



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 to Amend the Power Reactor  
Operating Licences for the Pickering Nuclear  
Generating Stations A and B to Incorporate  
Revisions of Derived Release Limits and  
Minimum Shift Complement

Hearing  
Date December 28, 2012

Canada

## **RECORD OF PROCEEDINGS**

Applicant: Ontario Power Generation Inc.

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

Purpose: Application to amend the Power Reactor Operating Licences for the Pickering Nuclear Generating Stations A and B to incorporate revisions of Derived Release Limits and Minimum Shift Complement

Application received: September 12, 2012 and October 16, 2012

Date of hearing: December 28, 2012

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

Members present: M. Binder, Chair

Secretary: M. Leblanc  
Recording Secretary: T. Johnston

**Licence: Amended**

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## **Introduction**

1. Ontario Power Generation Inc. (OPG) has applied to the Canadian Nuclear Safety Commission<sup>1</sup> (CNSC) for an amendment to the Nuclear Power Reactor Operating Licences (PROLs) for its Pickering Nuclear Generating Stations (NGS) A and B located in Pickering, Ontario. The current licences, PROL 04.06/2013 and PROL 08.21/2013, expire on June 30, 2013.
2. OPG requested licence amendments to incorporate the revised Derived Release Limits (DRLs) for Air, Water and Sewage and the revised Minimum Shift Complement.
3. CNSC staff also requested the corrections of mistakes inadvertently made in the names of some documents listed in the Pickering A NGS licence.

## Issue

4. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*<sup>2</sup> (NSCA):
  - a) if OPG is qualified to carry on the activity that the amended licences 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

5. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to review the application. The Commission, in making its decision, considered information presented for a hearing held on December 28, 2012 in Ottawa, Ontario. During the hearing, the Commission considered written submissions from CNSC staff (CMD 12-H123 and CMD 12-H123.A) and OPG (CMD 12-H123.1).

## **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 has met the conditions of subsection 24(4) of the NSCA. Therefore,

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<sup>1</sup> 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.

<sup>2</sup> Statutes of Canada (S.C.) 1997, chapter (c.) 9.

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, amends the Power Reactor Operating Licences PROL 04.06/2013 issued to Ontario Power Generation Inc. for its Nuclear Generating Station A located in Pickering, Ontario. The amended licence, PROL 04.07/2013, is valid until June 30, 2013.

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, amends the Power Reactor Operating Licence PROL 08.21/2013 issued to Ontario Power Generation Inc. for its Nuclear Generating Station B located in Pickering, Ontario. The amended licence, PROL 08.22/2013, is valid until June 30, 2013.

7. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 12-H123.A.

### **Issues and Commission Findings**

#### *Derived Release Limits (DRLs) Request*

8. The DRLs represent the calculated release rates that would cause an individual of the most highly exposed group to receive a dose equal to the annual public dose limit over a period of one calendar year.
9. The DRLs have been recently revised to conform to the most recent Canadian Standards Association, CSA N288.1-08 Standard<sup>3</sup>, and to incorporate changes in the locations and characteristics of nearby members of the public as identified by the recent Pickering Site Specific Survey. CNSC staff added that the new DRLs also conform to CNSC Regulatory Guide G-288<sup>4</sup>.
10. Prior to OPG's formal licence amendment request, DRLs were sent to CNSC staff for review. CNSC staff requested further clarification on various DRLs and reported that the improvements provided by OPG were satisfactory.
11. Based on its review, CNSC staff reported that the proposed licence amendment would have no adverse impact on the environment and recommended that the PROLs for Pickering NGS A and B be amended.

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<sup>3</sup> CSA N288.1-08 Standard "Guidelines for Calculating Derived Release Limits for Radioactive Material in Airborne and Liquid Effluents for Normal Operation of Nuclear Facilities".

<sup>4</sup> RG-288 "Developing and Using Action Levels".

