



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Decision

In the Matter of

Applicant **Ontario Power Generation**

Subject **Application to Renew the Waste Facility
Operating Licence for the Pickering Waste
Management Facility**

**Public Hearing
Date** **April 13, 2017**

RECORD OF DECISION

Licensee: Ontario Power Generation

Address/Location: 700 University Avenue, Toronto, Ontario, M5G 1X6

Purpose: Application to Renew the Waste Facility Operating Licence for the Pickering Waste Management Facility

Application received: October 28, 2016

Date of public hearing: April 13, 2017

Location: Canadian Nuclear Safety Commission (CNSC) Public Hearing Room, 280 Slater St., 14th. Floor, Ottawa, Ontario

Members present: M. Binder, Chair S. A. Soliman
S. Demeter R. Velshi
S. McEwan

Secretary: M.A. Leblanc

Recording Secretary: B. Gerestein, S. Baskey and M. Hornof

Senior General Counsel: L. Thiele

Licensee Represented By	Document Number
L. Morton, Vice President, Nuclear Waste Management R. Manley, Vice President, Nuclear Regulatory Affairs and Stakeholder Relations G. Sullivan, Director, Eastern Waste Operations and Deep Geologic Repository R. McCalla, Director, Environment Operations Support D. Witzke, Director, Nuclear Waste Engineering A. Webster, Director, Operations Business Support K. Powers, Director, Nuclear Public Affairs C. Lorencez, Director, Nuclear Safety	CMD 17-H5.1 CMD 17-H5.1A CMD 17-H5.1B CMD 17-H5.1C
CNSC staff	Document Number
H. Tadros, K. Glenn, S. Oue, M. Rinker, C. Cole, Y. Wang, R. Tennant, C. Purvis, K. Sauvé, K. Noble, M. Snow, C. Ducros, M. Beaudette, R. Garg and A. McAllister	CMD 17-H5 CMD 17-H5.A CMD 17-H5.B
Intervenors	Document Number
See appendix A	
Others	
Environment and Climate Change Canada represented by D. Kim	

Licence: Renewed

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1.0 INTRODUCTION

1. Ontario Power Generation (OPG) has applied to the Canadian Nuclear Safety Commission¹ (CNSC) for the renewal of the Waste Facility Operating Licence (WFOL) for the Pickering Waste Management Facility (PWMF). The current operating licence, WFOL-W4-350.02/2018, expires on March 31, 2018. OPG applied for a renewal of its licence for a period of 11 years, until August 31, 2028. In addition to the licence renewal request, OPG also requested authorization for the site preparation and construction of a new dry storage container (DSC) processing building and two new DSC storage buildings #5 and #6, as well as for the construction of DSC storage building #4 (carried over from the current licence).
2. The PWMF is located in the City of Pickering, Ontario, on the north shore of Lake Ontario at the site of the Pickering Nuclear Generating Station (NGS). The PWMF licence authorizes OPG to process and store DSCs containing used nuclear fuel from the Pickering NGS reactor operations and intermediate-level radioactive waste generated from the refurbishment (re-tubing) of the Pickering NGS Units 1 – 4 conducted between 1984 and 1992. OPG carries out all transfers of used fuel from the Pickering NGS reactors to the DSCs, and subsequently to the PWMF, entirely on the Pickering NGS site.
3. As part of its licence renewal application, OPG has requested permission to construct or modify an additional DSC Processing Building and additional DSC storage buildings that would allow OPG to store all of the used fuel generated at the Pickering NGS until the end of its commercial operational life. The proposed new DSC Processing Building would increase OPG's processing capabilities from 50 DSCs per year to approximately 100 DSCs per year. Following construction of the new DSC Processing Building, OPG plans to take the existing DSC Processing Building out of service and decommission it at a later date.
4. In November 2016, up to \$50,000 in funding to participate in this licensing process was made available to Indigenous groups, not-for-profit organizations and members of the public through the CNSC's Participant Funding Program (PFP). A Funding Review Committee (FRC), independent of the CNSC, recommended that up to \$42,251 in participant funding be provided to four applicants. These applicants were required, by virtue of being in receipt of the funding, to submit a written intervention and make an oral presentation during the public hearing commenting on OPG's application. One PFP recipient withdrew its PFP request prior to the public hearing.

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.

Issue

5. In considering the application, the Commission was required to decide:
 - a) what environmental assessment review process to apply in relation to this application;
 - b) whether OPG is qualified to carry on the activity that the licence would authorize; and
 - c) whether, in carrying on that activity, OPG would 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.

Public Hearing

6. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to review the application. The President of the Commission authorized R. Velshi to participate in this hearing, as she became engaged with this matter while still holding office as a Member of the Commission. The Commission, in making its decision, considered information presented for a public hearing which began on April 13, 2017, in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure* (the Rules).² During the public hearing, the Commission considered written submissions and heard oral presentations from OPG (CMD 17-H5.1, CMD 17-H5.1A, CMD 17-H5.1B and CMD 17-H5.1C) and CNSC staff (CMD 17-H5, CMD 17-H5.A and CMD 17-H5.B). The Commission also considered oral and written submissions from 12 intervenors (see Appendix A for a list of interventions). The April 13, 2017 oral portion of the public hearing was webcast live via the CNSC website, and video archives were available for a minimum of a three-month period thereafter.
7. Following the public hearing held on April 13, 2017, the Commission concluded that further information was required in order to come to a decision. Based on requests from intervenors and on the information provided by OPG during the oral hearing regarding OPG's completion of the 2017 Pickering NGS Environmental Risk Assessments (ERA) – which included the operations of the PWSMF – the Commission was of the view that information about the 2014 and 2017 Pickering NGS ERAs, as they related to the PWSMF, were required for the Commission to render a decision in this matter. On this basis, the Commission directed that the 2014 and 2017 Pickering NGS ERAs related to the PWSMF be provided to the Commission and the public, and entered into the record for consideration as part of this hearing.

² Statutory Orders and Regulations (SOR)/2000-211.

8. On June 21, 2017, the Commission issued a *Notice of Continuation of Public Hearing* to allow for the required additional information to be submitted to the Commission and entered into the record for this hearing.³ The Commission invited existing intervenors in this matter to provide the Commission with additional written submissions in respect of the 2014 and 2017 ERAs by July 21, 2017. The Commission also invited OPG and CNSC staff to submit supplementary written submissions in this matter by August 21, 2017. Upon request from CNSC, the Commission approved an extension for CNSC staff to file the supplementary submission in this matter no later than October 31, 2017. The Commission notes that OPG submitted a supplementary submission on August 18, 2017. In light of the deadline extension given to CNSC staff, OPG was also invited to submit any additional supplementary submissions by October 31, 2017 but declined to do so. The Commission decided that it would deliberate on this matter following its receipt and consideration of all supplementary written submissions.
9. On June 21, 2017, OPG submitted the 2014 and 2017 Pickering NGS ERAs as they related to the PWF. The Commission received two supplemental submissions from intervenors (CMDs 17-H5.11B and 17-H5.13C), a supplemental submission from OPG on August 18, 2017 (CMD 17-H5.1C) and a supplemental submission on October 30, 2017 from CNSC staff (CMD 17-H5.B).

2.0 DECISION

10. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Decision*, the Commission concluded that OPG is qualified to carry on the activity that the licence will authorize. The Commission is of the opinion that OPG, in carrying on that activity, 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. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Waste Facility Operating Licence issued to Ontario Power Generation Inc. for its Pickering Waste Management Facility located in Pickering, Ontario. The renewed licence, WFOL-W4-350.00/2028, is valid from April 1, 2018 until August 31, 2028.

11. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 17-H5. The Commission also delegates authority to senior CNSC staff for the purposes of licence conditions 5.2, 12.2, 13.1 and 15.2 as recommended by CNSC staff.

³ *Notice of Continuation of Public Hearing*, Ontario Power Generation Inc. – Application to Renew the Waste Facility Operating Licence for the Pickering Waste Management Facility, June 21, 2017.

12. The Commission authorizes the construction activities as outlined in the proposed licence. The Commission expects OPG to carry out the appropriate safety assessments for any new buildings that OPG constructs at the PWMF site.
13. The Commission considers the environmental review that was conducted by CNSC staff to be acceptable and thorough.
14. With this decision, the Commission directs CNSC staff to report annually on the performance of OPG and the PWMF, as part of the annual *Regulatory Oversight Report for Canadian Nuclear Power Plants* (NPP ROR). CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate.
15. The Commission encourages OPG to make available to the public data on contaminants of primary concern and directs that CNSC staff report on the status of public disclosure by OPG as part of the NPP ROR.
16. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the Licence Conditions Handbook (LCH).
17. The Commission notes that, following a hearing held in October 2017, the Commission accepted OPG's consolidated financial guarantee for its nuclear facilities in Ontario.⁴ This includes the PWMF.

3.0 ISSUES AND COMMISSION FINDINGS

18. In making its licence renewal decision for the PWMF, the Commission considered a number of issues relating to OPG's qualification to carry out the proposed activities and 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 examined CNSC staff's assessment of OPG's performance in all 14 safety and control areas (SCAs) and in relation to several other matters of regulatory interest over the current licence period. Details and the Commission's consideration of information submitted by OPG in support of its licence renewal application, of CNSC staff assessments and of interventions submitted in relation to this matter are provided in the following sections of the *Record of Decision*.

⁴ CNSC Record of Decision – Ontario Power Generation Inc., “Financial Guarantee for the Future Decommissioning of Ontario Power Generation Inc.’s Facilities in Ontario”, issued on November 28, 2017.

3.1 Environmental Assessments

3.1.1 Application of the Canadian Environmental Assessment Act, 2012

20. In coming to its decision, the Commission was first required to determine whether an Environmental Assessment (EA) under the *Canadian Environmental Assessment Act, 2012*.⁵ (CEAA 2012), was required.
21. The Commission recognizes that the application submitted by OPG is for the PWMF licence renewal and notes that a licence renewal is not a designated project under CEAA 2012.
22. The Commission recognizes that OPG submitted, as part of its application, requests for the authorization for the site preparation and construction of a new dry storage container (DSC) processing building and two new DSC storage buildings #5 and #6, as well as for the construction of DSC storage building #4 (carried over from the current licence).
23. CNSC staff explained that as part of this licensing renewal process, an EA determination was carried out and OPG's PWMF licence renewal application was assessed against the requirements in the *Regulations Designating Physical Activities*⁶ to determine whether an EA under CEAA 2012 should be carried out in respect of the proposed activities. CNSC staff submitted that a review of OPG's application determined that, since the PWMF licence renewal application was for an existing facility and that the PWMF did not process or use nuclear substances, CNSC staff found that an EA under CEAA 2012 was not required, as this proposal was not enumerated in the *Regulations Designating Physical Activities*.
24. The OPG representative informed the Commission that an EA specific to the construction of the proposed DSC Processing Building and the new storage buildings had not been undertaken, but that the proposed facilities were assessed under CEAA 1992 within the scope of the 2007 Pickering B Refurbishment and Continued Operation EA which found that, with mitigation measures, the environmental impacts of the construction and operation of new facilities as proposed would not be significant. The OPG representative also informed the Commission that the environmental effects from the construction and operation of the proposed facilities are well characterized and understood. CNSC staff confirmed the information provided by OPG.
25. Based on the information provided for this hearing, the Commission is satisfied that an EA under CEAA 2012 is not required in regard to this licence renewal nor prior to the approval of the proposed construction projects.

⁵ Statutes of Canada (S.C.) 2012, chapter (c.) 19, section (s.) 52.

⁶ SOR/2012-147.

3.1.2 Environmental Assessment under the NSCA

26. The Commission also considered the completeness and adequacy of the EA that CNSC staff conducted under the NSCA for this licence renewal and for the construction of the proposed buildings. CNSC staff findings included, but were not limited to:
- OPG maintained adequate environmental protection programs that met CNSC regulatory requirements.
 - OPG conducted the Pickering NGS 2014 environmental risk assessment (ERA) using appropriate methodology and sufficiently conservative data, and in accordance with N288.6-12, *Environmental risk assessment at Class I nuclear facilities and uranium mines and mills*,⁷ with the ERA showing that human health and the environment remained protected.
 - The results of the CNSC's 2014 and 2015 Independent Environmental Monitoring Program (IEMP) confirmed that the public and the environment near the Pickering site remained protected from the releases from the facility.

The Commission also notes that CNSC staff submitted that the 2017 ERA was carried out in accordance with the specifications of N288.6-12 and that the 2017 ERA showed that significant human health or ecological effects attributable to current operations at the PWF were unlikely. CNSC staff reaffirmed to the Commission that OPG had and would continue to make adequate provision for the protection of the environment and the health of persons.

