Canadian Nuclear Safety Commission

Commission canadienne de sûreté nucléaire

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant	Atomic Energy of Canada Limited
Subject	Request for Approval to Decommission Two Facilities at Chalk River Laboratories
Hearing Date	March 28, 2013

Canada

RECORD OF PROCEEDINGS

Applicant:	Atomic Energy of Canada Limited
Address/Location:	Chalk River Laboratories, Chalk River, Ontario, KOJ 1JO
Purpose:	Request for approval to decommission two facilities at Chalk River Laboratories
Application received:	April 2, 2012
Date of hearing:	March 28, 2013
Location:	Canadian Nuclear Safety Commission (CNSC) Headquarters, 280 Slater St., Ottawa, Ontario
Members present:	M. Binder, Chair
Secretary:	M. Leblanc
Recording Secretary:	S. Dimitrijevic / M. Young

Request: Approved

Table of Contents

1. INTRODUCTION

1. Atomic Energy of Canada Limited (AECL) has submitted to the Canadian Nuclear Safety Commission[1] a request for an approval to decommission facilities at Chalk River Laboratories (CRL), Chalk River, Ontario. The facilities intended for decommissioning include the NRX research reactor ancillary buildings (NRX Ancillary Buildings) and the Waste Water Evaporator facility. The NRX Ancillary Buildings were designed and constructed in the mid-1940s, and have provided services to the NRX research reactor, which was shut down in 1992. The Waste Water Evaporator facility was constructed in 1952 and processed radioactive liquid wastes produced by NRX fuel reprocessing work until 1958. Evaporation activities were carried out in the facility between 1958 and 1967, before it was shut down in 1971. These facilities are currently maintained in storage-with-surveillance, which is a safe shutdown state. AECL proposed to demolish the structures and to remediate and reuse the land for its business needs. The decommissioning of these facilities is included in the Government of Canada's Nuclear Legacy Liabilities Program.

2. Licence condition 4.4 of the CRL operating licence, NRTEOL-01.00/2016, which expires on October 31, 2016, requires that AECL obtain approval from the Commission prior to decommissioning a Class I nuclear facility at the CRL site. The approval authority for this decision has not been delegated by the Commission to CNSC staff. CNSC staff noted in its submission that, should the Commission approve AECL's request, CNSC staff would update the Licence Conditions Handbook associated with the CRL operating licence to list the NRX Ancillary Buildings and Waste Water Evaporator as facilities undergoing decommissioning.

Issue

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 AECL is qualified to carry on the activity that the amended licences would authorize; and

    b) if in carrying on that activity, AECL 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

4. 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 March 28, 2013 in Ottawa, Ontario. During the hearing, the Commission considered written submissions from CNSC staff (CMD 13-H100) and AECL (CMD 13-H100.1). Written interventions were allowed, but none were received.

2. DECISION

5. 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 AECL 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*, approves Atomic Energy of Canada Limited's request to decommission the NRX Research Reactor Ancillary Buildings and the Waste Water Evaporator facility at Chalk River Laboratories, located in Chalk River, Ontario.

6. With this decision, the Commission expects CNSC staff to update the Licence Conditions Handbook associated with the CRL operating licence to list the NRX Ancillary Buildings and Waste Water Evaporator as facilities undergoing decommissioning, as recommended by CNSC staff in CMD 13-H100.

3. ISSUES AND COMMISSION FINDINGS

3.1 Decommissioning Overview and Detailed Decommissioning Plans

7. AECL notified the Commission about its intent to decommission the Waste Water Evaporator and the NRX Ancillary Buildings in 2004 and 2006 respectively. A decommissioning project is a set of activities undertaken to retire a licensed facility permanently from service and render it to a predetermined end-state condition. Certain requirements must be fulfilled prior to decommissioning, including the characterization of the facilities and their potential hazards.

8. CNSC staff stated that decommissioning activities for the NRX Ancillary Buildings would include:

- Removal of equipment and hazards;
- Dismantling of building components and demolition of building structures;
- Segregation, management, and transfer of wastes to waste management facilities;

- Removal of any contaminated soil, as required; and
- Backfill of excavation and site landscaping.

