.

292. The Michi Saagiig Nations argue that the recent recognition of their rights obliges the Crown to consider its decisions within this new context. In their view, this new context also distinguishes this case from other renewal-type decisions.[192]

293. Importantly, the Michi Saagiig Nations stress that OPG's renewal application should "not create indefinite permission to infringe constitutionally protected rights unabated."[193] They argue that characterizing the application as a renewal cannot authorize the unreasonable infringement of section 35 rights, whether due to the length of time or seriousness of the infringement, since the legal test for justifying such an infringement could not be met.[194]

294. In other words, renewal applications should not permit the Crown to avoid its legal obligations. Plus, any ambiguity about whether the duty to consult and accommodate have been triggered should be resolved in favour of the Indigenous group.[195]

295. Additional arguments from the Michi Saagiig Nations were about:

- economic reconciliation and their right to economic benefits from the land
- the Crown's duty to not encumber land for successive generations[196]
- the application of UNDRIP, even if the duty to consult and accommodate has not been triggered[197]
- the CNSC's failure to obtain the Michi Saagiig Nation's FPIC as part of this application and to embrace items developed as part of the UNDA Action Plan
- the Commission's overall duty to uphold the Honour of the Crown

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[192] For this reason, the Michi Saagiig Nations argue that cases such as *Fond du Lac Denesuline First Nation v Canada (Attorney General)*, 2012 FCA 73 are distinguishable and should not be followed here.
[193] CMD 25-H2.76, page 33.
[194] This Supreme Court of Canada established this legal test in *R. v. Sparrow*, [1990] 1 SCR 1075 [*Sparrow*]
[195] *R v Desautel*, 2021 SCC 17, *R v Badger*, [1996] 1 SCR 771 at para 41.
[196] The Michi Saagiig Nations argue that the effects of a 30-year licence are generally unknown. They also rely on the Supreme Court of Canada's decision in *Tsilhqot'in Nation v British Columbia*, 2014 SCC 44.
[197] In support of this argument, the Michi Saagiig Nations relied on the *Kabaowek* decision and others.

296. If the Commission renews OPG's licence for the Darlington NGS, the Michi Saagiig Nations argued that the licence extension should not exceed 20 years and should include a condition around Indigenous engagement, designed to promote additional consultation and further reconciliation.

297. The Michi Saagiig Nations also requested a government-to-government relationship which includes them in the regulatory process, including the creation of an Indigenous Advisory Committee that has decision-making powers, a continuous feedback loop, and where they are treated as equal to other government bodies. Instead of an application-by-application or facility-by-facility approach, the Michi Saagiig Nations asked for a holistic approach to all of OPG's nuclear activities that impact them.

Hearing Discussion

298. The Commission asked for further information on the positions of CNSC staff and OPG in relation to the duty to consult. CNSC staff reported that, following an initial analysis of the licence renewal application, it did not identify the potential for new impacts based on its understanding of the exercise of Indigenous rights and the nature of OPG's licence renewal application. CNSC staff added that they had discussions with the Michi Saagiig Nations to understand their concerns about the licence renewal.

299. An OPG representative reported that OPG has been engaging with the Michi Saagiig Nations on a regular basis and discussing Darlington NGS' operations. The OPG representative added that OPG maintains the perspective that the continued operation of the Darlington NGS without changes to its operations or licensing basis does not create any new impacts on rights held by local Indigenous Nations and communities.[198]

300. The Commission asked how the longer duration of an operating licence can impact or trigger the duty to consult. On the one hand, CNSC staff responded by saying that the duty to consult is triggered by the content of the application and not the duration of an operating licence. And on the other, the Michi Saagiig Nations expressed the view that extended licence periods could represent more activities, such as repackaging and transportation of spent fuel, and more effects on the environment, along with the accompanying risks and uncertainties.[199]

301. The Michi Saagiig Nations also argued that the Commission's possible decision to issue a historic 30-year licence to operate represents a strategic, higher-level decision that triggers the duty to consult. In particular, they argue that such a decision involves long-range planning that will set events in motion for the Darlington NGS and beyond. For example, the outcome could significantly influence future decisions, including on an application OPG is preparing to renew

[198] Transcript June 24, 2025, pages 232-234.
[199] Transcript June 24, 2025, pages 205-206.

the operating licence at the Pickering NGS. The period of the proposed licence is precedent-setting, meaning that it creates new impacts for this project, and for future licensing proceedings.

302. The Commission asked for clarification regarding the Michi Saagiig Nations' request to establish an Indigenous Advisory Committee. A Michi Saagiig Nations representative stated:

> *I mean, ultimately, we've agreed that we actually need to elevate the relationship to a Crown entity that can respond appropriately. The Commission, with all due respect, by not adopting UNDRIP and FPIC, it's not the body that the Nations are able to work with given UNDRIP and FPIC. So we've got to elevate that to the federal Crown, through NRCan, because this Commission isn't empowered to adopt UNDRIP and FPIC. That's where the Nations see their laws better meshing with Crown laws.*[200]

303. The Commission enquired about OPG's relationship with the Michi Saagiig Nations. An OPG representative noted that their relationship with the Michi Saagiig Nations had evolved significantly over the last licensing term. They added that, while conversations specific to the Darlington NGS licence have been ongoing since 2023, conversations with the Michi Saagiig Nations had started before that and would continue. The OPG representative also highlighted its monthly framework agreement meetings with each of the Michi Saagiig Nations to discuss topics that are relevant and of interest. OPG representatives committed to having a site-specific engagement plan for the Darlington NGS and added that their engagement was independent of any licensing activity.[201]

304. The Commission also asked about CNSC staff's relationship with the Michi Saagiig Nations. CNSC staff noted that it has signed terms of agreements with three of the Nations: CLFN, HFN, and MSIFN. These agreements outline how they want to work together. CNSC staff added that it has monthly meetings with the Nations that have terms of reference agreements. CNSC staff also reported that it held topic-specific workshops that included other federal agencies, such as Natural Resources Canada and the Department of Justice, to discuss certain matters of interest.[202]

305. On the level of dialogue and conversation, a Michi Saagiig Nations representative stated:

> *We can't just have one meeting once a month. We have to have several on several different topics and break them out because there's so, so much going on and the impacts are so -- can be so heavy*.[203]

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[200] Transcript June 24, 2025, pages 223-224.
[201] Transcript June 24, 2025, pages 248-249.
[202] Transcript June 24, 2025, pages 253-255.
[203] Transcript June 24, 2025, page 259.

306. When asked about climate change, CNSC staff expressed the view that the current framework adequately covers environmental impacts, including climate change impacts. CNSC staff noted that the environmental protection review report for the Darlington site was updated and posted on CNSC's website in January 2025, and that these reports now include a specific section related to CNSC staff's assessment related to climate change. CNSC staff also added that its environmental risk assessment process has a mechanism to ensure that there is input from Indigenous Nations and communities. A Michi Saagiig Nations representative asserted that they need to negotiate with OPG on how to deal with climate change issues.

