



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Ontario Power Generation Inc.

Subject Application for the Issuance of a Licence to
Prepare Site for a New Nuclear Power Plant at
the Darlington Nuclear Site

Public Hearing
Dates March 21, 2011 to April 8, 2011

RECORD OF PROCEEDINGS

Applicant: Ontario Power Generation Inc.

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

Purpose: Application for the issuance of a Licence to Prepare Site for a new nuclear power plant at the Darlington Nuclear site

Application received: September 30, 2009

Dates of public hearing: March 21, 2011 to April 8, 2011

Location: Hope Fellowship Church, 1685 Bloor St., Courtice, Ontario, L1E 2N1

In-camera session on May 12, 2011: Canadian Nuclear Safety Commission (CNSC) Public Hearing Room, 280 Slater St., 14th. Floor, Ottawa, Ontario

Members present: A. R. Graham, Chair
J. Beaudet J. K. Pereira

Secretary: K. McGee
Recording Secretary: M. Young
Senior Counsel: D. Saumure

Applicant Represented By	Document Number
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• L. Swami, Director of Licensing and Environment, OPG Darlington New Nuclear Project	PMD 11-P1.1A PMD 11-P1.1B
• S. Berger, Assistant General Counsel	PMD 11-P1.1C
• A. Webster, Senior Manager, Licensing, OPG Darlington New Nuclear Project	PMD 11-P1.1D PMD 11-P1.1E
• J. Tidball, Environmental Law Specialist, Miller Thompson	PMD 11-P1.1F
• S. Garrod, Garrod Pickfield LLP	PMD 11-P1.1G
• J. Peters, Manager, Environmental Assessments, OPG Darlington New Nuclear Project	PMD 11-P1.1H PMD 11-P1.1I
• L. Mitchell, Manager, Policy and Regulatory Affairs, OPG Darlington New Nuclear Project	PMD 11-P1.1J
• D. Williams, Senior Manager, Design Review, OPG Darlington	PMD 11-P1.1K

New Nuclear Project

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- D. Pawlowski, Manager, Social Aspects-Environmental Assessments, OPG Darlington New Nuclear Project
- J. Sinnige, Engineer, Technical Lead for the Surface Water Environment, OPG Darlington New Nuclear Project
- S. Kauffman, Executive Engineer, Nuclear Services business sector, MPR Associates
- A. Markel, Engineer
- P. Patrick, Senior Aquatic Scientist, OPG
- J. Vecchiarelli, Senior Manager, Engineering, OPG Darlington New Nuclear Project
- D. Gorber, President, SENES Consultants Limited
- J. Kirkaldy, Senior Environmental Scientist, SENES Consultants Limited
- D. Belanger, Hydrogeologist, CH2M Hill
- H. Phillips, Senior Specialist, Risk Assessment / Toxicology, SENES Consultants Limited
- J. Borromeo, Senior Technical Engineer/Officer, OPG Darlington New Nuclear Project
- R. Jaagumagi, Golder Associates
- J. Lane, Senior Technical Engineer / Officer, OPG Darlington New Nuclear Project
- A. Keir, Professional Planner, OPG Darlington New Nuclear Project
- C. Tyrell, Professional Planner, and the Technical Lead for the Land Use Studies, OPG Darlington New Nuclear Project
- J. Gough, Traffic Engineer and Technical Lead for the Traffic and Transportation Components of the EIS, OPG Darlington New Nuclear Project
- R. Bell, Emergency Preparedness Manager, OPG Darlington New Nuclear Project
- D. Chambers, Director of Risk and Radioactivity Studies, SENES Consultants Limited
- B. Doney, Consultant Team Deputy Project Manager, MMM Group
- H. Wake, Director, Used Fuel Operations, OPG Darlington New Nuclear Project
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Intervenors		Document Number
See appendix A		
Others		
• IBI Group, represented by M. Colwill and A. Shepherd		
• Canadian Environmental Assessment Agency, represented by Y. Leboeuf,		PMD 11-P1.4
• Canadian Transportation Agency		PMD 11-P1.5
• Environment Canada, represented by R. Dobos		PMD 11-P1.6 PMD 11-P1.6A PMD 11-P1.6B
• Fisheries and Ocean Canada, represented by T. Hoggarth		PMD 11-P1.7 PMD 11-P1.7A PMD 11-P1.7B
• Health Canada, represented by A. Basiji		PMD 11-P1.8 PMD 11-P1.8A
• Natural Resources Canada, represented by M. Lamontagne		PMD 11-P1.9 PMD 11-P1.9A PMD 11-P1.9B
• Transport Canada, represented by D. Zeit, J.S. Bergeron, S. MacDonald-Simcox		PMD 11-P1.10 PMD 11-P1.10A
• Ontario Ministry of Energy, represented by R. Jennings		PMD 11-P1.11 PMD 11-P1.11A PMD 11-P1.11.B
• Ontario Ministry of the Environment, represented by I. Parrot		PMD 11-P1.12 PMD 11-P1.12A
• Ministry of Municipal Affairs and Housing, represented by M. Christie		PMD 11-P1.13

• Ontario Ministry of Natural Resources represented by D. Pella-Keen, A. Todd	PMD 11-P1.14
• Emergency Management Ontario, represented by D. Hefkey	PMD 11-P1.16 PMD 11-P1.16A
• Ontario Ministry of Labour, represented by L. Doehler	PMD 11-P1.17 PMD 11-P1.17A

Licence: Issued

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Introduction

1. Ontario Power Generation Inc. (OPG) has applied to the Canadian Nuclear Safety Commission¹ (CNSC) for the issuance of a Licence to Prepare Site² (LTPS) for its proposed New Nuclear Power Plant Project (Project) located in the Municipality of Clarington, in the Region of Durham, approximately 65 km east of the city of Toronto, Ontario. OPG has requested a licence period of 10 years.
2. The *Nuclear Safety and Control Act*³ (NSCA) and associated Regulations require separate licence applications to be filed for each of the five phases in the lifecycle of a nuclear power plant including:
 - a Licence to Prepare Site;
 - a Licence to Construct;
 - a Licence to Operate;
 - a Licence to Decommission; and
 - a Licence to Abandon.
3. OPG submitted an application for a LTPS, pursuant to Section 24(2) of the NSCA and in accordance with the *General Nuclear Safety and Control Regulations*⁴, and the *Class I Nuclear Facilities Regulations*⁵. In the application, OPG seeks a licence for preparation of the site for the future construction and operation of up to four Class 1A nuclear power reactors with a maximum combined net electrical output of 4800 megawatt electric (MWe).
4. The application for a LTPS has been submitted in anticipation of the Province of Ontario selecting a reactor technology and an Engineering, Procurement and Construction Company (EPC Co.) to prepare the site and construct the new nuclear facility. Once a technology has been selected, OPG will enter into a contract with the EPC Co. for provision of the nuclear facility and the related works including preparation of the site. OPG noted that it may elect to enter into a contract with an EPC Co. for the provision of site preparation activities only, in advance of a decision from the Province of Ontario on the specific reactor technology that will be procured.
5. The Darlington Nuclear site is currently home to the Darlington Nuclear Generating Station (NGS), a four-unit nuclear generating station and the Darlington Waste Management Facility (DWMF), a used fuel dry storage facility. The portion of the Darlington Nuclear site proposed for development (referred to as the OPG New Nuclear at Darlington or NND Site) is primarily the easterly one third of the overall Darlington Nuclear site. It is bounded by the Darlington Nuclear site property limits on the east and north boundaries, by Lake Ontario to the south, and by Holt Road to the west.

¹ The *Canadian Nuclear Safety Commission* is referred to as the “CNSC” when referring to the organization and its staff in general, and as the “Commission” when referring to the tribunal component.

² For a power reactor site the Licence to Prepare Site is called a Power Reactor Site Preparation Licence (PRSL).

³ Statutes of Canada (S.C.) 1997, chapter (c.) 9.

⁴ Statutory Orders and Regulations (SOR)/2000-202.

⁵ SOR/2000-204.

6. The physical activities requested by OPG to be encompassed by the LTPS included:
 - construction of access control measures;
 - clearing and grubbing of vegetation;
 - excavation and grading of the site;
 - installation of services and utilities;
 - development of administrative and physical support facilities inside future protected area;
 - construction of environmental monitoring and mitigation systems; and
 - construction of flood protection and erosion control measures.
7. Following the environmental assessment for the Project, which included a public hearing, the Joint Review Panel submitted its report (EA Report) to the Minister of the Environment on August 25, 2011. The EA Report included recommendations and concluded that the Project was not likely to cause significant adverse environmental effects, provided the mitigation measures proposed and commitments made by OPG during the review, and the recommendations, are implemented.
8. On May 2, 2012, the Government of Canada published its response to the EA Report. In its response, the Government of Canada “accepted” or “accepted the intent” of all of the EA Report recommendations to federal government departments. The Government of Canada concluded that the Project is not likely to cause significant adverse environmental effects, taking into consideration the EA Report and the implementation of any mitigation measures that the responsible authorities consider appropriate.

Licensing

9. In considering the application, the Commission was required to decide whether the site is suitable for the construction of a nuclear generating station, in accordance with the regulatory requirements of the *Class I Nuclear Facilities Regulations* and the expectations set forth in CNSC Regulatory Document RD-346⁶. The Commission was also required to decide, pursuant to subsection 24(4) of the NSCA:
 - a) if OPG is qualified to carry on the activities that the licence would authorize; and
 - b) if, in carrying on those activities, 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.

⁶ CNSC Regulatory Document RD-346 Site Evaluation for New Nuclear Power Plants, November 2008.

Public Hearing

10. The Joint Review Panel established under the *Joint Review Panel Agreement*⁷ for the Project constituted a panel of the Commission to review the application, pursuant to section 22 of the NSCA. The Commission, in making its decision, considered information presented for a public hearing held from March 21, 2011 to April 8, 2011 at the Hope Fellowship Church in Courtice, Ontario. The public hearing was conducted in accordance with the *Joint Review Panel Public Hearing Procedures*⁸. During the public hearing, the Commission considered written submissions and heard oral presentations from CNSC staff (PMD 11-P1.2, PMD 11-P1.2A, PMD 11-P1.2B, PMD 11-P1.2C, PMD 11-P1.3 and PMD 11-P1.3A) and OPG (PMD 11-P1.1, PMD 11-P1.1A, PMD 11-P1.1B, PMD 11-P1.1C, PMD 11-P1.1D, PMD 11-P1.1E, PMD 11-P1.1F, PMD 11-P1.1G, PMD 11-P1.1H, PMD 11-P1.1I, PMD 11-P1.1J and PMD 11-P1.1K). The Commission also considered oral and written submissions from 264 intervenors (see Appendix A for a detailed list of interventions). The Commission held a closed hearing session on May 12, 2011 at CNSC headquarters in Ottawa to discuss security matters.
11. Registered participants had the option of intervening by making an oral presentation of up to 30 minutes in addition to a written submission or through a written submission only, or by making an oral statement of up to 10 minutes. Those who did not register with the Joint Review Panel Secretariat by January 13, 2011 were permitted to register to make an oral statement at the public hearing whenever the hearing schedule allowed.
12. Fourteen government departments and 72 intervenors registered to provide an oral presentation with a written hearing submission, 158 intervenors filed written-only submissions, 34 people made oral statements. The Joint Review Panel received 278 contributions in total. The Joint Review Panel accepted final written comments after the public hearing.

Decision

13. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concludes that OPG is qualified to carry on the activities that the licence will authorize. The Commission is of the opinion that OPG, in carrying on those activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

⁷ Agreement to Establish a Joint Review Panel for the New Nuclear Power Plant Project by Ontario Power Generation (Darlington) Within the Municipality of Clarington, Ontario between the Minister of the Environment and the Canadian Nuclear Safety Commission, March 12, 2009.

⁸ *Joint Review Panel Public Hearing Procedures*, December 14, 2010 (amended March 22, 2011).

The Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, issues Nuclear Power Reactor Site Preparation Licence PRSL 18.00/2022 to Ontario Power Generation Inc. for its Darlington Nuclear Site located in the Municipality of Clarington, Ontario. The licence is valid from August 17, 2012 to August 17, 2022.

14. The Commission includes the conditions proposed by CNSC staff in the licence. No bluff removal or lake infill can occur unless a reactor technology has been selected and there is certainty that the Project will proceed. In addition, in-water works on the shoreline or in-land will require an authorization from Fisheries and Oceans Canada (DFO) for activities destroying or disrupting fish habitat and for destruction of fish by means other than fishing pursuant to Section 35 and 32 of the *Fisheries Act*⁹, respectively. OPG will also require approval from the Ontario Ministry of Natural Resources to purchase Crown Land under the *Public Lands Act*¹⁰ in the bed of Lake Ontario.
15. Furthermore, the Commission notes that in order to minimize the overall effects on the terrestrial and aquatic environments and maximize the opportunity for quality terrestrial habitat rehabilitation, OPG must perform a thorough evaluation of site layout opportunities before site preparation activities can begin. In addition, OPG must undertake a formal quantitative cost-benefit analysis for cooling tower and once-through condenser cooling water systems as part of its application for a Licence to Construct. This analysis may be required earlier, however, given the relationship between site layout and the choice of the condenser cooling technology.
16. The Commission directs OPG to prepare a mid-term report on the conduct of the licensed activities and the implementation status of commitments made during the environmental assessment. This report should also take into account the findings of the CNSC Fukushima Task Force.
17. The Commission also directs CNSC staff to prepare a report on the results of compliance activities carried out during the first half of the licence term and on the licensee's performance during that period. The CNSC staff report should also include detailed information on the control of land use around the site over the operating life of the nuclear generating station, as well as on the environmental monitoring and follow-up program.
18. OPG and CNSC staff shall present their mid-term reports at a public proceeding of the Commission in approximately September 2017. The Commission also directs CNSC staff to present annual updates to the Commission as a part of the annual *CNSC Staff Integrated Safety Assessment of Canadian Nuclear Power Plants*.

⁹ R.S.C., 1985, c. F-14.

¹⁰ R.S.O. 1990, c. P.43

Issues and Commission Findings

19. In making its licensing decision, 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.

Site Evaluation

20. In order to determine whether the site is suitable for the construction of a nuclear generating station, the Commission considered information on the site in accordance with the regulatory requirements of the *Class I Nuclear Facilities Regulations* and the expectations set forth in CNSC Regulatory Document RD-346. The site evaluation included information on the following subjects:
 - location and topography;
 - meteorology;
 - surface water hydrology;
 - groundwater hydrology;
 - geotechnical setting;
 - seismic hazards;
 - external, non-malevolent, human-induced events;
 - radiological dose consequences for normal operations and accident conditions;
 - population distribution;
 - emergency planning;
 - exclusion zone determination; and
 - use of land and water.
21. OPG's application for a LTPS included a number of site evaluation studies which assessed the suitability of the proposed site in accordance with the regulatory requirements of the *Class I Nuclear Facilities Regulations* and the expectations set forth in CNSC Regulatory Document RD-346.
22. The *Class I Nuclear Facilities Regulations* stipulate that an application for a LTPS shall contain, in addition to other information:
 - a description of the site evaluation process and of the investigations and preparatory work that have been done and will be done on the site and in the surrounding area;
 - a description of the site's susceptibility to human activity and natural phenomena, including seismic events, tornadoes and floods; and
 - the proposed program to determine the environmental baseline characteristics of the site and the surrounding area.

23. CNSC staff stated that OPG provided sufficient information to satisfy the expectations set forth in RD-346 and the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS. CNSC staff noted that the consideration of external events and site specific characteristics as inputs to the design and safety analysis of the new nuclear generating station would be reviewed and assessed as part of an application for a Licence to Construct. CNSC staff further noted that, as part of an application for a Licence to Construct, the applicant must demonstrate and take full responsibility that the design characteristics of the reactor design selected for construction fall within the Plant Parameter Envelope (PPE) - Consolidated Values, as attached to PMD 11-P1.2 (Addendum I).

