



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Decision

In the Matter of

Applicant McMaster University

Subject Financial guarantee for the Future
Decommissioning of the McMaster Nuclear
Reactor Located in Hamilton, Ontario

Date of
Decision January 19, 2017

RECORD OF DECISION

Applicant: McMaster University

Address/Location: 1280 Main Street West, Hamilton, Ontario, L8S 4K1

Purpose: Financial guarantee for the future decommissioning of the McMaster Nuclear Reactor, located in Hamilton, Ontario

Application received: April 28, 2016

Date of decision: January 19, 2017

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

Members present: M. Binder, Chair

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1.0 INTRODUCTION

1. McMaster University (McMaster) has submitted a request to the Canadian Nuclear Safety Commission¹ (CNSC) for the acceptance of the financial guarantee for the future decommissioning of the McMaster Nuclear Reactor (MNR) located in Hamilton, Ontario. The financial guarantee was submitted pursuant to conditions 1.3 and 1.4 of McMaster's Non-Power Reactor Operating Licence NPROL-01.00/2024.
2. The Commission may require, under subsection 24(5) of the *Nuclear Safety and Control Act*² (NSCA), that the operators of nuclear facilities establish and maintain acceptable financial guarantees for the ultimate decommissioning of their facilities. CNSC Regulatory Guide G-206³ provides guidance on the attributes of an acceptable financial guarantee in terms of liquidity, certainty and adequacy of value, and continuity.
3. The MNR is a 5 MW research reactor located on the campus of McMaster University in Hamilton, Ontario. The MNR has been in operation since 1959 and is used for research, materials testing, neutron radiography, teaching and isotope production.
4. The current McMaster licence was issued on July 1, 2014 for a period of 10 years further to a Commission hearing for licence renewal that was held on May 8, 2014.

Issue

5. In considering the application, the Commission was required to decide:
 - a) if the form and amount of financial guarantee is acceptable for the decommissioning of the MNR; and
 - b) if McMaster has satisfied the requirements of conditions 1.3 and 1.4 of licence NPROL-01.00/2024.

Hearing

6. 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 written submissions from McMaster (CMD 17-H102.1) and CNSC staff (CMD 17-H102).

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.

³ CNSC Regulatory Guide G-206, *Financial Guarantees for the Decommissioning of Licensed Activities*, June 2000.

2.0 DECISION

7. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Decision*, the Commission concludes that McMaster satisfies conditions 1.3 and 1.4 of its licence. Therefore,

the Commission accepts the proposed financial guarantee.

3.0 ISSUES AND COMMISSION FINDINGS

8. In making its decision, the Commission considered issues related to the acceptability of the financial guarantee.

3.1 Review of the Primary Decommissioning Plan

9. The Commission notes that, pursuant to licence condition 1.3 of the MNR operating licence, McMaster University submitted in April 2016 a revised Preliminary Decommissioning Plan (PDP) containing the cost estimate for decommissioning, forming the basis on which to determine an appropriate financial guarantee. The Commission recognizes that CNSC staff's assessment of the PDP considered the guidance provided by Regulatory Guides G-206 and G-219⁴, as well as CSA Standard N294-09⁵, which supplements the regulatory framework.
10. The Commission notes that no significant changes were made between the revised PDP and the 2011 version, and that McMaster addressed all of CNSC staff's comments provided in the context of the 2014 licence renewal.
11. Regarding the cost estimates for decommissioning the MNR, the Commission recognizes that McMaster selected a conservative approach for its decommissioning strategy and proposed a cost estimate for the full decommissioning of the MNR. The PDP establishes the cost for the full decommissioning at \$14.3M in 2016, including a \$2M contingency fund. The Commission also notes that McMaster has not identified an end-of-life date for MNR; however, the PDP provides a cost escalation schedule over five years, which puts the cost at \$15.99M in 2021.
12. The Commission notes that McMaster plans to use its own staff to perform the decommissioning operations, has established a decommissioning training program, and has experience with the decommissioning of radiological laboratories and other offsite

⁴ CNSC Regulatory Guide G-219, *Decommissioning Planning For Licensed Activities*, June 2000.