3.5.3.2 Submission by the Saugeen Ojibway Nation

307. In its intervention, CMD 25-H2.80, and during the hearing, the SON presented its views to the Commission. The SON argued that:

- the Crown has not discharged its duty to consult and accommodate SON with respect to the additional stream of nuclear waste that would be transported to SON Territory during the requested 30-year licence period
- SON's FPIC for the management, storage, and potential disposal of waste in SON Territory, as required by UNDRIP and UNDA, has not been obtained
- a 30-year licence term would set a troubling precedent for other nuclear generating stations, including the Bruce Nuclear Generating Station in the SON Territory, and would act to diminish regulatory protections for SON

308. In its presentation, the SON asserted that there was no plan to remove the low-level and intermediate-level waste from the WWMF. CNSC staff responded by noting that all waste stored at the WWMF was for interim purposes, as the WWMF is not considered a disposal site. CNSC reported that the disposal of all intermediate-level radioactive waste will become the responsibility of the NWMO, while OPG is responsible for developing a disposal solution for low-level radioactive waste. Regarding the historical waste stored at the WWMF, an OPG representative underlined how new innovations have allowed them to implement a sorting and recycling facility to further reduce the volume of waste.[204]

309. Asked about OPG's relationship with the SON, an OPG representative reported that the SON and OPG have been in discussions to identify and resolve legacy issues related to the WWMF. They also committed to ongoing engagement with the SON on the WWMF's operations, developing a relationship framework around the WWMF, and continuing to share information about projects and operations of interest.[205]

[204] Transcript June 25, 2025, pages 41-43.
[205] Transcript June 25, 2025, pages 26-27.

310. An OPG representative noted that it would be applying to renew the WWMF's licence within the next three years, and that there would be additional engagement with SON on that activity, beyond their ongoing efforts.[206]

311. In response to a question from the Commission, CNSC staff confirmed that all waste generated by the Darlington NGS, including legacy waste, is being safely managed.[207]

312. The Commission asked about CNSC staff's relationship with the SON. CNSC staff reported that the CNSC has had a terms of reference agreement with the SON since 2019, resulting in regular meetings. CNSC staff noted that some of the ongoing meetings have included topics such as the Darlington NGS licence renewal. CNSC staff added that it also started working with the SON on compliance verification criteria language for the proposed Licence condition G.7.[208]

313. Asked for comments on the discussions with OPG and CNSC staff, a SON representative stated that:

> *... we're hopeful that now SON and OPG are on a good path and that we will find a mutually agreeable arrangement that will include the conditions for the continued operation for Western Waste Management Facility that SON can agree to for the first time in its history*.[209]

The SON also added:

> *...it is accurate that CNSC Staff and SON now have been meeting to discuss licence conditions for this Application that might satisfy SON's concerns.*[210]

3.5.4 Conclusion on Indigenous Engagement and Consultation

314. The Commission greatly appreciates the participation of the Michi Saagiig Nations and SON, and other members of Indigenous Nations and communities in this hearing process.

315. The Commission carefully considered the oral and written submissions of the Indigenous Nations and communities provided as part of the public hearing for this licence renewal application. The hearing process provided a valuable opportunity for the Commission to hear the important views and perspectives of Indigenous Nations and communities on the matter before the Commission.

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[206] Transcript June 25, 2025, pages 27-28.
[207] Transcript June 25, 2025, pages 29-31.
[208] Transcript June 25, 2025, pages 31-32.
[209] Transcript June 25, 2025, page 38.
[210] Transcript June 25, 2025, page 36.

316. The Commission is honoured by the prayers and ceremonies that were offered by the Michi Saagiig Nations and the Commission sincerely appreciates the participation of the Indigenous Nations and communities, with special gratitude for Elders who shared their knowledge and wisdom. The Commission recognizes the valuable time and energy that Indigenous Nations and communities spent sharing and engaging with the Commission.

317. The Commission also considered the information provided by CNSC staff and OPG regarding Indigenous consultation and engagement activities in respect of this matter.

318. The Commission recognizes the efforts made by OPG in relation to Indigenous engagement, and its commitment to further develop these relationships with Indigenous Nations and communities.

319. The Commission also acknowledges efforts made by CNSC staff on behalf of the Commission. This included efforts to ensure that Indigenous Nations and communities were properly informed of the licence renewal application, and that participant funding was made available to assist participation by Indigenous Nations and communities.

320. The Commission notes that continued dialogue between OPG, the CNSC, and Indigenous Nations and Communities is essential in furthering reconciliation and recognizes that reconciliation also requires meaningful, concrete actions. For the CNSC, the NSCA outlines the regulatory mandate in relation to which it can take steps toward reconciliation in its licensing and regulatory oversight.

321. In the circumstances of this case, the Commission concludes that there is no duty to consult in relation to OPG's renewal application for the Darlington NGS. However, the Commission recognizes that it retains the important duty of upholding the honour of the Crown.

322. As mentioned above, the common law duty to consult with Indigenous Nations and communities arises when the Crown has knowledge of the existence of Aboriginal rights or title and contemplates conduct that might adversely affect those rights or title.[211] The existence and scope of the duty to consult or accommodate are legal questions that must be grounded in factual assessments.[212]

323. In rendering its decision, the Commission must assess whether it has fulfilled the duty to consult, in accordance with the honour of the Crown and section 35 of the *Constitution Act, 1982*. Furthermore, the Commission recognizes that the application and scope of the duty to consult must be considered through the interpretive lens of UNDRIP.[213] UNDRIP and its articles ought to be used to aid in

[211] *Haida Nation* at para 35.
[212] *Haida Nation* at para 35.
[213] *Kebaowek First Nation* at para 128.

the interpretation of the scope of section 35 rights and of the duty to consult and accommodate such rights.[214]

324. The Supreme Court has held that past wrongs and continuing breaches of Aboriginal rights do not, in and of themselves, give rise to a duty to consult.[215] Determining whether potential adverse impacts constitute continuing breaches requires close examination of the specific decision at issue. If past wrongs or continuing breaches give rise to new or novel impacts on Aboriginal rights, the duty to consult is triggered. The Supreme Court wrote the following in the *Rio Tinto* decision:

> [45] The third element of a duty to consult is the possibility that the Crown conduct may affect the Aboriginal claim or right. The claimant must show a causal relationship between the proposed government conduct or decision and a potential for adverse impacts on pending Aboriginal claims of rights. Past wrongs, including previous breaches of the duty to consult, do not suffice.
>
> […]
>
> [48] An underlying or continuing breach, while remediable in other ways, is not an adverse impact for the purposes of determining whether a particular government decision gives rise to a duty to consult… The duty arises when the Crown has *knowledge*, real or constructive, of the potential or actual existence of the Aboriginal right or title "and contemplates conduct that might adversely affect it": *Haida Nation*, at para. 35 (emphasis added). This test was confirmed by the Court in *Mikisew Cree* in the context of treaty rights, at paras. 33-34.
>
> [49] The question is whether there is a claim or right that potentially may be adversely impacted by the *current* government conduct or decision in question. Prior and continuing breaches, including prior failures to consult, will only trigger a duty to consult if the present decision has the potential of causing a novel adverse impact on a present claim or existing right. This is not to say that there is no remedy for past and continuing breaches, including previous failures to consult. As noted in *Haida Nation*, a breach of the duty to consult may be remedied in various ways, including the awarding of damages. To trigger a fresh duty of consultation — the matter which is here at issue — a contemplated Crown action must put current claims and rights in jeopardy.