27. The Commission considered the intervention from Lake Ontario Waterkeeper which expressed the opinion that, since an EA under CEAA 2012 had not been conducted for the construction of the new facilities, the Commission did not have sufficient information to make a decision in this matter. Lake Ontario Waterkeeper further opined that OPG and CNSC staff were relying on outdated EAs in their assessments on this matter, including a 2003 Screening EA conducted under *Canadian Environmental Assessment Act*,⁸ (CEAA 1992), and expressed the view that, although the previously conducted EAs were for projects similar to the proposed PWF construction and expansion activities, notable differences existed. In this regard, Lake Ontario Waterkeeper provided the Commission with information on site aspects that it felt should be included in an EA under CEAA 2012 for the proposed construction activities.
28. In its consideration of Lake Ontario Waterkeeper's intervention, the Commission requested further information regarding the differences between an EA carried out under CEAA 2012 and an EA carried out under the NSCA. In its intervention, Lake Ontario Waterkeeper submitted that the EA carried out under CEAA 1992 in 2003 was more comprehensive than an EA carried out under the NSCA and that an EA under CEAA 2012 provided for public participation. CNSC staff informed the Commission

⁷ N288.6-12, *Environmental risk assessment at Class I nuclear facilities and uranium mines and mills*, CSA Group, 2012.

⁸ S.C.1992, c.37.

that, in addition to the information in the EA Report, EA-related information regarding the impacts of the PWMF were considered in ERAs, inspection reports, through compliance verification activities and in environmental monitoring reports. CNSC staff also submitted that the CNSC's licensing process and RORs provided multiple opportunities for public participation during a facility's life-cycle.

29. Through their interventions, Northwatch and Lake Ontario Waterkeeper submitted for the Commission's consideration, examples of information that the intervenors felt should be considered in an EA prior to OPG being granted approval for the proposed construction and expansion projects. Lake Ontario Waterkeeper opined that potential impacts from liquid effluents, surface and storm water runoff and groundwater had not been adequately characterized and the Commission requested additional information in this regard. CNSC staff responded that these factors had been thoroughly assessed in previous EAs and considered in ERA and explained that liquid effluents generated at the PWMF site were routed to the Pickering NGS active liquid waste management system for processing, that groundwater discharge pathways were monitored by OPG and that storm water runoff from the PWMF was appropriately managed and did not drain into the eastern wetlands. The Commission is satisfied that the liquid effluent resulting from the PWMF operations has been sufficiently characterized and is adequately managed. Further, based on the information submitted for this hearing, the Commission is satisfied that storm water runoff at the PWMF does not have a significant impact on the surrounding environment.
30. In its intervention, Northwatch submitted the view that insufficient design information was available pertaining to site preparation for the proposed facilities and that this was a further indication that a comprehensive EA was required prior to approval of these projects. The OPG representative explained that the preliminary design for the proposed facility was not yet available because the detailed engineering had not yet been completed. OPG further submitted that the proposed buildings would be built and operated using similar design and technology as the existing buildings. The Commission is satisfied with the adequacy of the information submitted in this regard and notes that the site preparation and construction projects will be subject to continuous CNSC regulatory oversight.
31. The Commission is satisfied that the environmental assessment that was conducted by CNSC staff for the PWMF licence renewal and construction of proposed buildings was acceptable and thorough. The Commission notes that the NSCA provides a strong regulatory framework for environmental protection. Whether an EA under CEAA 2012 is required or not, the NSCA and its regulations provide for the protection of the environment and the health and safety of persons.

3.1.3 Conclusion on Environmental Assessments

32. The Commission considered the requirement of an EA under CEAA 2012 in relation to the proposed licence renewal and construction activities. Based on the information provided for this hearing, the Commission concludes that the licence renewal and construction projects are not designated projects under CEAA 2012 and that an EA under CEAA 2012 is not required prior to their approval. Further, the Commission is satisfied that OPG has made, and will continue to make, adequate provision for the protection of the environment throughout the proposed renewed licence period.
33. Following its consideration of the information provided on the record for this hearing, the Commission concludes that an EA conducted under the NSCA and its regulations was appropriate for the PWSMF licence renewal application.

3.2 Management System

34. The Commission examined OPG's Management System which covers the framework that establishes the processes and programs required to ensure that the PWSMF achieves its safety objectives and continuously monitors its performance against these objectives, and fosters a healthy safety culture. CNSC staff rated this SCA as "satisfactory" throughout the current licence period.

3.2.1 Management System

35. The Commission considered OPG's management system and CNSC staff's verification that OPG had managed the PWSMF in compliance with regulatory requirements. OPG submitted detailed information regarding its management system, noting that OPG's nuclear safety policy had been approved by the OPG Board of Directors and that the Board took an active interest in ensuring that this policy was implemented.
36. OPG also submitted to the Commission that the organizational responsibilities, interfaces, and program elements were outlined in the *Nuclear Management System Charter*, whereas procedural elements of waste management were addressed in the *Nuclear Waste Management Program*. CNSC staff confirmed the information provided by OPG.
37. CNSC staff informed the Commission that OPG had consolidated and updated in 2013 the governing documentation that described OPG's management system in relation to the licensed activities at the PWSMF. CNSC staff also confirmed to the Commission that OPG had successfully implemented N286-12, *Management System Requirements for Nuclear Facilities*.⁹

⁹ N286-12: *Management system requirements for nuclear facilities*, CSA Group, 2012.

38. Based on the information provided, the Commission is satisfied that OPG has an appropriate management system in place for the PWMF.

3.2.2 Organization

39. The Commission reviewed the information provided by OPG regarding the PWMF organizational structure and responsibilities, noting that day-to-day operations were handled by the Operations Manager. OPG submitted that organizational changes were managed through a change control process in conformity with CNSC regulations.
40. OPG provided the Commission with information on its management of contractors, noting that OPG had extensive experience in the use of contractors at its facilities. OPG also reported that contractors at the PWMF were qualified by the OPG Supply Chain Quality Services and that OPG ensured that contractors implemented a management system in accordance with N286-12.
41. CNSC staff confirmed the information provided by OPG and informed the Commission that, following a thorough review of OPG's organizational structure, changes within the OPG corporate structure did not result in changes to the PWMF organizational structure nor did they have an impact on the safe operation of the PWMF.
42. Based on the information considered for this hearing, the Commission is satisfied that OPG has an appropriate organizational structure in place at the PWMF to ensure continued safety of persons and the environment throughout the proposed licence period.

3.2.3 Safety Culture

43. The Commission considered the programs that OPG has in place to maintain a healthy safety culture at the PWMF. OPG submitted information to the Commission regarding its safety culture which included a Nuclear Safety Culture Assessment conducted in 2015. OPG reported that the assessment showed that there was a healthy nuclear safety culture within OPG's Nuclear Waste Management division. OPG also noted that in 22 years of operation, there had not been a single lost-time accident at the PWMF.
44. OPG reported on several initiatives that it had undertaken to further monitor safety culture at OPG facilities including the development of a new safety culture survey which will include the assessment of OPG staff's use of event-free tools. OPG noted that the nuclear safety culture at the PWMF would again be assessed in 2018, in conformance with the three-year cycle required by OPG's Nuclear Safety Culture Assessment Procedure.

45. CNSC staff confirmed the information provided by OPG and informed the Commission that an assessment of OPG's management system and documentation found that these were adequate to foster, monitor and implement improvements to the safety culture at the PWMF. CNSC staff also indicated that OPG was operating safely and was in compliance with N286-12.
46. Based on the information examined for this hearing, the Commission is satisfied that OPG has maintained and will continue to maintain a strong safety culture at the PWMF.

3.2.4 Performance Assessment

47. The Commission considered the methods used by OPG to assess performance at the PWMF. The OPG representative informed the Commission that OPG used independent audits and assessments, as well as industry peer groups, to assess performance at the PWMF.
48. CNSC staff confirmed the information provided by OPG and informed the Commission that it would continue to monitor OPG's performance through regular oversight activities including onsite inspections and desktop reviews. CNSC staff also reported that OPG had met regulatory requirements in regard to performance assessment at the PWMF.
49. Based on the information provided on the record for this hearing, the Commission is satisfied that OPG is adequately assessing performance at the PWMF.

3.2.5 Conclusion on Management System

50. Based on its consideration of the information presented on the record for this hearing, the Commission concludes that OPG has in place the appropriate organizational and management structures and that the operating performance at the PWMF during the current licence period provides a positive indication of OPG's ability to adequately carry out the activities under the proposed renewed licence.

3.3 Human Performance Management

51. Human performance management encompasses activities that enable effective human performance through the development and implementation of processes that ensure licensee staff is sufficient in number in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties. CNSC staff reviewed OPG's Human Performance Management SCA and rated it as "satisfactory" during the current licence period.

52. The Commission considered the information submitted by OPG in regard to its annual human performance assessments. OPG submitted that, through these assessments, it sought to build on past experience, determine gaps, and identify corrective actions.
53. The OPG representative informed the Commission that there had been no Site Event Free Day Resets¹⁰ during the current licence period and that the three human performance events that were reportable to the CNSC were determined to be minor and handled appropriately, with corrections put in place to prevent their reoccurrence.
54. CNSC staff confirmed the information provided by OPG and submitted that compliance and verification activities showed that OPG had implemented, maintained and would continue to maintain during the proposed renewed licence period an effective human performance program that met regulatory requirements.

3.3.1 Personnel Training

55. The Commission assessed OPG's personnel training programs, with OPG submitting that its personnel training plans had been developed using the Systematic Approach to Training-based (SAT) process. OPG also submitted details on its training programs including procedural use and adherence, observation and coaching, pre and post-job briefings, and situational awareness.
56. CNSC staff confirmed to the Commission that OPG had a robust and documented SAT-based personnel training program in place which met the specifications of REGDOC-2.2.2.¹¹ CNSC staff also provided the Commission with information regarding the compliance activities, including two focussed inspections that it had carried out in 2013 and 2016 in respect of OPG's training programs, noting that these programs were found to be well-managed and appropriate for the activities being conducted at the PWWF.
57. Having examined all of the information provided on the record for this hearing, the Commission is satisfied that OPG has appropriate training programs in place at the PWWF and meets the objectives of REGDOC-2.2.2.

3.3.2 Conclusion on Human Performance Management

58. Based on its consideration of the presented information, the Commission concludes that OPG has appropriate programs in place and that current efforts related to human performance management provide a positive indication of OPG's ability to adequately carry out the activities under the proposed licence.

¹⁰ "Site Event Free Day Resets" are an event tracking tool. These refer to the occurrence of any event that resets the department event-free site clock, helping to track and establish lessons learned from these events.

¹¹ CNSC Regulatory Document REGDOC-2.2.2, *Personnel Training*, December 2016.

3.4 Operating Performance

59. The Commission examined operating performance at the PWF, which includes an overall review of the conduct of the licensed activities and the activities that enable effective performance as well as improvement plans and significant future activities at the PWF. During the current licence period, CNSC staff rated OPG's performance as "satisfactory" from 2008 to 2010 and as "fully satisfactory" for the remainder of the licence period.

3.4.1 Conduct of Licensed Activity

60. The Commission considered OPG's operating practices during the current licence, which included DSC operations, quality inspections and the management of storage areas. OPG submitted that it operated the PWF in accordance with its licensing basis, licence conditions and operational standards during the current licence period. OPG also informed the Commission about the operational performance at the PWF during the current licence period, noting that production targets were met without any lost-time accidents. CNSC staff confirmed the information provided by OPG.
61. OPG submitted that the PWF would meet the specifications of N292.0-14, *General principles for the management of radioactive waste and irradiated fuel*,¹² N292.2-13, *Interim dry storage of irradiated fuel*,¹³ and N292.3-14, *Management of low- and intermediate-level radioactive waste*.¹⁴ by October 31, 2017. CNSC staff confirmed the adequacy of OPG's plans to implement these CSA Group standards.
62. OPG informed the Commission that efficiencies within the DSC production processes were being continually implemented in order to meet future DSC loading targets without compromising safety.
63. CNSC staff submitted information about the compliance activities that CNSC staff conducted in respect of the PWF during the current licence period. Specifically, CNSC staff provided the Commission with information on high-level waste operations and construction activities at the PWF. CNSC staff submitted that, based on its compliance activities, it was of the opinion that OPG's operation of the PWF provided for safe and secure operation with adequate regard for the health, safety, and security of persons, the environment, and Canada's international obligations.
64. CNSC staff reported that its regulatory focus during the proposed licence period would be directed at the review and approval of documentation for the proposed construction projects at the PWF, as well as the review and verification of implemented work management processes.

¹² N292.0-14, *General principles for the management of radioactive waste and irradiated fuel*, CSA Group, 2014.

¹³ N292.2-13, *Interim dry storage of irradiated fuel*, CSA Group, 2013.

¹⁴ N292.3-14, *Management of low- and intermediate-level radioactive waste*, CSA Group, 2014.

65. Having examined the information submitted for this hearing, the Commission is satisfied that the PWMF was operated and will continue to be operated safely.