⁵ CSA Group N294-09, *Decommissioning of Facilities Containing Nuclear Substances*, 2014.

projects at hospitals and cancer clinics. The Commission also notes that CNSC staff concluded that this approach is satisfactory, and will monitor the implementation of this plan through future inspections.

3.2 Nuclear Reactor Restricted Reserve Fund

13. The proposed financial guarantee includes the existing fund established under the Deed of Trust between McMaster and the CNSC with a revised Financial Security and Access Agreement (FSAA). McMaster has also submitted a letter on behalf of the University acknowledging its responsibility for the full cost of decommissioning the MNR.
14. The Commission notes that the Nuclear Reactor Restricted Reserve (NRRR) fund was established in 2005 under a Deed of Trust, which stipulates that, in the event of a bankruptcy, the trustee shall distribute the trust fund to the CNSC for the sole purpose of honouring, meeting and carrying out the obligations of McMaster University under the FSAA.
15. The Commission recognizes that, under the current FSAA, McMaster University was required to make annual supplements of \$350,000 per year to their NRRR fund, averaged over five years, and not less than \$100,000 in any given year. The NRRR fund was valued at approximately \$10.9M at the last audit of April 2016, based on the results of the annual audit performed by KPMG.
16. The Commission notes that this fund has generated an average growth of \$483,300 or 5.7% per year over the past five years, and that McMaster anticipates a 4% average performance over the near future.
17. The Commission is satisfied that the current NRRR fund is sufficient to cover the cost of the high value decommissioning activities (such as safe shutdown and fuel removal) estimated under contractual agreement with a third-party at \$3.7M, placing the MNR in a safe shutdown state.

3.3 Revised CNSC Financial Security and Access Agreement

18. McMaster has proposed a revised FSAA which would remove the requirements for the annual supplements and contribution amounts; however, the requirement that the NRRR fund be reviewed every five years and be adjusted as necessary in order to meet the decommissioning requirements would not change.
19. The Commission recognizes that the revised agreement also updates the total CNSC requirement to reflect the updated costs for decommissioning of \$14.3M in 2016.
20. The Commission notes that the revised agreement requires McMaster to submit a certificate as to the fair value of the NRRR fund annually, as confirmed by its auditors, to prove that the financial guarantee remains valid, and to report on the activity of the NRRR fund over the past fiscal year.

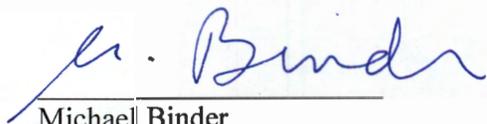
21. The Commission is satisfied with the proposal for the revised Financial Security and Access Agreement.

3.4 McMaster University's Financial Situation

22. The Commission notes that McMaster has an AA credit rating from an independent credit rating agency, and that CNSC staff have confirmed that McMaster has the means to cover any shortfall of funds for the balance of the NRRR and the decommissioning costs, should this become necessary.
23. The Commission recognizes that CNSC staff reviewed all applicable documents provided by McMaster and determined that there is sufficient evidence in support of McMaster's financial health and low financial risk.
24. The Commission is satisfied with McMaster's financial situation with regards to the decommissioning of the MNR.

4.0 CONCLUSION

25. The Commission has considered the information and submissions from McMaster and CNSC staff and is satisfied that the financial guarantee submitted by McMaster is acceptable.
26. The Commission therefore accepts the existing NRRR fund established under the Deed of Trust in the amount of \$10.9M, and proposed revisions to the FSAA. The Commission is satisfied that with the current value of the NRRR fund, the trust and access agreement, and the formal acknowledgement of the University of its liability to pay the cost of decommissioning the MNR site, it is acceptable at this time to remove the requirement for annual supplements.
27. The Commission is mindful that the FSAA calls for an annual fair market valuation of the NRRR to be provided to the CNSC by the licensee's conditions. It instructs CNSC staff to review these annual valuations and report to the Commission in the event the fund is not performing as predicted.



Michael Binder
President,
Canadian Nuclear Safety Commission

JAN 19 2017

Date