325. The Supreme Court reaffirmed in *Chippewas of the Thames* that the duty to consult does not extend to addressing historical impacts. However, such impacts may be used to inform the scope of consultation in order to recognize the potential consequences of the proposed decision:

> [41] The duty to consult is not triggered by historical impacts. It is not the vehicle to address historical grievances. In *Carrier Sekani* [2010 SCC 43, [2010]

[214] *Kebaowek First Nation* at para 80.
[215] *Rio Tinto*.

> 2 SCR 650], this Court explained that the Crown is required to consult on "adverse impacts flowing from the specific Crown proposal at issue — not [on] larger adverse impacts of the project of which it is a part. The subject of the consultation is the impact on the claimed rights of the *current* decision under consideration" (*Carrier Sekani*, at para. 53 (emphasis in original))…

326. The Commission recognizes that the Darlington NGS was constructed without consulting Indigenous Nations or communities under section 35 of the *Constitution Act, 1982*. The Commission also recognizes that the construction of the Darlington NGS and its operations may have resulted in adverse impacts on the rights of the identified Indigenous Nations and communities. However, the matter in front of the Commission involves the renewal of a licence that will not change the characteristics of the site, authorize new activities, or result in the construction of new facilities.

327. Applying the Supreme Court's decision in *Rio Tinto*, there is no duty to consult about past wrongs and continuing breaches where, like here, the contemplated decision does not result in new or novel adverse impacts on Aboriginal or treaty rights. As previously mentioned, the application in front of the Commission is a licence renewal application in which OPG is asking to continue operating its Class IA power reactor in the same manner as it does presently. OPG's current licence includes medical isotope production that was authorized through licence amendments in October 2021,[216] June 2024,[217] and May 2025.[218] These licence amendments were considered in public proceedings and the Commission considered its duties under section 35 of the *Constitution Act, 1982* at those times.

328. The Commission acknowledges the Michi Saagiig Nation's asserted claims over the lake and lakebed, as well as the Williams Treaties Settlement Agreement of 2018. The Commission does not have the authority to confirm, establish or deny the existence of Aboriginal and/or treaty rights as claimed or asserted by Indigenous Nations and communities. The Commission expects OPG to continue to work with the William Treaties First Nations to engage on the issue of the jurisdiction of the Lake Ontario lakebed and the potential issuance of a land use easement. Moreover, the renewal of OPG's licence does not involve any new activities that would introduce new environmental impacts or change the licensed activities at the

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[216] Record of Decision DEC 21-H107, In the Matter of Ontario Power Generation Inc., *Application to Amend Power Reactor Operating Licence PROL 13.02/2025 to Authorize the Production of Molybdenum-99 at the Darlington Nuclear Generating Station*, October 26, 2021.
[217] Record of Decision DEC 24-H101, In the Matter of Ontario Power Generation Inc., *Application to Amend Power Reactor Operating Licence PROL 13.03/2025 to Authorize the Production of Cobalt-60 at the Darlington Nuclear Generating Station*, June 5, 2024.
[218] Record of Decision DEC 25-H100, in the Matter of Ontario Power Generation Inc., *Application to Amend Darlington Nuclear Generating Station Power Reactor Operating Licence 13.05/2025 for the Production of Additional Isotopes using the Target Delivery System*, May 23, 2025.

Darlington NGS. As such, the Commission finds that there are no new or novel adverse impacts to potential or established Aboriginal claims or rights.[219]

329. The activities proposed to continue under the renewed licence have already been subject to necessary reviews, including environmental reviews, and OPG is not proposing any changes to the scope of these activities. Consequently, the continued operation of OPG's Darlington NGS does not give rise to new or novel adverse impacts that would trigger a duty to consult. While continuing impacts associated with the facility's operation are acknowledged, none are new or novel. Accordingly, the Commission concludes that no duty to consult is engaged in relation to the current licence renewal application.

330. The Commission finds that it is upholding the Honour of the Crown and fulfilling its constitutional obligations with regard to Indigenous engagement, interpreted through the lens of UNDRIP. This conclusion is based on the CNSC's ongoing oversight mechanisms, the consultation activities undertaken by CNSC staff, engagement efforts made by OPG, and steps taken to facilitate the participation by Indigenous Nations and communities in this proceeding. Important to this finding, and for reasons described more fully below, the Commission is limiting OPG's renewed licence to 20 years and is inserting a new licence condition to reinforce the importance of ongoing Indigenous engagement activities. Finally, the Commission is directing CNSC staff to work with OPG, the Michi Saagiig Nations and the SON to finalise the compliance verification criteria of Licence condition G.7.

331. Although the Commission has concluded that OPG's licence renewal application does not attract a duty to consult, the consultation process conducted as part of the public hearing for this licence renewal application, as well as the consultation activities undertaken by CNSC staff and the engagement efforts carried out by OPG would have been sufficient to meet the obligations of the Crown when the duty is triggered at the low end of the spectrum.

332. As discussed in section 1.0 of this *Record of Decision,* participant funding was provided to facilitate Indigenous Nations and communities' participation in the hearing process, enabling them to share their concerns and views with the Commission.

333. The Commission acknowledges the issues raised by SON regarding the future management of waste generated at the Darlington NGS that may be stored at the WWMF. The Commission notes that the issues raised by the SON are related to the WWMF, not the Darlington NGS. For the purpose of this hearing, where the Commission is considering OPG's licence renewal application for the Darlington NGS, the Commission is satisfied that OPG's waste will be managed within the existing licensing bases of other CNSC licensed facilities.

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[219] *Rio Tinto* at paras 45 and 49.

334. The Commission notes that the duty to consult involves a dialogue, with both "informational and response components." It requires the Crown to listen to the views and concerns about potential impacts of Crown decision-making on Indigenous claims or rights, and, where necessary and possible, to modify the action or decision in a way that minimizes the infringement of those rights.[220] When the duty is triggered at the low end of the spectrum, the Crown is required to provide notice and to engage in a manner that conveys information about the decision and identifies possible adverse impacts based on the Crown's knowledge of the Indigenous interests at stake. Further, the Crown must listen to and carefully consider the concerns of the Indigenous Nations and attempt to minimize adverse impacts on rights.[221] In assessing whether this duty has been fulfilled, "[t]he focus is on the process and whether reasonable efforts were made, and not on the substantive outcome".[222]

335. The Commission encourages OPG to work collaboratively with Indigenous Nations and communities to identify opportunities for improved involvement in ongoing activities at the Darlington NGS. The Commission expects OPG to build upon the feedback received during this hearing in order to strengthen its engagement with Indigenous Nations and communities in relation to its licensed activities. The Commission trusts that OPG has heard the perspectives and concerns shared by Indigenous Nations and communities regarding the waste streams and the lack of meaningful engagement.