9. CNSC staff stated that physical decommissioning activities would begin in 2013. CNSC staff noted that the complete removal of the NRX Ancillary Buildings is anticipated to be accomplished over a period of approximately 15 to 20 years, with five of the eight ancillary buildings decommissioned by 2016. CNSC staff further noted that the decommissioning of the remaining buildings, which have larger volumes of concrete, would be deferred to coincide with plans for other decommissioning activities at the CRL site that would also generate concrete waste. CNSC staff explained that this is based on a planning assumption that a long-term storage facility for contaminated concrete waste will be available and noted that concrete wastes can also be managed in existing waste management facilities at CRL, if required.

10. AECL stated that decommissioning activities for the Waste Water Evaporator are categorized into four types of activities:

    - Removal of equipment and hazards;
    - Dismantling of building structure and components
    - Site remediation; and
    - Management of waste.

11. CNSC staff stated that physical decommissioning activities for the Waste Water Evaporator would begin in 2013 with site restoration completed by the end of year 2016. CNSC staff noted that, in addition to radioactively contaminated waste, decommissioning of the Waste Water Evaporator facility would involve the removal of hazardous materials such as asbestos and lead-based paints.

12. With its request, AECL submitted Environmental Impact Statements and Detailed Decommissioning Plans to the CNSC. In its submission, AECL stated that the liquid and airborne emissions from the decommissioning activities are expected to be negligible, and that the workplace hazards could be managed via AECL's existing programs, policies and procedures developed and implemented to protect the health and safety of workers, the public and the environment. AECL's programs include environmental protection, radiation protection, occupational health and safety, operating experience, and waste management programs.

13. CNSC staff stated that decommissioning activities could only be initiated once it has approved documents describing these programs, including facility-specific Detailed Decommissioning Plans and Work Plans. CNSC staff stated that it assessed AECL's Detailed Decommissioning Plans for the NRX Ancillary Buildings and for Waste Water Evaporator against the requirements of the CNSC Regulatory Guide G-219[3] and

[3] CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities*, June 2000.

the Canadian Standards Association (CSA) Standard N294[4], and found that they meet requirements.

14. CNSC staff presented an overview of the material submitted by AECL in support of its application, including operating experience, proposed measures for protection of workers, waste management plans and end-state reports. CNSC staff stated that, based on its review of the material submitted by AECL, AECL is qualified to carry out the proposed decommissioning activities. CNSC staff further stated that AECL, in carrying out the activities, 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.

15. Based on the above information, the Commission is satisfied that AECL's Detailed Decommissioning Plans for the NRX Ancillary Buildings and for the Waste Water Evaporator meet regulatory requirements, and that AECL is qualified to carry out the proposed decommissioning activities.

3.2 Application of the *Canadian Environmental Assessment Act, 2012*

16. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act, 2012*[5] (CEAA 2012) have been fulfilled.

17. CNSC staff provided its assessment of AECL's approval request under the current CEAA 2012. CNSC staff noted that a screening environmental assessment would have been required for the decommissioning projects, in accordance with the previous *Canadian Environmental Assessment Act*[6], which was repealed in 2012.

18. CNSC staff determined that the proposed decommissioning activities were not classified as "designated projects" pursuant to the *Regulations Designating Physical Activities*[7] under the CEAA 2012 and, as such, the proposed decommissioning projects would not require federal environmental assessments under the CEAA 2012. CNSC staff noted that, since CRL occupies federal lands, Section 67 of the CEAA 2012 stipulates that the CNSC must not exercise its power to authorize the proposed decommissioning activities unless the CNSC has determined that carrying out these projects is not likely to cause significant adverse environmental effects. Consequently, CNSC staff stated that it transitioned the assessment of environmental effects related to the decommissioning projects to the CNSC's licensing process under the NSCA.

19. Based on its review of AECL's request for approval, CNSC staff reported to the Commission that their opinion was that carrying out these projects is not likely to cause

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[4] CSA Standard N294-09, *Decommissioning of facilities containing nuclear substances*, 2009.
[5] S.C. 2012, c. 19, s. 52
[6] S.C. 1992, c. 37
[7] S.O.R. 2012-147

significant adverse environmental effects, and that a federal environmental assessment pursuant to the CEAA 2012 was not required.

20. Based on the above information, the Commission is satisfied that the requirements of CEAA 2012 have been met.

3.3 Environmental Effects Assessment

21. CNSC staff provided information regarding its assessment of the anticipated environmental effects of the decommissioning activities, including effects of the projects on the environment under normal operating conditions, the effects of accidents and malfunctions, the effects of the environment on the projects, including effects of climate change, and an assessment of cumulative effects. CNSC staff explained that its assessment of the projects was carried out in a step-wise manner, as follows:
    - identification of the potential project-environment interactions;
    - identification of the potential environmental effects;
    - identification of mitigation measures beyond standard design and operational measures; and
    - determination of the significance of residual environmental effects.