Location and Topography

24. OPG provided the following information on the site location and topography, including:
- the site location with respect to prominent features, including a site layout drawing;
 - a proposed site layout for the NND site, including proposed areas for excavation, new soil stockpile, available space for construction or operational use, switchyard and transmission corridor, waste transfer and storage areas, site roads and related infrastructure, and the proposed NND exclusion zone;
 - the topography of the site, including a topographic contour map; and
 - the bathymetric contours of the Lake Ontario lakebed south of the NND site, including a bathymetric contour map.
25. Some intervenors expressed concerns relating to the site location, including the proximity of the site to large populations such as Toronto, as well as to Lake Ontario, which is a source of drinking water for millions of people. Intervenors also felt that the site was too small to accommodate the full scale of the proposed development, citing OPG's desire to build 40 hectares of infill in Lake Ontario in order to accommodate the footprint of the Project. Some intervenors, including Lake Ontario Waterkeeper, also expressed concerns about the site being next to the St. Marys Cement quarry.
26. Other intervenors, including individuals, the Canadian Nuclear Workers Council and Cuttler and Associates Inc., supported the location of the Project because an existing nuclear generating station is currently located at the site. Intervenors also expressed the view that there was nuclear expertise present in the surrounding communities, including educational facilities and other nuclear industries. The Region of Durham and the Municipality of Clarington both expressed support for the Project, stating that they were a willing host community.

27. A variety of site layouts were presented by OPG during the EA for the Project to establish that the site could accommodate the required components of the Project. The Commission notes that Recommendation #20 in the EA Report recommended that OPG perform a thorough evaluation of site layout opportunities before site preparation activities begin, in order to minimize the overall effects on the terrestrial and aquatic environments and maximize the opportunity for quality terrestrial habitat rehabilitation. The Government of Canada accepted this recommendation.
28. The Commission further notes that OPG must incorporate elements such as reduced lake infill, on-site storage of radioactive waste and a potential option of building mechanical draft cooling towers with plume abatement in its site layout. The EA Report noted that the final Project layout must be optimized to fit within the bounding layout scenario for the Project with allowance for the implementation of proposed mitigation measures. The EA Report also noted that the Project may have to be otherwise modified or built in a different location to allow the implementation of the proposed mitigation measures on which the conclusions of the EA Report were based.

Meteorology

29. OPG provided meteorological data for the site, including information regarding wind speed, temperature, precipitation and snow pack, and humidity and atmospheric pressure. OPG provided an assessment of extreme weather and rare meteorological phenomena for the site, including extreme winds, temperature, precipitation and snow pack, while the assessment of rare meteorological phenomena included wind gusts, tornadoes, tropical cyclones, lightning, and freezing rain. OPG stated that no meteorological events or hazards were identified that would render the NND site unsuitable for the construction and operation of a new nuclear generating station.
30. CNSC staff stated that it reviewed and assessed OPG's meteorological hazard assessment and determined that OPG had provided sufficient information pertaining to the assessment of meteorological events to satisfy the requirements of RD-346 and the applicable regulatory requirements under the NSCA for the issuance of a LTPS. CNSC staff noted that the consideration of meteorological factors as inputs to the design and safety analysis of the nuclear facility would be reviewed and assessed as part of an application for a Licence to Construct.
31. Some intervenors stressed the need to consider climate change in the evaluation of the site. Intervenors were of the view that climate change could result in more severe weather conditions, including tornadoes, hurricanes, floods and ice storms, than may currently be anticipated. The Commission asked for more information on this subject. CNSC staff responded that while OPG provided sufficient information for the purpose of an application for a LTPS, CNSC staff also recommended that OPG conduct localized climate change modelling as part of an application for a Licence to Construct.

32. The Commission notes that Recommendation #39 in the EA Report recommended that prior to construction, the CNSC require OPG to prepare a contingency plan for the construction, operation and decommissioning Project stages to account for uncertainties associated with climate change. The Government of Canada accepted the recommendation noting that OPG could use reputable published studies to evaluate the anticipated impact of climate change in lieu of localized climate change modelling. The Commission further notes that effects of extreme weather events, such as tornadoes, must be further assessed if cooling towers are selected for the Project.

Surface Water Hydrology

33. OPG provided information on the surface water hydrology of the NND site, including data on Lake Ontario, as well as on its riverine systems within the local regional drainage basis. OPG also provided a flooding assessment that consisted of evaluations of coastal flooding, which includes flooding by storm surge, seiche and waves, and riverine flooding, which includes overland flooding. OPG stated that it did not identify any flooding hazards that would render the NND site unsuitable for the construction of a new nuclear facility. OPG further assessed the flood hazard potential as unlikely to change with time.
34. CNSC staff stated that it reviewed and assessed OPG's flooding hazard assessment and determined that OPG had provided sufficient information to satisfy the requirements of RD-346 and the applicable regulatory requirements under the NSCA for the issuance of a LTPS. CNSC staff noted that the consideration of meteorological factors as inputs to the design and safety analysis of the nuclear facility would be reviewed and assessed as part of an application for a Licence to Construct.
35. The Commission asked for information concerning stormwater management. A representative from OPG responded that OPG had proposed mitigation measures to address this issue, including sediment control practices, dewatering water treatment, stormwater conveyance systems and conventional stormwater treatment methods. The Ontario Ministry of the Environment also provided information on this matter, noting that it has a Stormwater Management Planning and Design Manual that incorporates climate change.
36. The Commission notes that Recommendation #39 in the EA Report recommended that prior to construction, the CNSC require OPG to prepare a contingency plan for the construction, operation and decommissioning Project stages to account for uncertainties associated with flooding and other extreme weather hazards. The Government of Canada accepted the recommendation to require OPG to prepare a contingency plan to account for uncertainties associated with flooding, drought and other extreme weather hazards.

Groundwater Hydrology

37. OPG provided information regarding groundwater hydrology. OPG identified three distinct groundwater flow patterns: one in the water table (shallow groundwater); one in the bedrock; and one in the interglacial deposits located above the bedrock. OPG noted that the direction of groundwater flow is downward towards Lake Ontario.
38. OPG stated that dewatering would occur during excavation and grading during site preparation. OPG predicted that dewatering would lower the water table by approximately 14 metres and permanently change the groundwater flow on the site. OPG explained that it would reduce the flow in Darlington Creek and eliminate a tributary that flows through the site and on to the St. Marys property. OPG noted that the effect on Darlington Creek would be mitigated by increased recharge resulting from stormwater management and additional recharge from the northeast landfill. As a result, OPG determined that the effect on Darlington Creek, as predicted by groundwater flow modelling, would be in the region of two to five percent of base flow.
39. The Commission also asked about the quantity of groundwater to be collected during excavation and discharged to Lake Ontario. A representative from OPG responded that there would be no change from the current groundwater discharge rate into Lake Ontario.
40. Some intervenors, including Sierra Club, expressed concerns that the project could result in emissions of nuclear and conventional contaminants to groundwater. The Commission sought further information concerning groundwater modeling and monitoring. CNSC staff responded that further groundwater modelling would be required at the time of an application for a Licence to Construct. CNSC staff also recommended that additional groundwater wells be installed to monitor groundwater through all stages of the Project.
41. Lake Ontario Waterkeeper expressed concerns regarding dewatering and the effect on the St. Marys Quarry. The Commission sought further information on this subject. A representative from Natural Resources Canada (NRCan) expressed the view that OPG had adequately addressed issues related to groundwater hydrology, and noted that NRCan would work with OPG to develop an acceptable follow-up program for the site. OPG committed to having a groundwater monitoring program and follow-up program in place prior to the commencement of any site preparation activities.
42. The Commission notes that Recommendation #17 of the EA Report recommended that the CNSC require OPG to provide an assessment of the ingress and transport of contaminants in groundwater on site during successive phases of the Project as part of the Application for a Licence to Construct. The Recommendation required that the assessment include consideration of the impact of wet and dry deposition of all contaminants of potential concern and gaseous emissions on groundwater quality. It also required that OPG conduct enhanced groundwater and contaminant transport

modelling for the assessment and expand the modelling to cover the effects of future dewatering and expansion activities at the St. Marys Cement quarry on the Project. The Government of Canada accepted this recommendation.

43. The EA Report also recommended that the CNSC require OPG to expand the scope of the groundwater monitoring program to monitor transitions in groundwater flows that may arise as a consequence of grade changes during the site preparation and construction phases of the Project (Recommendation #19). The Government of Canada accepted this recommendation.

Geotechnical Setting

44. OPG provided geotechnical information including details regarding subsurface soil rock profiles, site layout scenarios, as well as assessments of foundation and earth structures. OPG stated that no geotechnical related issues were identified that would render the NND site unsuitable for the future construction and operation of a new nuclear generating station.
45. CNSC staff stated that it reviewed and assessed OPG's geotechnical hazard assessment and determined that OPG had provided sufficient information to satisfy RD-346 expectations and the applicable regulatory requirements under the NSCA for the issuance of a LTPS. CNSC staff noted that the consideration of seismic events as input to the design and safety analysis of the nuclear facility would be reviewed and assessed as part of an application for a Licence to Construct.
46. Some intervenors, including Lake Ontario Waterkeeper, the International Institute of Concern for Public Health and individuals, expressed concerns about the quality of the soil to be excavated from the site. They questioned whether the soil may have been contaminated with radionuclides or chemicals due to the operations at the existing Darlington NGS and felt that OPG should not perform activities that may release radionuclides or chemicals into the air. Intervenors also questioned whether the soil would be suitable for use as lake infill or whether the soil would meet regulations regarding its disposal in landfills. The Commission sought further information in this regard. A representative from OPG responded that OPG had performed soil characterization for the environmental assessment and noted that it had remediated contaminated soil on site from the construction of the existing Darlington NGS. The OPG representative further noted that OPG would test all soils to ensure that they meet applicable requirements, including provincial or municipal standards, before being disposed of off-site.
47. The Commission notes that Recommendation #2 in the EA report recommended that prior to site preparation, the CNSC require OPG to conduct a comprehensive soils characterization program to identify the nature and extent of potential contamination. The Government of Canada accepted this recommendation. The Government of Canada also accepted the recommendation that the CNSC require OPG to develop and implement a follow-up program for soil quality during all stages of the Project (Recommendation #11).

Seismic Hazard Assessment

48. OPG provided information on the seismic hazard assessments completed to verify that seismic-related issues at the NND site have been adequately addressed, including information on data collection and investigations, probabilistic seismic hazard analysis, and seismic assessment results, as well as an assessment of seismicity related phenomena and the potential for surface faulting. OPG did not identify any seismicity related issues that would render the NND site unsuitable for the future construction and operation of a new nuclear generating station.
49. CNSC staff stated that it reviewed and assessed OPG's seismic hazard assessment and determined that OPG had provided sufficient information pertaining to the assessment of seismic events to satisfy RD-346 expectations and the applicable regulatory requirements under the NSCA for the issuance of a LTPS. CNSC staff noted that the consideration of seismic events as input to the design and safety analysis of the nuclear facility would be reviewed and assessed as part of an application for a Licence to Construct. CNSC staff also recommended that a geotechnical investigation be completed to confirm OPG's conclusions.
50. Due to the interest and concerns resulting from the March 11, 2011 earthquake in Japan, NRCan presented information on the seismicity of the region at the public hearing. NRCan described the seismic characterization of the region of the site as one in which there was a low level of seismic risk. NRCan explained that there was very low risk of a major seismic event in the vicinity of the site study area.
51. Several intervenors, including individuals, Northwatch, Greenpeace and the Port Hope Community Health Concerns Committee, further expressed concerns regarding seismicity, suggesting that the Darlington site is in an active seismic area. Some intervenors noted that there are fault lines and lineaments in the area, such as along the Rouge River and in the region of the historic Lake Iroquois. Some intervenors also questioned whether OPG adequately assessed the issue of induced seismicity from the St. Marys Cement quarry that neighbours the Project site and performs blasting as part of its operations. Intervenors questioned whether karstification was adequately covered during the environmental assessment and whether this could have an effect on the Project. The Commission asked for information to address these issues. A representative from OPG stated that blasting operations at the St. Marys Cement quarry were not likely to cause adverse effects at the site, noting that the blasting underway at the quarry was determined to be below the threshold for potential damage to the Project. The OPG representative also committed to undertake a detailed geotechnical investigation to obtain more site-specific information.
52. A conclusion in the EA Report was that while OPG provided adequate information to support the conclusion that the Project is not likely to result in significant adverse environmental effects, a geotechnical investigation should be conducted prior to site preparation activities to confirm the site characterization. The Commission notes that Recommendations #10 and #38 in the EA Report were recommendations concerning

the detailed geotechnical investigation to be performed by OPG. The Government of Canada accepted the intent of these recommendations and noted that the investigation could be performed concurrently with site preparation activities.

53. Based on the above information, the Commission is satisfied that the site is located in a region of low seismic risk. The Commission is of the view that presently there are no geotechnical and seismic hazards identified that would render the site unsuitable for the construction of a new nuclear generating station. The Commission notes, however, that the detailed geotechnical investigation, taking into consideration the recommendations from the EA Report, is required to confirm the suitability of the site.

Evaluation of External, Non-Malevolent, Human-Induced Events

54. To confirm the suitability of the NND site, OPG provided an assessment of the risk of external human-induced events that have the potential to jeopardize the safety of the proposed nuclear generating station. OPG identified the following types of external human induced events for detailed evaluation:
- aircraft crashes;
 - ship accidents;
 - detonation explosions;
 - release of hazardous fluids;
 - fires;
 - radiological releases from Darlington NGS;
 - electromagnetic interference; and
 - blasting at the St. Marys Cement Plant Quarry.
55. OPG stated that the results of the assessment determined that the risks of external human-induced events are either negligible or can be mitigated by design.
56. CNSC staff stated that it reviewed and assessed OPG's assessment of external human-induced events and determined that OPG had provided sufficient information to satisfy the regulatory requirements regarding an application for a LTPS and the expectations set forth in RD-346. CNSC staff noted that the consideration of external human-induced events as inputs to the design and safety analysis of the nuclear facility would be reviewed and assessed as part of an application for a Licence to Construct.
57. In its submission, Transport Canada suggested that OPG's hazard assessment also include elements associated with the rail line situated on the project site. The Commission notes that Recommendation #50 in the EA Report addresses this issue.

58. The Commission is satisfied that the information presented by OPG meets the regulatory requirements for an application for a LTPS and the expectations set forth in RD-346. The Commission notes, however, that the EA Report raised the issue that lessons learned from the 2011 Fukushima Daiichi nuclear accident would likely result in changes to regulatory requirements and suggested that any resulting increased regulatory requirements should be incorporated into the Project as early as possible. The Commission further notes that the CNSC has issued an action plan to address the lessons learned from the Fukushima Daiichi nuclear accident and reiterates the suggestion from the EA Report.

Evaluation of Radiological Dose Consequences for Normal Operations and Accident Conditions

59. OPG provided an evaluation of radiological releases and dose consequences for normal operations and accident conditions, including an assessment of the impact on emergency planning.
60. For normal plant operations, OPG stated that the proposed plant must adhere to the *Radiation Protection Regulations*¹¹ which specify an effective dose limit of 1 millisievert per year (mSv/year) for persons who are not Nuclear Energy Workers. For radiological releases resulting from Beyond Design Basis Accidents, OPG referred to the CNSC Regulatory Document RD-337¹², which defines the following safety goals:
- Small Release Frequency (SRF): the sum of frequencies of all event sequences that can lead to a release to the environment of more than 10^{15} becquerels of iodine-131 is less than 10^{-5} per reactor year; and
 - Large Release Frequency (LRF): the sum of frequencies of all event sequences that can lead to a release to the environment of more than 10^{14} becquerels of cesium-137 is less than 10^{-6} per reactor year. A greater release may require long term relocation of the local population.
61. For normal operations, OPG stated that doses due to radiological emissions are expected to be well within regulatory annual dose limits. For accidental releases, OPG stated that it would conform with the intent of RD-337, noting that the implementation of emergency measures would prevent undue doses to the public. OPG explained that temporary evacuation of the local population may be required in the case of the small release and that long-term relocation of the local population in the vicinity of the plant may be required for the large release.