3.6 Other Matters of Regulatory Importance

3.6.1 Public Engagement

336. A public information and disclosure program (PIDP) is a regulatory requirement for licence applicants and licensed operators of Class I nuclear facilities, as detailed in REGDOC-3.2.1, *Public Information and Disclosure*.[223] Licence condition G.6 of PROL 13.06/2025 requires OPG to implement and maintain a public information and disclosure program.

337. In section 5.3 of CMD 25-H2.1, OPG provided the Commission with information on its PIDP. OPG described the various aspects of its program, including the identification of target audiences, communication methods, station reporting, and community outreach and committees. OPG highlighted newsletters, site tours, community committee meetings, annual Community Power Expo, and other mechanisms in place to ensure the public is informed of the activities of the Darlington NGS.

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[220] *Mikisew Cree First Nation v. Canada (Minister of Canadian Heritage)*, 2005 SCC 69 at para 64. [*Mikisew Cree*]
[221] *Mikisew Cree* at para 64.
[222] *Roseau River First Nation v. Attorney General of Canada*, 2023 FCA 163 at para 34, citing *Coldwater First Nation v. Attorney General of Canada*, 2020 FCA 34 at paras 29 and 53.
[223] CNSC Regulatory Document, REGDOC-3.2.1, *Public Information and Disclosure*, CNSC, May 2018

338. In section 4.3 of CMD 25-H2, CNSC staff included information on its assessment of OPG's PIDP. CNSC staff noted that REGDOC-3.2.1 was currently under review and that OPG would be required to comply with any changes to the REGDOC. CNSC staff reported that it would continue to assess OPGs PIDP throughout the lifecycle of the Darlington NGS to verify compliance and ongoing improvements.

339. Following the presentation by the Clarington Board of Trade (CMD 25-H2.29), the Commission enquired about the Darlington Community Advisory Council. An OPG representative explained that the Community Advisory Council was made up of citizens, representatives of non-governmental organizations, and members of local governments, and reflects the demographic diversity and the range of stakeholder interest in the local community. The OPG representative added that the Community Advisory Council advised OPG leadership on matters of importance or interest to the community.[224]

340. In relation to the intervention from Louis Bertrand (CMD 25-H2.71), the Commission enquired about OPG's efforts to increase the availability of data for transparency. An OPG representative reported that data needs to be verified before being made available to the public to ensure that they are accurate. The OPG representative added that there is a lot of data already available on OPG's website, but OPG could look at making the data more easily accessible. CNSC staff reported that the monitoring data collected by OPG was sufficient to confirm that the health of people and the environment is protected. CNSC staff reiterated that OPG meets the requirements outlined in REGDOC 2.9.1 as well as the applicable CSA standards for environmental protection.[225]

341. The Commission enquired whether OPG was looking at artificial intelligence to accelerate the validation of data process. An OPG representative reported that OPG was looking at ways of improving upon the delivery of the information. CNSC staff reported that it was looking for more expeditious ways to share data that has been made available to CNSC staff and would be exploring artificial intelligence and other means as they become available.[226]

342. Based on the information on record, as described above, the Commission concludes that OPG has adequate measures in place to communicate to the public information about the health, safety and security of persons and the environment, including information relevant to the continued operations of the Darlington NGS.

3.6.2 Decommissioning Plans and Financial Guarantee

343. The Commission requires that OPG have operational plans for the decommissioning and long-term management of waste produced during the

[224] Transcript June 25, 2025, pages 203-204.
[225] Transcript June 26, 2025, pages 104-107.
[226] Transcript June 26, 2025, page 112.

lifespan of the Darlington NGS. To ensure that adequate resources are available for the safe and secure future decommissioning of the Darlington NGS site, the Commission requires that an adequate financial guarantee be in place and maintained in a form acceptable to the Commission throughout the licence period.

344. OPG's current licence includes 2 licence conditions related to decommissioning plans and financial guarantee:

- Licence condition 11.2 requires OPG to implement and maintain a decommissioning strategy
- Licence condition G.5 requires OPG to maintain a financial guarantee for decommissioning that is acceptable to the Commission

345. The Commission accepted OPG's current financial guarantee for the Darlington NGS in 2022.[227]

346. In section 2.11.4 of CMD 25-H2.1, OPG reported that its preliminary decommissioning plan (PDP) covering the 2023-2027 period was prepared in accordance with the requirements of CSA standard N294-19, *Decommissioning of facilities containing nuclear substances*,[228] CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities*,[229] and G-206, *Financial Guarantee for the Decommissioning of Licensed Activities*.[230] OPG explained that the next revision of OPG's PDP will meet the requirements of CNSC regulatory documents REGDOC-2.11.2, *Decommissioning*,[231] and REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licenced Activities*.[232]

347. In section 3.11 of CMD 25-H2, CNSC staff confirmed that OPG's most recent PDP for the Darlington NGS, which was submitted in support of the updated financial guarantee in 2022, met regulatory requirements. CNSC staff noted that OPG's next revision of its PDP, which will reflect the implementation of REGDOC-2.11.2, is due by December 31, 2026.

348. In section 5.2 of CMD 25-H2, CNSC staff provided information on its assessment of OPG's financial guarantee for the Darlington NGS. CNSC staff explained that OPG maintains a consolidated financial guarantee for decommissioning its Ontario

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[227] Record of Decision DEC 22-H104, *Application for Acceptance of Ontario Power Generation's Revised Consolidated Financial Guarantee*, December 6, 2022.
[228] N294-09, *Decommissioning of Facilities Containing Nuclear Substances*, CSA Group, 2009 (Reaffirmed in 2019)
[229] CNSC Regulatory Guide, G-219, *Decommissioning Planning for Licensed Activities,* June 2000.
[230] CNSC Regulatory Guide, G-206, Financial Guarantee for the Decommissioning of Licensed Activities*,* June 2000.
[231] CNSC Regulatory Document, REGDOC-2.11.2, *Decommissioning*, January 2021.
[232] CNSC Regulatory Document, REGDOC-3.3.1, *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licenced Activities*, January 2021.

assets, including the Darlington NGS. CNSC staff reported that OPG's current financial guarantee is based on assumed commercial operations of Darlington NGS until the end of 2056 and that CNSC staff is satisfied that the financial guarantee amount remains sufficient. CNSC staff added that OPG's next financial guarantee submission is due by December 31, 2026.