22. CNSC staff was of the view that the proposed decommissioning projects are not likely to cause significant adverse environmental effects. Consequently, CNSC staff recommended that the Commission approve AECL's request to decommission the Waste Water Evaporator and the NRX Ancillary Buildings at CRL.

3.3.1 Effects of the Projects on the Environment under Normal Operating Conditions

<u>Atmospheric Environment</u>

23. AECL stated that radiological and non-radiological dust and particulates may be released to the atmosphere during the demolition of the NRX Ancillary Buildings and the Waste Water Evaporator, and detailed the mitigation measures implemented. CNSC staff noted that, with the exception of asbestos materials and residual lead-based paints, the buildings are not known to contain measurable quantities of non-radiological materials with the potential to generate airborne emissions. CNSC staff noted that the decommissioning activities will be undertaken in accordance with AECL programs, procedures and policies, and that industry best practices for conventional construction and demolition activities will be applied.

24. CNSC staff indicated that the use of Continuous Air Monitors (CAMs) will be utilized as part of an air quality monitoring program, and that standard dust control measures, including dust suppression, are expected to mitigate atmospheric environment effects. CNSC staff further indicated that preventive measures to protect worker health and safety will be practiced such as the application of fixatives to seal contamination to

surfaces, the isolation of work areas (including the use of enclosures and air filtration units), use of air sampling, and appropriate packaging of wastes for transport. CNSC staff further noted that other detailed requirements such as alarm and back-out points would be identified in radiological work plans.

25. Regarding asbestos, CNSC staff stated that the removal of asbestos would follow AECL's procedure for proper control of asbestos hazards, which would ensure that airborne asbestos emissions are negligible. CNSC staff stated that, taking into account the identified mitigation measures, no significant residual effect is anticipated on the atmospheric environment.

26. Based on the above information, the Commission is satisfied that, taking into account the identified mitigation measures, no significant residual effect is anticipated on the atmospheric environment as a result of the decommissioning activities.

Noise

27. CNSC staff reported that decommissioning activities will include the use of power tools and heavy equipment, which will act as a source of noise generation. CNSC staff noted that noise generation is expected to be of low magnitude and short duration, and would therefore not require additional mitigation measures. CNSC staff stated that no significant residual effect is anticipated with respect to noise.

28. Based on this information, the Commission is satisfied that no significant residual effect is anticipated with respect to noise.

Hydrology and Surface Water Quality

29. Regarding the NRX Ancillary Buildings, CNSC staff stated that the generation of small quantities of liquid waste from concrete cutting and residual water from the Building 103 and 104 Delay Tanks could have potential impacts on surface water quality. Regarding the Waste Water Evaporator, CNSC staff stated that the generation of liquid waste from concrete cutting operations and residual water from tanks, pipes and equipment could potentially impact surface water quality during dismantlement of building structures and components. CNSC staff noted that, in addition, disturbances such as excavation during the removal of contaminated soil and services have the potential to contaminate storm water runoff and by extension the Ottawa River.

30. CNSC staff stated that decommissioning activities that may impact the CRL storm sewer system would be carried out in accordance with the requirements of AECL's Environmental Protection Program. CNSC staff explained that standard mitigation measures such as berms, dykes, and silt fences would be implemented, as appropriate, to control the potential spread of contamination and sediments to storm water drainage. CNSC staff further stated that the secondary water generated through dismantling

activities will be collected, tested and treated at the Waste Treatment Centre to ensure negligible impacts to the Ottawa River. As such, CNSC staff stated that, taking into account the identified mitigation measures, there is no significant residual effect anticipated on hydrology and surface water quality.

31. Based on the above information, the Commission is satisfied that, taking into account the identified mitigation measures, there is no significant residual effect anticipated on hydrology and surface water quality.

Aquatic Environment

32. CNSC staff stated that, while storm water management and secondary liquid waste generated through decommissioning have the potential to affect the aquatic environment, standard mitigation measures such as berms, dykes and silt fences will be strategically placed to prevent the spread of contamination to storm water. CNSC staff noted that contaminated liquid waste will be directed to AECL's Waste Treatment Centre. CNSC staff stated that, taking into account the identified mitigation measures, no significant residual effect is anticipated on the aquatic environment.