¹¹ SOR/2000-203.

¹² CNSC Regulatory Document RD-337, Design of New Nuclear Power Plants, November 2008

62. CNSC staff stated that it reviewed and assessed OPG's assessment of radiological releases and dose consequence assessment for normal operations and accident conditions and determined that OPG had provided sufficient information to satisfy the regulatory requirements relating to an application for a LTPS and the expectations set forth in RD-346. CNSC staff noted that detailed information on the potential radiological releases during normal operations and accident conditions for the reactor design selected for construction would be reviewed and assessed as part of an application for a Licence to Construct.
63. Many intervenors, including Safe and Green Energy Peterborough, Mouvement Vert Mauricie, Families Against Radiation Exposure, the International Institute of Concern for Public Health, Northwatch, Greenpeace, Physicians for Global Survival, the Canadian Association of Physicians for the Environment, the Port Hope Community Health Concerns Committee, the United Church of Canada, Just One World, and individuals expressed concerns about health effects associated with radioactive emissions and releases from nuclear generating stations. Other intervenors, including Cuttler and Associates Inc., the Power Workers' Union, the Society of Energy Professionals and individuals, expressed the view that the radiation risk was low.
64. At the hearing, the Commission sought further information regarding the health effects associated with exposure to radiation and consequent health risks, including vulnerability at low levels of exposure. CNSC staff provided information on the current scientific understanding in monitoring of exposures and on conclusions reached in a number of health studies. CNSC staff stated that based on the weight of evidence found in the many epidemiological studies of populations living in the vicinity of nuclear facilities, there is no substantive scientific evidence that any adverse health outcomes are related to environmental radiation exposures from these facilities. CNSC staff further stated that the predicted annual effective doses to persons off site during normal operation over all phases of the Project were not likely to exceed the applicable dose limits of the *Radiation Protection Regulations*.
65. Many intervenors also had concerns about radiological doses to the public and the environment as a result of an accident. The Commission asked for more information on this subject. CNSC staff stated that there are dose limits for accident scenarios to ensure that people are evacuated before being exposed to doses that could pose a risk of developing cancer. CNSC staff explained that for sheltering and evacuation, the doses would range from 1 to 10 millisieverts, and for evacuation, 1 to 100 millisieverts. CNSC staff stated that numerous experimental and epidemiological studies have established that while exposure to doses above 100 millisieverts will increase the risk of developing cancer, the likelihood of developing cancer from exposures less than 100 millisieverts is small in comparison to other causes of cancer in the general population. CNSC staff further stated that a reactor that does not meet the specified safety goal-based release limits of RD-337 would not be accepted for operation on the grounds that it would not be compliant with regulatory requirements in Canada.

66. The Canadian Environmental Law Association, noting that long-term relocation for the local population within one kilometre of the plant may be required under the safety goal-based large-release scenario, asked if CNSC staff had considered a scenario that would require long-term relocation from a greater distance from the facility. CNSC staff responded that the one-kilometre scenario was the largest release that would be acceptable for licensing under the requirements of RD-337. CNSC staff explained that if design were to have larger releases and the need for permanent relocation beyond the one kilometre zone, it would not meet the requirements of RD-337.
67. The Commission notes that under Recommendation #57 of the EA Report, OPG must undertake an assessment of the off-site effects of a severe accident to determine if the off-site health and environmental effects considered in the EA would bound the effects that could arise in the case of the selected reactor technology. The Government of Canada accepted this recommendation.
68. Furthermore, the Commission notes that analysis of low-probability events is underlined in the CNSC Fukushima Task Force Report as a means of identifying possible mitigating strategies.
69. The Commission is satisfied that OPG has demonstrated that the dose consequences for anticipated occupational occurrences and design basis accidents to satisfy the regulatory requirements relating to an application for a LTPS and the expectations set forth in RD-346. The Commission notes that OPG will be required to demonstrate compliance with the *Radiation Protection Regulations* and the requirements of CNSC Regulatory Document RD-337 in its application for a Licence to Construct.

Population Distribution

70. OPG provided population distribution data within the 100 km radius surrounding the NND site, based on census data from Statistics Canada for 2006. OPG provided a summary of the current regional population and included the following general observations:
 - relatively few people reside within 4 km of the proposed plant;
 - the area within the immediate 8 km radius of the proposed plant is primarily rural with the exception of the City of Bowmanville;
 - population centres located beyond 8 km but within 40 km of the proposed plant include Pickering, Ajax, Whitby, Oshawa, and Port Hope; and
 - the population increases substantially in the region beyond 40 km of the proposed plant, which includes part of the City of Toronto.
71. With respect to the projected population growth, OPG stated that the majority of residential growth was expected to be within the current urban areas of Courtice and Bowmanville through greater intensification of existing built-up areas to 2031. OPG noted that lands north of the Canadian Pacific Railway Corridor in the vicinity of the

NND site have been identified for future residential growth between 2031 and 2056. OPG further stated that population distribution predicted for future years during the operational phase of the proposed plant were not expected to affect the feasibility of emergency planning at the NND site.

72. CNSC staff stated that OPG provided sufficient information to satisfy the expectations set forth in RD-346 and the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS.
73. Many intervenors, including the Registered Nurses' Association of Ontario, the Canadian Environmental Law Association, Lake Ontario Waterkeeper, the Canadian Coalition for Nuclear Responsibility and individuals, expressed concerns about the proximity of the site to populated areas, including the City of Toronto. Intervenors noted that the future population growth in the Municipality of Clarington and Durham Region may result in residential communities and sensitive installations such as schools being located inappropriately close to the Project, which could result in an unmanageable situation in the event of an emergency.
74. The Commission questioned CNSC staff and OPG at the public hearing regarding population distribution around the site and OPG's statement that relatively few people resided within 4 km of the proposed plant. The Commission also expressed concerns regarding the presence of two schools located two, three or four kilometres from the Darlington Nuclear site, depending on the starting point of the distance measurement, being from the centre of the site, from the location of the future reactors or from the fence of the existing Darlington Nuclear site. The Region of Durham and Municipality of Clarington confirmed that there were existing and future residential developments within a 3 kilometre-zone from the Darlington Nuclear site. The Municipality of Clarington expressed interest in obtaining guidance towards a setback to be incorporated into both their official and regional plans.
75. The Commission notes that, although land use is outside the jurisdiction of the CNSC, the EA Report nevertheless recommended that CNSC engage concerned stakeholders to develop a policy for land use management around nuclear reactors under Recommendation #43, which was accepted by the Government of Canada. The Commission is of the view that Recommendation #43 is relevant over the life of the project and is an activity that should be addressed in the near future. The Commission directs CNSC staff to present an update on the status of this recommendation at the mid-term of the licence period.
76. The Commission notes that OPG committed to continue to monitor land use activity in proximity to the Darlington site and consult with the Municipality of Clarington and the Regional Municipality of Durham on proposed land use changes and consequent effects on implementation of emergency plans.

77. The EA Report also recommended to the Government of Ontario and the Municipality of Clarington that, for the lifetime of the nuclear facility, appropriate measures are taken to prevent the establishment of sensitive and residential development within three kilometres of the site boundary (Recommendations #44 and #45). The recommendations were not refused by the Government and were directed to the appropriate authorities. The Commission encourages such an endeavour for the near future and the development of a policy on land use management around nuclear sites could be the trigger.
78. The Commission further notes that the consideration of external events and site specific characteristics as inputs to the design and safety analysis of the new nuclear generating station will be reviewed and assessed as part of an application for a Licence to Construct.

Emergency Planning

79. OPG provided an evaluation of its Emergency Preparedness program to demonstrate how the current program would address the expectations outlined in RD-346, including information on the following:
- the evolution of nuclear emergency planning in Ontario;
 - the current nuclear emergency management program related to OPG and specifically the Darlington NGS;
 - the hierarchy of emergency plans and legislation from international to the municipal level;
 - projected population growth and land use;
 - community involvement and commitment to nuclear emergency planning; and
 - external and conventional hazard management.
80. OPG stated that its existing Emergency Preparedness program is compliant with the expectations of RD-346. OPG noted that emergency planning at the Darlington Nuclear Generating Station is governed by the Consolidated Nuclear Emergency Plan (CNEP), as required by the Darlington Nuclear Generating Station Power Reactor Operating Licence, and that minor revisions to the CNEP would be required to encompass the new nuclear power plant project. OPG also indicated that the selected EPC Co. would be required to prepare an Emergency Response and Evacuation Plan and that OPG would need to review and accept this plan prior to the commencement of site preparation activities. OPG further stated that the current population and future population, based on population growth projections available at this time, are not expected to affect the feasibility of the Provincial Nuclear Emergency Response Plan (PNERP) at the NND site.
81. CNSC staff stated that they reviewed and assessed the information provided by OPG on population and emergency planning considerations and determined that OPG had provided sufficient information to satisfy the regulatory requirements regarding an application for a LTPS and the expectations set forth in RD-346.

82. Several intervenors, including Greenpeace, the National Farmers Union Waterloo/Wellington Local, Mouvement Vert Mauricie, and individuals expressed concerns regarding emergency planning. Intervenors were of the view that not enough wide-scale emergency drills have been held between the various levels of government and that more information and direction for the public was needed. On the other hand, the Regional Municipality of Durham stated that it and OPG have had a strong, ongoing working relationship with respect to nuclear emergency planning and preparedness. Emergency Management Ontario expressed the view that there are appropriate measures in place to ensure that the public can be safely evacuated in the event of an accident.
83. The Commission is satisfied that the information provided by OPG demonstrates that OPG meets the regulatory requirements regarding an application for a LTPS and the expectations set forth in RD-346. The Commission, however, has some concerns about the necessary improvements needed for nuclear safety and emergency preparedness. The Commission notes that Recommendation #63 of the EA Report recommended that prior to construction, the CNSC require OPG to evaluate the cumulative effect of a common-cause severe accident involving all of the nuclear reactors in the site study area to determine if further emergency planning measures are required. The Government of Canada accepted the intent of this recommendation and noted that the CNSC had established a task force to examine the lessons learned from the earthquake in Japan and that it would evaluate the operational, technical and regulatory implications of the nuclear event in Japan in relation to Canadian nuclear power plants.
84. The Commission notes that an Action Plan was prepared by the CNSC task force and subject to public consultations and a public meeting in May 2012. The Commission expects findings from the CNSC Fukushima Task Force report to be considered as part of the mid-term review for the LTPS.
85. The Commission would like to underline that in Recommendation 9 of the Action Plan, the CNSC indicated that it would initiate projects to amend applicable regulatory documents in order to incorporate the findings of the CNSC Task Force for both existing and new nuclear plants. The regulatory and guidance documents pertinent to a LTPS that will be reviewed and adapted are the following:
- RD-346, Site Evaluation for New Nuclear Power Plants;
 - RD-337, Requirements and Guidance for Design of New NPPs;
 - RD-310, Safety Analysis for Nuclear Power Plants;
 - GD-310, Guidance on Safety Analysis for Nuclear Power Plants; and
 - S-296, Environmental Protection Policies, Programs and Procedures at Class I Nuclear Facilities and Uranium Mines and Mills.

86. The Commission notes that, in the preparation of the LTPS application documents, OPG used and referred to all the documents mentioned above. As such, the Commission directs CNSC staff to present a report to the Commission at the mid-term of the licence on the operational, technical and regulatory implications of the lessons learned from the event in Japan and how they will affect the Project and future licence requirements.

Exclusion Zone Determination

87. CNSC staff stated that Paragraph 3(a) of the *Class I Nuclear Facilities Regulations* stipulates that an application for a licence shall contain, in addition to other information, “a description of the site of the activity to be licensed, including the location of any exclusion zone and any structures within that zone.” Furthermore, the exclusion zone is defined in Section 1 of the *Class I Nuclear Facilities Regulations* as “a parcel of land within or surrounding a nuclear facility on which there is no permanent dwelling and over which a licensee has the legal authority to exercise control”. CNSC staff noted that, historically, the exclusion zone for all nuclear power plants in Canada has been defined as 914 m (3000 feet) from the reactor building. However, rather than prescribe a specific size for an exclusion zone, RD-337 defines the factors that must be considered in determining the appropriate size including evacuation needs, land usage needs, security requirements, environmental factors, and dose acceptance criteria.
88. OPG provided an assessment to determine the appropriate size for the exclusion zone for the proposed nuclear generating station, and noted that the exclusion zone has a role in supporting the safety goals for the regulatory document RD-337 with respect to the protection of individual members of the public from nuclear power plant operation.
89. OPG further stated that the role of the exclusion zone is to prohibit permanent dwelling within a certain distance from the nuclear facility in order to ensure significant dispersion of any potential radioactive releases before it reaches human habitat. The exclusion zone is also defined in such a way that, in the case of a nuclear emergency, the public can be quickly evacuated.
90. In accordance with RD-337, OPG considered the following factors in the determination of the exclusion zone:
- land usage needs;
 - security requirements;
 - evacuation needs;
 - environmental factors; and
 - dose acceptance criteria.

91. OPG stated that, based on the available reactor technology information, distances of 500 m to the site boundary or greater meet the requirements and expectations in regulatory documents RD-337, RD-346, the *Class I Nuclear Facilities Regulations* and the *Radiation Protection Regulations* with respect to the site and exclusion zone boundaries. OPG noted that the precise location of the exclusion zone and supporting calculations would be provided with the application for a Licence to Construct once a reactor technology has been selected.
92. CNSC staff stated that they reviewed and assessed OPG's proposed exclusion zone determination. CNSC staff noted that OPG was unable to provide site-specific dose versus distance profiles for the project on a fully quantitative basis. CNSC staff determined that the information provided by OPG was satisfactory for the purposes of the issuance of a LTPS because the exclusion zone does not have to be in effect for the site preparation phase. CNSC staff noted that quantitative supporting data must be included in a Construction Licence application to provide a credible demonstration of the exclusion zone case of 500 m.
93. CNSC staff noted that it had asked OPG whether OPG could extend the proposed exclusion zone boundary beyond 500 m if warranted by detailed analysis, given that an exclusion zone beyond 500 m would fall outside of the OPG property line. OPG responded that, if warranted by detailed analysis, OPG would ensure that appropriate protocols are developed to satisfy regulatory requirements.
94. CNSC staff stated that it determined that OPG had provided sufficient information pertaining to the proposed exclusion zone to satisfy the regulatory requirements regarding an application for a LTPS and the expectations set forth in RD-346. CNSC staff noted that the precise location of the exclusion zone and supporting detailed calculations would be reviewed and assessed as part of the application for a Licence to Construct.
95. The Commission questioned whether the proposed 500 m exclusion zone was appropriate. CNSC staff responded that OPG's proposed exclusion zone was satisfactory so long as OPG can demonstrate that it can meet this requirement at the time of its application for a Licence to Construct.
96. Northwatch questioned whether a new environmental assessment would be necessary should OPG need additional land beyond the site boundary to meet the exclusion zone requirements. CNSC staff stated that it conducts an environmental assessment determination whenever the Commission must make a licence decision under the NSCA. CNSC staff explained that in so doing, it would determine whether or not a new environmental assessment is required.