349. The Commission is satisfied that OPG continues to maintain a financial guarantee acceptable to the Commission. The Commission acknowledges that OPG's next PDP submission is due in 2026, and that any future revisions to the financial guarantee amount and instruments must be accepted by the Commission.

3.6.3 Cost Recovery

350. Paragraph 24(2)(c) of the NSCA requires that a licence application be accompanied by the prescribed fee, as set out by the *Canadian Nuclear Safety Commission Cost Recovery Fees Regulations*[233] (CRFR) and based on the activities to be licensed.

351. OPG indicated in section 5.2 of its submission that it is in good standing with cost recovery fee payments. CNSC staff confirmed in section 5.1 of CMD 25-H2 that OPG is in good standing with respect to CRFR requirements for the Darlington NGS. CNSC staff noted that, for this licence renewal application, OPG is subject to subsection 5(2) of the CRFR, which relates to quarterly invoices.

352. Based on the information submitted by OPG and CNSC staff, the Commission is satisfied that OPG has satisfied the requirements of the NSCA for the purpose of this licence renewal.

3.6.4 Nuclear Liability Insurance

353. As a designated nuclear installation, as set out in the Schedule of the *Nuclear Liability and Compensation Regulations*,[234] OPG is required to maintain nuclear liability insurance for the Darlington NGS in accordance with the *Nuclear Liability and Compensation Act*[235] (NLCA). CNSC staff reported that OPG maintained this insurance throughout the current licence period. While this statutory requirement is administered not by the CNSC but by Natural Resources Canada, the nuclear regulator maintains awareness of NLCA compliance, where its licensees are designated nuclear installations.

354. Based on the information provided on the record for this hearing, the Commission is satisfied that OPG continues to satisfy the requirements for the maintenance of nuclear liability insurance under the NLCA.

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[233] SOR/2003-212.
[234] SOR/2016-88
[235] S.C. 2015, c. 4, s. 120.

3.7 Licence Length and Conditions

355. The Commission considered OPG's application to renew its operating licence for the Darlington NGS for a period of 30 years. OPG's current licence expires on November 30, 2025. The current licence period began on January 1, 2016.

3.7.1 Licence Length

356. OPG applied to renew its licence for 30 years. In its application, OPG explained that its request for a 30-year licence timeline coincides with Darlington NGS' operational objectives achieved through the refurbishment of the Darlington NGS units.[236] OPG further explained that a 30-year licence length was based on OPG's experience, proven technology, operational safety and reliability, accepted industry practice, periodic safety reviews and regulatory oversight by the CNSC.[237]

357. CNSC staff reviewed OPG's request for a 30-year licence term and came to the view that the period requested was adequately substantiated. CNSC staff submitted that OPG is qualified to carry on the licensed activities authorized by the licence. In section 2.8 of its submission, CNSC staff provided information to support its recommendation that the Commission renew the licence for a 30-year period, including the following:

- the renewed licence will differ very little from the current licence and contain the standard licence conditions. The key difference between the current licence and the proposed licence is the licence term.
- there would be no new authorized activities in the renewed licence. There would be no major activities (e.g., refurbishment) being conducted throughout the 30-year proposed term. OPG would be required to seek Commission authorization before proceeding with any changes to the licensed activities or licensing basis, regardless of licence term.
- CNSC's staff's regulatory oversight and control is maintained regardless of the licensing term
- a decrease in safety performance or a significant event would be reported to the Commission through established reporting mechanisms
- the Commission can revoke or suspend the licence at any time, if warranted, including at the request of OPG
- the schedule for OPG's PSR is every 10 years, which provides 3 IIPs in that time

[236] CMD 25-H2, executive summary
[237] CMD 25-H2, page 17-18

- OPG has committed to continuous engagement with the surrounding Indigenous Nations and communities
- OPG will have completed refurbishing all four units by 2026 and has established aging management and periodic inspection programs to monitor and trend the performance of pressure tubes and all pressure boundary components important to safe operation and are required to take corrective actions to maintain established safety margins over the proposed 30-year operating period

358. CNSC staff reported that it considered feedback from Indigenous Nations and communities when making its recommendation. CNSC staff also reported that longer licence periods have been considered in terms of the impact on CNSC staff resources and knowledge management and were not found to have significant negative impacts. To reflect the evolving and growing importance of engagement, CNSC staff recommended the inclusion of a licence condition requiring OPG to conduct ongoing Indigenous engagement activities.

359. CNSC staff reported that it considered the criteria outlined originally in CMD 02-M12, *New Staff Approach to Recommending Licence Periods*. CNSC staff reported on four of these criteria:

- international benchmarking
- mature Canadian regulatory framework and regulatory oversight
- transparency and open communication
- input from Indigenous Nations and communities

360. CNSC staff noted that the CNSC's regulatory framework and oversight are mature and that longer licence terms are implemented in other countries in conjunction with regulatory control measures, such as PSRs, for managing oversight of the long-term operation of facilities. CNSC staff noted the multiple opportunities for CNSC staff to bring matters of interest to the Commission's attention and the ability for proponents to raise concerns at any time directly to CNSC staff and the Commission in written communication.

361. Some intervenors, including the Canadian Association of Nuclear Host Communities and the Municipality of Clarington (CMD 25-H2.27) and the North American Young Generation in Nuclear (NAYGN) Durham Chapter (CMD 25-H2.39), expressed support for a 30-year licence period. The intervenors noted OPG's safety and performance record.

362. Several intervenors, including N. Covington (CMD 25-H2.65), W. O'Connor (CMD 25-H2.68), Dr. Nijhawan (CMD 25-H2.67), CELA (CMD 25-H2.59), Nuclear Transparency Project (CMD 25-H2.74), and the Society of United Professionals (CMD 25-H2.54) raised concerns regarding the proposed licence length. These

concerns included the perception of diminished public engagement, reduced oversight and accountability of the licensee, the number of changes that can occur in 30 years, and a loss of opportunities to engage directly with the Commission through the CNSC's licensing process. Intervenors proposed licence lengths ranging from 3 to 20 years.

363. Indigenous Nations and communities also raised concerns regarding the proposed licence length. In their interventions, the Michi Saagiig Nations (CMD 25-H2.76 to CMD 25-H2.79) asked that, in the event the Commission renews the licence "the licence term is for a maximum period of 20 years."[238] In their view, a licence renewal process at 20 years would allow a comprehensive evaluation of Darlington NGS's performance, safety upgrades, and engagement processes and outcomes within a single generation, ensuring the licensee addresses First Nation concerns more promptly. The Michi Saagiig Nations also noted that they follow the Seven Generations principle, where each generation spans 20 years. According to the Michi Saagiig Nations, a 20-year period of restricted land access would affect two generations, whereas a 30-year licence would disrupt three, jeopardizing oral knowledge preservation.