33. Based on the above information, the Commission is satisfied that, taking into account the identified mitigation measures, no significant residual effect is anticipated on the aquatic environment.

Geology and Soil Quality

34. AECL stated that, as activities during the decommissioning process involve the isolation and removal of services and soil remediation, there is potential for soil contamination to be present due to historical leaks of radioactive liquid. CNSC staff noted that contaminated soil would be removed and stored in an appropriate AECL Waste Management Area, and be replaced with clean soil. CNSC staff further noted that standard mitigation measures, such as the use of tarps to cover excavated soil, will be taken to avoid the spread of soil contamination. As such, CNSC staff stated that no measurable environmental effects on soil quality are expected.

35. Regarding groundwater, CNSC staff stated that no interaction with groundwater is expected, as the water table lies at 13 m below grade, which is below excavating depths for the decommissioning activities. CNSC staff stated that, taking into account mitigation measures, no significant residual effect is anticipated on the geology and soil quality.

36. Based on this information, the Commission is satisfied that, taking into account mitigation measures, no significant residual effect is anticipated on the geology and soil quality.

Worker Health and Safety - Conventional Hazards

37. CNSC staff stated that conventional hazards are those associated with workers during common deconstruction activities, such as injuries from confined space entry, accidental falls, electrical hazards, injuries from power tools, and noise. CNSC staff noted that protective measures required by AECL's Occupational Health and Safety Program would be applied to minimize the risk to workers from conventional industrial hazards. CNSC staff further noted that project activities would be subject to AECL's Work Permit System to ensure they are appropriately planned and executed. As such, CNSC staff stated that, taking the protective measures into account, no significant impact on worker health is anticipated from conventional industry hazards.

38. Based on this information, the Commission is satisfied that, taking the protective measures into account, no significant impact on worker health is anticipated from conventional industry hazards.

Worker Health and Safety - Radiological Hazards

39. CNSC staff provided information concerning the radiological hazards associated with the decommissioning projects. CNSC staff stated that the primary radiological hazards during decommissioning of the NRX Ancillary Buildings include uncontrolled release of fission and activation products, and potential exposure to alpha, beta and gamma radiation. CNSC staff stated that the risk of radiation exposure to workers from the NRX Ancillary Buildings is anticipated to be highest during the decommissioning of the buildings' systems and components such as process tanks, pumps, valves, filter compartments, exhaust fans, piping, roofing over contaminated areas, and contaminated concrete. CNSC staff noted that AECL classified the accessible rooms and areas in the NRX Ancillary Buildings into radiological safety zones, in accordance with its Radiation Protection Program. CNSC staff noted that the radiation hazards in the NRX Ancillary Buildings are classified as low to moderate. CNSC staff further noted that certain restricted areas were not assigned a radiological safety zone and would be subject to a radiological risk assessment prior to entry.

40. Regarding the Waste Water Evaporator, AECL provided detailed information on the radiological hazards for the facility. AECL noted that the radiation hazards in the Waste Water Evaporator are classified as moderate to high. CNSC staff confirmed that, given its operating history, a considerable amount of fixed and loose contamination exists throughout the building.

41. AECL stated that there is a potential for intake of radioactive particulates or exposure to residual radioactive contamination in the Waste Water Evaporator building and surrounding soil. CNSC staff noted that there is a potential for intake of radioactive particulates or exposure to the residual radioactive contamination in the NRX Ancillary Buildings.

42. AECL noted that, in compliance with AECL's Radiation Protection Program, worker radiation doses will be monitored throughout the decommissioning activities. AECL staff further explained that all radiological work will be subject to AECL's Work Permit System to ensure it is appropriately planned and executed. CNSC staff confirmed that operational control measures such as shielding and protective clothing and equipment such as respirators and personal dosimeters will be implemented, as appropriate. CNSC staff stated that, taking into account the operational control measures, no significant impacts on worker health are anticipated from radiological hazards.

43. Based on the above information, the Commission is satisfied that the radiological hazards associated with the decommissioning projects have been adequately identified and classified. The Commission is satisfied that, taking into account operational control measures, no significant impacts on worker health are anticipated from radiological hazards.