*Minimum Shift Complement (MSC) Request*

12. Minimum Shift Complement (MSC) is defined as “the minimum number of qualified workers who must be present at all times to ensure the safe operation of the nuclear facility and to ensure adequate emergency response capability”, as per CNSC Regulatory Guide G-323<sup>5</sup> and is defined in the licence for design basis accidents only.
13. MSC consists of a Normal Operations and Emergency Operations minimum complement whereby in the event of an incident or an accident, the normal operations staff would assume their emergency roles, and the Emergency Response Organization roles would be filled by qualified individuals on shift. Emergency operations include two components, Event Response and Emergency Response, where the goal is to control, cool and contain the reactor and monitor critical safety parameters, and protect staff and liaise with the municipal and provincial authorities.
14. OPG proposes changes to the MSC in order to move to a Days Based Maintenance (DBM) organization that would involve the scheduling of preventative maintenance activities during day shifts and re-allocating the majority of maintenance staff from rotating shift coverage of 24 hours per day / 7 days per week (24/7) to day shifts only. OPG added that the proposed changes would only impact maintenance staff currently holding positions in the Emergency Response Organization (ERO). They would not impact other MSC positions, still requiring 24/7 coverage. Furthermore, OPG would still ensure that there are at least 2 maintenance staff on shift on a 24/7 basis, and will call in as many maintenance staff as necessary in the event of an emergency.
15. As noted by OPG and confirmed by CNSC staff, there are a number of benefits to a Day Based Maintenance (DBM) organization, which include:
  - Improved efficiency,
  - Reduced incidence of error due to less turnovers from shift to shift,
  - Development of expertise in specialized crews,
  - Reduced potential for human performance errors from accumulated fatigue, and
  - Facilitating ownership of systems and equipment, which results in improved familiarity with intricate and complex devices.

It should be noted that the positive impacts of a DBM organization have been demonstrated at other organizations, such as Bruce Power and several nuclear generating stations worldwide.

16. In order to fully transition to a DBM organization while preserving a sufficiently covered and qualified ERO, OPG has engaged in two projects:
  - Implementation of Automated Gamma Monitoring Systems
  - Restructuring of the EROto reduce reliance on maintenance staff on rotating shifts.

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<sup>5</sup> RG-323 “Ensuring the Presence of Sufficient Qualified Staff at Class I Nuclear Facilities – Minimum Staff Complement”.

17. CNSC staff requested that OPG validate all changes to MSC for emergency operations for the Pickering NGS A and B in accordance with CNSC Regulatory Guide G-323<sup>5</sup> and G-278<sup>6</sup> to demonstrate that the changes to MSC would not have a negative impact on safety and that the proposed MSC would be adequate for normal operations and emergency response. Upon completion of the validation methodology and exercises, OPG submitted validation reports to CNSC staff. CNSC staff reviewed and independently observed the validation process and exercises, methodology and reports and was satisfied with OPG's modified ERO structure in meeting all emergency response requirements.
18. Based on its review, CNSC staff reported that the proposed changes in the MSC are adequate for normal operations and emergency response, that the changes will not have a negative impact on safety and environment, and recommended that the PROLs for Pickering NGS A and B be amended.

*Correction of errors in the licence*

19. In December 2012, CNSC staff noticed that the names of the following documents:
  - Requirements for the Requalification Testing of Certified Shift Personnel at Nuclear Power Plants
  - Canadian Standards Association (CSA) standard N285.0: General Requirements for Pressure-Retaining Systems and Components in CANDU Nuclear Power Plants

have been inadvertently modified in a previous version (version 4) of the Pickering A NGS licence. Version numbers had also been added in these document titles. CNSC staff is therefore requesting to make administrative corrections to the titles of these documents and remove the dates of issuance of the referenced standards.

**Application of the *Canadian Environmental Assessment Act***

20. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act, 2012*<sup>7</sup> (CEAA 2012) have been fulfilled.
21. CNSC staff reported that it had completed an Environmental Assessment (EA) determination under the CEAA 2012. CNSC staff stated that the proposed licence amendments are not classified as a "designated project" pursuant to the *Regulations Designating Physical Activities* made under paragraph 84(a) of the CEAA 2012. Therefore, the CNSC is not considered a responsible authority pursuant to paragraph 15(a) of the CEAA 2012 and no federal EA is required.

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<sup>6</sup> CNSC Regulatory Guide "Human Factors Verification and Validation Plans".

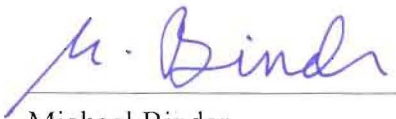
<sup>7</sup> S.C. 2012, c. 19, s.52

**Aboriginal Consultation**

- 22. CNSC staff determined that the activities to be conducted under this decision will not cause an adverse impact on potential or established Aboriginal or treaty rights.
- 23. Therefore, the duty to consult did not arise in relation to the proposed licence amendments.

**Conclusion**

- 24. The Commission has considered the information and submissions from OPG and CNSC staff and is satisfied that the requested amendments will not adversely impact the safety of the Pickering NGSs A and B operations. The Commission is also satisfied that aboriginal consultation is not necessary in relation to the proposed amendments.
- 25. The Commission is also satisfied that all applicable requirements of the CEEA 2012 have been fulfilled.



Michael Binder  
President,  
Canadian Nuclear Safety Commission

DEC 28 2012

Date