364. The SON (CMD 25-H2.80) submitted that OPG's licence should be renewed for no more than 10 years, as, in its view, that was the current standard for a Class I nuclear facility. The SON added that a three-year licence term could allow the Commission to ensure that the Crown's obligations with respect to the storage and potential disposal of nuclear waste in the SON Territory are addressed.

365. In CMD 25-H2.C, CNSC staff responded to intervenor concerns on licence length, noting that, in addition to licence renewal hearings, there are several other types of Commission proceedings including with respect to:

- licence amendment applications
- public meetings, including regulatory oversight reports, status updates on power reactors, and event initial reports
- changes to the licensing basis
- specific Commission requests
- reviews of Administrative Monetary Penalties

366. CNSC staff reported that many of these proceedings currently provide opportunities for Indigenous Nations, communities and representative organizations, members of the public, and interested parties to engage with the Commission through the intervention process. CNSC staff added that the Commission, irrespective of the duration of any licence, can amend, suspend in whole or in part, or revoke a licence at any time, on its own initiative, should it not be satisfied with a licensee's performance.

[238] CMD 25-H2.76 to CMD 25-H2.79, paragraph 209, page 47.

367. Asked about the requested licence length, an OPG representative highlighted the Darlington NGS's past operating history and the refurbishment of major components. Regarding oversight during a longer licence period, an OPG representative informed the Commission that OPG performed PSRs against modern codes and standards requirements that are reviewed by CNSC staff. The OPG representative added that OPG also performs and updates its environmental risk assessments every five years.[239]

368. The Commission asked CNSC staff to address the potential effect of a longer licence period on CNSC oversight. CNSC staff reported that it does not see strong linkages between the licence duration and the oversight activities it performs at licensed facilities. CNSC staff explained that it would continue with inspections, surveillance and monitoring, technical assessments, event reviews and enforcement. CNSC staff noted that the CNSC learns from what happens in the nuclear industry, and in other relevant industries. CNSC staff also ensure that licensees take lessons learned from experiences worldwide.[240]

369. In relation to the intervention by CELA, Durham Nuclear Awareness, and Slovenian Home Association (CMD 25-H2.59), the Commission enquired about Canada's use of a performance-based approach rather than a prescriptive approach. CNSC staff described the Canadian approach as balanced between these two approaches.[241]

370. The Commission asked about OPG's long-term plan for recruiting and training highly-skilled people over the next three decades. An OPG representative responded that OPG remains an employer of choice and has not seen a decline in interest in employment at its facility. The OPG representative added that OPG utilizes attrition models and projections to further inform its hiring practices.[242]

371. Asked about the viability of the Darlington NGS in the long term, an OPG representative provided information on OPG's different independent corporate oversight groups. CNSC staff reported that it was mindful of the potential risk to safety from the dispersion of resources or experienced qualified staff, and that CNSC staff's oversight would look for any emerging trends to respond appropriately.[243]

372. Noting concerns that a longer licence period could lead to complacency, the Commission asked how OPG would maintain its focus on nuclear safety over the requested period. A representative from OPG reported that nuclear safety was OPG's overriding priority and that no member of the OPG team would relax rules or

[239] Transcript March 26, 2025, pages 58-59.
[240] Transcript March 26, 2025, pages 61-63.
[241] Transcript June 25, 2025, pages 131-133.
[242] Transcript March 26, 2025, pages 65-67.
[243] Transcript March 26, 2025, pages 73-74.

change OPG's operational focus and commitment to nuclear safety. The OPG representative also noted OPG's culture of continuous improvement.[244]

373. The Commission asked how OPG would deal with emerging issues over the requested licence period. An OPG representative reported that it follows its asset management program and process when unexpected things happen. OPG underlined how its program has extensive risk matrices built into it that factor in regulatory impacts, environmental impacts, public safety impacts, and social licence impacts.[245]

374. Following the presentation by the Nuclear Transparency Project (CMD 25-H2.74, CMD 25-H2.74A), the Commission asked OPG to comment on the assertion that a long licence period could lead to more opacity and secretiveness in the nuclear industry. An OPG representative reported that OPG was committed to open and transparent communications on its operations and projects and adheres to the guidance as outlined in REGDOC 3.2.1, *Public information and disclosure*. The OPG representative added that OPG was committed to maintaining community engagement and transparency during the requested licence term through its public outreach program.[246]

375. The Commission asked for comments on OPG's proposed 10-year status update, presented in CMD 25-H2.1B. An OPG representative explained that a decennial review throughout the 30-year licence period would allow Indigenous Nations and communities and members of the public to have the opportunity to be heard before the Commission. An OPG representative added that OPG specifically offered a 10-year status update because it is the frequency at which the PSR is completed. CNSC staff reported that it supported the idea of a status update timed in line with the results of the PSRs.[247]

376. Conexus Nuclear Inc. (CMD 25-H2.10), reported that they were involved with OPG in a collaborative project aimed at modernizing nuclear standards set by the Canada Standards Association. The Commission asked how CNSC staff and other government agencies contribute to the revision of CSA Group standards. CNSC staff confirmed its participation in developing CSA standards to ensure that standards reflect the regulator's perspective.[248]

377. Based on all the information reviewed, the Commission concludes that a 20-year licence, with 2 comprehensive updates to the Commission, is appropriate in these circumstances. The timeline for the comprehensive updates shall be determined by CNSC staff based on the timing of the completion of the PSR, as well as other periodic reviews completed during the licence period, such as the ERA.

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[244] Transcript June 24, 2025, page 62.
[245] Transcript June 24, 2025, pages 68-71.
[246] Transcript June 25, 2025, pages 172-174.
[247] Transcript June 24, 2025, pages 74-77.
[248] Transcript June 25, 2025, pages 151-152.

378. These updates shall be presented as part of a public proceeding to be conducted in the community in proximity to the Darlington NGS, with an opportunity for participation, both orally and in writing, by members of the public and Indigenous Nations and communities. These updates will focus on engagement with the public and Indigenous nations and communities, and for such individuals or groups to have their views heard by the Commission, including those related to the future of the Darlington NGS site. These updates shall also focus on OPG's performance during the licence term and provide a status update on other matters of regulatory importance.

379. The Commission finds that it is upholding the Honour of the Crown and fulfilling its constitutional obligations with regard to Indigenous engagement, interpreted through the lens of UNDRIP. While the Commission is satisfied that a 30-year licence period would be appropriate from a technical and regulatory perspective, the Commission has heard the Michi Saagiig Nations' request that the licence period for the renewed licence for this existing facility be limited to 20 years. This submission is one of the reasons the Commission settled on a 20-year licence term.

380. While the regulatory framework and regulatory oversight processes have evolved over time and provide greater transparency than ever before, the Commission recognizes this is a period of transition. It recognizes that it is granting longer licence terms, where regulatory and legal requirements are met, and that this represents a shift which requires not only rigorous oversight, but also time for people in Canada to review, comment on, and get involved in Commission proceedings should they wish to do so.