Hazardous Materials

44. AECL stated that workers will be in contact with small quantities of asbestos, lead-based paints, lead bricks and sheets, mercury from mercury switches, and polychlorinated biphenyls (PCBs) from light ballasts. CNSC staff noted that adhering to AECL's Work Permit System and Occupational Health and Safety Program will reduce the risk of worker exposure to hazardous materials by using similar protective measures as those for radioactive particulates. CNSC staff further noted that the use of dust suppression, air sampling, protective clothing and respirators would be used as required by AECL's procedure for controlling asbestos hazards. CNSC staff stated that, taking into account the operational control measures, no significant impacts on worker health are anticipated from hazardous materials.

45. Based on the above information, the Commission is satisfied that, taking into account the operational control measures, no significant impacts on worker health are anticipated from hazardous materials.

Public Health

46. CNSC staff stated that decommissioning activities are likely to produce dust and noise, although the potential effects would be limited to the immediate surrounding areas. CNSC staff noted that the potential dose to the public from decommissioning activities would be through either airborne or liquid emissions, and were assessed to be negligible and therefore not harmful to the public.

47. CNSC staff further stated that the local transportation system, which will transport conventional, hazardous and radioactive wastes off-site, represents the only likely

potential for impact on public health. CNSC staff explained that most of the radioactive waste will be managed at a CRL Waste Management Area, but AECL would be required to follow procedures required by the *Packaging and Transport of Nuclear Substances Regulations*[8] in the event that radioactive waste is transported off-site. CNSC staff noted that a low volume of conventional and hazardous waste would be generated by the decommissioning projects, and that proper packaging following AECL's requirements for management of wastes during transport would be used. CNSC staff stated that no significant effects on public health are expected from waste transport activities.

48. Based on the above information, the Commission is satisfied that, taking into account the operational control measures, no significant effects on public health are expected as a result of decommissioning activities.

Valued Ecosystem Components

49. CNSC staff stated that the water quality of the Ottawa River is the only Valued Ecosystem Component potentially affected due to the potential interaction between site hydrology and surface water. CNSC staff noted that, as there are negligible liquid and airborne emissions anticipated, no measurable effect on Ottawa River water quality is expected.

50. Based on this information, the Commission is satisfied that the water quality of the Ottawa River is the only Valued Ecosystem Component that would be potentially affected by the decommissioning projects, and that no measurable effect on the Ottawa River water quality is expected.

3.3.2 Effects of Malfunctions and Accidents

51. CNSC staff described its assessment of potential interactions between the project activities and the existing environment during possible malfunction and accident scenarios, including fire, loss of services, transport accidents, and flooding due to malfunctions.

52. Regarding fire, CNSC staff stated that scenarios involving fire could result in the release of airborne emissions from both the fire and existing contaminates inside buildings, liquid contamination to the soil caused by the fire suppression systems using water, and impacts on worker health and safety. CNSC staff noted that AECL has a robust fire protection program in place at CRL, which would ensure that decommissioning activities are carried out in a controlled and coordinated manner, reducing the potential for a fire event and ensuring compliance with the decommissioning requirements of the 2010 *National Building Code of Canada* and the National Fire Protection Association's NFPA 801: *Standard for Fire Protection for*

[8] SOR /2000-208.

Facilities Handling Radioactive Materials. CNSC staff further noted that the consequences of a fire would likely be minimized by early detection and AECL's immediate fire response capability. CNSC staff stated that, given CRL's contingency and emergency preparedness plans, with 24/7 monitoring and fire response capability, no significant residual effects are anticipated as a result of a fire.

53. CNSC staff stated that the loss of operational services, such as the shutting down of ventilation equipment, in the event of a loss of off-site electrical power, could potentially impact worker health. CNSC staff noted that, in the event of power loss, all work would stop until power has been restored, and that all operating systems would be designed to shut down safely. As such, CNSC staff stated that there are no anticipated adverse impacts on worker health or the environment as a result of a loss of services.

54. Regarding transport accidents, CNSC staff stated that, while there is the potential for accidents during waste transport activities, the probability of a transport accident is considered to be low given the relatively small number of trips. CNSC staff noted that contingency plans and emergency preparedness plans exist for the CRL site and that, in the unlikely event of a transportation accident, AECL's emergency procedures and processes will dictate the safe clean-up of any spilt radioactive waste or contamination. As such, CNSC staff stated that no significant adverse impacts due to transportation accidents are anticipated.