3.4.2 Reporting and Trending

66. The Commission assessed the information submitted by CNSC staff regarding OPG's PWMF reporting program, noting that CNSC staff were of the opinion that the program exceeded regulatory requirements.
67. CNSC staff submitted that, during the current licence period, OPG did not report any significant events to the CNSC in regard to PWMF operations. CNSC staff also submitted that OPG filed ten low safety significant event reports pursuant to sections 29 and 30 of the *General Nuclear Safety and Control Regulations*.¹⁵ (GNSCR) during the current licence period. CNSC staff further explained that there were no adverse effects on the health or safety of persons or the environment resulting from these events, that OPG had responded with appropriate actions and that all of these matters had been closed to the satisfaction of CNSC staff.
68. The Commission considered the intervention from Lake Ontario Waterkeeper, in which the intervenor opined that some OPG reporting to the CNSC appeared to be mandatory, while other reporting appeared to be discretionary, and that the reasoning behind the categorization of this reporting was not clear. The Lake Ontario Waterkeeper representative also noted that Appendix A, *Public Information Disclosure and Transparency Protocol* of OPG's public information program¹⁶ was discretionary and did not provide a list of mandatory reports that had to be filed by OPG.
69. Further on this topic and in consideration of this concern from the Lake Ontario Waterkeeper, the Commission sought clarification about OPG's reporting requirements in relation to release events at the PWMF and on licensee public reporting requirements. CNSC staff informed the Commission that licensees were required to have a public information program that met the specifications of RD/GD-99.3, *Public Information and Disclosure*.¹⁷ CNSC staff also explained that RD/GD-99.3 included considerations for the development of an appropriate public information and disclosure protocol for the host community and that any additional reporting that a licensee did was discretionary. The OPG representative informed the Commission about OPG's *Public Information Disclosure and Transparency Protocol*, as detailed in Appendix A of its public information program, noting that the protocol required OPG to report on all events which could result in public interest or concern within one day of the occurrence of such an event. The OPG representative asserted OPG's commitment to its *Public Information Disclosure and Transparency Protocol* and provided information regarding the environmental reports that were posted on the OPG corporate website on a quarterly basis.

¹⁵ SOR/2000-202.

¹⁶ Ontario Power Generation, Nuclear Public Information and Disclosure (N-STD-AS-0013, R007), s 1.1.2

¹⁷ CNSC Regulatory Document/Guidance Document RD/GD-99.3, *Public Information and Disclosure*, March 2012.

70. Based on the information provided, the Commission is satisfied that OPG met and will continue to meet reporting requirements throughout the proposed licence period.
71. The Commission is also satisfied that OPG understands that public information disclosure relates to the information about PWMF operations that could be of interest to members of the public whereas reporting requirements relate to information that OPG is required to report to the CNSC in accordance with CNSC regulations.

3.4.3 Proposed Construction Projects and Improvements to PWMF Operations

72. The Commission considered information submitted by OPG in respect of its construction projects to improve the efficiency of PWMF operations in order to meet future waste management requirements. These construction projects include
- the construction of a new DSC Processing Building to replace the existing facility and to increase DSC processing capability from 50 DSCs to 100 DSCs per year
 - the construction of three new DSC storage buildings (#4, #5 and #6) to support the proposed continued Pickering NGS operations.¹⁸ (the construction of DSC Storage Building #4 was authorized by the Commission under the current licence but was not constructed during the current licence period)
73. In response to the intervention from Northwatch, the Commission enquired about OPG's current used fuel processing schedule and about any constraints that may exist in this schedule. The OPG representative informed the Commission that, with current capability and with the proposed facilities, the removal of all irradiated fuel from the Pickering NGS irradiated fuel bays (IFB) could be carried out by 2035. OPG further explained that the fuel had to remain in the IFBs for approximately 10 years in order for it to cool sufficiently prior to its placement into DSCs. CNSC staff confirmed the information provided by OPG and further informed the Commission that the safety of the IFBs at the Pickering NGS had been assessed and that CNSC staff was of the opinion that there were no safety issues that would require the irradiated fuel to be removed from the IFBs before the end of the 10-year fuel cooling period. The Commission is satisfied that the schedule that OPG has in place for the management of used fuel at the PWMF is appropriate.
74. Noting that OPG did not carry out any processing of nuclear substance waste at the PWMF, the Commission requested clarification about the apparent discrepancy in terminology in respect of OPG's request for authorization to construct a new and larger DSC Processing Building to replace the current one. CNSC staff responded that all fuel waste was contained within the DSCs prior to their transfer to the PWMF, that the term

¹⁸ On May 31, 2016, OPG submitted a notice of its intent to renew the Pickering PROL for a ten-year licence period (2018-2028).

processing applied only to the work conducted on the DSCs before and after they were loaded with the fuel waste and did not involve the processing of any nuclear substances. The OPG representative confirmed the information provided by CNSC staff, provided information about the operations carried out in respect of the DSCs at the PWMF and stated that no nuclear substances or used fuel waste were processed in the DSC Processing Building. The Commission is satisfied that OPG does not carry out the licensed activity of processing nuclear substances, as defined in paragraph 26(b) of the NSCA,¹⁹ in the DSC Processing Building at the PWMF.

75. The Commission notes the misunderstanding that the use of the term “processing” caused during these proceedings, including the interventions from Lake Ontario Waterkeeper and Northwatch, in respect to the activities that OPG carries out at the PWMF. While the Commission is satisfied with the information provided by CNSC staff and OPG in this regard and recognizes that nuclear substances are not processed at the PWMF DSC Processing Building, the Commission recommends that OPG provide additional clarity in this regard in future documentation.

3.4.4 Conclusion on Operating Performance

76. Based on the information provided on the record for this hearing, the Commission concludes that the operating performance at the PWMF during the current licence period provides a positive indication of OPG’s ability to carry out the activities, including the construction of the proposed DSC Processing Building and the DSC storage buildings #3, #4 and #5 under the proposed renewed licence.

3.5 Safety Analysis

77. The Commission assessed safety analysis at the PWMF, which includes a systematic evaluation of the potential hazards associated with the conduct of a licensed activity or the operation of a facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards. The safety analysis supports the overall safety case for the PWMF. CNSC staff rated this SCA as “satisfactory” from 2008 to 2010 and “fully satisfactory” for the remainder of the current licence period.

3.5.1 Hazard Analysis

78. The Commission considered information provided by OPG regarding its assessment of possible malfunctions and accidents at the PWMF during key operational stages including on-site transfer operations, operations inside the DSC Processing Building and storage. OPG also submitted that its hazard analysis considered the occurrence of

¹⁹ S.C. 1997, c. 9, p. 26(b): Subject to the regulations, no person shall, except in accordance with a licence mine, produce, refine, convert, enrich, **process**, **reprocess**, ...”

natural events such as seismic events and floods.

79. OPG submitted that the hazard analysis evaluated design provisions and procedural measures that could prevent an event or mitigate its consequences. OPG further submitted to the Commission results from the hazard analyses noting that, for all events considered in the hazard analysis, the potential doses to persons or harm to the environment were assessed to be well below regulatory levels.
80. OPG provided the Commission with information about the detailed safety assessments that OPG would perform for the three additional buildings for which OPG requested approval to construct, should the Commission approve this request.
81. CNSC staff confirmed the information provided by OPG and reported that OPG reviewed the accuracy and validity of the PWSMF Safety Report at least every five years. CNSC staff also provided information about several assessments, including ERAs, which OPG had conducted to assess the safety of its operations.
82. OPG submitted information regarding updates and improvements that were being made to its safety assessment methodology to ensure that the methodology remained as accurate and up-to-date as possible. OPG further reported that it expected to use these safety assessment methodology improvements for the 2018 PWSMF Safety Report update.
83. CNSC staff informed the Commission that, during the current licence period, OPG had been required to re-examine its safety case in light of the 2011 Fukushima Daiichi accident. CNSC staff reported that OPG undertook improvements and enhancements in this regard and that all activities stemming from the re-examination of the PWSMF safety case had been completed to the satisfaction of CNSC staff.
84. Based on the information submitted on the record for this hearing, the Commission is satisfied that OPG's hazard analyses for the PWSMF were adequate to evaluate and mitigate residual risks at the PWSMF. The Commission expects OPG to carry out the appropriate safety assessments for any new buildings that OPG constructs at the PWSMF site.

3.5.2 Criticality Safety

85. The Commission considered information submitted by OPG regarding the criticality assessments that had been completed for the used CANDU fuel stored in the DSCs at the PWSMF. OPG submitted that assessments had shown that there could be no criticality of used fuel under normal or under postulated accident conditions at the PWSMF. CNSC staff confirmed the information provided by OPG and further explained that, since the used fuel stored at the PWSMF could not become critical in air or water, OPG was not required to maintain a nuclear criticality safety program for the PWSMF.

86. Based on the information assessed, the Commission is satisfied that there could be no criticality of used CANDU fuel at the PWF and that a nuclear safety criticality program at the PWF is not required.

3.5.3 Conclusion on Safety Analysis

87. On the basis of the information presented, the Commission concludes that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards are adequate for the operation of the PWF and the activities under the proposed renewed licence.

3.6 Physical Design

88. The Commission considered the physical design of the PWF, including the activities to design the systems, structures and components to meet and maintain the design basis of the facility. The design basis is the range of conditions, according to established criteria, that the facility must withstand without exceeding authorized limits for the planned operation of safety systems. CNSC staff rated OPG's performance in this SCA as "satisfactory" throughout the current licence period.
89. The Commission assessed the information provided by OPG regarding its physical design program. OPG submitted that the physical design program for the PWF complied with the safety basis for the facility and that all changes were authorized and performed in a controlled manner and in accordance with the OPG licence. The OPG representative also informed the Commission that future construction at the PWF would be compliant with new or revised codes and standards.
90. CNSC staff confirmed the information provided by OPG and informed the Commission that the physical design program at the PWF met regulatory requirements. CNSC staff also reaffirmed to the Commission that it would continue to review all of OPG's documentation in respect of physical design changes against applicable codes and standards and that CNSC staff would monitor physical design program implementation through the conduct of compliance verification activities.
91. OPG submitted that the pressure boundary program for the PWF met the specifications of N285.0, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants*.²⁰ CNSC staff confirmed this information and reported that CNSC staff had verified that OPG continued to maintain a formal agreement with the Technical Standards and Safety Authority as the authorized inspection agency in this regard.

²⁰ N285.0, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants*, 2008 Updates No. 1 and 2, and 2012 Update No. 1, CSA Group, 2008 and 2012.

92. Asked about OPG's practice of freezing the effective dates for design-related codes and standards, the OPG representative responded that this practice was used to enable the implementation of a consistent program for all of OPG's facilities, including its waste management facilities. The OPG representative added that the practice of freezing the effective dates for codes and standards was granted to OPG on the basis that code-over-code reviews were undertaken for any subsequent work and that annual reviews were conducted. CNSC staff confirmed the information provided by OPG and also explained that, in general, codes were frozen to ensure that standard processes were in place during periods of change or major projects such as refurbishment. CNSC staff further reported that OPG used new codes and standards for new equipment but not for existing equipment that was being repaired and/or replaced. The Commission was satisfied with the information provided on this point.

3.6.1 Conclusion on Physical Design

93. On the basis of the information presented, the Commission concludes that OPG continues to implement and maintain an effective design program at the PWMF and that the design of the PWMF is adequate for the operation period included in the proposed renewed licence.

3.7 Fitness for Service

94. Fitness for Service covers activities that are performed to ensure the systems, components and structures at the PWMF continue to effectively fulfill their intended purpose. CNSC staff rated OPG's performance in this SCA as "satisfactory" throughout the current licence period.
95. OPG submitted that it was committed to maintaining PWMF systems, structures, equipment and components that were critical to the safe, reliable and economic transportation, processing and storage of nuclear waste in a fit-for-service state.
96. OPG provided the Commission with information about its equipment reliability program and the system performance monitoring that was performed on critical PWMF systems to ensure ongoing reliable operation.
97. CNSC staff confirmed the information provided by OPG and reported to the Commission that OPG had processes in place to monitor the physical condition of DSCs and PWMF components and that compliance verification activities had shown that OPG's fitness for service programs met CNSC regulatory requirements.
98. The Commission considered the information submitted by OPG regarding its preventive maintenance program, which ensured that maintenance activities were planned, scheduled and executed as required. OPG reported that the maintenance program was routinely assessed, with its status reported to PWMF management. OPG

also reported that, as part of system maintenance monitoring, corrective actions were provided to PWMF management for approval and monitored to completion. CNSC submitted to the Commission that compliance verification activities had shown that OPG appropriately scheduled, tracked and conducted preventive and corrective maintenance tasks at the PWMF.

3.7.1 Aging Management

99. The Commission considered the information provided by OPG and CNSC staff about OPG's aging management program for the PWMF. OPG provided the Commission with detailed information about its DSC and dry storage module (DSM) aging management programs and about future aging management activities that would be undertaken at the PWMF. CNSC staff confirmed the information provided by OPG and reported that OPG's aging management program met the specifications of RD-334, *Aging Management*.²¹
100. OPG reported to the Commission that, to address aging management issues at the PWMF, OPG would update the DSC and DSM aging management plans to reflect information from recently-conducted condition assessments and best practices. Additionally, OPG reported that it would update during the proposed licence period the list of safety-related systems, structures and components for the PWMF to facilitate the identification of which of these would be subjected to aging management evaluations and actions. OPG further submitted that it would implement REGDOC-2.6.3, *Aging Management*.²² at the PWMF in July 2017.
101. The Commission requested additional details about the inspection of fitness for service of DSCs. The OPG representative responded that an extensive aging program was in place at the PWMF and that a percentage of DSCs were visually inspected annually, with the inspection results reported to CNSC staff. The OPG representative also provided additional information about the corrosion monitoring of the DSCs' inner lining, noting that results had shown that the observed level of internal corrosion will not impact the lifespan of the DSCs.
102. Based on the information provided for this hearing, the Commission is satisfied that OPG has an appropriate aging management plan in place at the PWMF.