381. The Commission notes that CNSC staff oversight of licensed activities is independent of the length of a licence and is based on a robust regulatory framework. The structure of the licence and the Licence Conditions Handbook is designed to support continuous improvement within the licensing basis over time, including updates to regulatory requirements through amendments to regulations under the NSCA, as well as updates to REGDOCs and CSA Group standards. Additionally, OPG is required to update its safety analysis, ERA and PDP at regular intervals. The Commission is satisfied that, within this structure, OPG's programs and procedures will continue to be maintained and remain adequate throughout the 20-year licence period, with compliance oversight by CNSC staff.

382. Furthermore, the Commission notes that, in accordance with Section 25 of the NSCA, it may, at any time, amend, suspend, revoke, or replace a licence under the conditions prescribed in the GNSCR. Section 43(3) of the NSCA also allows the Commission to redetermine any of its previous decisions or orders. Accordingly, the Commission determines that the extended licence term in no way diminishes or compromises the robustness of regulatory oversight as mandated and enabled by the NSCA. CNSC staff may bring any matter to the Commission's attention, at any time, as required.

383. The Commission's decision to issue a 20-year licence does not set a precedent as argued by the Michi Saagiig Nations. Each application in front of the Commission is assessed on its own merits and the rule of *stare decisis*, or precedent, does not apply to Commission decisions.[249]

3.7.2 Licence Conditions

384. OPG applied for the renewal of its existing operating licence without changes to the activities it is authorized to carry out. OPG did not raise concerns regarding current licence conditions and committed to engage with the CNSC on any revisions to the Licence Conditions Handbook during the proposed licence period.

385. Part 2 of CNSC staff's submission (CMD 25-H2) includes a proposed licence in a format that incorporates the CNSC's standardized licence conditions applicable to the Darlington NGS. CNSC staff proposed a number of minor, administrative changes to the current licence to improve clarity and standardization. CNSC staff also proposed the introduction of a new licence condition for OPG to conduct ongoing Indigenous engagement activities to ensure that OPG will continue engagement with Indigenous Nations and communities throughout the licence period. The proposed licence condition states:

> G.7 The licensee shall implement and maintain an Indigenous engagement program.

386. An OPG representative reported that OPG supported the addition of the specific licence condition.[250]

387. In paragraph 212 of CMD 25-H2.76, the Michi Saagiig Nations wrote the following:

> *The licence condition* [G.7] *aligns the Michi Saagiig Nations status, and values and supports Canada's commitment to reconciliation, UNDRIP and FPIC, and the CNSC's Indigenous Knowledge Policy Framework, which emphasizes integrating Indigenous perspectives into regulatory processes*.

388. Based on the information examined by the Commission, the Commission accepts the proposed licence conditions as set out in part 2 of CMD 25-H2. The Commission accepts the recommendation from CNSC staff to include a new licence condition on OPG to conduct ongoing Indigenous engagement activities. The new licence condition would be a notable change to the licensing basis and will constitute a regulatory requirement on OPG to continue engagement with Indigenous Nations and communities throughout the licence period. Therefore, the

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[249] *Canada (Minister of Citizenship and Immigration) v Vavilov*, 2019 SCC 65 at para 129. See also Macaulay, Sprague, and Sossin, *Practice and Procedure Before Administrative Tribunals* (Toronto, ON: Thomson Reuters Canada Limited, 2021) at § 10:2. The Role of Precedent in Agency Decision-Making (Stare Decisis).
[250] Hearing transcript, June 24, 2025, page 251.

Commission includes the following licence condition in OPG's renewed licence for the Darlington NGS:

> G.7 The licensee shall implement and maintain an Indigenous engagement program.

389. The Commission directs CNSC staff to work with OPG, the Michi Saagiig Nations and the SON to finalise the compliance verification criteria associated with Licence condition G.7. The Commission expects OPG and CNSC staff to report on OPG's compliance with respect to Licence condition G.7 as part of their respective periodic updates to the Commission.

390. In addition, the Commission finds that the proposed administrative changes to the existing licence conditions, as presented in Part 2 of CMD 25-H2, are appropriate and minor and do not impact the licensed activities or the way that these licensed activities must be carried out.

3.7.3 Delegation of Authority

391. In order to provide adequate regulatory oversight of changes that are administrative in nature, and which require neither a licence amendment nor Commission approval, CNSC staff recommended that the Commission delegate authority for approval or consent for the following licence conditions containing the phrase "a person authorized by the Commission,":

- LC [3.2] - The licensee shall not restart a reactor after a serious process failure without the prior written approval of the Commission, or the prior written consent of a person authorized by the Commission.
- LC [15.4] - The licensee shall obtain the approval of the Commission, or consent of a person authorized by the Commission, prior to the removal of established regulatory hold points.

392. CNSC staff recommended that the Commission delegate authority to the following CNSC staff:

- Director, Darlington Regulatory Program Division
- Director General, Directorate of Power Reactor Regulation
- Executive Vice-President and Chief Regulatory Operations Officer

393. The Commission delegates its authority for the purposes of Licence conditions 3.2 and 15.4, as recommended. The Commission is satisfied that this approach is reasonable and appropriate.

3.7.4 Conclusion on Licence Length and Conditions

394. Based on the information on the record for this application, the Commission is satisfied that a 20-year licence term with two comprehensive performance updates to be presented in public Commission meetings is appropriate for OPG's licence for the Darlington NGS. The Commission accepts the recommendation from CNSC staff to include a new licence condition on OPG to implement and maintain an Indigenous engagement program. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority. The Commission also notes that CNSC staff can bring any matter to the Commission as required.

4.0 CONCLUSION

395. The Commission has considered OPG's application to renew its power reactor operating licence for the Darlington NGS for a period of 30 years. The Commission has also considered the submissions of CNSC staff and intervenors, along with all the presentations made as part of this 2-part hearing.

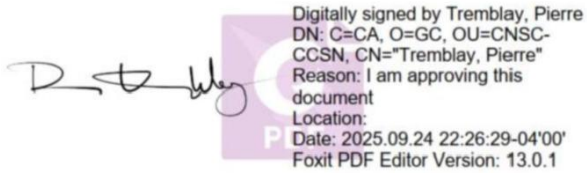
396. For the reasons described above, the Commission concludes as follows:

- the IAA does not apply to this matter
- the contemplated licence renewal does not present any novel adverse impact on any potential or established Aboriginal claim or right
- as a result, the duty to consult is not triggered
- the Commission has met its duty to uphold the honour of the Crown and its constitutional obligations with regard to engagement and consultation respecting Indigenous interests
- OPG is qualified to carry on the activities that the renewed licence will authorize
- in carrying on these activities, OPG will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed

397. In the circumstances, and applying its powers under section 24 of the NSCA, the Commission renews the power reactor operating licence issued to OPG for a period of 20 years. In doing so, the Commission also delegates its authority as outlined in sections 4.6.3 of this *Record of Decision*. The renewed licence, PROL 13.00/2045, is valid from December 1, 2025, until November 30, 2045.

