

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Ontario Power Generation Inc.

Subject Application to Construct Two Refurbishment
Waste Storage Buildings and a Low-Level
Waste Storage Building at the Western Waste
Management Facility at the Bruce Nuclear Site

Date April 11, 2006

RECORD OF PROCEEDINGS

Applicant: Ontario Power Generation Inc.

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

Purpose: Application to construct two Refurbishment Waste Storage Buildings and a Low-Level Waste Storage Building at the Western Waste Management Facility at the Bruce Nuclear Site, Kincardine Ontario

Application received: N/A

Date(s) of hearing: March 17, 2006

Location: Canadian Nuclear Safety Commission (CNSC), 280 Slater St., Ottawa, Ontario

Member present: L.J. Keen, Chair
A.R. Graham
M. J. McDill

Secretary: M.A. Leblanc
Recording Secretary: P. Bourassa
General Counsel: J. Lavoie

Applicant Represented By	Document Number
<ul style="list-style-type: none">• K. Mombourquette, Director, Nuclear Waste Operations;• Dr. A. Khan, Manager, Safety Assessment and Licensing; and• F. King, Director, Nuclear Waste Engineering and Technology	CMD 06-H106.1
CNSC staff	Document Number
<ul style="list-style-type: none">• G. Lamarre• K. Klassen• B. Lojk	CMD 06-H106

Licence: Amended
Date of Decision: March 17, 2006

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Introduction

1. Ontario Power Generation Inc. (OPG) applied to the Canadian Nuclear Safety Commission (CNSC¹) for a licence amendment to permit the construction of two Refurbishment Waste Storage Buildings (RWSB) and the construction of an additional Low Level Storage Building (LLSB #10) at the Western Waste Management Facility (WWMF) at the Bruce Nuclear Site in the Municipality of Kincardine, Ontario.
2. The WWMF is a Class IB Nuclear Facility consisting of the Western Low and Intermediate Level Waste Storage Facility and the Western Used Fuel Dry Storage Facility. The proposed construction would take place within the Western Low and Intermediate Level Waste Storage Facility area which is used for the receipt, processing and storage of radioactive waste. The two proposed RWSBs would provide storage space for the radioactive wastes expected to be generated during Bruce Power Inc.'s planned refurbishment of Units 1 and 2 at the Bruce A Nuclear Generating Station. The proposed LLSB #10 would add to the existing capacity for on-going low-level waste arising from the operations at Bruce A and B, Pickering A and B, and Darlington Nuclear Generating Stations.

Issues:

3. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*² (NSCA):
 - a) if OPG is qualified to carry on the activity that the amended licence would authorize; and
 - b) if, in carrying on that activity, OPG would make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

Hearing:

4. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to hear the application.
5. The Panel of the Commission (hereafter referred to as the Commission), in making its decision, considered information presented for a hearing held on March 17, 2006 in Ottawa, Ontario. The hearing was conducted in accordance with Rule 3 of the *Canadian Nuclear Safety Commission Rules of Procedure*³. In establishing the process, a standing panel on procedural matters determined that it was not necessary to hold a public hearing on the matter. During the hearing,

¹ In this *Record of Proceedings*, 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 S.C. 1997, c. 9

³ SOR/2000-211

the Commission received written submissions from CNSC staff (CMD 06-H106) and OPG (CMD 06-H106.1).

Decision

6. 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 activity that the amended licence will authorize. The Commission is also satisfied that OPG, in carrying on that activity, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, amends the Waste Facility Operating Licence WFOL-W4-314.05/2007 held by Ontario Power Generation Inc. to permit the construction of two Refurbishment Storage Buildings and the construction of a Low-Level Storage Building at the Western Waste Management Facility in the Municipality of Kincardine, Ontario. The licence remains valid until May 31, 2007.

7. The Commission includes in the licence the conditions recommended by CNSC staff, as set out in the draft licence attached to CMD 06-H106.

Issues and Commission Findings

8. In making its licensing decision under section 24 of the NSCA, the Commission considered issues relating to OPG's qualifications to carry on 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.
9. The findings of the Commission presented below are based on the Commission's consideration of all the information and submissions available for reference on the record for the hearing.

Radiation Protection

10. To evaluate the adequacy of the provisions for protecting the health and safety of persons, the Commission considered the past performance and future plans of OPG in the area of radiation protection at the WWMF.
11. OPG explained that radiological releases from the WWMF are minimized in accordance with the As Low As Reasonably Achievable (ALARA) principle. OPG stated that the collective radiation dose for all staff has remained low, and that the public dose due to the WWFM releases has typically been less than 0.01% of the regulatory dose limit.

