

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Atomic Energy of Canada Limited

Subject Screening Environmental Assessment for the
Liquid Waste Storage Facility Project at Chalk
River Laboratories

Date April 25, 2006

RECORD OF PROCEEDINGS

Applicant: Atomic Energy of Canada Limited

Address/Location: Chalk River Laboratories, Chalk River, Ontario K0J 1J0

Purpose: Screening Environmental Assessment for the Liquid Waste Storage Facility Project at the Chalk River Laboratories

Application received: N/A

Date(s) of hearing: March 30, 2006

Location: Canadian Nuclear Safety Commission (CNSC), 280 Slater St., 14th. Floor, Ottawa, Ontario

Member present: L.J. Keen, Chair
A.R. Graham
J.A. Dosman

Secretary: M.A. Leblanc
Recording Secretary: P. Bourassa
General Counsel: J. Lavoie

Applicant Represented By	
<ul style="list-style-type: none">• G. Archinoff, Chief Regulatory Officer• B. Coopersmidt, General Manager of Decommissioning and Waste Management• R. Lounsbury, Safety and Licensing Manager, CRL Projects• P. Denault, Project Manager, Liquid Waste Transfer and Storage Project	
CNSC staff	Document Number
<ul style="list-style-type: none">• G. Lamarre• C. David	CMD 06-H111
No Intervenors	

Date of Decision: March 30, 2006

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Introduction

1. Atomic Energy of Canada Limited (AECL) has applied to the Canadian Nuclear Safety Commission (CNSC¹) to seek approval for the construction and operation of the liquid waste storage facility at Chalk River Laboratories (CRL).
2. AECL proposes to transfer and condition liquid radioactive waste, currently stored in 21 tanks at several locations on the CRL site, to a new liquid waste storage facility to be constructed on the site. The liquid waste originated from research activities and medical isotope production during more than 50 years of operations at CRL. The authorization of this activity requires an amendment to AECL's Nuclear Research and Test Establishment Operating Licence pursuant to subsection 24(2) of the *Nuclear Safety and Control Act*² (NSCA).
3. Before the Commission can decide on the proposed licence amendment, the Commission must, in accordance with the requirements of the *Canadian Environmental Assessment*³ Act (CEAA), make a decision on an Environmental Assessment (EA) screening of the proposal. The Commission is the sole responsible authority for the EA.
4. The guidelines for the EA (EA Guidelines), including definitions of the scope of the project and scope of the assessment, were approved by the Designated Officer on January 8, 2004. The EA Guidelines were used by CNSC staff in delegating to AECL, pursuant to section 17 of the CEAA, the preparation of technical studies to satisfy the requirements of the EA Guidelines. AECL provided the technical studies which underwent a review by experts at the CNSC and other relevant government departments. The resulting EA Study Report was then used by CNSC staff for the preparation of the draft EA Screening Report (Screening Report). Stakeholders, including the federal authorities, were provided an opportunity to review the draft Screening Report prior to its finalization and submission to the Commission for this hearing and decision.
5. This *Record of Proceedings* describes the Commission's consideration of the Screening Report and its reasons for decisions on the results. The Screening Report of AECL's proposal to construct and operate a liquid waste storage facility at the CRL site is attached as an appendix to CMD 06-H111.

Issues

6. In considering the Screening Report, the Commission was required to decide:
 - a) whether the Screening Report is complete; that is, whether all of the factors and instructions set out in the approved EA Guidelines and subsection 16(1) of the CEAA were adequately addressed;

¹ In this *Record of Proceedings*, 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 S.C. 1997, c. 9

³ S.C. 1992, c. 37

- b) whether the project, taking into account the mitigation measures identified in the Screening Report, is likely to cause significant adverse environmental effects;
- c) whether the project must be referred to the federal Minister of the Environment for referral to a review panel or mediator, pursuant to paragraph 20(1)(c) of the CEEA; and
- d) whether the Commission will proceed with its consideration of an application for a licence under the *Nuclear Safety and Control Act*, consistent with paragraph 20(1)(a) of the CEEA.

Hearing

- 7. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to hear this matter.
- 8. The Panel of the Commission (hereafter referred to as the Commission), in making its decision, considered information presented for a hearing held on March 30, 2006 in Ottawa, Ontario. During the hearing, the Commission received a written submission from CNSC staff (CMD 06-H111).
- 9. The hearing was conducted in accordance with the Commission's process for considering matters pursuant to the CEEA and Rule 3 of the *Canadian Nuclear Safety Commission Rules of Procedure*⁴. In establishing the process, the Commission determined that it was not necessary to hold a public hearing on the matter.