55. Regarding flooding due to malfunctions, CNSC staff stated that there is a potential risk of the Waste Water Evaporator building flooding due to a failure or loss of services, such as a water main break. CNSC staff noted that flooding would be mitigated through the use of barriers and berms to redirect water away from the Waste Water Evaporator building. CNSC staff stated that, taking into account the identified mitigation measures, no anticipated adverse impacts are expected.

56. Based on the above information, the Commission is satisfied that no anticipated adverse impacts are expected, taking mitigation and control measures into consideration.

3.3.3 Effects of the Environment on the Projects

57. CNSC staff provided an assessment of naturally-occurring events that have the potential to affect project activities, including extreme weather conditions such as precipitation events and wind events, as well as earthquakes, flooding and climate change.

58. CNSC staff stated that no significant adverse impacts due to extreme precipitation, which includes rainfall and snowfall, are anticipated because the topography of the CRL built-up area slopes towards the Ottawa River. CNSC staff explained that site drainage ensures that precipitation and storm water runoff do not enter the buildings, and that standard mitigation measures for the management of storm water and

mitigation of soil erosion during decommissioning activities, such as appropriate grading, silt screens and use of dykes, would be implemented. CNSC staff further explained that the buildings were designed to minimize the potential for failure from heavy snow loads; however, excessive snow loads combined with aging roof materials could lead to a collapse, which provides further justification for dismantling some structures as soon as possible.

59. Regarding extreme wind events, CNSC staff stated that, despite the low probability of tornadoes at Chalk River, estimated as 6.4 events in 100,000 years, tornadoes and high winds could potentially cause structural damage to the buildings, which could result in the release of contamination from within the buildings. CNSC staff noted that AECL has contingency plans and emergency preparedness plans, including watches and warnings for tornadoes, severe thunderstorms and extreme winds, as well as procedures in place to address these events. CNSC staff further noted that any contamination resulting from such events would be remediated. Based on these measures, CNSC staff stated that there are no significant impacts anticipated due to tornadoes or extreme winds.

60. Regarding earthquakes, CNSC staff stated that the CRL site sits on the edge of the West Quebec seismic zone, with a low probability of an earthquake having sufficient magnitude to damage the buildings. CNSC staff noted that AECL has contingency plans and emergency preparedness plans in place in the event of an earthquake and that any contamination released as a result of seismic activity would be localized and would be remediated consistent with the building's location in the built-up area of the CRL site. As such, CNSC staff stated that there are no significant impacts anticipated due to earthquakes.

61. Regarding flooding, CNSC staff provided information regarding the Ontario Ministry of Natural Resources' 100-year flood elevation for the Ottawa River, as well as a dam from Ontario Power Generation's Des Joachims' Generating Station, located 28 kilometres upstream of the CRL site. CNSC staff stated that no significant adverse effects are expected because the lowest elevation level of the NRX Ancillary Buildings and the Waste Water Evaporator building is higher than both the 100-year flood elevation and the rise in river level due to a dam failure.

62. CNSC staff further stated that no significant adverse effects are expected as a result of climate change because measurable effects resulting from climate change are not considered likely during the life of the proposed projects. CNSC staff explained that, although the timeframe of these projects extends to 2030, more than half of the buildings are expected to be decommissioned by 2016. CNSC staff further noted that the projects are not expected to generate any significant greenhouse gases.

63. Based on the above information, the Commission is satisfied that the effects of the environment on the projects are not likely to result in any significant adverse environmental effects, taking into consideration the mitigation and control measures to be applied by AECL.

3.3.4 Assessment of Cumulative Effects

64. CNSC staff provided information regarding its assessment of cumulative effects, which considered the effects of the proposed projects together with the effects of other projects and activities that are being, or will foreseeably be, carried out and for which the effects are expected to temporally or spatially overlap.

65. CNSC staff stated that it is normal practice to limit the assessment of cumulative effects to the predicted residual adverse environmental effects of a project in combination with other projects, as only those project-environment interactions that result in residual effects can lead to cumulative effects. CNSC staff stated that, as no anticipated significant residual effects were identified for the decommissioning projects, no further assessment of cumulative effects was carried out.

66. Based on this information, the Commission is satisfied that, as no anticipated significant residual effects were identified for the decommissioning projects, no cumulative effects are expected.

