



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Proceedings, Including Reasons for Decision

In the Matter of

Proponent Dalhousie University

Subject Application for the Issuance of a Licence to
Abandon for the Dalhousie University
SLOWPOKE-2 Reactor Facility

Hearing Date August 31, 2011

RECORD OF PROCEEDINGS

Proponent: Dalhousie University

Address/Location: 6299 South Street, Halifax, Nova Scotia, B3H 4H6

Purpose: Application for the Issuance of a Licence to Abandon for the Dalhousie University SLOWPOKE-2 Reactor Facility

Application received: June 22, 2011

Date of hearing: August 31, 2011

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

Members present: M. Binder, Chair

Secretary: K. McGee

Recording Secretary: D. Major

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Introduction

1. Dalhousie University (DU) has applied to the Canadian Nuclear Safety Commission¹ (CNSC) for the issuance of a Licence to Abandon and the revocation of the current Non-Power Reactor Decommissioning Licence for the Dalhousie University SLOWPOKE-2 Reactor (DUSR) Facility located in Halifax, Nova Scotia.
2. The DUSR Facility is part of DU's Trace Analysis Research Centre. On November 29, 2004, DU notified the CNSC of its intention to decommission the DUSR. In December 2009, DU further notified the CNSC that the decommissioning of the reactor had been approved by the Board of Governors and that the decommissioning would be conducted by Atomic Energy of Canada Limited (AECL) on their behalf. The first part of DU's application for a Decommissioning Licence was received by CNSC staff in March 2010. Following the requirements of the Canadian Environmental Assessment Agency (CEAA), the Commission accepted the Environmental Assessment (EA) Screening Report and subsequently considered the application for a Decommissioning Licence. The Commission issued a Decommissioning Licence to DU on January 20, 2011 and concurrently revoked DU's Non-Power Reactor Operating Licence, allowing DU to proceed with decommissioning activities.
3. On June 22, 2011, DU notified the CNSC of the completion of decommissioning activities at the DUSR facility and submitted an application for a Licence to Abandon along with the final supporting End-State Decommissioning Report. The completed activities included:
 - defueling and dismantling the DUSR facility;
 - packaging and shipment of fuel and radioactive components to licensed nuclear waste facilities;
 - removal and disposal of uncontaminated ancillary reactor components;
 - purification and disposal of reactor pool water; and
 - decontamination of the DUSR.

Issue

4. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act* (NSCA):
 - a) if DU is qualified to carry on the activity that the licence would authorize; and
 - b) if, in carrying on that activity, DU 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 referred to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

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 August 26, 2011 in Ottawa, Ontario. The hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*². During the hearing, the Commission considered written submissions from CNSC staff (CMD 11-H122) and DU (CMD 11-H122.1).

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 Dalhousie University is qualified to carry on the activity that the licence will authorize. The Commission is of the opinion that Dalhousie University, 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*, issues Dalhousie University's Licence to Abandon NPRAL-W4-2011-1.00/2011 for its Dalhousie University SLOWPOKE-2 Reactor Facility located in Halifax, Nova Scotia. The licence is valid for 30 days from August 31, 2011 to September 30, 2011.

The Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, concurrently revokes Dalhousie University's Non-Power Reactor Decommissioning Licence NPRDL-W4-2010-1.00/2015 for its Dalhousie University SLOWPOKE-2 Reactor Facility located in Halifax, Nova Scotia.

Issues and Commission Findings

7. In making its licensing decision, the Commission considered the assessment of the end-state decommissioning of the DUSR facility and the adequacy of the measures implemented for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed.

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

Safeguards and Non-Proliferation

8. CNSC staff noted that, during decommissioning, the DUSR core was removed from the reactor pool, sealed by the IAEA for safeguards purposes and transferred to secure storage at AECL's Chalk River Laboratories (CRL) pending the transfer to the United States Department of Energy Savannah River Site in South Carolina. The shipment of the DUSR core will require the issuance of a CNSC Transport Licence by a Designated Officer.
9. Further, CNSC staff determined that the ranking for safeguards is low, since all nuclear materials subject to safeguarding have been removed from the facility and the licensee is aware of the final reporting and inspection requirements.
10. Based on the information provided, the Commission is satisfied that the provisions in the areas of safeguards and non-proliferation at the facility that were necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed have been met. As there are no longer any nuclear materials subject to safeguarding on site, it is the view of the Commission that safeguards obligations have been fully met and that the issuance of a licence to abandon will have the effect of the former DUSR no longer being subject to the NSCA or to safeguards requirements.

End-State Decommissioning Report Assessment

11. CNSC staff reported having reviewed the DUSR End-State Decommissioning Report to ensure the content of the end-state report reflects the recommendations of Regulatory Guide G219 "*Decommissioning Planning for Licensed Activities*". The following paragraphs describe a summary of their findings.
12. For waste management, CNSC staff found that materials and wastes removed from the DUSR facility were effectively segregated and disposed in accordance with applicable regulations. CNSC staff reported that material clearance was conducted using calibrated survey instruments.
13. CNSC staff reported that no radioactive airborne emissions above normal background levels were detected during decommissioning activities.
14. CNSC staff also reported that, upon completion of decommissioning activities, final clearance radiation surveys were conducted in all areas formerly occupied by the DUSR facility.