²¹ CNSC Regulatory Document RD-334, *Aging Management*, June 2011.

²² CNSC Regulatory Document REGDOC-2.6.3, *Aging Management*, March 2014.

3.7.2 Conclusion on Fitness for Service

103. Based on the information provided by OPG and CNSC staff on the record for this hearing, the Commission is satisfied with OPG's programs for the inspection and life-cycle management of key safety systems at the PWMF. Based on the above information, the Commission concludes that the equipment as installed at the PWMF is fit for service and that appropriate programs are in place to ensure that the equipment remains fit for service throughout the proposed licence period.

3.8 Radiation Protection

104. As part of its evaluation of the adequacy of the measures for protecting the health and safety of persons, the Commission considered the past performance of OPG in the area of radiation protection. The Commission also considered the radiation protection program in place at the PWMF to ensure that radioactive contamination and radiation doses to persons are monitored, controlled and kept As Low As Reasonably Achievable (ALARA), with social and economic factors taken into consideration. Throughout the current licence period, CNSC staff rated OPG's performance in this SCA as "satisfactory."
105. The Commission considered the information provided by OPG and CNSC staff to assess whether OPG's radiation protection program at the PWMF satisfied the *Radiation Protection Regulations*.²³ OPG submitted information regarding the implementation of the radiation protection program at the PWMF, noting that OPG had established a comprehensive radiation protection program to protect workers and the public. The program elements were designed to keep exposures ALARA, to implement control of public and occupational exposures, and to plan for unusual occurrences.
106. CNSC staff submitted that, throughout the current licence period, OPG implemented an appropriate and effective radiation protection program at the PWMF that satisfied regulatory requirements. CNSC staff confirmed they would continue to monitor OPG's performance in this area through ongoing regulatory oversight activities.
107. OPG submitted information to the Commission about a 2015 corporate-wide radiation protection audit, during which no major non-conformances specific to the PWMF had been identified. OPG further submitted that a corporate-level action plan in respect of improvements in the implementation of radiation protection fundamentals was put in place. CNSC staff confirmed this information and submitted to the Commission that CNSC staff would closely monitor these initiatives during the proposed renewed licence period.

²³ SOR/2000-203.

3.8.1 Application of ALARA

108. The Commission assessed the information submitted by OPG and CNSC staff regarding the application of the ALARA principle at the PWF. OPG submitted that, in keeping with the ALARA principle, individual and collective doses were well below regulatory and administrative limits throughout the current licence period and that ALARA planning was performed for all work conducted at the PWF.
109. CNSC staff reported to the Commission that OPG's radiation protection program met the specifications of G-129, *Keeping Radiation Exposures and Doses "As Low As Reasonably Achievable" (ALARA)*.²⁴ CNSC staff confirmed to the Commission that OPG's radiation protection program for the PWF integrated ALARA into planning, scheduling, and work controls and established and monitored performance against ALARA targets for work conducted at the PWF. CNSC staff also noted that OPG generated ALARA targets on a yearly basis based on the volume of radioactive waste to be handled at the PWF.
110. Based on the information considered for this hearing, the Commission is satisfied that the ALARA concept is adequately applied to all PWF activities.

3.8.2 Worker Dose Control

111. OPG submitted to the Commission that worker doses during the current licence period were consistently below OPG's exposure control levels and well below the regulatory limits established by the CNSC. The OPG representative also noted that the maximum effective dose received by a worker during the current licence period was 3.2% of the regulatory dose limit. CNSC staff confirmed that worker radiation doses at the PWF had been maintained well below regulatory limits.
112. CNSC staff submitted that OPG used CNSC-licensed dosimetry services to monitor, assess, record and report doses of ionizing radiation received by employees, visitors and contractors as a result of activities at the PWF, with doses for individual reported to the National Dose Registry.
113. CNSC staff informed the Commission that, in keeping with the ALARA principle, OPG had planned improvements to its radiation protection program during the proposed renewed licence period and CNSC staff would be closely monitoring these initiatives.
114. The Commission considered a written submission from the Power Workers' Union, which included workers at the PWF. In its submission, the Power Workers' Union informed the Commission that OPG had a comprehensive health and safety framework

²⁴ CNSC Regulatory Guide G-129, *Keeping Radiation Exposures and Doses "As Low As Reasonably Achievable" (ALARA)*, Revision 1, October 2004.

in place, including a Joint Committee on Radiation Protection, to protect workers at the PWMF.

115. Based on the information provided for this hearing, the Commission is satisfied that doses to workers at the PWMF are adequately controlled.

3.8.3 *Control of Dose to the Public*

116. The Commission considered the effectiveness of OPG's programs to prevent uncontrolled releases of contaminants or radioactive materials to the public from the PWMF. OPG reported to the Commission about the methods by which it controlled dose to the public throughout the current licence period. OPG submitted that the estimated dose for members of the public was well below the regulatory annual public dose limit of 1 mSv.²⁵ throughout the current licence period.
117. CNSC staff confirmed that the estimated dose to the public from PWMF operations remained well below regulatory requirements throughout the current licence period. Noting that the PWMF was at the site border of the Pickering NGS, CNSC staff also submitted that the dose contribution from PWMF operations was a small fraction of the estimated dose to the public from the overall Pickering site.
118. The Commission enquired about the appropriateness of the action levels that were used by OPG for radiation protection. CNSC staff explained the purpose of action levels and further stated that action levels were assessed by CNSC staff during a licensing review to ensure that they were appropriate in the context of the proposed activities. CNSC staff further reported to the Commission that its assessment in this regard had not yet been finalized. The Commission expects CNSC staff to finalize the review of radiation protection action levels as soon as possible during the proposed licence period.
119. The Commission requested additional information about action level management, derived release limits²⁶ (DRL) and how the public could use this data to assess dose information. CNSC staff responded that this issue of how the public could interpret action levels and DRLs was recognized within the industry and that novel ways of considering action levels to ensure that they were performance and data-based was being considered through a new CSA Group standard. The Commission was satisfied with the information provided on this point and looks forward to the new CSA Group Standard.
120. Based on the information provided for this hearing, the Commission is satisfied that OPG is adequately controlling radiological doses to the public from the PWMF

²⁵ The regulatory dose limit for a member of the public is 1 mSv (1,000 µSv) per year and the natural background dose is estimated between 2 mSv – 5 mSv (2,000 µSv – 5,000 µSv) per year.

²⁶ The derived release limit for a given radionuclide is the release rate that would result in an annual committed effective radiation dose of 1 mSv to the most exposed group of the public (also known as the critical receptor) for that nuclear substance.

operations.

3.8.4 Conclusion on Radiation Protection

121. Based on the information provided on the record for this hearing, the Commission concludes that, given the mitigation measures and safety programs that are in place and will be in place to control radiation hazards, OPG provides, and will continue to provide, adequate protection to the health and safety of persons and the environment throughout the proposed renewed licence period.
122. The Commission is satisfied that OPG's radiation protection program at the PWF meets the requirements of the *Radiation Protection Regulations*.

3.9 Conventional Health and Safety

123. The Commission examined OPG's implementation of a conventional health and safety program at the PWF to manage workplace safety hazards. This program is mandatory for all employers and employees in order to reduce the risks associated with conventional (non-radiological) hazards in the workplace. This program includes compliance with Part II of the *Canada Labour Code*²⁷ and conventional safety training. Throughout the current licence period, CNSC staff rated OPG's performance in this SCA as "satisfactory" from 2008 to 2010 and "fully satisfactory" for the balance of the current licence period.
124. The Commission notes that, in addition to the NSCA and its regulations, OPG's activities and operations must comply with the *Canada Labour Code*, Part II: *Occupational Health and Safety* and that OPG must report to the Province of Ontario on any reports made to other regulatory bodies under the *Occupational Health and Safety Act of Ontario*²⁸ and the *Labour Relations Act, 1995*.²⁹
125. OPG submitted to the Commission that it had a Conventional Safety Program in place at the PWF to ensure and promote a healthy and injury-free workplace. OPG also submitted that it had managed the PWF without a lost-time accident throughout its entire operational life of 22 years.
126. CNSC staff confirmed to the Commission that OPG had a conventional health and safety program at the PWF that exceeded regulatory requirements throughout the current licence period. CNSC staff further submitted that no areas of concern in respect of OPG's conventional health and safety program for the PWF had been identified during on-site inspections by CNSC staff.

²⁷ R.S.C., 1985, c. L-2.

²⁸ R.S.O., 1990, c. O.1.

²⁹ S.O., 1995, c. 1, Sched. A.

127. OPG provided the Commission with information regarding its Employee Health and Safety Policy and Internal Responsibility System which had as its objective to prevent workplace injuries and ill health, to improve employee health and safety performance and for each employee to take initiative in regard to workplace health and safety. OPG also reported that it had implemented the corporate-level “iCare” program in 2016, which had as a goal to further enhance conventional health and safety by increasing OPG staff’s commitment to individual and group awareness of safety issues.
128. OPG provided the Commission with information regarding conventional health and safety improvements planned for the proposed renewed licence period. OPG submitted that these improvements would be undertaken as continuous improvement activities and would aim to increase situational awareness, implement improved tools for OPG staff and implement a Total Health Initiative. CNSC staff confirmed the information on these improvements and submitted that, during the proposed licence period, CNSC staff would verify their implementation through documentation reviews and inspections.
129. In response to the Commission’s enquiry for details about the iCare program, the OPG representative explained that, although the full scope of the program was still under development, it was considered to be an important tool to engage employees in safety issues. The OPG representative also stated that the iCare program was closely associated with human performance tools such as peer coaching. In terms of measuring the success of the iCare program, the OPG representative stated that safety trends would be assessed and evaluated. The Commission is satisfied with the information provided on the iCare program and encourages OPG to continue its efforts in this regard.
130. The Commission considered an intervention from the Power Workers’ Union, which reported to the Commission that OPG and its workers had in place a comprehensive health and safety framework that protected workers. The Power Workers’ Union submitted that this framework included a Joint Policy Committee on Health and Safety and a Joint Health and Safety Working Committee.
131. The Commission concludes that the health and safety of workers and the public was adequately protected during the operation of the facility for the current licence period and that the health and safety of persons would also be adequately protected during the continued operation of the facility in the proposed renewed licence period.

3.10 Environmental Protection

132. The Commission examined OPG’s environmental protection programs at the PWMF, under which OPG identifies, controls and monitors all releases of radioactive and hazardous substances, and aims to minimize the effects on the environment which may result from the licensed activities. These programs include effluent and emissions control, environmental monitoring and estimated doses to the public. CNSC staff rated

OPG's performance in this SCA as "satisfactory" throughout the current licence period.

133. The Commission considered whether the PWMF environmental protection programs adequately met the specifications of REGDOC-2.9.1, *Environmental Protection Policies, Programs and Procedures*.³⁰

3.10.1 Effluent and Emissions Control (Releases)

134. The Commission considered OPG's programs to control the release of effluent and emissions from the PWMF to the environment. OPG submitted that monitoring results from its effluent and emissions control programs showed that effluent and emissions releases were within regulatory limits and that the systems were performing as designed.
135. OPG also submitted information about groundwater monitoring for the PWMF that was integrated with the Pickering NGS site groundwater monitoring program. OPG reported that an assessment of the groundwater flow, conducted in the 2003 Pickering NGS site EA, found that there would be no likely effects to the environment from groundwater originating from the PWMF, including from the construction activities related to the proposed DSC processing and storage buildings.
136. CNSC confirmed the information provided by OPG and reported that OPG's plans to implement N288.7-15, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*³¹ and N288.1-14, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*³² by December 31, 2017 were adequate.
137. CNSC staff further submitted to the Commission that, through an assessment of OPG's effluent monitoring program, it was of the opinion that adequate measures were in place to protect the public and the environment from releases from the PWMF.
138. The Commission, considering the concerns from Lake Ontario Waterkeeper, enquired about the timing and frequency of groundwater sampling. The OPG representative responded that groundwater monitoring had been in place for 17 years at the site, that the site was sampled semi-annually and that the flow migration was well understood with no concerns noted. The Commission is satisfied that groundwater sampling at the PWMF site is adequate.

³⁰ CNSC Regulatory Document REGDOC-2.9.1, *Environmental Protection Policies, Programs and Procedures*, 2013.

³¹ N288.7-15, *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*, CSA Group, 2015.

³² N288.1-14, *Guidelines for calculating derived release limits for radioactive material in airborne and liquid effluents for normal operation of nuclear facilities*, CSA Group, 2014.