Decision

- 10. Based on its consideration of the matter, as described in more detail in this *Record of Proceedings*, the Commission decides that:

- a) the Environmental Assessment Screening Report appended to CMD 06-H111 is complete; that is, the scope of the project and assessment were appropriately determined in accordance with section 15 and 16 of the *Canadian Environmental Assessment Act*, and all of the required assessment factors were addressed during the assessment;
- b) the project, taking into account the mitigation measures identified in the Environmental Assessment Screening Report, is not likely to cause significant adverse environmental effects;
- c) it will not refer the project to the federal Minister of the Environment for his referral to a federal Environment Assessment review panel or mediator;

⁴ SOR/2000-211

- d) it will proceed to consider the application for licence amendment under the provisions of the *Nuclear Safety and Control Act*, consistent with paragraph 20(1)(a) of the *Canadian Environmental Assessment Act*.

Issues and Commission Findings

11. The Commission addressed the four issues identified in paragraph 6 under three main headings: (1) the completeness of the Screening Report, (2) the likelihood and significance of the environmental effects, and (3) the nature and level of public concern. The Commission's findings in each of these areas are summarized below.
12. The findings of the Commission presented below are based on the Commission's consideration of all the information and submission available for reference on the record for the hearing.

Completeness of the Screening Report

13. In its consideration of the completeness of the Screening Report, the Commission considered whether the assessment had adequately addressed an appropriately defined scope of project and assessment factors.
14. CNSC staff reported that, on January 8, 2004, the Designated Officer established EA Guidelines, including statements of project scope and scope of the assessment factors as required by sections 15 and 16 of the CEAA. CNSC staff stated that, in its opinion, the Screening Report contains information on the full scope of the project and for all of the factors required for a screening EA under section 16 of the CEAA and as set out in the EA Guidelines.
15. CNSC staff further reported that the following expert federal authorities were notified of the project pursuant to the CEAA *Federal Coordination Regulations*: Natural Resources Canada, Fisheries and Oceans Canada (DFO), Environment Canada, Health Canada and Indian and Northern Affairs Canada. These federal authorities were provided with the opportunity to participate in the preparation of the draft EA Guidelines and the draft EA Screening Report.
16. Although it was determined that there are no provincial environmental assessment requirements under the *Ontario Environmental Assessment Act*, the Ontario Ministry of the Environment was also provided with the opportunity to participate in the preparation of the draft EA Guidelines and the draft EA Screening Report.
17. The Commission sought clarification whether certain specific activities were included in the scope of the project. In response, CNSC staff indicated that the decommissioning of the existing tanks or their potential reuse were not included in the scope of the project. AECL added that it has no intention to reuse these tanks and has included the decommissioning of the tanks in the comprehensive preliminary decommissioning plan which covers all activities on the CRL site. CNSC staff noted that reuse or decommissioning of the tanks would be subject to further CNSC approval.

18. With respect to the dewatering operations required during the construction of the facility, CNSC staff confirmed that the activities associated with the monitoring and disposal of these waters had been included in the scope of the project.
19. In its consideration of the scope of the project, the Commission also sought further information regarding the physical works involved in the proposed project. In response, AECL provided some detail with respect to the construction and design of the facility. CNSC staff noted that this level of detail was sufficient for consideration in the context of an EA Screening.
20. Based on this information and the Commission's review of the EA Guidelines and Screening Report, the Commission concludes that the scope of the project and the scope of the factors for the assessment were appropriate and that all of the required factors were addressed during the assessment.
21. The Commission also concludes that the Screening Report is complete and compliant with the requirements of the CEAA. The Commission is thus able to proceed to its consideration of the likelihood and significance of the environmental effects of the project, the adequacy of the proposed mitigation measures, and the public concerns about the project.

Likelihood and Significance of Environmental Effects

22. This section contains the Commission's findings with respect to whether the project, taking into account the identified mitigation measures, is likely to cause significant adverse environmental effects. In examining this question, the Commission first considered the adequacy of the study methods used to identify and evaluate the potential environmental effects, followed by a consideration of the predicted effects on the relevant components of the environment.

Adequacy of the Assessment Methods

23. In its submission, CNSC staff outlined the methodology used in the assessment of the direct and indirect effects of the project on the environment, noting that it was carried out in a step-wise manner.
24. The EA involved a progressive identification, screening and assessment of significance of potential interactions between the project (under both normal and accident conditions) and the various components of the environment, such as human health, surface water, the atmosphere, and aquatic and terrestrial environment.
25. CNSC staff further noted that the EA also included an examination of the potential effects of the environment on the project, the cumulative effects with other projects in the area and the need for follow-up activities.

