



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire


Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Royal Military College of Canada

Subject Application to Amend the SLOWPOKE-2 Facility
Non-Power Reactor Operating Licence

Hearing
Date December 27, 2012

Canada 

RECORD OF PROCEEDINGS

Applicant: Royal Military College of Canada

Address/Location: PO Box 17000, Station Forces Kingston, Ontario K7K 7B4

Purpose: Application to amend the Non-Power Reactor Operating Licence

Application received: March 10, 2011

Date of hearing: December 27, 2012

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

Members present: M. Binder, Chair

Secretary: M. Leblanc

Recording Secretary: C. Heyendal / T. Johnston

Licence: Amended

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Introduction

1. The Royal Military College of Canada (RMCC) has applied to the Canadian Nuclear Safety Commission¹ (CNSC) for an amendment to the Non-Power Reactor Operating Licence for its SLOWPOKE-2 research facility located in Kingston, Ontario. The current licence, NPROL-20.02/2013, expires on June 30, 2013.
2. RMCC operates a small SLOWPOKE-2 research facility (nominal reactor power of 20 kW) in Kingston, Ontario, which has been in operation since 1985. Later, a Neutron Beam Tube (NBT) was added to the SLOWPOKE-2 facility for radioscopy and tomography operations (2-dimensional and 3-dimensional non-destructive imaging techniques), which has been operating since February 1999.
3. At the time, uncertainties in dose estimates to workers existed primarily from the lack of operational experience with the NBT; in this context, operation of the NBT was restricted to half power to ensure that a radiation dose limit to the public 1 millisievert (mSv) per annum would not be exceeded. In addition, it was felt that operation at that power satisfied the needs for neutron imaging.
4. From operational data since 1999, RMCC now concludes that it can operate the NBT with the reactor at full power and still ensure that radiation doses received by workers at the facility remain well below regulatory limits. The driver for this initiative is to improve the tomography imaging capability of the facility.
5. RMCC has also requested minor changes in documentation, in part to reflect the proposed increase to full reactor power.

Issue

6. 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 RMCC is qualified to carry on the activity that the amended licence would authorize; and
 - b) if in carrying on that activity, RMCC 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.

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

Hearing

7. 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 27, 2012 in Ottawa, Ontario. During the hearing, the Commission considered written submissions from CNSC staff (CMD 12-H114) and RMCC (CMD 12-H114.1).

Decision

8. 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 RMCC has met the conditions of subsection 24(4) of the NSCA. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, amends the Non-Power Reactor Operating Licence NPROL-20.02/2013 issued to Royal Military College of Canada for its SLOWPOKE-2 research facility located in Kingston, Ontario. The amended licence, NPROL-20.03/2013, is valid until June 30, 2013.

9. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 12-H114.

Issues and Commission Findings

Qualifications and Protection Measures

10. CNSC staff reported that NBT, neutron radiography and tomography operations are only conducted by Nuclear Energy Workers (NEWs); however, non-Nuclear Energy Workers (non-NEWs) work in the vicinity of the SLOWPOKE-2 reactor. All NEWs and non-NEWs are required to wear thermoluminescent dosimeters (TLDs) and electronic personal dosimeters (EPDs). Visitors are required to wear EPDs. All doses are reviewed daily by RMCC staff to ensure they are well below regulatory limits and are As Low As Reasonable Achievable (ALARA).
11. CNSC staff reported that RMCC has set an internal action level of 0.25 mSv per quarter. NEWs receive quarterly written notification of the dose results and non-NEWs only receive notification if their dose exceeds 0.1 mSv per quarter. According to CNSC staff, RMCC has confirmed that since 1985, there have been no workers that have exceeded the annual Public Dose Limit of 1 mSv.

12. CNSC staff stated that when the NBT is running at full power, RMCC conservatively estimated that the doses to NEWs and non-NEWs would be 1.52 mSv and 0.2 mSv per year respectively. CNSC staff have reviewed the basis and estimates and found these predicted doses to be reasonable. CNSC staff also noted that the dose uptakes of the workers at the SLOWPOKE-2 Facility are expected to be lower than predicted since RMCC staff can now monitor the progress of the radioscopy operations remotely from their work stations with no detectable radiation fields. RMCC is also planning on installing additional shielding.
13. CNSC staff confirmed that RMCC is committed to conduct comprehensive radiation surveys at 2/3, 3/4, and full power to validate projected radiation levels if the proposed change is granted. CNSC staff will review the radiation surveys to confirm that doses to workers will not exceed regulatory limits and will adhere to ALARA principles.
14. RMCC has also requested minor changes to the facility's Reactor Manual and "Description and Safety Analysis for the Neutron Imaging System" documents, listed in Appendix A of the licence, in part to reflect the proposed power increase. CNSC staff reported having reviewed the proposed changes and found them acceptable.
15. CNSC staff has determined that the proposed licence amendment is minor in nature and will have no adverse impact on the Aboriginal rights or Treaty rights of Aboriginal groups. CNSC staff therefore concluded that the duty to consult did not arise in relation to the proposed amendment.

Application of the *Canadian Environmental Assessment Act*

16. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act, 2012*³ (CEAA 2012) have been fulfilled.
17. CNSC staff reported that it had completed an Environmental Assessment (EA) determination under the CEAA 2012. CNSC staff stated that the proposed changes 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.

Conclusion

The Commission has considered the information and submissions from RMCC and CNSC staff and is satisfied that the requested amendments are minor in nature and will not adversely impact the safety of the SLOWPOKE-2 facility operations. The Commission is also satisfied that aboriginal consultation is not necessary in relation to the proposed amendments.

³ S.C. 2012, c. 19, s.52

18. The Commission is also satisfied that all applicable requirements of the CEAA have been fulfilled.



Michael Binder
President,
Canadian Nuclear Safety Commission

DEC 27 2012

Date