398. Regarding licence length, the Commission acknowledges the strong public interest in this hearing and the importance of providing regular opportunities for members of the public and Indigenous Nations and communities to bring their perspectives directly to the decision maker. The Commission finds that a 20-year licence, with 2 comprehensive updates, is appropriate.

399. The Commission recognizes efforts made by CNSC staff and OPG to consult and engage with Indigenous Nations and communities who are interested in the Darlington NGS, as described. The Commission hopes that these relationships will continue to grow and build as it moves along the path towards further reconciliation with Canada's Indigenous Nations and communities.



September 24, 2025

Pierre F. Tremblay
President
Canadian Nuclear Safety Commission

Date

Appendix A – Intervenors

Intervenors – Oral Presentations	Document Number
Curve Lake First Nation, represented by K. Babony, P. Williams, S. Stoll	CMD 25-H2.79 CMD 25-H2.79A
Hiawatha First Nation, represented by Elder Tom Cowie, K. Baboni, S. Stoll	CMD 25-H2.77 CMD 25-H2.77A
Alderville First Nation, represented by K. Baboni, J. Kapyrka, S. Stoll	CMD 25-H2.78 CMD 25-H2.78A
Mississaugas of Scugog Island First Nation, represented by K. Baboni, D. Richardson, S. Stoll	CMD 25-H2.76 CMD 25-H2.76A
Saugeen Ojibway Nation, represented by L. Anoquot, J. Kesshig-Martin, A. Monem	CMD 25-H2.80 CMD 25-H2.80A
Dr. Sunil Nijhawan	CMD 25-H2.67 CMD 25-H2.67A
Canadian Association of Nuclear Host Communities and the Municipality of Clarington, represented by A. Foster, D. Speed	CMD 25-H2.27
Saskatchewan Research Council, represented by D. McDermid	CMD 25-H2.18 CMD 25-H2.18A
Durham Nuclear Awareness, Slovenian Home Association, and the Canadian Environmental Law Association, represented by S. Libman, Dr. I. Fairlie	CMD 25-H2.59 CMD 25-H2.59A
Conexus Nuclear Inc., represented by S. Qureshi	CMD 25-H2.10
Nuclear Transparency Project, represented by P. Feinstein	CMD 25-H2.74 CMD 25-H2.74A
Wendy O'Connor	CMD 25-H2.68
Clarington Board of Trade, represented by B. Wrightman	CMD 25-H2.29
Nuclear Waste Management Organization, represented by A. Webster	CMD 25-H2.33 CMD 25-H2.33A
Dr. Frank Greening	CMD 25-H2.21 CMD 25-H2.21A CMD 25-H2.21B
Canadian Coalition for Nuclear Responsibility, represented by Dr. G. Edwards	CMD 25-H2.73

Louis Bertrand	CMD 25-H2.71 CMD 25-H2.71A
Bruce Power, represented by M. Rinker	CMD 25-H2.46
North American Young Generation in Nuclear (NAYGN) – Durham Chapter, represented by J. Jeyarajah, A. Hynes, C. Jonah, E. Gill	CMD 25-H2.39
Canadian Nuclear Association, represented by N. Cutler	CMD 25-H2.55
Organization of Canadian Nuclear Industries, represented by B. Fehrenbach	CMD 25-H2.50
Kinectrics Inc., represented by S. Donnely	CMD 25-H2.49 CMD 25-H2.49A
Northwatch, represented by B. Lloyd	CMD 25-H2.75

Intervenors – Written Submissions	**Document Number**
Labourers' International Union of North America (LiUNA)	CMD 25-H2.2
Ministry of Labour, Immigration, Training, and Skills Development	CMD 25-H2.3
Durham Community Foundation	CMD 25-H2.4
Dr. Robert Kyle	CMD 25-H2.5
City of Oshawa	CMD 25-H2.6
Elaine Hughes	CMD 25-H2.7
Clarington Public Library Board	CMD 25-H2.8
BWXT Canada Ltd.	CMD 25-H2.9
Black & McDonald Limited	CMD 25-H2.11
Big Brothers Big Sisters of Clarington	CMD 25-H2.12
Calian	CMD 25-H2.13
Feed the Need in Durham	CMD 25-H2.14
Skills Ontario	CMD 25-H2.15
Cathy Carpenter	CMD 25-H2.16
Darlington Nuclear Generating Station Community Advisory Council	CMD 25-H2.17
Gail Wylie	CMD 25-H2.19

Kelly Clune	CMD 25-H2.20
Ontario Federation of Anglers and Hunters Foundation	CMD 25-H2.22
Scientists in School	CMD 25-H2.23
Earth Rangers	CMD 25-H2.24
Hearth Place Cancer Support Centre	CMD 25-H2.25
Bird Construction Inc.	CMD 25-H2.26
Samuel Wilmot Nature Area Management Advisory Committee	CMD 25-H2.28
Community Living Oshawa/Clarington	CMD 25-H2.30
Capital Power Corporation	CMD 25-H2.31
Paul Sedran	CMD 25-H2.32 CMD 25-H2.32A
McMaster University	CMD 25-H2.34
Greater Oshawa Chamber of Commerce	CMD 25-H2.35
Millwright Regional Council	CMD 25-H2.36
Durham Business Alliance	CMD 25-H2.37
Jamil Jivani, Member of Parliament for Bowmanville – Oshawa North	CMD 25-H2.38
E.S Fox Limited	CMD 25-H2.40
Autism Home Base Durham Inc.	CMD 25-H2.41
AtkinsRéalis	CMD 25-H2.42
Ontario Tech University	CMD 25-H2.43
Power Workers' Union	CMD 25-H2.44
AECOM Canada Nuclear Services, Inc.	CMD 25-H2.45
Brilliant Energy Institute at Ontario Tech University	CMD 25-H2.47
Bowmanville Hospital Foundation	CMD 25-H2.48
Mary Veltri	CMD 25-H2.51
Aecon Group Inc.	CMD 25-H2.52
Bowmanville Older Adult Association	CMD 25-H2.53

Society of United Professionals	CMD 25-H2.54
Ken Collier	CMD 25-H2.56
Catherine Vakil M.D.	CMD 25-H2.57
Énergie NB Power	CMD 25-H2.58
Gail Cockburn	CMD 25-H2.60
Canadian Nuclear Laboratories	CMD 25-H2.61
Canadian Nuclear Workers' Council	CMD 25-H2.62 CMD 25-H2.62A
Women in Nuclear (WiN) Canada	CMD 25-H2.63
Linda Gasser	CMD 25-H2.64
Nancy Covington	CMD 25-H2.65
Mary Lou Harley	CMD 25-H2.66
Cameco Corporation	CMD 25-H2.69
National Council of Women of Canada and the Provincial Council of Women of Ontario	CMD 25-H2.70
Judith Fox Lee	CMD 25-H2.72