12. CNSC staff noted that OPG's Radiation Safety Management Program for the WWMF would further ensure the individual doses to the workers involved with the refurbishment waste storage remain well below the regulatory dose limits for Nuclear Energy Workers.
13. With respect to radiation protection during the construction phase, CNSC staff stated that workers would be working within monitored areas fenced off from active areas and would not be using or handling nuclear substances. Based on the work environment and previous construction campaign, the projected dose received by a worker during construction would remain well below the regulatory public dose limit of 1 milliSievert per year (1mSv/yr).
14. Based on the information presented on radiation protection measures and the evidence of low exposures of workers and the public, the Commission concludes that OPG has taken, and will continue to take, appropriate measures to protect workers and the public from the effects of radiation at the WWMF. The protection of the environment from the same emissions and effluents is discussed below in the section on Environmental Protection.

Conventional Health and Safety

15. As part of its evaluation of the adequacy of provisions for protecting the health and safety of persons, the Commission considered the past performance and future plans of OPG in the area of conventional (non-radiological) health and safety at the WWMF.
16. OPG reported that no lost-time accidents have occurred at the WWMF in the last ten years. CNSC staff noted that OPG has a well-established Environment, Health and Safety Program to manage the risks associated with the construction and operation of the proposed RWSBs and LLSB #10.
17. Based on the above-noted safety program and safety performance record at the WWMF, the Commission is satisfied that OPG has made, and will continue to make adequate provisions for the protection of workers from conventional hazards in the work place.

Environmental Protection

18. To determine whether OPG will make adequate provisions to protect the environment, the Commission considered the potential for the proposed activities to adversely affect the environment.
19. OPG reported that environmental monitoring results have consistently indicated that the WWMF operation has no significant effect on the environment. OPG noted that an environmental assessment (EA) follow-up program will be implemented for the RWSB project.
20. CNSC staff reported that releases of radionuclides from the WWFM remain less than 1% of the Derived Release Limits identified in the licence and contribute only a very small fraction of the total releases from the Bruce NGS site as a whole. CNSC staff further noted that the release of

radionuclides are expected to remain at an acceptable low level during the operation of the two RWSBs and the LLSB #10.

21. An environmental assessment (EA) screening was performed for this project in accordance with the requirements of the *Canadian Environmental Assessment Act* (CEAA)⁴. As part of its conclusion of the EA screening, CNSC staff recommended that the Commission include a condition in the amended licence that would require OPG to implement a follow-up program. In this regard, CNSC staff reported that the EA follow-up program submitted by OPG contains a number of inspection and monitoring activities planned for the site preparation, construction and operation of the RWSBs and the LLSB #10. These activities would ensure that the predicted environmental effects are correct and the mitigation measures are implemented and effective, as identified in the EA Study Report.
22. The Commission sought assurances that appropriate plans of action would be in place to correct any deficiencies found as a result of the inspection and monitoring activities. OPG responded that it had such corrective action plans and noted that, as an example, it would clean-up and dispose of any radiological contamination found during the site preparation phase. CNSC staff indicated it would be kept apprised of any findings of inspection and monitoring activities, including action plans described in the EA follow-up program.
23. Based on the above information, the Commission is satisfied that OPG has made, and will continue to make, adequate provision for the protection of the environment during the proposed construction of the WWMF.

Design and Operations

24. The Commission considered the adequacy of the design and the current and past operating performance at the WWMF as a further indication of OPG's qualifications and provisions for protecting the environment, persons, national security and international obligations.

Design Adequacy

25. OPG reported that the retube component waste from the refurbishment of Bruce A NGS would arrive at the WWMF in shielded containers designed to limit radiation fields from the majority of the individual waste containers to 100 microSievert per hour ($\mu\text{Sv/h}$) or less at one meter. CNSC staff noted that these containers are designed for a minimum fifty year design life. CNSC staff stated that it is satisfied with the safety of the steam generators and retube waste containers design.
26. With respect to the containers to be used at LLSB #10, CNSC staff noted that these would be the same type permitted under the current licence and whose past safety performance has been satisfactory.