15. In terms of doses received by workers, CNSC staff reported the highest individual dose received during the decommissioning as being 0.93 mSv, which was less than the action level of 2 mSv and the regulatory effective dose limit of 50 mSv per year. CNSC staff also reported that the cumulative dose for all workers during the decommissioning work was 3.98 person mSv.
16. CNSC staff reported that radiation surveys and contamination checks performed during a Type II inspection on March 24, 2011 yielded readings at background levels and below the regulatory clearance levels. CNSC staff reported that radiation signage was found to be inadequate during the inspection and a Directive for frivolous posting of signage was made and corrected during this same inspection. CNSC staff stated that, in general, the decommissioning operations at the DUSR met the intent and objectives of the licence, the NSCA and its regulations and CNSC staff objectives.
17. The Commission is of the opinion that the end-state radiological conditions found in the decommissioning plan have been met.

Unplanned Events

18. CNSC staff noted that one reportable event occurred during the execution of the decommissioning work at the DUSR facility, where a control rod was inadvertently extracted out of the guide tube in the shim tray above the reactor core during removal of the reactor beryllium reflectors. CNSC staff reported that decommissioning staff followed appropriate procedures to safely shutdown the reactor within one minute of occurrence. CNSC staff also reported that this event did not result in an increase in radiation dose rate in the reactor room, but in a small increase in radiation dose to four decommissioning personnel required to spend additional time in the reactor room (increase of 12 µSv per worker involved). Details of this event are presented in section 2.4 of CMD 11-H122.
19. The Commission is satisfied that response to this event was adequate.

Environmental Assessment

20. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act*³ (CEAA) have been fulfilled.
21. CNSC staff stated that, although the granting of a licence by the CNSC for the DUSR is a 'trigger' under paragraph 5(1)(d) of the CEAA, DU's request for a Licence to Abandon the DUSR is not considered a physical work or an undertaking associated with the physical work, and therefore the requested Licence to Abandon does not constitute a 'project' as defined in section 2 of the CEAA. CNSC staff confirmed that an environmental assessment was not required.

³ S.C. 1992, c. 37

22. Based upon the above assessment, the Commission is satisfied that the requirements for an environmental assessment under the CEAA for DU's application for an abandonment licence have been met.

Public Information Program

23. CNSC staff stated that DU held many consultative meetings with various stakeholders starting in October 2009, which were widely advertised to the local community and on the university website. CNSC staff further stated that information on the status of decommissioning activities was transmitted throughout the project to several media outlets. CNSC staff noted that there has been minimal public interest in the project.
24. The Commission agrees with CNSC staff that DU's public information activities have been broad and transparent and sufficient.

Aboriginal Consultation

25. CSNC staff assessed the requirement for aboriginal consultation in relation to this project and determined that the Duty to consult does not arise since the proposed activities will have no adverse impact on Aboriginal or treaty rights. CNSC staff reported that the Executive Director of the Confederacy of Mainland Mi'kmaq was informed of the proposed decommissioning project at the screening level environmental assessment and was given the opportunity to comment on the "Draft EA Screening Report". CNSC staff further added that no comments were received on the Screening Report or in relation to this project.
26. Based on the above information, the Commission acknowledges the efforts made in relation to the CNSC's obligations regarding Aboriginal consultation and the Legal Duty to Consult.

Cost Recovery and Financial Guarantees

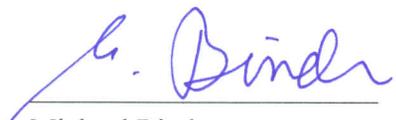
27. Concerning cost recovery, CNSC staff confirmed that DU is not subject to cost recovery fees in accordance with section 2(a) of the CNSC's *Cost Recovery Fees Regulations*.
28. CNSC staff reported that the Board of Governors of DU approved the expenditure of \$6,432,000 to complete the decommissioning of the DUSR and that the overall cost of the project was \$5,182,000.
29. The Commission agrees with CNSC staff's conclusion that a financial guarantee is no longer required for the DUSR facility.

Nuclear Liability Insurance

30. CNSC staff reported that, following the completion of the decommissioning of the DUSR, DU is no longer required to have nuclear liability insurance. CNSC staff also reported that the DUSR has or will shortly be removed from the list of facilities requiring this insurance.
31. The Commission agrees that there is no longer a need for the DUSR facility to have nuclear liability insurance.

Conclusion

32. The Commission has considered the information and submissions of CNSC staff and DU.
33. 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.
34. The Commission is satisfied that the applicant meets the requirements of subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that the applicant is qualified to carry on the activity that the proposed licence will authorize and that the applicant 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.
35. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, issues Dalhousie University a Licence to Abandon NPRAL-W4-2011-1.00/2011 for its DUSR Facility located in Halifax, Nova Scotia. The licence is valid for 30 days from August 31, 2011.
36. The Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, concurrently revokes Dalhousie University's Non-Power Reactor Decommissioning Licence NPRDL-W4-2010-1.00/2015 for its Dalhousie University SLOWPOKE-2 Reactor Facility located in Halifax, Nova Scotia.



Michael Binder
President,
Canadian Nuclear Safety Commission

AUG 31 2011

Date