97. The Commission is satisfied that OPG has provided sufficient information pertaining to the proposed exclusion zone to satisfy the regulatory requirements regarding an application for a LTPS and the expectations set forth in RD-346. The Commission is satisfied that OPG's proposed exclusion zone of 500 m is satisfactory so long as OPG can demonstrate that it can meet this requirement at the time of its application for a Licence to Construct.

Use of Land and Water

98. OPG provided information regarding land and water use around the project site. Regarding land use, OPG stated that a new industrial site, Clarington Energy Park, has been proposed for construction to the west of the site and is expected to house facilities for the management of municipal solid waste, including incinerator and ash-processing facilities. Regarding water, OPG indicated that ships ranging from small pleasure craft to large lake and ocean vessels traverse Lake Ontario. OPG noted that the larger cargo vessels move along shipping lanes located more than 10 km from the shore in the vicinity of the NND site and that ports at Whitby, Oshawa, and Cobourg are visited by small lake vessels. OPG further noted that a pier is also located east of the site at St. Marys Cement Plant at which vessels dock for loading and unloading.
99. Some intervenors, including the Métis Nation of Ontario, expressed concerns regarding effects of the Project on navigation, particularly regarding the prohibitive zone around the intake and diffuser for the condenser cooling technology. The Commission asked for more information on this subject. A representative from Transport Canada stated that, based on the types of works proposed, the potential interference with navigation could be managed through the normal course of the *Navigable Waters Protection Act*¹³ approval process and through the application of standard mitigation measures. The Transport Canada representative expressed the view that if these conditions were met, the Project would be unlikely to have a significant adverse effect on navigation.
100. The Métis Nation of Ontario also expressed concerns regarding maritime safety and recreational boating. The Commission asked for more information in this regard. A representative from Transport Canada was of the view that the risks associated with the Project would be no different or greater than those present with any other barges or recreational fishing vessels operating on the Great Lakes, and that the *Collision Regulations*¹⁴ taken pursuant to the *Canada Shipping Act*¹⁵ detail the rules for users on all vessels in Canadian waters. The Transport Canada representative stated that these Regulations, when observed, provide for the safe interaction between vessels, including the barges and recreational fishing boats that would be operating in the vicinity of the Project.

¹³ R.S.C., 1985, c. N-22

¹⁴ C.R.C., c. 1416.

¹⁵ 2001, c. 26.

101. The Commission notes that Recommendation #51 in the EA Report states that in the event that a once-through condenser cooling system is chosen for the Project, Transport Canada must work with OPG to develop a follow-up program to verify the accuracy of the prediction of no significant adverse effects to boating safety from the establishment of an increased prohibitive zone. OPG must also develop an adaptive management program, if required, to mitigate potential effects to small watercraft. The Government of Canada accepted the intent of this recommendation.

Conclusion on Site Evaluation

102. Based on the above information, the Commission is satisfied that, given the mitigation measures in place and to be in place, as well as the commitments made by OPG during the environmental assessment for the Project, the site meets the requirements for a new nuclear power plant in accordance with RD-346. As such, the Commission concludes that the site is suitable for the construction of the proposed nuclear generating station. The Commission notes that the reactor design to be chosen by the Province of Ontario for construction at the site will be reviewed and assessed as part of an application for a Licence to Construct, and that the chosen reactor design must meet regulatory requirements for a Licence to Construct, including conformance with the PPE, in order to proceed to the construction phase.

Management System

103. OPG provided information regarding its management system for the project. OPG noted that although the selected EPC Co. would perform site preparation activities, OPG would retain the ultimate responsibility as licensee under the NSCA.
104. CNSC staff stated that the information provided by OPG regarding its proposed management system and organizational arrangements was sufficient to meet the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS. CNSC staff noted that the Tier 3 management system documents as well as a number of EPC Co. documents required for site preparation must be in place prior to the commencement of the licensed activities. CNSC staff noted that OPG is accountable to the CNSC to ensure the health, safety and security of persons and the environment are protected, and that this accountability to the CNSC cannot be delegated through contractual arrangements.
105. The Commission asked for more information regarding the implementation of the management system documents once they are in place. A representative from OPG responded that OPG has a process in place to ensure that management effectively implement the management system documents. The OPG representative noted that OPG would conduct internal audits to ensure that the management system documents are being followed. CNSC staff stated that it accepted OPG's process for implementation and noted that OPG will be required to demonstrate that it can effectively implement the management system.

106. Based on its consideration of the presented information, the Commission concludes that OPG has appropriate organization and management structures in place to adequately carry out the activities under the proposed licence.

Human Performance Management

107. In its application for a LTPS, OPG submitted a document describing OPG's processes for human resource management for the Project, as well as OPG's oversight of the selected EPC Co. human resources management processes. OPG noted that it would develop a training procedure describing OPG's controls to ensure workers are trained and assessed to confirm that they have acquired the knowledge, skills, and competencies to perform their work assignments. OPG further noted that the EPC Co. must develop a training plan to be reviewed and accepted by OPG prior to the commencement of site preparation activities. OPG committed to performing independent assessments and oversight of the EPC Co.'s work activities to ensure that personnel qualification and competency requirements are met.
108. CNSC staff stated that its expectations are that detailed training plans and procedures include controls for:
- the identification and definitions of qualifications and competencies required for each task including site specific requirements;
 - the verification of personnel qualifications and competencies against defined qualification and competency requirements prior to permitting personnel to perform work on the site; and
 - the documentation and maintenance of personnel qualification and competency records.
109. CNSC staff stated that the information provided by OPG provided an adequate high-level overview of the proposed measures for the personnel qualifications and competencies during the site preparation phase. CNSC staff noted that although detailed training plans and procedures have yet to be developed, they must be in place prior to the commencement of the licensed activities.
110. CNSC staff stated that OPG's proposed measures for personnel qualifications and competencies were sufficient to meet the applicable regulatory requirements under the NSCA for the issuance of a LTPS. CNSC staff noted that the information provided in the application presented a credible demonstration that OPG would ensure that personnel are qualified and competent to perform assigned work while carrying out site preparation activities.
111. Based on the above information, the Commission concludes that OPG has or will have in place the necessary programs in the areas of quality management, human performance and training to ensure continued adequate human performance at the facility.

Operating Performance (Conduct of the Licensed Activities)

112. OPG stated that once a reactor design is selected by the Government of Ontario, OPG would enter into a contract with the EPC Co. for provision of the nuclear facility and related works, including preparation of the site. OPG noted that it may elect to enter into a contract with an EPC Co. for the provision of site preparation activities only, in advance of a decision from the Province of Ontario on the specific reactor technology that will be procured. OPG requested that the physical activities requested to be encompassed by the LTPS include:
- construction of access control measures;
 - clearing and grubbing of vegetation;
 - excavation and grading of the site;
 - installation of services and utilities;
 - development of administrative and physical support facilities inside future protected area;
 - construction of environmental monitoring and mitigation systems; and
 - construction of flood protection and erosion control measures.
113. CNSC staff stated that it reviewed and assessed the activities proposed to be encompassed by the LTPS and found the information to be satisfactory.
114. During the EA, CNSC staff raised the issue of whether lake-infilling would be included in the LTPS activities. OPG responded that although lake infilling would be an activity carried out during the site preparation phase, as described in the EIS, it would not be included in the application for a LTPS because lake in-fill activity is included in the Application for Authorization for Works or Undertakings Affecting Fish Habitat under the *Fisheries Act* and the Application for Approval for proposed works under the *Navigable Waters Protection Act* submitted to DFO and Transport Canada, respectively, in parallel with the LTPS Application. OPG noted that the construction of flood protection and erosion control measures would be activities licensed by the CNSC under the LTPS, given that construction of flood protection and erosion control have a role in protecting the future nuclear facility.
115. Some intervenors expressed concerns regarding the proposed lake infill for the project because it would permanently remove productive nearshore fish habitat from the lake. As such, some intervenors expressed a preference for no lake infill.
116. Some intervenors, including representatives from Environment Canada, noted that Bank Swallow colonies currently nest on the shoreline bluffs that may be removed as part of the Project. Intervenors believed that OPG should limit any damage to this habitat and ensure that mitigation measures, such as artificial habitat, are in place to prevent losses to the Bank Swallow colonies.

117. The Commission notes that Recommendation #5 in the EA Report recommended that, to avoid any unnecessary environmental damage to the bluff at Raby Head and fish habitat, no bluff removal or lake infill should occur during the site preparation stage, unless a reactor technology has been selected and there is certainty that the Project will proceed. The Government of Canada accepted this recommendation, noting that an authorization under the *Fisheries Act* would be required prior to any lake infill taking place. The Government of Canada further stated that as a condition of that authorization, no lake infill could occur unless there is certainty that the Project will proceed and appropriate mitigation measures and habitat compensation have been implemented.
118. The Commission further notes that the EA Report also recommended (Recommendation #31) that any lake infill be limited to the two-metre depth contour. The Government of Canada accepted the intent of this recommendation and noted that DFO would ensure that the Harmful Alteration, Disruption and Destruction (HADD) of fish habitat associated with the proposed lake infill be limited to the area within the two-metre depth contour of Lake Ontario. The Government of Canada noted that the extent of the HADD, as well as appropriate mitigation and habitat compensation, would be included in the conditions of authorization under the *Fisheries Act*.
119. The Commission enquired about the requirements for the excavation of the site. A representative from OPG confirmed OPG's need to excavate to 78 metres above sea level, and further noted that the total amount of excavated material would be dependent on the cooling technology chosen for the project.
120. The Commission enquired about the measures to protect the existing nuclear facilities on the Darlington Nuclear site from the site preparation activities. A representative from OPG responded that the existing facilities have their own protection in place. OPG representatives provided further information regarding these protection measures during the in camera session on Security. The OPG representative noted that, similar to other contractor work on the site, all workers would be required to have an appropriate level of security clearance.
121. Based on the above information, as well as the information presented to the Commission in camera, the Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place, OPG will make adequate provision for the protection of the environment and the health and safety of persons during the conduct of the licensed activities.

Safety Analysis

122. CNSC staff stated that Safety Analysis is not within the scope of the LTPS as there is no nuclear facility encompassed by the proposed LTPS. CNSC staff noted that a comprehensive assessment of the safety analysis of the reactor technology selected for construction, including site related hazards, would be performed as part of CNSC staff's review of an application for a Licence to Construct.
123. Based on the above information, the Commission is satisfied that safety analysis is not encompassed by the proposed LTPS and that a comprehensive assessment of the safety analysis of the reactor technology selected for construction would be considered in the application for a Licence to Construct.

Physical Design

124. CNSC staff stated that Physical Design is not within the scope of the LTPS as there is no nuclear facility encompassed by the proposed LTPS. CNSC staff noted that a comprehensive assessment of the design of the reactor technology selected for construction would be performed as part of CNSC staff's review of an application for a Licence to Construct.
125. Based on the above information, the Commission is satisfied that physical design is not encompassed by the proposed LTPS and that a comprehensive assessment of the physical design of the reactor technology selected for construction would be considered in the application for a Licence to Construct.

Fitness for Service

126. CNSC staff stated that Fitness for Service is not within the scope of LTPS as there is no nuclear facility encompassed by the proposed LTPS.
127. Based on the above information, the Commission is satisfied that Fitness for Service is not encompassed by the proposed LTPS.

Radiation Protection

128. CNSC staff stated that Radiation Protection is not within the scope of the LTPS as OPG has not requested permission to possess, transfer, use, or store nuclear substances under the LTPS. CNSC staff noted that any site preparation activities that would require construction-related tools containing radioactive nuclear substances, as defined in the *Nuclear Substances and Radiation Devices Regulations*¹⁶, would be performed under the authority of CNSC nuclear substance and device licences.

¹⁶ SOR/2000-207.

129. CNSC staff further stated that, due to the NND site's proximity to the Darlington Nuclear Generating Station and the Darlington Waste Management Facility, there would be very low levels of exposure to radiation above background levels. OPG indicated that the Occupational Health and Safety Plan, to be developed by the selected EPC Co., would include measures to ensure that doses to construction workers remain below the regulatory limit for non-Nuclear Energy Workers, i.e., below the public dose limit of 1 mSv/year.
130. Some intervenors expressed concerns regarding the doses to workers from the Darlington NGS and the Darlington Waste Management Facility. Some intervenors suggested that there may be a need to protect workers and the public from possible radioactive contamination in the soil during excavation. The Commission sought further information in this regard. A representative from OPG responded that a plan would be in place to ensure that the workers who are working in proximity to the fence-line for the existing Darlington NGS would not be there for extended periods of time that would expose them to any sort of exposure or dosage. The OPG representative further stated that the maximum annual dose to a worker during site preparation activities was estimated to be 0.2 mSv/year, which is well below the public dose limit of 1 mSv/year. The OPG representative noted that there would be no nuclear activities under the LTPS. CNSC staff noted that although some nuclear energy workers would be performing work using nuclear sources in industrial gauges, these activities would be licensed separately and require radiation protection measures to be in place.
131. Based on the above information, the Commission is satisfied that Radiation Protection is not encompassed by the proposed LTPS. The Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place to control hazards, OPG will make adequate provision for the protection of the environment and the health and safety of persons during the conduct of the licensed activities.

Conventional Health and Safety

132. OPG stated that the nuclear facilities owned and operated by the former Ontario Hydro (now OPG) have been excluded from the application of Parts I, II and III of the *Canada Labour Code*¹⁷ and have incorporated by reference the provincial legislation respecting occupational health and safety. OPG noted that the same exemption is anticipated to be in place for the NND and therefore the provincial legislative requirements of the *Occupational Health and Safety Act of Ontario*¹⁸ (OHSA) and the *Labour Relations Act*¹⁹ will apply to the Project.

¹⁷ R.S.C., 1985, c. L-2.

¹⁸ R.S.O. 1990, CHAPTER O.1.

¹⁹ S.O. 1995, CHAPTER 1, Schedule A.

133. OPG stated that site preparation activities would comply with OHSA requirements. OPG explained that, with respect to the accountabilities and responsibilities under OHSA, OPG would assume the role and responsibilities of “Project Owner” (s.30) and the selected EPC Co. would assume the role and responsibilities of “Constructor” (s.23) and “Employer” (s. 25 and 26). OPG noted that prior to the commencement of the licensed activities, the EPC Co. will be required to establish and maintain an Occupational Health and Safety Plan that meets the requirements of applicable law and of good utility practices.
134. CNSC staff stated that it reviewed and assessed OPG’s proposed measures for occupational health and safety and found the information provided to be satisfactory. CNSC staff stated that the information provided by OPG forms an adequate basis of the proposed measures for the protection of workers during the site preparation phase. CNSC staff noted that OPG is expected to make the appropriate arrangements to incorporate the provincial legislation respecting occupational health and safety for the NND prior to the commencement of site preparation activities. CNSC staff further noted that detailed worker health and safety plans and procedures must be in place prior to the commencement of the licensed activities.
135. CNSC staff stated that OPG’s proposed measures for occupational health and safety are sufficient to meet the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS. CNSC staff noted that the information provided in the application provided a reasonable demonstration that OPG would make adequate provision for the protection of workers while carrying out site preparation activities.
136. The Commission asked for more information concerning the measures in place to protect the health and safety of workers. A representative from OPG responded that the health and safety plans to be developed by the EPC Co. include site-specific issues, training, morning briefings and meetings with the foremen, as well as general meetings and inspections. The OPG representative stressed that training is required before workers are allowed on-site.
137. Based on the above information, the Commission is satisfied that OPG will make adequate provision for the protection of the health and safety of persons during the conduct of the licensed activities.