3.3.5 Follow-Up Program

67. CNSC staff stated that it considered the need for an environmental assessment follow-up program for the decommissioning projects. CNSC staff noted that, as the proposed projects are at a licensed facility that has sufficient existing compliance monitoring programs in place, CNSC staff was of the view that an additional specific follow-up program was not required. CNSC staff further stated that AECL's environmental monitoring and personal radiation dosimetry programs will be used to verify the accuracy of the environmental impact assessment and the effectiveness of mitigation measures, and identify additional mitigation if required.

68. Based on the above information, the Commission is of the view that an additional specific follow-up program is not required for the decommissioning projects.

3.3.6 Conclusion on Environmental Effects Assessment

69. Based on the above information and considerations, The Commission is satisfied that CNSC staff performed an assessment of the environmental effects of the decommissioning projects under the NSCA. The Commission concludes that the decommissioning projects will not cause significant adverse environmental effects, taking into consideration the mitigation and control measures to be applied by AECL.

3.4 Aboriginal Engagement and Public Participation

70. The common law Duty to Consult with Aboriginal communities and organizations applies when the Crown contemplates actions that may adversely affect established or potential Aboriginal or treaty rights. The decisions made by the CNSC, as an agent of the Government of Canada, must therefore uphold the honour of the Crown and respect established Aboriginal or treaty rights.

71. CNSC staff informed the Commission that, to their knowledge, the CRL site, which is a fenced-in brownfield property with restricted access, has not been identified as an area of interest in the land claim negotiation process. CNSC staff noted that the negotiators of Algonquin First Nations, which are in land claim negotiations concerning the area surrounding the CRL site, have expressed interest in surplus federal sites; however, the CRL site will not be made surplus in the foreseeable future. CNSC staff further noted that Algonquin communities in Quebec have identified traditional interests in a large part of eastern Ontario including the area of Chalk River; however, Aboriginal Affairs and Northern Development Canada has not received a comprehensive claim submission from the Algonquin Anishinabeg Nation Tribal Council, which represents these communities.

72. CNSC staff indicated that the Métis Nation of Ontario has expressed interest in being informed of licensing activities at CRL. CNSC staff stated that it provides all identified Aboriginal communities with a written annual update of the ongoing licensing activities for CRL, and noted that the information regarding the transition of environmental assessments from the CEA Act process to the licensing process under the NSCA has been posted on the CNSC's website, and letters have been sent to all identified Aboriginal communities to notify them of this transition. No questions or concerns have been received. CNSC staff stated that the decommissioning projects are not likely to adversely impact potential or established Aboriginal or treaty rights.

73. AECL provided details of its public consultation and communication activities. CNSC staff informed the Commission that, as a licensee of a Class I facility, AECL is required to develop and implement a public information program that includes a disclosure protocol. CNSC staff noted that AECL provides information on activities at the CRL site to members of the public and Aboriginal communities through many different methods, including its Environmental Stewardship Council.

74. The Commission notes that members of the public have been invited to submit written interventions for this hearing, as detailed in a Notice of Hearing published on February 19, 2013. The Commission also notes that no members of the general public or Aboriginal communities have filed any submissions.

75. Based on the information provided, the Commission is satisfied that AECL's and CNSC staff's public information activities are effective in keeping the public and Aboriginal communities informed on the facility operations. The Commission also

acknowledges the efforts made in relation to the CNSC's obligations regarding Aboriginal consultation and the Legal Duty to Consult.

4. CONCLUSION

76. The Commission has considered the information and submissions from AECL and CNSC staff and is satisfied that the decommissioning projects will not cause significant adverse environmental effects, taking into consideration the mitigation and control measures to be applied by AECL. The Commission is satisfied that all applicable requirements of the CEAA 2012 have been fulfilled. The Commission is also satisfied that AECL is qualified to carry out the proposed activities. Therefore, the Commission, pursuant to section 24 of NSCA, approves Atomic Energy of Canada's request to decommission the NRX Research Reactor Ancillary Buildings and the Waste Water Evaporator facility at Chalk River Laboratories, located in Chalk River, Ontario.

77. With this decision, the Commission expects CNSC staff to update the Licence Conditions Handbook associated with the CRL operating licence to list the NRX Ancillary Buildings and Waste Water Evaporator as facilities undergoing decommissioning, as recommended by CNSC staff in CMD 13-H100.

M. Binder

MAR 28 2013

Michael Binder
President,
Canadian Nuclear Safety Commission

Date