⁴ R.S. 1992, c.37

27. Noting that the LLSB #10 would be similar as LLSB #9, the Commission questioned whether design improvements were planned as a result of any lessons-learned from the performance of the existing containers. OPG noted that it had mechanisms in place to identify improvements and make changes in design as necessary but that the containers, although varying in size, would be physically similar and of common construction as those used in LLSB #9.
28. In response to a question from the Commission on the possible degradation of the galvanized steel used to build the containers, OPG noted it has an aging-management plan that includes condition assessment and would ensure that remediation action is identified and implemented as necessary.
29. The Commission enquired if the containers were fireproof. OPG noted that there was no flammable material inside the buildings or containers and thus the containers were not designed or tested for fire sustainability. CNSC staff noted that inspections ensure that no flammable materials are stored in the buildings and that the buildings themselves are constructed on non-flammable materials.
30. OPG reported that the site is suitable for the construction of the proposed buildings based on the thorough knowledge of the site geology. CNSC staff indicated its acceptance of the foundation design of slab-on-grade floor with no basement. CNSC staff added that this design has proven to be adequate since the first LLSB began operation in 1982.
31. With respect to the use of geotextile membranes under the buildings to protect the ground from possible contamination, the Commission sought assurances that the membranes would continue to perform as per their specifications for the life of the buildings. OPG noted that the membranes would not be exposed to factors (e.g., UV radiation) that would accelerate their deterioration and therefore should retain their performance specifications. OPG noted that the existing membranes continued to perform adequately as demonstrated through the inspection and monitoring of the existing buildings. CNSC staff indicated that OPG's quality management program should ensure the appropriateness of the chosen geotextile membranes; however, for further assurance, CNSC staff would also verify that specifications are adequate to ensure continued performance throughout the life of the buildings.

Operations

32. CNSC staff noted that it is satisfied that the current operation of the WWMF does not pose unreasonable risk to the health and safety of persons, the environment and national security.
33. CNSC staff stated that there would be no changes to the current LLSB operations needed to address the operation of the proposed LLSB #10. Furthermore, the existing storage, inspection, maintenance and monitoring programs and procedures would remain effective.
34. With respect to the operations of the RWSB, the Commission sought assurances that the stacking of the containers would be done in such a way as to keep the integrity of the containers intact. OPG responded that the containers had inside steel liners and outside steel shells to ensure long-term use and, once stacked, were spaced in such a way as to minimize contact and

permit inspection of the surfaces.

Conclusion on Design and Operations

35. Based on the above information and considerations, the Commission is satisfied with the proposed design of the waste containers and storage buildings. The Commission also concludes that the past operating performance at the WWMF provides a positive indication of the design adequacy and OPG's ability to carry out the proposed construction activities under the amended licence.

Performance Assurance

36. The Commission must be satisfied that OPG is qualified to carry out the activities that will be permitted under the licence. In this regard, OPG explained that a training program based on the Systematic Approach to Training (SAT) has been established and implemented to provide personnel with the requisite knowledge, skills and expertise to meet the performance requirements of their jobs.
37. Noting that a contractor would be transporting the steam generators from Bruce A to the RWSB, the Commission sought further information regarding the contractor's qualifications and awareness of the hazards involved. OPG responded that the contractor has previous experience in this type of transportation, and would confirm with Bruce Power Inc., who has hired the contractor, that the qualifications are adequate. CNSC staff explained that although the contractor would be hired by Bruce Power Inc., OPG is required to make sure the contractor is properly trained to handle the work within its own facility.
38. With respect to the requirement for quality assurance, OPG noted that operating and maintenance procedures are in place for key processing activities and that its Quality Assurance Program complies with the requirements of the CSA-N286 series of quality assurance standards.
39. CNSC staff noted that the design verification work planning done on this project has been consistent with typical OPG practice on similar projects which CNSC staff has assessed and accepted.
40. To ensure that all workers involved in the transportation and storage of the radioactive waste have the qualifications to carry out the associated activities, the Commission noted the importance of communication and coordinated efforts within all the parties involved in the disposal of the waste, including OPG, Bruce Power Inc. and CNSC staff representing both CNSC divisions responsible for licensing and for transportation.
41. In order to sustain compliance and acceptable performance, the Commission also noted the need for all parties involved in the activities that this licence will authorize, and associated activities, to use an integrated approach to quality assurance.

42. Based on the information received and the past performance of the licensee, the Commission concludes that the operating performance of OPG at the WWMF provides a positive indication of OPG's ability to adequately carry on the proposed activities under the licence and that OPG has in place the necessary programs to assure continued acceptable performance at the facility.

Canadian Environmental Assessment Act

43. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the CEAA have been fulfilled. The CNSC determined that an environmental assessment (EA) in the form of a screening was required with respect to the proposed project. The results were presented to the Commission at a hearing on February 16, 2006, following which the Commission concluded that the project was not likely to cause significant adverse environmental effects.
44. The Commission sought assurances that no changes had been made to OPG's application since the completion of the EA screening. CNSC staff confirmed that no changes had been made and thus the results of the EA screening are still valid and all CEAA requirements have been met.
45. The Commission concluded that no further environmental assessment is required before the Commission may make a licensing decision on this matter.