Environmental Protection

Hazardous Substances

138. OPG stated that hazardous substances that may be present as a result of site preparation activities would be limited to those used for standard construction projects. OPG explained that these would include chemicals, fuel, lubricants, and compressed gases used during operation and maintenance of site preparation

equipment, as well as solvents and cleaners to clean the equipment. OPG noted that additional substances may consist of paint, aerosol cans, oil and electrical components used in the construction and relocation of services and utilities, construction of support facilities, and explosives used during excavation activities. OPG indicated that approval under section 7(1)(c) of the *Explosives Act*²⁰ from Natural Resources Canada (NRCan) would be required for the temporary storage of explosives.

Environmental Protection Policies and Procedures

139. OPG stated that, prior to the commencement of the licensed activities, the selected EPC Co. would be required to establish and maintain an Environmental Management and Protection Plan (EMPP) to ensure the site preparation activities are performed in a manner that protects the environment. OPG explained that the EMPP would include plans for erosion and sediment control, nuisance effects (dust and noise), spills prevention and response, as well as storm water management. OPG noted that it would review and accept the EPC Co.'s EMPP prior to the commencement of site preparation activities, and perform independent assessments and witnessing and surveillance of the EPC Co.'s work activities to ensure that environmental protection requirements are met.
140. In the application for a LTPS, OPG committed to the following:
- the EMPP will satisfy applicable law, good industry management practice, ISO 14001, and CNSC Standards S-296;
 - the EMPP will establish objectives and targets to be achieved and ensure that adequate corrective measures will be developed and implemented to ensure that they will be achieved;
 - resources required to implement the EMPP will be provided, and the personnel performing roles and responsibilities identified in the plan will be fulfilling those roles and responsibilities;
 - EPC Co. personnel will receive awareness training of the potential environmental risks associated with the work to be performed and the requirements for avoidance, management, and mitigation of those risks, including notification and reporting;
 - the EMPP will be updated to reflect changes in applicable law, including all requirements imposed on OPG through a licence, permit, or other regulatory instrument; and
 - any environmental discoveries or events that potentially require a change to site preparation activities will be identified, evaluated, and incorporated as necessary.
141. Some intervenors, including Environment Canada, expressed concerns regarding wildlife and species at risk, including migratory birds, which currently inhabit or use the Project site. Intervenors felt that OPG should ensure that it does not permanently

²⁰ R.S.C., 1985, c. E-17.

remove the habitat for these species. The Commission notes that Recommendation #24 in the EA Report required that during the site preparation stage, OPG not undertake habitat destruction or disruption between the period of May 1 and July 31 of any year to minimize effects to breeding migratory birds. The Government of Canada accepted the intent of this recommendation, noting that the CNSC has the statutory authority and powers to address this recommendation through licensing.

142. Other intervenors, including individuals and Scientists in School, expressed the view that the environment on the Project site is diverse and had improved since the existing Darlington Nuclear Generating Station was built. Some intervenors, including Williams Treaties First Nations and Mississaugas of the New Credit First Nation felt that OPG has a diverse ecosystem on the property, and expected this diversity would be maintained for the proposed Project. Environment Canada suggested that OPG should conduct a thorough evaluation of site layouts to maximize the space available for terrestrial habitat rehabilitation. The Commission notes that Recommendation #20 in the EA Report requires OPG to perform this evaluation before site preparation activities begin, in order to minimize the overall effects on the terrestrial and aquatic environments and maximize the opportunity for quality terrestrial habitat rehabilitation. The Government of Canada accepted this recommendation.
143. In its presentation at the public hearing, CNSC staff underlined that OPG had developed an Environmental Policy and Environmental Management System based on the ISO 14001 Standard. CNSC staff noted that OPG outlined the key elements of the Environmental Management System and was committed to developing the environmental programs for the Project around the findings of the EIS and associated licensing documents. Furthermore, CNSC staff reported that OPG had provided an outline of the Site Biodiversity Plan and had referenced its Sustainable Development Report with respect to environmental performance, social performance and economic contribution.
144. OPG committed to maintain its registration to the International Organization for Standardization (ISO) 14001-2004 Environmental Management System. OPG noted that, in accordance with the requirements of ISO 14001-2004, it has developed an environmental policy to continually improve its environmental performance. OPG also stated that it is committed to the principles of sustainable development and the protection of biodiversity on its sites.
145. Further to the above, the Commission expects that OPG will protect fish habitat and biota, which are considered part of the maintenance of a healthy and diversified environment. The Commission notes that Recommendations #28 and #29 in the EA Report recommended that DFO require OPG to continue conducting adult fish community surveys in the site study area and reference locations on an ongoing basis, as well as require OPG to continue the research element of its proposed Round Whitefish Action Plan. The Government of Canada accepted these recommendations.

146. Furthermore, the Commission notes that Recommendation #22 in the EA Report requires OPG to develop a follow-up program for insects, amphibians and reptiles, and mammal species and communities. The Government of Canada accepted the intent of this recommendation and noted that it would support a focus for this follow-up program on species at risk and the use of this program to verify the conclusions of the Ecological Risk Assessment.
147. The Commission is of the view that OPG should not only respect its legal requirements and Government Response requirements regarding the Project, but also strive to protect the environment with respect to its commitments on the maintenance of biodiversity on the site. In this respect, the EMPP should not only pay attention to species that are known to be threatened or endangered but also to the ones of special concern, the ones identified by OPG as being rare, and the ones as yet to be considered important in a regional context, such as the Bank Swallow colonies.
148. With respect to the effects of the Project on biodiversity, ecosystem integrity and the enjoyment of the public using the site, the Commission has taken into consideration that the disruption to landscape habitats and recreational facilities was expected to be reversed following the completion of the major construction activities. The Commission has concerns regarding the potential damage caused by vegetation clearing and grading of the site, soil disposal offsite and storage on site should the Project not proceed. The Commission expects that OPG will take this concern into consideration in undertaking the activities permitted in its licence before a reactor technology is chosen.

Environmental Monitoring Program

149. OPG stated that the environmental assessment for the proposed project included a preliminary follow-up and monitoring program designed to verify the predictions made in the environmental assessment and the effectiveness of mitigation methods. OPG noted that it would develop the scope of the follow-up and monitoring program in detail to address specific requirements following the approval of the environmental assessment. OPG further noted that the follow-up and monitoring program would be reviewed and adjusted on an ongoing basis to incorporate evolving site conditions, and results of monitoring data as it is acquired.
150. CNSC staff stated that licence condition 10.3 of the proposed licence requires OPG to implement and maintain an environmental assessment follow-up program. CNSC staff noted that Appendix E of the proposed LCH for the LTPS included a preliminary follow-up program that OPG must develop for acceptance from CNSC staff. CNSC staff noted that under licence condition 4.3, OPG will be required to submit an annual report to the CNSC on the conduct of licensed activities and on the implementation of commitments made during the environmental assessment. The report will also include environmental monitoring program results and environmental assessment follow-up program results.

151. In addition to the requirements of licence condition 4.3, the Commission directs CNSC staff to present these results in its mid-term report to the Commission.

Potential Effects on the Environment and the Health and Safety of Persons, and Mitigating Measures

152. OPG provided information regarding the likely environmental effects and mitigation measures during site preparation activities under normal and potential accident conditions. OPG stated that the identified mitigating measures would be adequate to ensure no significant residual adverse environmental effects result from site preparation activities. OPG noted that several mitigation measures refer to plans to be produced by the EPC Co., including plans for erosion and sediment control, dust and noise, storm water, and traffic management. OPG committed to have these plans in place prior to the commencement of site preparation activities. OPG further noted that it would perform oversight of the EPC Co., including the review and acceptance of the EMPP and surveillance of work activities, to ensure that environmental protection requirements are met.
153. CNSC staff stated that it reviewed and assessed OPG's proposed measures for environmental protection and found the information to be satisfactory. CNSC staff noted that OPG provided an adequate overview of the proposed measures for the protection of the environment during the site preparation phase. CNSC staff further noted that detailed environmental protection plans and procedures must be in place prior to the commencement of the licensed activities.
154. CNSC staff stated that OPG's environmental protection policies, programs and procedures are expected to meet the requirements of CNSC Regulatory Standard S-296²¹, and recommended that this be a requirement of the LTPS. CNSC staff stated that previous CNSC staff inspections of OPG's Environmental Management Systems for the Darlington and Pickering Nuclear Generating Stations have verified OPG's conformance to S-296 and ISO 14001.
155. CNSC staff stated that OPG's proposed measures for environmental protection form an adequate basis to meet the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS. CNSC staff noted that the information provided in OPG's licence application provides a reasonable demonstration that OPG will make adequate provision for the protection of the environment while carrying out site preparation activities.
156. The Ontario Ministry of the Environment provided information regarding the approvals process for Certificate of Approval for releases to air. The Ministry stated that Certificate of Approval applicants must demonstrate that projects can comply with environmental acts, regulations, policies, guidelines and standards before

²¹ CNSC Regulatory Standard S-296 *Environmental Protection Policies, Programs and Procedures at Class I Nuclear Facilities and Uranium Mines and Mills*, March 2006.

approval is granted. The Ministry stated that for the Project, air and noise approvals would be required for the standby/emergency generators, maintenance facilities (chemical cleaning, welding), the process venting (steam venting, storage tanks, workshops) and for building ventilation systems.

157. Several intervenors, including individuals, the Region of Durham and the International Institute of Concern for Public Health, as well as Health Canada and Environment Canada, expressed concerns regarding the impact on air quality during site preparation activities. Both Health Canada and Environment Canada recommended that OPG avoid operating heavy machinery during days when there are air quality or smog alerts, due to the cumulative effects on the air quality in the region. Health Canada also recommended that OPG develop an action plan to address this issue.
158. The Commission notes that Recommendation #8 in the EA Report requires OPG to develop a follow-up and adaptive management program for air contaminants such as Acrolein, NO₂, SO₂, SPM, PM_{2.5} and PM₁₀, to the satisfaction of the CNSC, Health Canada and Environment Canada. Furthermore, Recommendation #9 requires OPG to develop and implement a detailed acoustic assessment and have an effective Nuisance Effects Management Plan in place. The Government of Canada accepted both of these recommendations.

Conclusion on Environmental Protection

159. Based on the above information, the Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place to control hazards, OPG will make adequate provision for the protection of the environment and the health and safety of persons during the conduct of the licensed activities.

Emergency Management and Fire Protection

160. For the LTPS, Emergency Management covers emergency plans and emergency preparedness programs that exist for emergencies and for non-routine conditions.

Emergency Management

161. OPG stated that a large portion of the proposed construction site would be located within the exclusion zone of the existing Darlington Nuclear Generating Station and, as such, in the unlikely event that a radiological emergency were to occur, emergency plans would be established to notify personnel, and to ensure proper accounting, sheltering, and evacuation, if necessary.

162. OPG noted that emergency planning at the Darlington Nuclear Generating Station is governed by the Consolidated Nuclear Emergency Plan (CNEP), as required by the Darlington Nuclear Generating Station Power Reactor Operating Licence, and that minor revisions to the CNEP would be required to encompass the new nuclear power plant project. OPG also indicated that the selected EPC Co. would be required to prepare an *Emergency Response and Evacuation Plan* and that OPG would review and accept this plan prior to the commencement of site preparation activities.
163. CNSC staff stated that it reviewed and assessed OPG's proposed measures for emergency preparedness in accordance with the objectives and criteria set out in the relevant Staff Review Procedures and found the information provided was satisfactory. CNSC staff noted that it has consistently rated OPG's existing emergency preparedness programs as exceeding CNSC expectations. CNSC staff stated that the information provided by OPG provided an adequate high level overview of the proposed measures for emergency preparedness during the site preparation phase. CNSC staff further noted that detailed plans for emergency preparedness must be in place prior to the commencement of the licensed activities.
164. The Commission, noting the transient nature of the workforce for site preparation activities, asked for more information concerning the implementation of the emergency plan should a nuclear emergency occur at the existing Darlington NGS. A representative from OPG responded that all workers would be trained and required to follow the existing emergency plan. The Commission also asked whether there would be drills conducted onsite. An OPG representative confirmed that there would.

Fire Protection

165. OPG stated that the EPC Co. will have policies, procedures and programs in place for fire prevention and response. OPG noted that, due to the limited quantities of fuel or lubricants that would be stored on-site during site preparation, and the protocols developed to minimize the potential for fire, the risk of a fire is considered minimal.
166. CNSC staff stated that it reviewed and assessed OPG's proposed measures for fire protection and found the information provided was satisfactory. CNSC staff stated that the information provided by OPG provided an adequate high level overview of the proposed measures for fire protection during the site preparation phase. CNSC staff further noted that detailed plans for fire protection must be in place prior to the commencement of the licensed activities.
167. CNSC staff stated that the proposed measures for emergency preparedness and fire protection are sufficient to meet the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS.

168. Some intervenors, including individuals and the Municipality of Clarington, expressed support for OPG's fire protection program, noting that OPG works with the Clarington Fire Department. The Commission asked for more information on the relationship between OPG and the Municipality of Clarington. The Fire Chief for the Municipality of Clarington stated that there would be sufficient support available to respond to the site. A representative from OPG concurred that the Municipality of Clarington provides adequate fire support to the site.

Conclusion on Emergency Management and Fire Protection

169. The Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place to control hazards, OPG will make adequate provision for the protection of the environment and the health and safety of persons during the conduct of the licensed activities.

Waste Management

170. OPG stated that the management of hazardous wastes generated during site preparation activities would comply with regulatory requirements such as the *Transportation of Dangerous Goods Act*²² and *Transportation of Dangerous Goods Regulations*²³, *Environmental Protection Act, General – Waste Management, O. Reg 347*²⁴, Ontario Ministry of the Environment guidelines and waste management best practices.
171. OPG stated that hazardous substances that may be present and/or hazardous wastes generated as a result of site preparation activities would be limited to those used for standard construction projects, including chemicals, fuel, lubricants, and compressed gases used during operation and maintenance of site preparation equipment, as well as solvents and cleaners to clean the equipment. OPG noted that additional substances may consist of paint, aerosol cans, oil and electrical components used in the construction and relocation of services and utilities, construction of support facilities, and explosives used during excavation activities.
172. OPG explained that waste would be collected, stored and shipped by a licensed hazardous waste disposal company to a facility licensed to receive and manage these wastes. OPG noted that hazardous wastes will be stored in separate, secure areas to prevent spills and ensure segregation for appropriate management. OPG further noted that the activities encompassed under the LTPS would not involve the handling of radioactive materials and would not generate any radioactive wastes.

²² S.C. 1992, c. 34.

²³ SOR/2001-286.

²⁴ R.R.O. 1990, REGULATION 347.

173. CNSC staff stated that it reviewed and assessed OPG's proposed measures for waste management and found the information provided to be satisfactory. CNSC staff stated that OPG's proposed measures for hazardous waste management were sufficient to meet the applicable regulatory requirements under the NSCA for the issuance of a LTPS. CNSC staff noted that the information provided in the application provided a credible demonstration that OPG would make adequate provision for the management of hazardous wastes while carrying out site preparation activities.
174. Based on the above information and considerations, the Commission is satisfied that OPG will make adequate provision for the protection of the environment and the health and safety of persons during the conduct of the licensed activities.

Security

175. With respect to site security issues, the Commission was provided with separate, protected CMDs, which were considered in a closed session. In May 2011, the Commission held a closed hearing at CNSC headquarters in Ottawa with OPG and CNSC staff regarding security matters. The purpose of this session was for the Commission to examine measures proposed by OPG to ensure compliance with the *Nuclear Security Regulations*²⁵. The Commission notes that licence condition 9.1 requires OPG to implement and maintain safety and control measures for site security.
176. Based on the information considered, the Commission concludes that OPG has adequate provisions for ensuring the physical security of the facility, and is of the opinion that OPG will make adequate provision for the protection of the environment and the health and safety of persons during the conduct of the licensed activities.