139. The Commission, in its consideration of Lake Ontario Waterkeeper's intervention, enquired about tritium releases from the PWMF. CNSC staff informed the Commission that tritium releases from the PWMF were below the internal investigation levels at the PWMF. CNSC staff further asserted that, based on its review of the intervention in question, no clear trend relating to an increase in tritium emissions was evident. CNSC staff explained that, as part of risk-based regulation, CNSC staff had determined that a follow-up in regard to tritium emissions from the PWMF was not required. Based on the information provided, the Commission is satisfied that, at this time, tritium emissions from the PWMF are not increasing. The Commission, however, expects CNSC staff to provide an updated and confirmatory analysis in this regard in the next ROR.
140. Further on the topic of tritium releases from the PWMF, the Commission sought clarification regarding the assertion from Lake Ontario Waterkeeper that these releases resulted in "significant adverse effects" to the environment. CNSC staff informed the Commission that no tritium was processed at the PWMF and that CNSC staff's review of the EA and ERA revealed no impacts to the environment near the PWMF. OPG also informed the Commission that none of the proposed new construction projects at the PWMF would be processing tritium. The Commission is satisfied that the PWMF is not a major contributor to tritium in the environment at and near the Pickering NGS site. Further, the Commission is satisfied that, although the Pickering NGS contributes to tritium releases near the site, OPG is and will continue to appropriately control these releases in the proposed licence period and that these releases do not have an adverse effect on the environment.
141. In reference to the intervention from Northwatch about liquid waste sampling, the Commission asked OPG for clarification in this regard. The OPG representative responded that liquid waste sampling was now carried out monthly. The OPG representative acknowledged that, for approximately 10 years prior to 2011, this sampling was undertaken only every 26 weeks but that this has since been rectified. CNSC staff confirmed that liquid waste sampling was now conducted monthly at the Pickering NGS site and was reported quarterly. The Commission is satisfied that adequate liquid waste sampling is now being carried out at the facility and expects this frequency of liquid waste sampling to continue in the proposed licence period.
142. On the issue of hydrazine releases from the PWMF, as raised by Northwatch in its intervention, CNSC staff informed the Commission that, although there could be controlled releases of hydrazine from the Pickering NGS, this was not the case for the PWMF. The Commission is satisfied that the hydrazine releases are not an issue that requires consideration in this licensing matter.
143. On the basis of the information provided for this hearing, the Commission is satisfied that OPG has and will continue to have adequate programs in place for the control of effluent and emissions at the PWMF to protect the environment and meet regulatory requirements. The Commission encourages OPG to continue its efforts of continuous

improvement in this regard.

144. The Commission expects OPG to implement the updated standards for effluent and emissions control programs at the PWMF as per the timelines submitted during this hearing.

3.10.2 Environmental Management System

145. The Commission assessed the information provided by OPG and CNSC staff in respect of the OPG Environmental Management System (EMS). OPG submitted that it had implemented a corporate-wide EMS which established annual objectives and that these would be verified through internal and compliance audits. OPG also submitted that its EMS was ISO 14001.³³ certified.
146. CNSC staff informed the Commission that it had verified that OPG's EMS met the specifications of REGDOC-2.9.1. CNSC staff also informed the Commission that it had verified that annual management reviews of the EMS had taken place and that corrective actions had been documented.
147. Based on the information provided, the Commission is satisfied that OPG has maintained, and will continue to maintain, an adequate EMS at the PWMF.

3.10.3 Assessment and Monitoring

148. The Commission considered information submitted by OPG about OPG's environmental monitoring program that is designed to demonstrate that emissions from the site are properly controlled. OPG informed the Commission that emissions from the PWMF were monitored under the Pickering Nuclear Environmental Monitoring Program, which included emissions from the entire Pickering NGS site. OPG also reported that emission monitoring from the site included off-site air, water and terrestrial samples and that monitoring data were used to assist in determining the dose to the public living or working near the Pickering NGS site. OPG further submitted that doses to the public from the PWMF were a small fraction of the public dose limit.
149. The Commission also considered CNSC staff's EA Report for this licence renewal. CNSC staff confirmed the effluent and emission monitoring results reported by OPG and informed the Commission that assessment and monitoring confirmed that radioactive releases from the PWMF are well within regulatory limits and non-radioactive releases were negligible.
150. CNSC staff reported that OPG's environmental monitoring programs met the specifications of N288.4-10, *Environmental monitoring program at Class I nuclear*

³³ ISO 14001, *Environmental Management Systems*, International Organization for Standardization.

facilities and uranium mines and mills, and that OPG's environmental monitoring programs met CNSC requirements.

151. The Commission requested additional information about the implementation of OPG's environmental monitoring program. CNSC staff explained that the implementation of an environmental monitoring program was a licensing requirement and that CNSC staff ensured that the OPG's environmental monitoring program met licence and regulatory requirements through its oversight activities.
152. In its consideration of the intervention from Lake Ontario Waterkeeper, the Commission requested additional information from OPG regarding its storm water monitoring. The OPG representative responded that OPG carried out storm water monitoring for the Pickering NGS site and reported on the gross beta-gamma activity in rainwater discharged from the facility. OPG provided the Commission with detailed information regarding surface drainage from the PWSMF Phase I and II sites and further submitted that the impact of the PWSMF's operation on storm water runoff was negligible since there were no liquid effluent discharges from the PWSMF into the storm water system. Based on the information provided by OPG and on results from EAs and ERAs, the Commission is satisfied that the PWSMF's impact on storm water runoff from the Pickering NGS site is adequately characterized by OPG and is negligible.
153. The Commission requested clarification in regard to the annual airborne release information, from 2008 to 2016, that was submitted by CNSC staff in the EA Report. CNSC staff provided additional details in regard to the airborne release information characterized in the EA report. The Commission directs CNSC staff to provide this information more clearly in future submissions.

Independent Environmental Monitoring Program

154. The Commission examined the information provided by CNSC staff in regard to the CNSC's Independent Environmental Monitoring Program (IEMP). CNSC staff provided results from monitoring that was carried out in 2014 and 2015 in publicly accessible areas outside the perimeter of the Pickering NGS site, which includes the PWSMF, and noted that the measured radioactivity in all samples was below CNSC reference levels.³⁴
155. CNSC staff submitted that the 2014 and 2015 IEMP results showed that the public and the environment around the Pickering NGS site, which included the PWSMF, were protected and that there should be no health or environmental impacts. CNSC staff further reported that the IEMP results were consistent with the environmental monitoring results submitted by OPG, demonstrating that OPG's environmental protection program continued to protect the health of persons and the environment.

³⁴ CNSC reference levels are established based on conservative assumptions about the exposure scenario and using N288.1-14. On this basis, the reference level for a particular radionuclide in a particular medium represents the activity concentration that would result in a dose of 0.1 mSv per year.

156. The Commission enquired about the concern expressed by Northwatch in regard to the location of sampling points for the CNSC's Independent Environmental Monitoring Program (IEMP). CNSC staff provided the Commission with details regarding the IEMP sampling locations for food and surface water near the Pickering NGS site and noted that the IEMP did not include groundwater since the IEMP only considered publicly-accessible areas outside the facility site. CNSC staff explained that surface water was monitored at five locations through the IEMP and that the sampling information properly characterized releases from the facility. CNSC staff further explained that, although groundwater was not sampled through the IEMP, CNSC staff regularly reviewed the results of and conducted inspections on OPG's groundwater monitoring program. The Commission is satisfied that sampling points for the IEMP were appropriately considered by CNSC staff to characterize the environment near the Pickering NGS site.
157. Based on the information submitted by CNSC staff in the EA Report, the Commission is satisfied that the EA adequately shows that OPG made and will continue to make adequate provision for the protection of the environment and persons at the PWMF site.
158. The Commission is satisfied that OPG's and the CNSC's environmental monitoring show that the public and the environment around the PWMF site remain protected.

3.10.4 Protection of the public

159. The Commission assessed OPG's programs to mitigate risk to members of the public from hazardous substances discharged from the PWMF. OPG submitted that results of monitoring and public dose assessment were published in the Pickering NGS annual Environmental Monitoring Program report which is submitted to the CNSC and made available to the public through OPG's corporate website.
160. CNSC staff informed the Commission that, since 2008, there had been no reportable spills to the environment and no environmental infractions at the PWMF.
161. Based on the information provided, the Commission is satisfied that OPG's programs to mitigate risk to members of the public from PWMF operations are adequate.

3.10.5 Environmental Risk Assessment

162. The Commission considered information about the 2014 and 2017 ERAs that were completed by OPG for the entire Pickering NGS site, including the PWMF. OPG submitted that the ERAs characterized the baseline environment and assessed risks to the environment from the operations at the Pickering NGS site. OPG also submitted that the ERAs also evaluated the risks to people and the environment, and identified areas that would require further monitoring or assessment. OPG reported to the Commission that the 2014 ERA had identified a number of areas where supplementary

studies were recommended in order to clarify risk and reduce uncertainty in regard to operations at the entire Pickering NGS site, but noted that the object of the supplementary studies were not related to PWMF operations.

163. CNSC staff confirmed the information provided by OPG and submitted that the 2014 and 2017 ERAs complied with all applicable requirements and provided a complete evaluation of all potential risks to human health and the environment associated with the operations at the Pickering NGS site.
164. CNSC staff submitted that the 2017 ERA for the Pickering NGS met the specifications of N288.6-12 and regulatory requirements. CNSC staff also submitted that the 2014 and 2017 ERAs showed that meaningful human health or ecological effects attributable to operations at the PWMF were unlikely and that OPG had and continued to make adequate provision for the protection of the environment and the health of persons.
165. The Commission considered the interventions from the Lake Ontario Waterkeeper and Northwatch in regard to the 2014 and 2017 ERAs that were submitted following the April 13, 2017 oral hearing. The Commission notes the intervenors' concerns in regard to the ERAs including, but not limited to, the consideration of groundwater, as well as the exposure pathways to human receptors to site groundwater, the sampling locations used, and the characterization of releases from the Pickering NGS facility. In this regard, and based on all submissions received in this matter, the Commission is satisfied that intervenors' concerns have been adequately considered in the ERAs carried out for the Pickering NGS site.
166. Based on the information presented on the record for this hearing, the Commission is satisfied that the ERAs were carried out satisfactorily and showed that OPG was adequately protecting the environment in the vicinity of the Pickering NGS, and therefore, the PWMF site.
167. The Commission expresses its dissatisfaction that the 2014 ERA was not made publicly available for the April 13, 2017 oral hearing and directs OPG make future ERAs available to the public as soon as practicable.

3.10.6 Conclusion on Environmental Protection

168. Based on the assessment of the application and the information provided on the record at the hearing, the Commission is satisfied that, given the mitigation measures and safety programs that are in place to control hazards, OPG will provide adequate protection to the health and safety of persons and the environment throughout the proposed licence period.
169. The Commission asks that CNSC staff and licensees/applicants use less ambiguous terminology such as "very minor percentage" in submissions to the Commission. The Commission directs CNSC staff to provide the Commission with clarification in regard

to what is represented by “very minor percentage” and expects that, in future submissions to the Commission, terminology with a higher degree of accuracy will be used.

170. In regard to tritium emissions, the Commission expects CNSC staff to provide an updated and confirmatory analysis in the next NPP ROR in regard to the tritium outlier data that was presented in the Lake Ontario Waterkeeper intervention.
171. The Commission directs CNSC staff and OPG to present information regarding annual airborne releases more clearly in future submissions to the Commission and to the public.

3.11 Emergency Management and Fire Protection

172. The Commission considered OPG’s emergency management and fire protection programs which cover the measures for preparedness and response capabilities implemented by OPG in the event of emergencies and non-routine conditions at the PWMF. This includes nuclear emergency management, conventional emergency response and fire protection response. Throughout the current licence period, CNSC staff rated OPG’s performance in this SCA as “satisfactory.”

3.11.1 Emergency Management

173. The Commission considered the information provided by OPG and CNSC staff about OPG’s emergency management program at the PWMF. OPG submitted that the Pickering NGS Emergency Response Team (ERT) was the primary responder for the PWMF Phase I. OPG further submitted that the City of Pickering was the primary responder for PWMF Phase II and that the Pickering NGS ERT was the secondary responder for Phase II. OPG also reported to the Commission about the emergency response drills and exercises that OPG conducts with local emergency response partners and about hazardous material spill drills, including nuclear spills, that are regularly carried out at the PWMF.
174. OPG informed the Commission that, following the Fukushima Daiichi accident, OPG re-examined the safety case for the PWMF including defence-in-depth concepts that included external hazards (seismic, flooding, fire and extreme weather events), measures for accident prevention and mitigation, as well as emergency preparedness. OPG submitted safety case improvements that had been carried out at the PWMF during the current licence period including design basis and beyond design basis events.
175. CNSC staff confirmed the information provided by OPG and submitted that OPG’s emergency management program for the PWMF met regulatory requirements and met

the specifications of RD-353, *Testing and Implementation of Emergency Measures*.³⁵ CNSC staff also submitted that, during the proposed renewed licence period, OPG had committed to implement REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*.³⁶ by December 31, 2018.

176. The Commission requested additional information about OPG's capabilities, as supported by outside agencies, to adequately respond to emergency situations at the PWSMF. The OPG representative provided the Commission with additional detailed information about the emergency management plan at the PWSMF and about the support that would be provided by emergency response personnel from the Pickering NGS and the City of Pickering, if required. OPG also provided information about the emergency exercises that it conducted on a regular basis and which involved outside agencies and organizations. CNSC staff informed the Commission that OPG's mutual aid capability had been carefully assessed and that CNSC staff were of the opinion that the necessary resources would be available for an extended emergency situation. The Commission is satisfied that OPG has appropriate emergency management resources to mitigate an accident at the PWSMF.
177. Based on the information provided on the record for this hearing, the Commission is satisfied with OPG's programs to manage emergencies at the PWSMF. The Commission expects OPG to implement REGDOC-2.10.1 at the PWSMF by December 31, 2018.