Emergency Preparedness and Fire Protection

46. OPG noted that there is an emergency response program that includes procedures and training, and a response program for spill prevention, preparedness, response and clean-up. OPG further noted that annual emergency and radiation, fire, medical, and spill drills are carried out with the participation of Bruce Power Inc.
47. With respect to fire protection, the Commission sought further information on the extent to which vegetation would be cleared during the site preparation in order to mitigate the potential impact of forest or brush fires on the facility. OPG responded that, with the proposed site preparation, there would be an adequate distance or fire-break between the WWMF buildings and surrounding trees.
48. Considering the increased activities at the WWMF during the construction and operation of the proposed storage buildings, the Commission asked OPG if it had expanded its firefighting capability accordingly. OPG noted that it had verified the validity of its capability with each expansion at the WWMF. CNSC staff further explained that, should an incident occur, Bruce Power Inc. would provide the response capability under an agreement with OPG.
49. In this respect, the Commission expressed the importance of having an adequate emergency response plan in place for the whole site which includes the WWMF and the Bruce A and B NGS. In response, OPG further noted that it meets regularly with Bruce Power Inc.'s emergency response crew to confirm the capability to respond to events and participate in drills and inspections. CNSC staff assured the Commission that fire response at the WWMF is

acceptable.

50. Based on the information received, the Commission is satisfied that OPG has made, and will continue to make, adequate provision for emergencies that could occur at the WWMF.

Security

51. CNSC staff reported that the proposed buildings are not subject to the *Nuclear Security Regulations*⁵.
52. The Commission sought further information with respect to the security provisions to be made during the construction activities at the site.
53. Based on the information received, the Commission is satisfied that OPG will continue to make adequate provision for maintaining security at the WWMF.

Decommissioning Plan and Financial Guarantee

54. CNSC staff reported that OPG has an acceptable Preliminary Decommissioning Plan (PDP) in place for all of its licensed sites, including the existing WWMF. Based on the low probability that the proposed storage buildings would be decommissioned within the next two years, CNSC staff recommended that the inclusion of the proposed new buildings into the site PDP and OPG's comprehensive decommissioning financial guarantee could be done at the time those documents are scheduled to be revised in July 2007.
55. Based on the information received the Commission is satisfied with the proposed timing of the PDP and decommissioning financial guarantee updates. The Commission notes that OPG provides the CNSC with updated information on the status of the decommissioning financial guarantee and that CNSC staff would advise the Commission of any irregularities that arise, including with respect to the WWMF where applicable.

⁵ SOR/2000-209

Public Information Program

56. OPG noted that its public affairs program uses an integrated and coordinated approach for all its projects and operations at the WWMF to communicate with the public, municipal officials, regulators, employees and other stakeholders. CNSC staff described what it considers to be an adequate public information program organized and operated by OPG. The program involves the general public, municipal officials, employees and other stakeholders. CNSC staff highlighted periodic community briefings at regular meetings with the South Bruce Impact Advisory Committee and local municipalities.
57. Noting the number of industry-related activities in the surrounding area, including the WWMF, Bruce NGS refurbishment and the proposed deep geological repository project, the Commission enquired about the apparent low level of public interest or concern with this project. OPG responded that it felt the community is engaged and interested in the activities of the industry in the region. CNSC staff noted that, in its attendance at many open-houses, the community appears to have considerable knowledge of industry-related projects. The Commission acknowledged the efforts of OPG to keep the public informed about its facility and noted that this will become increasingly important as new nuclear projects in the area are brought forward.
58. The Commission notes OPG's efforts to provide a variety of regular opportunities for a range of interested stakeholders, including Aboriginal people, to obtain information about the WWMF and its operations and effects. The Commission concludes that OPG's public information program meets the requirements for this licensing action.

Non-Proliferation and Safeguards

59. CNSC staff noted that the OPG's WWMF operating licence does not permit the import or export of materials or prescribed equipment. CNSC staff concluded that there is nothing associated with the requested licence amendment that would impair Canada's continuing ability to meet its international obligations.

Conclusion

60. The Commission has considered the information and submissions of the applicant and CNSC staff as presented in the material available for reference on the record.
61. The Commission is satisfied that OPG is qualified to carry on the activity that the proposed amended licence will authorize. The Commission is also satisfied that OPG has made, and is expected to continue to make, adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and the measures required to implement national obligations agreed to by Canada.

62. The Commission therefore amends, pursuant to section 24 of the *Nuclear Safety and Control Act*, the Waste Facility Operating Licence (WFOL-W4-314.05/2007) held by Ontario Power Generation Inc., Ontario, to permit the construction of two Refurbishment Storage Buildings and the construction of a Low-Level Storage Building at the Western Waste Management Facility in the Municipality of Kincardine, Ontario.
63. The Commission includes in the licence the conditions recommended by CNSC staff, as set out in the draft licence attached to CMD 06-H106.

Marc A. Leblanc
Secretary,
Canadian Nuclear Safety Commission

Date of decision: March 17, 2006

Date of release of Reasons for Decision: April 11, 2006