Safeguards

177. 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. Pursuant to the Treaty, Canada has entered into safeguards agreements with the 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.
178. CNSC staff stated that Safeguards were not within the scope of the LTPS because there are no obligations arising from the Canada/IAEA Safeguards Agreement encompassed by the proposed LTPS.

²⁵ SOR/2000-209.

179. Based on the above information the Commission is satisfied that there are no obligations arising from the Canada/IAEA Safeguards Agreement encompassed by the proposed LTPS.

Packaging and Transport of Nuclear Substances

180. CNSC staff stated that Packaging and Transport of nuclear substances is not within the scope of the LTPS as the packaging and transport of nuclear substances and radiation devices are not encompassed by the proposed LTPS.
181. Based on the above information, the Commission is satisfied that the packaging and transport of nuclear substances and radiation devices are not encompassed by the proposed LTPS.

Aboriginal Consultation

182. The common law duty to consult with Aboriginal groups applies when the Crown contemplates actions that may adversely affect established or potential Aboriginal and treaty rights. The CNSC as an agent of the Government of Canada and as Canada's nuclear regulator recognizes and understands the importance of consulting and building relationships with Canada's Aboriginal peoples. The CNSC ensures that all its licensing decisions under the *Nuclear Safety and Control Act* and recommendations/decisions pertaining to environmental assessments under the *Canadian Environmental Assessment Act* uphold the honour of the Crown and consider Aboriginal peoples' potential or established Aboriginal or treaty rights pursuant to section 35 of the *Constitution Act, 1982*.²⁶
183. The CNSC has acted as the Crown Consultation Coordinator for the federal review in relation to the Project. This role includes but is not limited to: coordinating and facilitating the Crown's consultation activities before, during and after the federal environmental assessment (EA) and, in view of licensing, ensuring that consultation activities required for the Project are integrated with the EA and licensing processes, as a means to discharge the Crown's duty to consult; ensuring that a consultation process is in place for the regulatory review; and tracking and referring project specific issues raised by Aboriginal peoples to the appropriate parties (e.g., Responsible Authorities, Federal Authorities, Proponent, Province).
184. CNSC staff provided information regarding the consultation activities it undertook in relation to the project. CNSC staff explained that as the Crown Consultation Coordinator, the CNSC created a distribution list of Aboriginal groups who may have an interest in the proposed project. CNSC staff noted that the distribution list, which was updated as the engagement and consultation process continued, included the following groups:

²⁶ *The Constitution Act, 1982*, being Schedule B to the Canada Act 1982 (U.K.), 1982, c. 11.

- Most of the signatories to the Williams Treaty of 1923 (Alderville First Nation, Chippewas of Georgina Island First Nation, Curve Lake First Nation, Hiawatha First Nation (Mississaugas of Rice Lake), Mississaugas of Scugog Island First Nation, and Chippewas of Mnjikaming First Nation (Rama));
 - Mississaugas of the New Credit First Nation;
 - Oshawa Métis Council;
 - Huron-Wendat First Nation;
 - Ontario Métis Aboriginal Association (no longer in existence);
 - the Métis Nation of Ontario;
 - Haudenosaunee Confederacy Chiefs Council and the associated Haudenosaunee Development Institute;
 - Kawartha Nishnawbe First Nation;
 - Mohawks of the Bay of Quinte;
 - Northumberland Métis Council;
 - Tyendinaga Mohawk Men's Council; and
 - other Aboriginal organizations/representatives including the Union of Ontario Indians, Association of Iroquois and Allied Indians, Mohawks Nation Council of Chiefs and the Williams Treaty Coordinator.
185. CNSC staff noted that some groups located in the United States of America showed interest in the Project and were sent Project information, including the Chaliawa (Cat Nation) and Erie Indian Moundbuilders Tribal Nation along with their Canadian liaison, Taiaiko'n Historical Preservation Services. The Commission notes that none of these groups participated in the review process.
186. CNSC staff stated that it sent letters and made follow-up phone calls at key points in the environmental assessment process for the Project and that it sent regular updates via email on the process. In addition, CNSC staff stated that it and other representatives of the Government of Canada met with the following groups:
- the Métis Nation of Ontario and Oshawa and Durham Region, and Northumberland Métis Councils;
 - Certain Williams Treaty signatories (Alderville First Nation and the Mississaugas of Scugog Island First Nation) and their coordinator;
 - Mississaugas of New Credit First Nation; and
 - the Haudenosaunee Development Institute.
187. OPG summarized its Aboriginal consultation efforts and provided details regarding its consultation and engagement strategy, which included providing up-to-date information, involving Aboriginal peoples in how information is delivered and explaining the results of the EIS in a clear and direct manner. OPG stated that, as a result of its consultation with identified First Nations, Métis councils and organizations, no Project-specific impacts were identified for lands or resources used by Aboriginal peoples for traditional purposes or Aboriginal and treaty rights. OPG also provided a detailed overview of its prediction of potential impacts of the Project on asserted or established Aboriginal rights and/or title, and stated that there would

be no measurable change to the environment, specifically with regards to Aboriginal interests. OPG committed to continuing to engage Aboriginal groups throughout the life of the Project. OPG indicated that there was no current use of land and/or resources at the Project site, nor would the Project affect traditional land use activities.

188. Aboriginal groups that participated in the review process included:
- Alderville First Nation;
 - Hiawatha First Nation;
 - Métis Nation of Ontario;
 - Mississaugas of New Credit First Nation;
 - Saugeen Ojibway Nation (Chippewas of Nawash First Nation and Chippewas of Saugeen First Nation); and
 - Williams Treaties First Nations.
189. At the hearing, some Aboriginal groups expressed views regarding the effects of the Project on cultural heritage and resources such as the aquatic environment, migratory birds, species at risk and wildlife. Concerns were also expressed on boating security and access, the handling of accidents and nuclear waste. CNSC staff stated that the Project is not likely to result in significant adverse effects on current use of land and resources for traditional purposes by Aboriginal persons. CNSC staff stated that, based on all information received to date, CNSC staff are not aware of any adverse impacts this proposed project may have on any potential or established Aboriginal or treaty rights.
190. Regarding archaeological findings, the Williams Lake Treaty First Nations and the Mississaugas of New Credit First Nation expressed the view that OPG should consult with Aboriginal peoples on a continuous basis to ensure that Aboriginal artifacts are properly identified, taken care of and properly interpreted during site preparation. OPG committed to work closely with Aboriginal groups during site preparation, noting that it had developed a joint protocol and monitoring procedure for their next excavation. The Commission is satisfied that OPG will continue to involve Aboriginal groups in its future archaeological assessments.
191. The Métis Nation of Ontario commented on land use, urban development as a barrier to traditional species for hunting and harvesting purposes, visual impacts, and potential effects to traditional species and fish habitat. The Commission notes that submissions made by the Métis Nation of Ontario and Alderville First Nation did not identify any current traditional land use of the site and surrounding area.
192. The Saugeen Ojibway Nation noted that as no approvals were in place for the accommodation of radioactive waste from the Project at the Western Waste Management Facility and as the proposed Deep Geologic Repository had yet to receive regulatory approval, OPG should not be permitted to presume the availability of these two long-term waste management options during the operation phase of the Project. The Commission acknowledges these comments and notes that

Recommendations #52 and #53 in the EA Report require OPG to make provisions for the storage of all radioactive wastes on-site. The Government of Canada accepted the intent of these recommendations, noting that Canada's 1996 *Radioactive Waste Policy Framework* states that the owners of radioactive waste are responsible for developing and implementing solutions, including all costs associated with safely and securely managing their wastes.

193. As an agent of the Crown, it is incumbent on the Commission to ensure that its decision accords with the honour of the Crown. In assessing the applicability and adequacy of the duty to consult, the Commission must consider the particular facts of each application and determine whether the level of consultation was adequate and whether any potential accommodation falls within its mandate as defined under its enabling legislation.²⁷
194. As recognized by the Courts²⁸, the Commission is an appropriate body to determine the adequacy of the consultation.
195. The Commission is satisfied that the Aboriginal consultation, which included Aboriginal participant funding, provided sufficient notice and opportunities to Aboriginal peoples to identify their concerns and any infringement the Project could have on potential or established Aboriginal or treaty rights. The Commission is satisfied that its proceedings provided an appropriate forum in which concerns could be expressed and dealt with. The Commission has considered all of the submissions in making its decision and concluded that, taking into consideration the location of the proposed Project and proposed licence activities, together with the fact that no evidence of any current traditional land use onsite and in the surrounding areas was presented, and the mitigation measures proposed, the licensed activities will not adversely affect any potential Aboriginal interest. Under the circumstances, the Commission is satisfied that the duty to consult was adequately discharged.

Public Information Program

196. OPG provided a proposed Public Communications and Consultation Program in its application for a LTPS. OPG stated that its initial communications and consultation program was carried out in accordance with RD-346 through the EA process, and noted that the results were documented in the EIS for the Project.

²⁷ *Brokenhead Ojibway Nation et al v. Attorney General of Canada (National Energy Board) et al.*, 2009 FC 484
The Court stated that, except to the extent that Aboriginal concerns cannot be dealt with, the appropriate place to deal with project-related matters in the circumstances of the Pipeline Projects was before the NEB existing and not in some collateral discussion with either the GIC or some arguably relevant ministry.

²⁸ Record of Proceedings, McClean Lake Operation Renewal issued June 30, 2009 at par. 130 where the Commission stated that: "for project-related matters which may cause concern to rights-holders about potential impacts, which are within the authority of the Commission to address and perhaps accommodate, the Commission has the jurisdiction to deal with consultation on behalf of the Crown, and its process is the appropriate forum in which to deal with such issues." A Judicial Review of the Commission's decision was filed and in its decision (*ARG v. AGC* 2010 FC 948) the Federal Court further endorsed the Commission's view that its proceedings provide the applicant with an opportunity to understand the nature of the Decision being made and to provide input regarding any Aboriginal and Treaty rights affected.

197. On the information provided for the LTPS, CNSC staff stated that it reviewed and assessed the information provided by OPG and found the information to be satisfactory. CNSC staff noted that the proposed Public Information and Consultation Program is a planning document to give a framework on the public information material to be developed and to whom it will be addressed. CNSC staff further noted that while the proposed Public Information and Consultation Program was only an overview, it provided a solid framework and the key building blocks for implementation of the program when site preparation activities begin.
198. CNSC staff stated that OPG's proposed communications and consultation program was sufficient to meet the regulatory requirements under the NSCA and associated Regulations for the issuance of a LTPS.
199. Regarding the consultation for the environmental assessment, several participants maintained that OPG had adequately consulted the public and the municipality. They indicated that OPG provided many opportunities for the public to comment on and ask questions about the Project. Contrary to this, some participants expressed concerns that they were not consulted; some intervenors felt that OPG did not adequately consult the residents of Toronto. Some young participants stated that they were not consulted on the Project by OPG and requested that the proponent consult with youth in schools and communities. Participants stressed the importance of consultation and felt that OPG should continue to consult the public and Aboriginal people as the Project evolves.
200. The Commission notes that Recommendation #8 in the EA Report requires OPG to develop an action plan acceptable to Health Canada for days when there are air quality or smog alerts. Furthermore, Recommendation #9 in the EA Report requires OPG to develop and implement a detailed acoustic assessment, and to share this assessment with potentially affected members of the public. OPG must also have a mechanism in place to respond to noise complaints. The Government of Canada accepted both of these recommendations. As such, the Commission expects OPG to include this information in its Public Communications and Consultation Program throughout the site preparation phase.
201. The Commission notes that under licence condition 10.5, OPG's public information program must be in compliance with CNSC Regulatory Document RD/GD-99.3²⁹, which was published in March 2012. The Commission further notes that RD/GD-99.3 includes requirements to develop a public disclosure protocol, including environmental monitoring reports, and include a program evaluation and improvement process. The Commission is of the view that OPG's proposed Public Communications and Consultation Program would need to be revised in order to meet the new requirements, but is of the view that the program already submitted with the application for a LTPS provides an adequate basis to demonstrate that OPG will be able to meet the new requirements. The Commission also expects OPG to expand its target audience to include youth and residents of Toronto.

²⁹ RD/GD-99.3: Public Information and Disclosure, March 2012.

202. Based on this information, the Commission is satisfied that OPG's public information program meets regulatory requirements and will be effective in keeping the public informed on the site preparation activities.

Cost Recovery

203. CNSC staff stated that OPG is subject to Part 2 of the *CNSC Cost Recovery Fees Regulations*³⁰ and that fees are normally charged on an annual basis and paid by the licensee on a quarterly basis. CNSC staff noted that while it was not specifically addressed in the licence application, OPG has consistently paid its cost recovery fees in full for the licence application, as well as for its other CNSC licensed nuclear facilities. CNSC staff stated that, based on OPG's previous performance, there is no concern regarding future payments of cost recovery fees.
204. Based on the above information, the Commission is satisfied that OPG will continue to meet its obligations under the *CNSC Cost Recovery Fees Regulations*.

Preliminary Decommissioning Plan and Financial Guarantee

Preliminary Decommissioning Plan

205. The September 30, 2009 OPG Application for a LTPS included a detailed preliminary decommissioning plan and cost estimate for the activities contemplated in the licence application. The restoration work was intended to restore the site to a brownfield state rather than returning the Project site to its pre-existing condition. The proposed restoration activities were intended to be triggered if a decision was made not to construct a new nuclear station at the site, and were estimated to cost \$86.2 million in 2009 dollars, including a 30 percent contingency.
206. In October 2010, OPG submitted a revised preliminary decommissioning plan (PDP) that reflected that no decommissioning work would be required under the proposed LTPS, as there was no nuclear material associated with the LTPS. OPG explained that the site would be maintained in the condition to which it had been prepared and used in support of the existing licensed facilities and, consequently, there would be no costs associated with decommissioning. CNSC staff stated that it reviewed and accepted OPG's October 12, 2010 letter, which would serve in lieu of the original PDP that OPG had previously submitted on the basis that no decommissioning work will be required under the LTPS.

³⁰ SOR/2003-212.

207. CNSC staff noted that an updated PDP would be required once a reactor technology is specified. CNSC staff stated that it would review and assess the updated preliminary decommissioning plan for compliance with Canadian Standards Association Standard N294-09³¹ and Regulatory Guide G-219³². CNSC staff noted that it had reviewed the original PDP and found that it contained the majority of the elements required in G-219 but found that there were areas for improvement that should be addressed in the next version of the PDP, such as increased clarity on the rationale for the preferred decommissioning strategy and further details needed on alternative decommissioning strategies and their assessments. OPG stated that it would provide the updated preliminary decommissioning plan in accordance with N294-09 and Regulatory Guide G-219 if it were to apply for an amendment to the LTPS to allow for more substantive site preparation work to proceed once a reactor technology is specified.
208. The Commission notes that Recommendation #6 in the EA Report recommended that OPG be required to update its preliminary decommissioning plan for site preparation in accordance with the requirements of Canadian Standards Association (CSA) Standard N294-09, incorporating the rehabilitation of the site to reflect the existing biodiversity in the event that the Project does not proceed beyond the site preparation phase. The Government of Canada accepted the intent of the recommendation. In addition, Recommendation #6 required OPG to prepare a detailed preliminary decommissioning plan once a reactor technology is chosen for the site. The Government of Canada accepted this recommendation.
209. The Commission is satisfied that the proposed preliminary decommissioning plan is acceptable for the purpose of the current application for a LTPS.

Financial Guarantee

210. The Commission requires that licensees have operational plans for decommissioning and long-term management of waste produced during the life-span of the facility. In order to ensure that adequate resources are available for a safe and secure future decommissioning of the Darlington Nuclear 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.
211. Paragraph 3(1)(l) of the *General Nuclear Safety and Control Regulations* stipulates that an application for a licence shall contain, in addition to other information, “a description of any proposed financial guarantee relating to the activity to be licensed”.