3.11.2 Fire Protection

178. The Commission examined the adequacy of the PWSMF fire protection program. OPG submitted that the fire protection and detection systems at the PWSMF were designed and constructed to comply with applicable codes and standards, including the *National Fire Code of Canada* (NFC),³⁷ the *National Building Code of Canada* (NBC),³⁸ and N285.0-08, Update 1, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants*.³⁹ OPG also provided information regarding the OPG Engineering Change Control process for design modifications and how inspections, testing and maintenance of the fire protection system were carried out in accordance with the PWSMF licence.
179. OPG submitted that, in 2012, an independent third-party review of OPG's fire protection program at the PWSMF showed that the program fulfilled CNSC licensing requirements and complied with or met the specifications of applicable codes and standards. OPG also provided the Commission with information regarding internal audits of the PWSMF fire protection program and how corrective actions were identified

³⁵ CNSC Regulatory Document RD-353, *Testing and Implementation of Emergency Measures*, 2008.

³⁶ CNSC Regulatory Document REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*, 2016.

³⁷ Reference 2005

³⁸ Reference 2005

³⁹ N285.0-08, Update 1, *General requirements for pressure-retaining systems and components in CANDU nuclear power plants*, CSA Group, 2008.

and implemented throughout the current licence period.

180. CNSC staff confirmed the information provided by OPG and explained that CNSC staff had verified that OPG had implemented and maintained a program at the PWF for fire protection to minimize both the probability of occurrence and the consequence of fire at the facility.
181. OPG submitted to the Commission that, in the proposed renewed licence period, OPG would implement the 2010 versions of the NBC and NFC, as well as N393-13, *Fire protection for facilities that process, handle or store nuclear substances*.⁴⁰
182. Based on the information provided, the Commission is satisfied that OPG has an adequate fire protection program in place at the PWF that meets regulatory requirements. The Commission expects OPG to implement the updated codes and standards at the PWF during the proposed renewed licence period.

3.11.3 Conclusion on Emergency Management and Fire Protection

183. Based on the above information, the Commission concludes that the fire protection measures and emergency management preparedness programs in place, and that will be in place, at the PWF are adequate to protect the health and safety of persons and the environment.

3.12 Waste Management

184. The Commission considered the PWF waste management program which covers the waste generated during the operations of the PWF. Throughout the current licence period, CNSC staff evaluated OPG performance in this SCA with regards to waste minimization and management practices as “satisfactory.”
185. OPG submitted to the Commission that its waste management program was aligned with and based on the OPG nuclear environmental management program, and that it implemented strategies for waste minimization and management. OPG also provided information about waste management procedures used at the PWF and submitted that minimal radioactive waste was generated from the activities carried out at the PWF, with a maximum amount of one drum of low-level waste sent to the Pickering NGS annually for segregation as necessary. OPG further reported that no intermediate- or high-level waste was generated at the PWF.
186. CNSC staff confirmed the information provided by OPG and submitted that OPG had implemented and maintained a program at the PWF for waste management to minimize the generation of waste at the facility and dispose of wastes and by-products

⁴⁰ N393-13, *Fire protection for facilities that process, handle or store nuclear substances*, CSA Group, 2013.

in accordance with CNSC regulatory requirements. CNSC staff further reported that the PWF's waste management program met the specifications of N292.2-07, *Interim dry storage of irradiated fuel*,⁴¹ and N292.3-08, *Management of low- and intermediate-level radioactive waste*.⁴²

187. OPG reported that, should OPG's request to construct a new DSC Processing Building be authorized, the waste volume generated at the site was expected to increase due to increased processing of DSCs. OPG confirmed, however, that the waste volume generated at the PWF would remain low. CNSC staff confirmed that the volume of waste generated at the PWF would not increase significantly with increased processing of DSCs, that the waste generated would remain low-level and that OPG would continue to adequately manage the waste generated at the PWF.
188. CNSC staff reported that OPG would implement N292.0-14, *General principles for the management of radioactive waste and irradiated fuel*,⁴³ N292.2-13, *Interim dry storage of irradiated fuel*,⁴⁴ and N292.3-14, *Management of low- and intermediate-level radioactive waste*,⁴⁵ by October 31, 2017, which was acceptable to CNSC staff.
189. Based on the above information and consideration of the hearing materials, the Commission is satisfied that OPG has appropriate programs in place to safely management waste at the PWF.
190. The Commission is satisfied that the increased DSC processing capacity that would be provided with the new DSC Processing Building would not significantly increase the waste originating from the PWF.
191. The Commission expects OPG to implement the latest versions of applicable standards in accordance with the schedule in the proposed LCH and submitted during this hearing.

⁴¹ N292.2-07, *Interim dry storage of irradiated fuel*, CSA Group, 2007.

⁴² N292.3-08, *Management of low- and intermediate-level radioactive waste*, CSA Group, 2008.

⁴³ N292.0-14, *General principles for the management of radioactive waste and irradiated fuel*, CSA Group, 2014.

⁴⁴ N292.2-13, *Interim dry storage of irradiated fuel*, CSA Group, 2013.

⁴⁵ N292.3-14, *Management of low- and intermediate-level radioactive waste*, CSA Group, 2014.

3.13 Security

192. The Commission examined OPG's security program at the PWMF, which is required for OPG to implement and support the security requirements stipulated in the relevant regulations and the operating licence. This includes compliance with the applicable provisions of the *General Nuclear Safety and Control Regulations*⁴⁶ and the *Nuclear Security Regulations*.⁴⁷ CNSC staff rated OPG's performance in this SCA as "satisfactory" from 2008 to 2010 and as "fully satisfactory" from 2011 to 2016.
193. OPG provided the Commission with information about the OPG security program and explained that key elements of the program included response to threats and maintaining compliance with legislative requirements, while minimizing the adverse impact on staff and PWMF operations. OPG submitted that the objective of its security program was to establish a state of security readiness to ensure safe and secure operation of OPG facilities.
194. OPG reported to the Commission that the information about security programs and procedures submitted in support of this licence renewal application applied to both Phases I and II of the PWMF. OPG submitted that PWMF Phase I was located within the Pickering NGS protected area and that the security arrangements in Phase I were the same as those for the Pickering NGS. In respect of PWMF Phase II, OPG submitted that it was located within a separate protected area of the Pickering NGS controlled area site.
195. OPG informed the Commission that its security program for the PWMF met requirements of the *Nuclear Security Regulations*, as well as the specifications of RD-321, *Criteria for Physical Protection Systems and Devices at High-Security Sites*,⁴⁸ RD-363, *Nuclear Security Officer Medical, Physical and Psychological Fitness*,⁴⁹ RD-361, *Criteria for Explosive Substance Detection, X-Ray Imaging and Metal Detection Device at High-Security Site*,⁵⁰ and REGDOC-2.12.2, *Site Access Security Clearance*.⁵¹
196. CNSC staff confirmed the information provided by OPG and further submitted that OPG had measures in place to effectively prevent theft or sabotage of nuclear material in use, storage, or transport at the PWMF and that OPG's programs exceeded regulatory requirements. CNSC staff reported that OPG had formal arrangements with the Durham Regional Police Service for offsite armed response. CNSC staff also

⁴⁶ SOR/2000-202.

⁴⁷ SOR/2000-209.

⁴⁸ CNSC Regulatory Document RD-321, *Criteria for Physical Protection Systems and Devices at High-Security Sites*, 2010.

⁴⁹ CNSC Regulatory Document RD-363, *Nuclear Security Officer Medical, Physical and Psychological Fitness*, 2008.

⁵⁰ CNSC Regulatory Document RD-361, *Criteria for Explosive Substance Detection, X-Ray Imaging and Metal Detection Devices at High-Security Sites*, 2010.

⁵¹ REGDOC-2.12.2, *Site Access Security Clearance*, 2013.

submitted information regarding inspections that had been carried out during the current licence period, noting that identified corrective actions had been implemented and closed to the satisfaction of CNSC staff.

197. OPG informed the Commission that, through a threat and risk assessment, OPG had determined that an onsite nuclear response force at the PWMF was not required due to the robustness of the DSCs. OPG also provided detailed information regarding enhancements that had been made to the security program at the PWMF and the Pickering NGS during the licence period and submitted that an assessment carried out by OPG showed that OPG's programs met the specifications of REGDOC-2.12.3, *Security of Nuclear Substances – Sealed Sources*⁵² in relation to Category 1, 2 and 3 sealed sources. OPG further informed the Commission that its programs would be compliant with REGDOC-2.12.3 in respect of Category 4 and 5 sources by May 31, 2018.
198. OPG submitted information regarding the improvements that it had carried out to its nuclear security program during the current licence period and about planned improvements for the proposed renewed licence period, including the expansion of the PWMF protected area. CNSC staff confirmed the adequacy of the security program improvements as proposed by OPG, noting that they represented continuous improvement in OPG's security programs and that these improvements considered the expansion of the PWMF Phase II through the proposed construction projects.
199. OPG provided the Commission with information regarding its cybersecurity programs and submitted that these programs protected the cyber-critical assets for nuclear safety, physical protection and emergency preparedness functions from cyberattacks.
200. In its consideration of the intervention from Northwatch, the Commission enquired about whether security implications resulting from the transport of used fuel in the DSCs to the proposed DSC processing facility had been considered. CNSC staff responded that the transfer of used fuel was conducted only within the Pickering NGS site boundary and that all such activities were escorted by nuclear security officer personnel. CNSC staff also explained that security issues such as this one had been satisfactorily considered and addressed at the Pickering NGS and PWMF sites and that a CNSC-approved transport security plan had to be in place prior to the transport of any used fuel. The Commission is satisfied that the security considerations for the transport of used nuclear fuel have been satisfactorily addressed by OPG.
201. Further considering the intervention from Northwatch, the Commission requested additional information regarding the possibility of malevolent acts at the PWMF. CNSC staff informed the Commission that OPG had produced design basis threat documentation that comprehensively outlined potential sabotage and theft of nuclear material scenarios. CNSC staff further submitted that OPG had demonstrated to the satisfaction of CNSC staff its capacity to mitigate such scenarios through CNSC

⁵² REGDOC-2.12.3, *Security of Nuclear Substances – Sealed Sources*, 2013.

inspections and through nuclear security exercises.

202. The Commission asked about whether remote control of the transport vehicles had been planned or was planned for the future. The OPG representative responded that remote operations had not been used for operations at the PWMF site and that none were planned.
203. The Commission enquired about security-related incidents that had occurred at the PWMF during the current licence period. CNSC staff informed the Commission that four security-related events occurred during the licence period between 2009 and 2013. CNSC staff further elaborated that these events had been minor in nature and were now closed. CNSC staff also clarified that there had been no security-related events at the PWMF since 2013. The Commission is satisfied with the information provided on this point.
204. On the basis of the information provided on the record for this hearing, the Commission is satisfied that OPG's performance with respect to maintaining security at the facility has been acceptable. Therefore, the Commission concludes that OPG has made adequate provision for the physical security of the PWMF, and is of the opinion that OPG will continue to make adequate provision for security during the proposed licence period.
205. The Commission expects OPG to make the improvements to its security program at the PWMF as was proposed during this hearing.

3.14 Safeguards and Non-Proliferation

206. The CNSC's regulatory mandate includes ensuring conformity with measures required to implement Canada's international obligations under the *Treaty on the Non-Proliferation of Nuclear Weapons* (NPT). Pursuant to the Treaty, Canada has entered into safeguards agreements with the International Atomic Energy Agency (IAEA). The objective of these 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 activities in this country. CNSC staff rated OPG's performance in this SCA as "satisfactory" throughout the current licence period.
207. The Commission considered the effectiveness of OPG's implementation of safeguards measures and non-proliferation commitments related to the activities at the PWMF. OPG provided the Commission with information on the OPG safeguards program and how IAEA safeguards were implemented at the PWMF. OPG submitted that, since 2012, the PWMF fully met the specifications of RD-336, *Accounting and Reporting of Nuclear Material*,⁵³ noting that OPG had updated its *Nuclear Fuel Location and*

⁵³ CNSC Regulatory Document RD-336, *Accounting and Reporting Nuclear Material*, 2010.

Storage History (NuFLASH) program to support its implementation of RD-336. OPG also submitted that its programs met the specifications of GD-336, *Guidance for Accounting and Reporting of Nuclear Material*.⁵⁴

208. CNSC staff confirmed that OPG had an effective safeguards program in place at the PWF that satisfied regulatory requirements and provided the Commission with information regarding safeguards compliance verification. CNSC staff also submitted information regarding CNSC and IAEA inspections that had been carried out throughout the current licence period at the PWF, noting that all corrective actions had been satisfactorily addressed by OPG and had been closed.
209. OPG submitted that it would replace the DSC metal seal system with the IAEA-designed Laser Mapping Container Verification System, should it be approved for use in Canada, during the proposed licence period. CNSC staff also informed the Commission that OPG would be improving its safeguards program during the proposed licence period through the implementation of an electronic fuel inventory reporting system.
210. Based on the above information, the Commission is satisfied that OPG has provided for, and will continue to provide for, adequate measures in the areas of safeguards and non-proliferation at the PWF that are necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed.