³¹ Canadian Standards Association Standard N294-09, Decommissioning of facilities containing nuclear substances (2009)

³² Canadian Nuclear Safety Commission Regulatory Guide G-219: Decommissioning Planning for Licensed Activities (June 2000)

212. In its revised PDP from October 2010, OPG proposed that the financial guarantee for site preparation be valued at \$0.00. OPG stated that it would propose an appropriate financial guarantee in accordance with decommissioning financial liabilities once a reactor technology has been selected.
213. CNSC staff stated that it reviewed and accepted the proposal from OPG, noting that OPG will be required to update the PDP and cost estimate in accordance with CNSC regulatory guidance documents G-219 and G-206³³.
214. Regarding the \$0.00 decommissioning financial guarantee for the site preparation phase, the EA Report stated that if substantive site preparation works were in place that would result in a decommissioning liability such as lake infill, removal of the bluff or construction of a wharf, then rehabilitation funds should be set aside in the event that the Project does not go ahead.
215. The Commission notes that Recommendation #7 in the EA Report recommended that prior to site preparation, the CNSC require that OPG establish a decommissioning financial guarantee containing sufficient funds for the rehabilitation of the site in the event the Project does not proceed beyond the site preparation stage. The Government of Canada accepted the intent of this recommendation. The Government response noted that the financial guarantee must be sufficient to cover the cost of decommissioning work outlined in the preliminary decommissioning plan referenced in Recommendation #6.
216. CNSC staff stated that OPG's proposed financial guarantee for the activities to be licensed is acceptable and meets the regulatory requirements under the NSCA for the issuance of a LTPS.

Conclusion on Preliminary Decommissioning Plan and Financial Guarantee

217. Based on this information, the Commission is of the view that the preliminary decommissioning plan and related financial guarantee are, at present, acceptable for the purpose of the application for a LTPS. Further, the Commission is satisfied that the preliminary decommissioning plan and related financial guarantee will be reviewed regularly and amended appropriately as the Project progresses through its various phases.

Application of the Canadian Environmental Assessment Act

218. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act*³⁴ (CEAA) have been fulfilled.

³³ CNSC Regulatory Guide G-206, Financial Guarantees for the Decommissioning of Licensed Activities, June 2000.

219. In June 2006, the CNSC determined that the licensing action for the Project is prescribed on the *Law List Regulations*³⁵, and required the application of the CEAA. The CNSC established that the Project was of a type described in the *Comprehensive Study List Regulations*³⁶.
220. On March 20, 2008, following a request by the President of the CNSC, the federal Minister of the Environment announced referral of the Project for an environmental assessment by a review panel pursuant to the CEAA. The Joint Review Panel under the CEAA and the NSCA was established by the Minister of the Environment and the President of the CNSC on October 30, 2009 to undertake the review of the proposed project. The role of the Joint Review Panel was to evaluate information related to the environmental assessment, as well as consider information submitted by OPG in support of its Application for a LTPS.
221. On August 25, 2011 the Joint Review Panel submitted its environmental assessment report, which included recommendations and conclusions, to the Minister of the Environment. The EA Report concluded that the Project was not likely to cause significant adverse environmental effects, provided that the mitigation measures proposed and commitments made by OPG during the review and the EA Report recommendations are implemented.
222. On May 2, 2012, the Government of Canada published its response to the EA Report. In its response, the Government of Canada “accepted” or “accepted the intent” of all of the recommendations to federal government departments. The Government of Canada concluded that the Project is not likely to cause significant adverse environmental effects, taking into consideration the EA Report and the implementation of any mitigation measures that the responsible authorities consider appropriate.
223. Based upon the above assessment, the Commission is satisfied that the requirements for an environmental assessment under the CEAA for OPG’s application for a licence have been met.

Licence Term and Licence Conditions

224. OPG has applied to the CNSC for a 10-year LTPS. CNSC staff recommended that the Commission accept and grant the proposed 10-year term. CNSC staff stated that OPG is qualified to conduct the licensed activities for the proposed licence period, and that there is adequate management and oversight in place for all processes.

³⁴ S.C. 1992, c. 37.

³⁵ SOR/94-636.

³⁶ SOR/94-638.

225. The physical activities to be encompassed by the LTPS include:
- construction of access control measures;
 - clearing and grubbing of vegetation;
 - excavation and grading of the site excavation and grading of the site to a finished elevation of +78 masl (metres above sea level);
 - installation of services and utilities (domestic water, fire water, sewage, electrical, communications, natural gas) to service the future nuclear facility (from the point at which the equipment connects to equipment that serves the general purpose);
 - development of administrative and physical support facilities inside the future protected area;
 - construction of environmental monitoring and mitigation systems; and
 - construction of flood protection and erosion control measures.
226. CNSC staff included a proposed LTPS and Licence Conditions Handbook (LCH) in Part Two of CMD 11-P1.2. CNSC staff noted that because its review and assessment of OPG's application for a LTPS was performed concurrently with the review of OPG's Environmental Impact Statement (EIS), the proposed LTPS and LCH could not include the consideration of the Government of Canada's response to the EA Report. As such, CNSC staff provided the Commission with a revised LTPS and LCH following the Government of Canada's response to the EA Report in May 2012. CNSC staff noted that the activities authorized under the proposed LTPS did not change from the version originally proposed in CMD 11-P1.2. CNSC staff stated that the proposed LTPS and LCH reflected the results of the process required under the CEAA. CNSC staff also noted that the CNSC recently introduced certain standardized licence conditions applicable to the proposed LTPS and LCH that were not included in CMD 11-P1.2.
227. In addition to the licence, CNSC staff provided information regarding the Licence Conditions Handbook, which consolidates compliance verification criteria for the licence. CNSC staff noted that the Licence Conditions Handbook is specific to each individual facility.
228. The Commission noted that many documents referenced in the LCH have not yet been finalized and questioned when they would be completed. Some intervenors, including Lake Ontario Waterkeeper, also expressed concerns in this regard. OPG explained that although not all of the documents would be available at the time that the license is awarded, OPG would have all of them in place before it commences any licensed activities. CNSC staff stated that it was satisfied that OPG had provided sufficient information for the LTPS, and noted that CNSC staff would continue to execute regulatory oversight activities to ensure that the documentation necessary for site preparation meets or exceeds regulatory requirements and is in place prior to the commencement of the licensed activities. CNSC staff explained that the documents would reflect the conclusions and recommendations of the EA Report and Government Response. The Commission is satisfied that this is the case.

229. The Commission enquired about the proposed licence activity pertaining to the construction of flood protection and erosion control measures. CNSC staff responded that OPG could not perform any in-water works on the shoreline or in-land without authorization from DFO for activities destroying or disrupting fish habitat and for destruction of fish by means other than fishing pursuant to Sections 35 and 32 of the *Fisheries Act*, respectively. CNSC staff noted that OPG will also require approval from the Ontario Ministry of Natural Resources to purchase Crown Land under the *Public Lands Act*³⁷ in the bed of Lake Ontario. CNSC staff further noted that approvals from DFO and the Ontario Ministry of Natural Resources would require that OPG have selected a cooling water technology for the project.
230. The Commission notes that Recommendations #12 and 13 in the EA Report stipulate activities that must be completed prior to any in-water works. The Government of Canada accepted Recommendation #12 as written, and the intent of #13, noting that an authorization under the *Fisheries Act* would also be required prior to any in-water works.
231. The Commission also reiterates Recommendation #5 in the EA Report, which states that in order to avoid any unnecessary environmental damage to the bluff at Raby Head and fish habitat, no bluff removal or lake infill may occur during the site preparation stage unless a reactor technology has been selected and there is certainty that the Project will proceed. The Government of Canada accepted this recommendation.
232. The Commission also notes the Government of Canada's response to Recommendation #3 in the EA Report, which requires that OPG undertake a formal quantitative cost-benefit analysis for cooling tower and once-through condenser cooling water systems as part of the application for a Licence to Construct. The Government of Canada accepted the intent of the recommendation and noted that this analysis may be required earlier, given the relationship between site layout and the choice of the condenser cooling technology.
233. The Commission sought clarification regarding the proposed licensed activity of installation of services and utilities. CNSC staff responded that since no reactor technology had been chosen, the work could only be done in a generic manner. CNSC staff explained that this could include site services for work crews and administrative buildings. A representative from OPG confirmed that the installation of services and utilities would be independent of the reactor design for the site.
234. The Commission enquired about the reporting requirements for the licence. CNSC staff responded that, under the proposed licence, OPG would be required to provide an annual report to the CNSC. CNSC staff further stated that OPG will also be required to submit an annual report on the environmental assessment follow-up program to the Canadian Environmental Assessment Agency. CNSC staff noted that this annual report would be made available on the Canadian Environmental

³⁷ R.S.O. 1990, c. P.43

Assessment Agency Web site. CNSC staff also noted that there are reporting requirements for events that have to be reported under the NSCA. CNSC staff further noted that members of the public would have an opportunity to comment on the presentation of the CNSC's annual *CNSC Staff Integrated Safety Assessment of Canadian Nuclear Power Plants*, which is presented at a public meeting of the Commission.

235. The Commission accepts the proposed reporting requirements from CNSC staff, including the presentation of the CNSC's annual *CNSC Staff Integrated Safety Assessment of Canadian Nuclear Power Plants*. In addition, the Commission directs OPG and CNSC staff to prepare more detailed mid-term reports on the conduct of the licensed activities and the implementation status of commitments made during the environmental assessment, taking into account the findings of the CNSC Fukushima Task Force. The CNSC staff report should also include detailed information on the control of land use around the site over the operating life of the nuclear generating station, as well as on the environmental monitoring and follow-up program.
236. CNSC staff proposed that the LTPS include a licence condition that requires OPG to implement the applicable recommendations of the EA Report in accordance with the Government of Canada response. The Commission accepts this licence condition and stresses its importance in ensuring that the potential environmental effects of the Project are mitigated.

Delegation of Authority

237. For licence conditions within the PRSL 18.00/2021 that stipulate "person authorized by the Commission", CNSC staff proposed that the delegation of authority by the Commission to act as a "person authorized by the Commission" applies to the incumbents of the following positions:
- Director, New Major Facilities Licensing Division;
 - Director General, Directorate of Regulatory Improvement and New Major Projects Management; and,
 - Executive Vice President and Chief Regulatory Operations Officer, Regulatory Operations Branch.
238. The Commission accepts CNSC staff's recommendation regarding the delegation of authority, and notes that it can bring any matter to the Commission as applicable.

Conclusion on Licence Term and Licence Conditions

239. Based on the above information and considerations, the Commission is satisfied that a 10-year licence with a mid-term report is appropriate. 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.

Conclusion

240. The Commission has considered the information and submissions of CNSC staff, OPG and all participants as set out in the material available for reference on the record and in-camera, as well as the oral and written submissions provided or made by the participants at the hearing and in their final written comments.
241. The Commission concludes that the requirements for an environmental assessment of the proposed operation of the facility pursuant to the *Canadian Environmental Assessment Act* have been met.
242. The Commission is satisfied that OPG meets the requirements of 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 activities 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.
243. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, issues Nuclear Power Reactor Site Preparation Licence PRSL 18.00/2022 to Ontario Power Generation Inc. for its Darlington Nuclear Site located in the Municipality of Clarington, Ontario. The licence is valid from August 17, 2012 to August 17, 2022.
244. The Commission includes the conditions proposed by CNSC staff in the licence. No bluff removal or lake infill can occur unless a reactor technology has been selected and there is certainty that the Project will proceed. In addition, in-water works on the shoreline or in-land will require an authorization from Fisheries and Oceans Canada (DFO) for activities destroying or disrupting fish habitat and for destruction of fish by means other than fishing pursuant to Section 35 and 32 of the *Fisheries Act*³⁸, respectively. OPG will also require approval from the Ontario Ministry of Natural Resources to purchase Crown Land under the *Public Lands Act*³⁹ in the bed of Lake Ontario.
245. Furthermore, the Commission notes that OPG must perform a thorough evaluation of site layout opportunities before site preparation activities can begin, in order to minimize the overall effects on the terrestrial and aquatic environments and maximize the opportunity for quality terrestrial habitat rehabilitation. In addition, OPG must undertake a formal quantitative cost-benefit analysis for cooling tower and once-through condenser cooling water systems as part of the application for a Licence to Construct. This analysis may be required earlier, however, given the relationship between site layout and the choice of the condenser cooling technology.

³⁸ R.S.C., 1985, c. F-14.

³⁹ R.S.O. 1990, c. P.43

246. The Commission directs OPG to prepare a mid-term report on the conduct of the licensed activities and the implementation status of commitments made during the environmental assessment. This report should also take into account the findings of the CNSC Fukushima Task Force.
247. The Commission also directs CNSC staff to prepare a report on the results of compliance activities carried out during the first half of the licence term and on the licensee's performance during that period. The CNSC staff report should also include detailed information on the control of land use around the site over the operating life of the nuclear generating station, as well as on the environmental monitoring and follow-up program.
248. OPG and CNSC staff shall present their mid-term reports at a public proceeding of the Commission in approximately September 2017. The Commission also directs CNSC staff to present annual updates to the Commission as a part of the annual *CNSC Staff Integrated Safety Assessment of Canadian Nuclear Power Plants*.
249. The Commission notes that it heard many views from intervenors regarding future licensing stages, particularly regarding the Licence to Construct and Licence to Operate, that were not necessarily applicable to the LTPS, which is limited in activity and scope. The Commission encourages intervenors to participate in the CNSC process for the future licensing stages of the Project. Furthermore, the Commission notes that it expects that the conclusions and recommendations of the EA Report and Government Response will continue to be upheld and incorporated into any future licensing requirements.



Alan R. Graham
Chair, Joint Review Panel
Canadian Nuclear Safety Commission

AUG 17 2012

Date

Appendix A – Intervenors

Intervenor	Document Number
Municipality of Clarington, represented by A. Foster	PMD 11-P1.15 PMD 11-P1.15A PMD 11-P1.15B
John O’Toole, M.P.P.	PMD 11-P1.18
Rob Evans	PMD 11-P1.19
Alan Gerth	PMD 11-P1.20
Vlado Karan	PMD 11-P1.21
Doug Goodman	PMD 11-P1.22
Eric Jelinski	PMD 11-P1.23
Pat Pingle	PMD 11-P1.24
Lorne Almack	PMD 11-P1.25
Angela Palladino	PMD 11-P1.26
Mitch Backx	PMD 11-P1.27
Gary Hauser	PMD 11-P1.28
Terry Turcotte	PMD 11-P1.29
Tahir Iqbal	PMD 11-P1.30
Tim Fry	PMD 11-P1.31
Mira Pavan	PMD 11-P1.32
Richard Denton	PMD 11-P1.33
Brian Beare	PMD 11-P1.34
Donna Topping	PMD 11-P1.35
Dan Young	PMD 11-P1.36
James Araujo	PMD 11-P1.37
Mike Schleiffer	PMD 11-P1.38
Scott Thomson	PMD 11-P1.39
Daniel Gravelle	PMD 11-P1.40
Randy Blake	PMD 11-P1.41
James Carmichael	PMD 11-P1.42
Michael Wang	PMD 11-P1.43
Hugh Gillies	PMD 11-P1.44
John Mark Robertson	PMD 11-P1.45
Mark DeWolfe	PMD 11-P1.46
Neil Dobson	PMD 11-P1.47 PMD 11-P1.47A
Kathryn Barnes	PMD 11-P1.48
Konrad Szymanowski	PMD 11-P1.49
Phyllis Ketcheson	PMD 11-P1.50
Joy Vaneyk	PMD 11-P1.51
Kurt Koster	PMD 11-P1.52
Muhammed Saleem	PMD 11-P1.53
Mathieu Gravel	PMD 11-P1.54

Intervenor	Document Number
Dariusz Kulczynski	PMD 11-P1.55
Daniela Kulczynska	PMD 11-P1.56
Ian McIntosh	PMD 11-P1.57
Cuttler and Associates Inc.	PMD 11-P1.58 PMD 11-P1.58A
Karen Wright	PMD 11-P1.59
Fritz Lehmberg	PMD 11-P1.60
Sanjin Zeco	PMD 11-P1.61
Lisa Grande	PMD 11-P1.62
Rick Patenaude	PMD 11-P1.63
Khalid Malik	PMD 11-P1.64
Dwayne Ellis	PMD 11-P1.65
Eva Kralits	PMD 11-P1.66
United Church Canada, represented by V. Obedkoff	PMD 11-P1.67 PMD 11-P1.250
Polad Zahedi	PMD 11-P1.68
Zeina Rachele	PMD 11-P1.69
Peter Smith	PMD 11-P1.70
Don Ross	PMD 11-P1.71
Tanya Szablowski	PMD 11-P1.72
Pierrette LeBlanc	PMD 11-P1.73
Bev Oda	PMD 11-P1.74
Michael Pugh	PMD 11-P1.75
Pickering Nuclear Community Advisory Council, represented by J. Vincett, J. Dike, C. Freeburn, J. Earley	PMD 11-P1.76 PMD 11-P1.76A
Josh Snider	PMD 11-P1.77
East Toronto Climate Action Group	PMD 11-P1.78
Samer Zabana	PMD 11-P1.79
George Karpal	PMD 11-P1.80
Graham Ketcheson	PMD 11-P1.81
Joe Dickson, MPP Ajax-Pickering	PMD 11-P1.82
Canadian Association of Physicians for the Environment, represented by Dr. Gideon Forman	PMD 11-P1.83 PMD 11-P1.83A
Frithjof Lutscher	PMD 11-P1.84
Durham College	PMD 11-P1.85
Elaine Hughes	PMD 11-P1.86 PMD 11-P1.86A
Whitby Chamber of Commerce, represented by G. Auchincloss	PMD 11-P1.87 PMD 11-P1.87A
Heather Ross	PMD 11-P1.88
A. Carol Anderson	PMD 11-P1.89
Saad Dahdouh	PMD 11-P1.90
Jan Heynen	PMD 11-P1.91
Susan Schellenberg	PMD 11-P1.92

Intervenor	Document Number
Mandy Newby	PMD 11-P1.93
Mélanie Beaudoin	PMD 11-P1.94
Kirk D. Clark	PMD 11-P1.95
Mary Everett	PMD 11-P1.96
Krista Murphy	PMD 11-P1.97
Shirley McCormick	PMD 11-P1.98
Walter Robbins	PMD 11-P1.99
Kristin Kagerer	PMD 11-P1.100
Alexandra Gilbert	PMD 11-P1.101
Jay Macpherson	PMD 11-P1.102
Tim Seitz	PMD 11-P1.103
Safe and Green Energy (SAGE), represented by R. Brady, J. Etches	PMD 11-P1.104 PMD 11-P1.104A PMD 11-P1.104B
Environment North	PMD 11-P1.105 PMD 11-P1.105A
Derek Mitchell	PMD 11-P1.106
William Shore	PMD 11-P1.107
Helen Caldicott	PMD 11-P1.108
Dan Rudka	PMD 11-P1.109 PMD 11-P1.109A
Marlene Khalil	PMD 11-P1.110
Bruce Tanaka	PMD 11-P1.111
Mary Chi	PMD 11-P1.112
Peter Tabuns, MPP	PMD 11-P1.113
Raymond Leistner	PMD 11-P1.114 PMD 11-P1.114A
Atomic Energy of Canada Limited (AECL)	PMD 11-P1.115
Canadian Environmental Law Agency (CELA), represented by T. McClenaghan	PMD 11-P1.116 PMD 11-P1.116A
Municipality of Kincardine, represented by L. Kraemer	PMD 11-P1.117 PMD 11-P1.117A
Mark Holland, MPP	PMD 11-P1.118
Daniel Côté	PMD 11-P1.119
Angela Bischoff	PMD 11-P1.120
Canadian Manufacturers & Exporters	PMD 11-P1.121 PMD 11-P1.121A
Debra Mair	PMD 11-P1.122
Cottagers Against Uranium Mining and Exploration, represented by S. Lauten	PMD 11-P1.123
Ajax-Pickering Board of Trade	PMD 11-P1.124 PMD 11-P1.124A
Anca McGee	PMD 11-P1.125
Janet Gregor	PMD 11-P1.126

Intervenor	Document Number
Janine Carter	PMD 11-P1.127
Karen King	PMD 11-P1.128
Deborah Wiggins	PMD 11-P1.129
Liz Miller	PMD 11-P1.130
Marcel Jetté	PMD 11-P1.131
France Benoit	PMD 11-P1.132
Peter Moore	PMD 11-P1.133
Barbara Muller	PMD 11-P1.134
Erwin Dreesen	PMD 11-P1.135
Gail Cockburn	PMD 11-P1.136
Tony McQuail	PMD 11-P1.137
Steve Lapp	PMD 11-P1.138
Northwatch, represented by B. Lloyd	PMD 11-P1.139 PMD 11-P1.139D PMD 11-P1.139E
Northwatch – John Jackson	PMD 11-P1.139A
Northwatch – Kevin Kamps	PMD 11-P1.139B
Northwatch – Peter Roche and Rachel Western	PMD 11-P1.139C
Trevor Chow Fraser	PMD 11-P1.140
Bob Stuart	PMD 11-P1.141
Ontario Nuclear New Build Council, represented by J. Mutton	PMD 11-P1.142
Siegfried (Ziggy) Kleinau	PMD 11-P1.143
Tom Mayberry	PMD 11-P1.144
University of Ontario Institute of Technology, represented by R. Marceau	PMD 11-P1.145
St. Marys Cement Inc.	PMD 11-P1.146 PMD 11-P1.146A
Power Workers' Union, represented by D. McKinnon	PMD 11-P1.147 PMD 11-P1.147A PMD 11-P1.147B
Lorraine Rekmans, Aboriginal Affairs and Critic for the Green Party of Canada	PMD 11-P1.148
Physicians for Global Survival, represented by S. Baker	PMD 11-P1.149
Jim Penna	PMD 11-P1.150
Municipality of Port Hope, represented by L. Thompson	PMD 11-P1.151 PMD 11-P1.151A
Phyllis Creighton	PMD 11-P1.152
Canadian Nuclear Workers' Council (CNWC), represented by D. Shier, P. Widmeyer, C. Levitt, J. Usher	PMD 11-P1.153 PMD 11-P1.153A PMD 11-P1.153B
National Farmers Union Waterloo/Wellington Local	PMD 11-P1.154
Scientist in School	PMD 11-P1.155
Abuzafar Ali	PMD 11-P1.156
Victor Trifan	PMD 11-P1.157
Just One World, represented by C. Kalevar	PMD 11-P1.158

Intervenor	Document Number
	PMD 11-P1.158A PMD 11-P1.158B
Williams Treaties First Nations, represented by Chief Marsden	PMD 11-P1.159
Bruce Peninsula Environment Group	PMD 11-P1.160
Black & McDonald	PMD 11-P1.161
University Network of Excellence in Nuclear Engineering	PMD 11-P1.162 PMD 11-P1.162A
Organization of CANDU Industries, represented by D. Marinacci, R. Brown	PMD 11-P1.163 PMD 11-P1.163A
Lake Ontario Waterkeeper, represented by M. Mattson	PMD 11-P1.164 PMD 11-P1.164A PMD 11-P1.164B
Jean Johnston	PMD 11-P1.165
Paul York	PMD 11-P1.166
Society of Professional Engineers and Associates, represented by P. White	PMD 11-P1.167 PMD 11-P1.167A PMD 11-P1.167B
Promation Nuclear Ltd., represented by M. Zimny	PMD 11-P1.168
Sierra Club Canada, represented by J. Bennett, K. Jackson	PMD 11-P1.169
Green Party of Ontario, represented by M. Schreiner	PMD 11-P1.170
Janet McNeil	PMD 11-P1.171 PMD 11-P1.171A
Canadian Nuclear Association, represented by D. Carpenter	PMD 11-P1.172 PMD 11-P1.172A PMD 11-P1.172B
Commucity Coalition Against Mining Uranium, represented by W. Erlichman	PMD 11-P1.173
Families Against Radiation (FARE), represented by S. Haskill	PMD 11-P1.174
Ruxandra Gheorghe	PMD 11-P1.175
Yatin Nayak	PMD 11-P1.176
Environmental Coalition of PEI	PMD 11-P1.177 PMD 11-P1.177A
Sharon Howarth	PMD 11-P1.178 PMD 11-P1.178A
Julia Morgan	PMD 11-P1.179
Arunkumar Dalaya	PMD 11-P1.180
Sean McConnell	PMD 11-P1.181
Louis Bertrand	PMD 11-P1.182
Marion Copleston	PMD 11-P1.183
Robert Williams	PMD 11-P1.184
Pickering East Shore Community Association, represented by K. Falconer	PMD 11-P1.185 PMD 11-P1.185A
Robert C. Azzopardi	PMD 11-P1.186
Jeff Brackett	PMD 11-P1.187

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The Society of Energy Professionals, represented by R. Sheppard	PMD 11-P1.188 PMD 11-P1.188A
Nuclear Information and Resource Service, represented by D. D'Arrigo	PMD 11-P1.189
David Huntley	PMD 11-P1.190
Rena Ginsberg	PMD 11-P1.191
Keith Falconer	PMD 11-P1.192
Lynn Jacklin	PMD 11-P1.193
Ira Rabinovitch	PMD 11-P1.194
Kelly White	PMD 11-P1.195
North American Young Generation in Nuclear, represented by S. Lagan, S. Mustafa, B. Peck, L. Lees, L. Corkum, A. Gharakhanian	PMD 11-P1.196 PMD 11-P1.196A PMD 11-P1.196B
Clarington Board of Trade, represented by S. Hall, R. Henry, R. Yeremian, J. Shaw	PMD 11-P1.197 PMD 11-P1.197A PMD 11-P1.197B
Jack Goering	PMD 11-P1.198 PMD 11-P1.198A
Dorothy Goldin Rosenberg	PMD 11-P1.199 PMD 11-P1.199A
Métis Nation of Ontario	PMD 11-P1.200
Registered Nurses' Association of Ontario, represented by D. Grinspun, R. Milling	PMD 11-P1.201
Regional Municipality of Durham, represented by Gary Cubitt	PMD 11-P1.202 PMD 11-P1.202A PMD 11-P1.202B
Canadian Unitarians for Social Justice, represented by M. Rao, F. Deverell	PMD 11-P1.203 PMD 11-P1.203A
Suzanne Crellin	PMD 11-P1.204
Ruth di Giovanni	PMD 11-P1.205
Jay Cuthberston	PMD 11-P1.206
Nadine Hawkins	PMD 11-P1.207
Wayne Arthurs, MPP	PMD 11-P1.208
Janet Kuzniar	PMD 11-P1.209
Citizens Against Radioactive Generators in Owen Sound, represented by S. Skelly	PMD 11-P1.210
Richard Troy	PMD 11-P1.211
Saugeen Ojibway Nation, represented by R. Kahgee, P. Jones, A. Monem	PMD 11-P1.212 PMD 11-P1.212A
Pembina Institute, represented by T. Weis	PMD 11-P1.213 PMD 11-P1.213A
Maryann Emery	PMD 11-P1.214
Raihan Khondker	PMD 11-P1.215
Brett Dolter	PMD 11-P1.216
Justin Cole	PMD 11-P1.217

Intervenor	Document Number
Tom Lawson	PMD 11-P1.218
Brenda Thompson	PMD 11-P1.219 PMD 11-P1.219A
Kathleen Chung	PMD 11-P1.220
Greenpeace, represented by S.P. Stensil	PMD 11-P1.221 PMD 11-P1.221A PMD 11-P1.221B
Wanda Ewachow	PMD 11-P1.222
Dragana Zivkovic	PMD 11-P1.223
Peter Shepherd	PMD 11-P1.224
Hamish Wilson	PMD 11-P1.225
International Institute of Concern for Public Health (IICPH), represented by A. Tilman, G. Albright	PMD 11-P1.226 PMD 11-P1.226A PMD 11-P1.226B
David Faltenhine	PMD 11-P1.227
Liliana Manolache	PMD 11-P1.228
Amanda Lickers	PMD 11-P1.229
Jason Melnychuk	PMD 11-P1.230
Martin Tessier	PMD 11-P1.231
Mouvement Vert Mauricie, represented by M. Duguay, G. Edwards	PMD 11-P1.232 PMD 11-P1.232A
Ahmad Osgouee	PMD 11-P1.233
Donald J. Kerr	PMD 11-P1.234 PMD 11-P1.234A
Stephen Cornwell	PMD 11-P1.235
Ahmed Hafez	PMD 11-P1.236
Mississauga of the New Credit First Nation, represented by C. King	PMD 11-P1.238
Jim McLellan	PMD 11-P1.239
Siamak Nikzadeh	PMD 11-P1.240
Robert Smith	PMD 11-P1.241
George Biro	PMD 11-P1.242
Port Hope Community Health Concerns Committee (PHCHCC), represented by F. Moore, P. Lawson	PMD 11-P1.243 PMD 11-P1.243A
Dianne Knight	PMD 11-P1.244 PMD 11-P1.244A PMD 11-P1.244B
Zach Ruiter	PMD 11-P1.245 PMD 11-P1.245A
Pacific Northwest National Laboratory, represented by E. Hickey, L. Vail, R. Krieg	PMD 11-P1.246 PMD 11-P1.246A
Ian Cameron	PMD 11-P1.247
Canadian Association of Nuclear Host Communities, represented by D. Ryan	PMD 11-P1.248
Darlene Buckingham	PMD 11-P1.249

Intervenor	Document Number
Michael and Andrew Polanyi	PMD 11-P1.251
Durham Strategic Energy Alliance, represented by M. Angemeer, J. Hoornweg	PMD 11-P1.252
City of Pickering, represented by D. Ryan	PMD 11-P1.253
Natalia Moudrak	PMD 11-P1.254
Ontario Sustainable Energy Association, represented by C. Chopik	PMD 11-P1.255
Karen Buck	PMD 11-P1.256
David Done	PMD 11-P1.257
Gordon Edwards	PMD 11-P1.258
Provincial Council of Women of Ontario, represented by G. Janes	PMD 11-P1.259
Cecilia Fernandez (Clean North)	Oral Statement
Jim Abernathy	Oral Statement
Carrie Lester	Oral Statement
Paul Gervan	Oral Statement
York University Faculty of Environmental Studies, represented by J. Etcheverry	Oral Statement
Libby Racansky	Oral Statement
Jim Harris	Oral Statement
Matthew Davidson	Oral Statement
Eryn Wheatley	Oral Statement
Linda Harvey	Oral Statement
Adam Burns	Oral Statement
Paul-André Larose	Oral Statement
Greater Oshawa Chamber of Commerce, represented by B. Malcolmson	Oral Statement
Transition Oakville Steering Committee, represented by H. Jansson	Oral Statement
Grant Orchard	Oral Statement
Olga Kremko	Oral Statement
The Blacklab (J. Gibson)	Oral Statement
Stephanie Rutherford	Oral Statement
Bill Donnelly (Crossby Dewar Inc.)	Oral Statement
Durham CLEAR (Citizens Lobby for Environmental Awareness), represented by D. Anderson	Oral Statement
Julia McCrea	Oral Statement