3.15 Packaging and Transport

211. The Commission examined OPG's packaging and transport program at the PWF. Packaging and transport covers the safe packaging and transport of nuclear substances and radiation devices to and from the licensed facility. The licensee must adhere to the *Packaging and Transport of Nuclear Substances Regulations, 2015*.⁵⁵ (PTNSR 2015) and Transport Canada's *Transportation of Dangerous Goods Regulations*.⁵⁶ (TDG Regulations) for all shipments leaving the facility. During the current licence period, CNSC staff rated OPG's performance in this SCA as "satisfactory."
212. OPG submitted information to the Commission about its transportation program at the PWF, noting that all transportation of nuclear material to or from the PWF was carried out in accordance with OPG's Nuclear Radioactive Material Transportation program. OPG further submitted that at the Pickering NGS site, all transport of low- and intermediate-level waste off-site was carried out under the Pickering NGS Nuclear Power Reactor Operating Licence and that there was no shipment of used CANDU fuel directly from the PWF.

⁵⁴ CNSC Guidance Document GD-336, *Guidance for Accounting and Reporting of Nuclear Material*.

⁵⁵ SOR/2015-145.

⁵⁶ SOR/2001-286.

213. OPG reported that used fuel in DSCs was transferred on-site under the PWMF WFOL from the IFBs to the PWMF and submitted that 835 loaded DSCs had been safely transferred from the Pickering NGS to the PWMF since 1996. OPG also provided the Commission with information demonstrating that, in over 43 years of transporting radioactive material on public roads, there had not been an accident resulting in a release of radioactive material or serious personal injury.
214. CNSC staff confirmed the information provided by OPG and informed the Commission that OPG's packaging and transport program at the PWMF met regulatory requirements. CNSC staff submitted that OPG had put into service a new DSC transporter vehicle in 2013 and that its use met all regulatory requirements.
215. CNSC staff clarified for the Commission that the PTNSR 2015 applied only during the transport of nuclear substances on public roads. CNSC staff added that on-site transfer of nuclear substances was covered by the operating licence and noted that restrictions applied to these transfer activities, including the limitation on transfer during severe weather conditions and vehicle speed limits.
216. Northwatch, in its intervention, noted that information in respect of the consequences of a DSC drop was not found in OPG's submissions for this hearing; the Commission requested additional information in this regard. The OPG representative responded that drop scenarios had been thoroughly investigated, both at the Pickering NGS, where the fuel was placed into DSCs, and at the PWMF, where OPG carried out the final processing and storage of the DSCs. CNSC staff also explained that DSCs were certified transport containers and had been tested against applicable certification requirements in that regard, including withstanding a 9 metre drop. The OPG representative added that DSCs were only raised 15 to 20 cm above the ground during transport. The Commission is satisfied that drop scenarios have been adequately considered by OPG for its transport activities.
217. The Commission enquired about quality control measures that were used for DSC manufacturing to ensure their robustness during transport activities. The OPG representative responded that OPG had an extensive quality control program in place that considered many aspects of DSC manufacturing including welds and the quality of steel used. The OPG representative also noted that OPG required that the DSC manufacturer be qualified in accordance with Z299.2-85, *Quality Assurance Program Category 2*,⁵⁷ the main quality assurance program applied in respect of DSC manufacturing activities. The OPG representative added that OPG conducted its own audits during DSC manufacturing activities to ensure their compliance with relevant codes and standards. The Commission is satisfied with the information provided on this point.

⁵⁷ Z299.2-85 (R2007), *Quality Assurance Program Category 2*, CSA Group, 2007.

218. Based on the information presented on the record for this hearing, the Commission is satisfied that OPG is meeting, and will continue to meet, regulatory requirements regarding packaging and transport.

3.16 Aboriginal Engagement and Public Information

3.16.1 Participant Funding Program

219. The Commission assessed the information provided by CNSC staff regarding public engagement in the licensing process as enhanced by the CNSC's Participant Funding Program (PFP). CNSC staff submitted that, in November 2016, up to \$50,000 in funding to participate in this licensing process was made available to Indigenous groups, not-for-profit organizations and members of the public to review OPG's licence renewal application and associated documents, and to provide the Commission with value-added information through topic-specific interventions.
220. A Funding Review Committee (FRC), independent of the CNSC, recommended that four applicants be provided with \$42,251 in participant funding. These applicants were required, by virtue of being in receipt of participant funding, to submit a written intervention and make an oral presentation at the public hearing commenting on OPG's licence renewal application. One PFP applicant withdrew its request prior to the hearing. As such, \$35,699 in participant funding was awarded to the following recipients:
- Northwatch
 - Lake Ontario Waterkeeper
 - Women in Nuclear Canada (WiN-Canada)

3.16.2 Aboriginal Engagement

221. The common law duty to consult with Aboriginal peoples applies when the Crown contemplates action that may adversely affect established or potential Aboriginal and/or treaty rights. The CNSC, as an agent of the Crown and as Canada's nuclear regulator, recognizes and understands the importance of building relationships and engaging with Canada's Aboriginal peoples. The CNSC ensures that all of its licensing decisions under the NSCA uphold the honour of the Crown and considers Aboriginal peoples' potential or established Aboriginal and/or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.⁵⁸
222. The Commission examined the information submitted by OPG regarding its ongoing engagement with Indigenous groups near the PWMF site. OPG submitted that its corporate-wide Indigenous Relations policy provided a framework for engaging with

⁵⁸ *Constitution Act, 1982*, Schedule B to the *Canada Act 1982*, 1982, c. 11 (U.K.).

Indigenous Peoples and supporting community programs and initiatives. OPG confirmed its commitment to its engagement with Indigenous groups about PWSMF nuclear waste operations and future operations.

223. OPG informed the Commission that its Indigenous Relations program met the specifications of REGDOC-3.2.2, *Aboriginal Engagement*.⁵⁹ and provided the Commission with detailed information regarding the Indigenous engagement activities that OPG had undertaken throughout the current licence period. CNSC staff confirmed the information provided by OPG and submitted that OPG Indigenous engagement approach for the PWSMF, including the regular provision of information and PWSMF site tours, met CNSC staff expectations.
224. OPG reported that it participated in the Canadian Council for Aboriginal Business' Progressive Aboriginal Relations program in 2015 which identified opportunities to enhance the Indigenous procurement process and Indigenous recruitment. OPG further reported that these improvements would be implemented in 2017 and that OPG's Progressive Aboriginal Relations assessment would assist OPG in taking additional measures to improve its Indigenous Relations program.
225. CNSC staff submitted that OPG's *Aboriginal Engagement Report* described how OPG had undertaken engagement with identified Indigenous communities with asserted or established Aboriginal and treaty rights or interests in the PWSMF project area and whose rights may be potentially affected by the proposed activity. OPG and CNSC staff provided the Commission with details regarding issues that were raised by Indigenous groups during this relicensing process, including emergency preparedness, environmental monitoring and environmental impacts of the PWSMF, with CNSC staff submitting that OPG addressed these issues in accordance with CNSC expectations.
226. The Commission requested additional information regarding any outstanding issues arising from OPG's Indigenous engagement activities. The OPG representative indicated that through its engagement activities with the Indigenous groups that had been identified to have a primary interest in OPG's operations at the PWSMF, OPG was not aware of any outstanding issues, including those related to the impact of PWSMF operations on fish. The OPG representative explained that the impacts of the PWSMF on fish was initially a major issue raised by Indigenous groups and that there were no outstanding issues that OPG was aware of in that regard.
227. CNSC staff provided the Commission with information about eight Indigenous groups and affiliated organizations that had been identified by the CNSC which may have an interest in the proposed PWSMF licence renewal and about the consultation activities that CNSC staff carried out with the identified groups. CNSC staff also explained that, based on the information provided in OPG's licence renewal application and the Aboriginal engagement activities completed by OPG, CNSC staff determined that a consultation approach that was considered low on the duty to consult spectrum was

⁵⁹ CNSC Regulatory Document REGDOC-3.2.2, *Aboriginal Engagement*, 2016.

appropriate. CNSC staff submitted to the Commission that CNSC's consultation approach included identifying Aboriginal communities with potential or established Aboriginal or treaty rights that could be adversely affected by the activities proposed in the licence renewal application. CNSC staff then notified each of the identified communities and affiliated organizations of CNSC's licensing review, provided information on how to participate in the review process including the Commission hearing, the availability of participant funding, and provided a copy of OPG's application.

228. CNSC staff submitted that communication with interested Indigenous groups was, and would continue to be, maintained throughout the proposed licence period to ensure that the groups received all information requested and to establish and maintain relationships with the groups.
229. The Commission noted that Indigenous groups did not submit interventions for this hearing and requested additional information about the information provided to Indigenous groups regarding the opportunity to participate in this hearing process. CNSC staff provided the Commission with details regarding the information that was provided to and follow-ups that were carried out with the eight identified Indigenous groups, noting that several groups had indicated that they were not interested in participating in this hearing. CNSC staff also stated that several Indigenous groups had informed CNSC staff that they would continue to engage directly with OPG on matters of mutual interest and that CNSC staff was of the opinion that OPG had carried out adequate engagement to encourage participation in regarding to this licence renewal process and that OPG would continue to adequately engage with Indigenous groups. The Commission was satisfied that OPG and CNSC staff made adequate efforts to provide Indigenous groups with information about the possibility of participation during this licence renewal process.
230. Based on the information provided for this hearing, the Commission is satisfied that Aboriginal engagement activities carried out for this licence renewal were adequate. The Commission expect OPG to implement improvements to its Indigenous Relations program as submitted for this hearing.

3.16.3 Public Information

231. The Commission assessed OPG's public information and disclosure program (PIDP) for the PWMF. A public information program is a regulatory requirement for licence applicants and licensed operators of Class I nuclear facilities. Paragraph 3(j) of the *Class I Nuclear Facilities Regulations*.⁶⁰ requires that licence applications include

“the proposed program to inform persons living in the vicinity of the site of the general nature and characteristics of the anticipated effects on the

⁶⁰ SOR/2000-204

environment and the health and safety of persons that may result from the activity to be licensed.”

232. OPG submitted to the Commission that the PIDP for the PWMF met the specifications of RD/GD-99.3, *Public Information and Disclosure*.⁶¹ OPG also submitted detailed information regarding its community consultation and outreach programs, disclosure protocol and improvements that OPG would bring to its PIDP in the proposed renewed licence period. CNSC staff confirmed the information provided by OPG and submitted that OPG’s PIDP met regulatory requirements.
233. The Commission considered the issue submitted in Lake Ontario Waterkeeper’s intervention that information required for its review of OPG’s licence renewal application was difficult to obtain from both OPG and CNSC staff, and requested additional details in this regard. CNSC staff explained that, in general, all non-sensitive information related to the licence application and referenced in CMDs was provided to intervenors. However, CNSC further explained that, in general, CNSC staff did not provide intervenors with documentation prepared by the licensee but if an intervenor was having trouble getting documentation, an intervenor could contact the CNSC for assistance in this regard.
234. The Commission also considered Lake Ontario Waterkeeper’s concern that it had received conflicting information on whom to contact in respect of documentation for participation in this hearing process when it was not able to obtain some of the information that it required for its review from OPG. CNSC staff informed the Commission that, in general, an intervenor should contact CNSC staff if a licensee does not provide them with documents which should have been made publicly available. The Commission expressed its dissatisfaction with this apparent confusion in the process for the provision of publicly-available information to intervenors and is of the view that any such information should be made easily available to all members of the public. The OPG representative and CNSC staff indicated to the Commission’s satisfaction that they would increase efforts to ensure the provision of publicly-available documentation to intervenors in a timely manner.
235. The Commission noted that the intervention from WiN-Canada expressed that there was a lack of knowledge about several SCAs as they related to the PWMF among WiN-Canada members and called for comments in this regard. The OPG representative provided the Commission with information about the ways by which OPG had engaged with WiN-Canada in regard to the PWMF and this licence renewal application. The OPG representative acknowledged that the survey carried out by WiN-Canada as part of its intervention had identified some areas of communication, including information about environmental protection and waste management, in respect of which OPG could improve its communication with WiN-Canada and other organizations, and affirmed its commitment in this regard. The Commission is satisfied with the information provided on this point.

⁶¹ CNSC Regulatory/Guidance Document RD/GD-99.3, *Public Information and Disclosure*, 2012.

236. The Commission acknowledged several interventions which cited PWMF site visits and requested additional information about the number of visitors the site received annually. The OPG representative responded that, on average, the PWMF site received approximately 200 to 300 visitors annually. The Commission was satisfied with the information provided on this point.
237. The Commission noted its appreciation for the written submission from the Pickering Nuclear Generating Station Community Advisory Council (CAC) which stated that the CAC's members had toured the PWMF, that facility staff had responded to CAC members' questions and that information about the PWMF was regularly communicated to the public by OPG through public meetings, with minutes of those meetings posted on the OPG public website.
238. Based on the information presented, the Commission is satisfied that OPG's PIDP has and will continue to communicate to the public information about the health, safety and security of persons and the environment and other issues related to the PWMF.
239. The Commission expressed its dissatisfaction with the difficulty several intervenors encountered in information requests for this licence renewal hearing. The Commission expects OPG and CNSC staff to review their procedures in this regard to ensure that publicly-available information is provided to the public in a timely manner.

3.16.4 Conclusion on Aboriginal Engagement and Public Information

240. Based on the information presented on the record for this hearing, the Commission is satisfied that, overall, OPG's PIDP meets regulatory requirements and is effective in keeping Indigenous groups and the public informed of OPG operations. The Commission acknowledges the many best practices already implemented by OPG and encourages OPG to continue to create, maintain and improve its dialogue with neighbouring communities.
241. The Commission acknowledges the current efforts and commitments made by OPG in relation to Aboriginal engagement and CNSC staff's efforts in this regard on behalf of the Commission. Based on the information presented on the record for this hearing, the Commission is satisfied that this licence renewal will not result in any changes to PWMF operations, that the renewal will not cause adverse impacts on potential or established Aboriginal or treaty rights, and that the duty to consult was not triggered in this matter. The Commission is also of the opinion that the engagement activities taken for the review of the PWMF licence renewal application have been adequate.⁶²

⁶² *Rio Tinto Alcan v. Carrier Sekani Tribal Council*, 2010 SCC 43[2010] 2 S.C.R. 650 at paras 45 and 49.

3.17 Decommissioning Plans and Financial Guarantee

242. The Commission requires that OPG has operational plans for the decommissioning of the facility and long-term management of waste produced during the life-span of the PWMF. In order to ensure that adequate resources are available for safe and secure future decommissioning of the PWMF site, the Commission requires that an adequate financial guarantee for realization of the planned activities is put in place and maintained in a form acceptable to the Commission throughout the licence period.
243. OPG submitted that its Preliminary Decommissioning Plan (PDP) for the PWMF had been prepared in accordance with N294-09, *Decommissioning of facilities containing nuclear substances*.⁶³ and met the specifications of G-219, *Decommissioning Planning for Licensed Facilities*.⁶⁴ OPG further submitted that the PDP was updated every five years or when requested by the Commission. OPG also reported that its revised PDP would include the PWMF Phase II expansion. CNSC staff confirmed that OPG had in place for the PWMF a PDP that met regulatory requirements.
244. CNSC staff submitted that OPG had last revised its PDP in 2012 and that an updated PDP would be provided to CNSC staff by the end of 2017. CNSC staff also submitted that OPG would need to revise the PWMF PDP following the completion of approved construction activities, including the new DSC Processing Building, and DSC Storage Buildings #4, #5 and #6.
245. OPG submitted information on its decommissioning strategy for the PWMF, noting that all sources of radioactivity would be removed from the PWMF prior to its dismantlement thus greatly reducing radiation hazards and reducing the need for deferred decommissioning. OPG did note, however, that some decommissioning activities may be deferred to better align with related activities at the site. CNSC staff confirmed to the Commission that OPG's decommissioning strategy was acceptable and met regulatory requirements.
246. OPG submitted that the PWMF was included in OPG's consolidated financial guarantee for the implementation of PDPs for all of its nuclear facilities in Ontario. The Commission notes that, following a hearing held in October 2017, the Commission accepted OPG's consolidated financial guarantee for its nuclear facilities in Ontario with the understanding that it provides for the future decommissioning of the PWMF.
247. Based on the information, the Commission concludes that the PDP and related financial guarantee are acceptable for the purpose of the current application for licence renewal.

⁶³ N294-09, *Decommissioning of facilities containing nuclear substances*, CSA Group, 2009.

⁶⁴ CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Facilities*, 2000.

3.18 Cost Recovery

248. The Commission examined OPG's standing under the *Cost Recovery Fees Regulations*⁶⁵ (CRFR) requirements for the PWMF. Paragraph 24(2)(c) of the NSCA requires that a licence application is accompanied by the prescribed fee, as set out by the CRFR and based on the activities to be licensed.
249. OPG submitted that, throughout the current licence period, timely cost recovery fee payments were submitted to the CNSC on a quarterly basis. CNSC staff confirmed the information provided by OPG.
250. Based on the information submitted by OPG and CNSC staff, the Commission concludes that OPG has satisfied the requirements of the CRFR for the purposes of this licence renewal.

3.19 Nuclear Liability Insurance

251. The Commission notes that OPG is required to maintain nuclear liability insurance for the PWMF. CNSC staff submitted that OPG maintained nuclear liability insurance in accordance with the *Nuclear Liability Act*⁶⁶ during the current licence period until December 31, 2016 and since then, with the *Nuclear Liability and Compensation Act*⁶⁷ (NLCA) that came into force on January 1, 2017. CNSC staff reported to the Commission that Natural Resources Canada, the federal department responsible for the administration of the NLCA, had confirmed that OPG had satisfied and should continue to satisfy its obligation under the NLCA during the balance of the current licence period and throughout the proposed licence period.
252. Based on the information provided on the record for this hearing, the Commission is satisfied that OPG has satisfied and will continue to satisfy the requirements for the maintenance of nuclear liability insurance under the NLCA. The Commission expects annual updates in the NPP ROR in regard to OPG's compliance with the NLCA.

3.20 Licence Length and Conditions

253. OPG requested the renewal of its current operating licence for the PWMF for a period of approximately 11 years, until August 31, 2028. CNSC staff recommended the renewal of the licence to August 31, 2028 and submitted that OPG is qualified to carry on the licensed activities authorized by the licence.
254. In order to provide adequate regulatory oversight of authorized changes which do not

⁶⁵ SOR/2003-212.

⁶⁶ R.S.C., 1985, c. N-28 (repealed)

⁶⁷ S.C. 2015, c. 4, s. 120

require a licence amendment nor Commission approval, CNSC staff recommended that the Commission delegate its authority as contemplated in licence conditions 12.2 (Construction) and 15.2 (Commissioning Report), and for purposes described in the compliance verification section of the draft LCH related to LC 5.2 (Pressure Boundary) to the following CNSC staff:

- Director, Wastes and Decommissioning Division
- Director General, Directorate of Nuclear Cycle and Facilities Regulation
- Executive Vice-President and Chief Regulatory Operations Officer, Regulatory Operations Branch

255. CNSC staff also recommended that the Commission delegate its administrative authority for the purposes described in the compliance verification section of the draft LCH related to LC 13.1 (Safeguards Program) to the following staff:

- Director, International Safeguards Division
- Director General, Directorate of Security and Safeguards
- Vice-President, Technical Support Branch

256. CNSC staff submitted that the PWMF's performance in all SCAs remained stable or improved over the current 10-year licence period and that the PWMF operated safely during this period. CNSC staff added that the annual NPP ROR, which was presented to the Commission at public proceedings with opportunity for intervention, would allow for frequent public updates regarding OPG and the PWMF's performance, as well as CNSC regulatory oversight activities as they pertained to the PWMF.

257. The Commission considered the intervention from the Regional Municipality of Durham which submitted a concern regarding the proposed 10-year licence renewal period leading to reduced opportunity for public participation. The Commission acknowledges the intervenor's concerns and wishes to clarify, on the record, that members of the public would be invited to participate and comment on the performance of the PWMF during the annual NPP ROR, presented at a public Commission meeting. In this regard, the OPG representative reaffirmed to the Commission OPG's commitment to continue enhancing the existing communications and relationship that OPG has with the Regional Municipality of Durham. The Commission is satisfied that OPG has maintained and will continue to maintain adequate communication with the Regional Municipality of Durham and other stakeholders.

258. Several intervenors, including Lake Ontario Waterkeeper and Northwatch, expressed the view that OPG's licence renewal application should be considered at the same time as the Pickering NGS licence renewal application. Intervenors noted that the PWMF was on the same site as the Pickering NGS and that environmental impacts and other operational issues of the two facilities were closely linked. The Commission recognizes the integrated nature of the operation of the PWMF and the Pickering NGS. Notwithstanding, the Commission also recognizes that the two facilities operate under separate CNSC licences and, as such, considering the licence renewals separately is

appropriate.

259. On this same topic, the Commission is of the view that the separation in the operating licences for the PWMF and Pickering NGS, which are both operated by OPG and situated on the same site, may be artificial and that consolidation of the licences into a single licence may be appropriate. The Commission notes that similar licence consolidations had been carried out for similar nuclear facilities. On this basis, the Commission invites CNSC staff and OPG to investigate the merits of the future consolidation of the PWMF WFOL and the Pickering NGS PROL.
260. The Commission noted the concerns raised by several intervenors in respect of the CNSC's reliance on external standards, such as CSA Group standards, instead of CNSC-only regulatory documents and requested additional information in this regard. CNSC staff submitted that, in addition to CNSC REGDOCs, regulatory documents and guides, CSA Group standards and guides were one of several sources of standards and guidance documents that were used to regulate nuclear facilities in Canada, ensuring a comprehensive regulatory model. CNSC staff also submitted information to the Commission about its participation in the development of CSA Group standards and other related technical committees.
261. The Commission is satisfied that the current approach of including external standards and guidance, such as CSA Group standards, in the CNSC's regulatory framework is appropriate and adequate to ensure the safety and security of nuclear facilities and the environment, and the protection of the public in Canada. In light of the questions raised by intervenors during this hearing, the Commission strongly recommends that CNSC staff provides more information on the inclusion of CSA Group and other standards in the CNSC's regulatory framework during a presentation at a future public Commission meeting.
262. Based on the above information and the information examined by the Commission for this hearing, the Commission is satisfied that a licence expiring on August 31, 2028 is appropriate for the PWMF. The Commission accepts the licence conditions as recommended by CNSC staff. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority, and notes that it can bring any matter to the Commission as applicable.


4.0 CONCLUSION

263. The Commission has considered the information and submissions of the applicant, CNSC staff and all participants as set out in the material available for reference on the record, as well as the oral and written submissions provided or made by the participants, both at the oral hearing and by written submissions thereafter.
264. The Commission is satisfied that OPG meets the test set out in subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that OPG is

qualified to carry on the activity that the proposed licence will authorize and that 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.

265. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Waste Facility Operating Licence issued to Ontario Power Generation for its Pickering Waste Management Facility located in Pickering, Ontario. The renewed licence, WFOL-W4-350.00/2028, will be valid from April 1, 2018 until August 31, 2028.
266. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 17-H5. The Commission also delegates authority to senior CNSC staff for the purposes of licence conditions 5.2, 12.2, 13.1 and 15.2, as recommended by CNSC staff.
267. The Commission authorizes the construction activities as outlined in CMD 17-H5 and in the proposed licence. The Commission expects OPG to carry out the appropriate safety assessments for any new buildings that OPG constructs at the PWSMF site. The Commission notes that OPG's requirements to carry out the proposed construction projects are primarily dependent on the continued operation of the Pickering NGS.
268. The Commission considers the environmental review that was conducted by CNSC staff to be acceptable and thorough. The Commission is satisfied that an EA under CEAA 2012 was not required for the PWSMF licence renewal application or for the proposed construction projects. Further, the Commission notes that the NSCA and its regulations provide for the protection of the environment and the health and safety of persons, and is satisfied that the OPG will continue to make adequate provision in this regard.
269. With this decision, the Commission directs CNSC staff to report annually on the performance of OPG and the PWSMF, as part of an annual NPP ROR. The Commission directed that CNSC staff shall present this report at a public proceeding of the Commission, where members of the public will be able to participate.
270. The Commission encourages OPG to make available to the public data on contaminants of primary concern and directs that CNSC staff report on the status of public disclosure by OPG as part of the NPP ROR.
271. The Commission expresses its dissatisfaction that the Pickering NGS 2014 ERA was not made publicly available for the April 13, 2017 oral public hearing and directs OPG make future ERAs available to the public as soon as practicable.
272. The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the LCH.

273. The Commission notes that following a hearing held in October 2017, the Commission accepted OPG's consolidated financial guarantee for its nuclear facilities in Ontario. Since it includes the PWMF, no additional decision is required in this regard.

A handwritten signature in blue ink that reads "M. Binder". The signature is written over a light blue rectangular background.

Michael Binder
President,
Canadian Nuclear Safety Commission

FEB 06 2018

Date

Appendix A – Intervenors

Intervenors	Document Number
T. Seitz	CMD 17-H5.2
R. Rosario	CMD 17-H5.3
Regional Municipality of Durham	CMD 17-H5.4
Power Workers' Union	CMD 17-H5.5
BWXT Canada Ltd.	CMD 17-H5.6
Canadian Nuclear Laboratories	CMD 17-H5.7
Canadian Nuclear Workers' Council	CMD 17-H5.8
Canadian Nuclear Association, represented by S. Coupland	CMD 17-H5.9
Women in Nuclear Canada, represented by K. Kleb and P. Watson	CMD 17-H5.10 CMD 17-H5.10A
Lake Ontario Waterkeeper, represented by P. Feinstein	CMD 17-H5.11 CMD 17-H5.11A CMD 17-H5.11B
Pickering Nuclear Community Advisory Council	CMD 17-H5.12
Northwatch, represented by B. Lloyd	CMD 17-H5.13 CMD 17-H5.13A CMD 17-H5.13B CMD 17-H5.13C