26. CNSC staff outlined in its submission the extent of the consultations that were conducted during the EA process. CNSC staff noted that AECL's public consultation program provided opportunities to comment and review the proposed project by informing the public, the Algonquins of Pikwàkanagàn and other interested stakeholders through direct letters, local and regional newspapers and during four open houses held in September 2003. Based on limited interest expressed by the public as reported in the AECL Stakeholder Consultation Plan and in observations by CNSC staff during an open house event, CNSC staff concluded that public review and comment on the EA Guidelines was not warranted. CNSC staff initiated a public comment period on the draft Screening Report, and key stakeholders were sent the Report for their review.
27. The Commission expressed concern that the public consultation may not have been adequately planned to allow for review and comment. In this regard, CNSC staff indicated that the approach to public consultation was appropriate considering the low level of public interest in the proposed project. Furthermore, CNSC staff noted that, when developing its consultation strategy, it took into consideration public feedback indicating that the proposed project is viewed as a positive step towards overall waste management for the CRL site.
28. The Commission is satisfied that the methods used to consult with the public during the EA, including opportunities to comment and review the Screening Report, were acceptable and provided a suitable basis for the Commission to evaluate the public concerns about the project. The Commission's findings on the public concerns are discussed further in the section below entitled Nature and Level of Public Concern.
29. Based on its review of the Screening Report and the above information, the Commission concludes that the EA methods were acceptable and appropriate.

Effects of the Project on the Environment

30. Based on the screening of issues, CNSC staff reported that the proposed project, taking into consideration potential malfunctions and accidents associated with the project and potential cumulative effects, is not likely to cause significant adverse effects on the environment, taking the identified mitigation measures into account.
31. In support of its findings, CNSC staff noted that, from a total of 84 potential interactions between the project and the environment, those with measurable effects that the project would likely cause were carried forward for more detailed evaluation. After taking the available mitigation measures for these effects into account, CNSC staff concluded from an assessment of each of those interactions that no likely significant adverse environmental effects are expected to occur.
32. As the main project activities expected to result in measurable effects involve different phases of handling the liquid waste, the Commission questioned whether alternative methods had been explored, such as including the processing and solidification of the waste within the scope of this project. AECL explained that the proposed project has been developed to account for the

immediate need to transfer the waste from the existing deteriorating tanks. AECL further noted that storage of the waste to allow for blending and conditioning would ensure a more efficient solidification process in the long-term.

33. Noting Environment Canada's comment with respect to the dewatering operations to be carried out during excavation of the new facility, the Commission sought assurances that the potential for contamination of groundwater and release of Strontium-90 and tritium into the Ottawa River had been adequately addressed in the EA. AECL noted that its modeling of the area has demonstrated that the source of the contamination, a plume located 50 metres away from the excavation, would not get drawn into the excavation. AECL added that it would monitor the incoming water during the excavation for assurance that these nuclides were not present.
34. Noting the proximity of the proposed facility to the Ottawa River, the Commission sought further details with respect to the choice of location. AECL responded that it had chosen the location based on the availability of the existing security infrastructure and with its proximity to the existing tanks. AECL noted that this would reduce the hazards associated with the transfer of the waste.
35. With respect to Environment Canada's recommendation to provide further detail on AECL's Emergency Response Plan and the mitigation measures in place for the effects of accidental spills, the Commission asked how AECL would be addressing this issue. AECL responded that it would involve Environment Canada in its review of the stormwater management practices. As this issue involves a site-wide program for the CRL and is beyond the scope of the EA for the proposed liquid waste storage facility, the Commission expects that it will be included at the Commission hearing regarding the renewal of the AECL's CRL site licence.
36. Based on its review of the Screening Report and the above-noted information and considerations, the Commission concludes that the proposed project, taking into account the identified mitigation measures, is not likely to cause significant adverse environmental effects.

Effects of the Environment on the Project

37. CNSC staff reported that the EA examined how short-term climatic events, overflow of the Ottawa River, earthquakes and forest fires could adversely affect the project. CNSC staff concluded that the planned design features and operational measures of the project will adequately address any potential effects of the environment.
38. Based on the above information and considerations, the Commission concludes that the environment is not likely to cause adverse effects on the project.

Follow-Up Program

39. The CNSC staff noted that the objectives of the Follow-Up Program are to verify if the environmental effects of the project are as predicted and to confirm that the mitigation measures

are implemented and effective in reducing, controlling or eliminating environmental effects. CNSC staff indicated that the Follow-Up Program for AECL's proposed project would include the potential monitoring of airborne emissions as a result of retrieval operations and operation of the liquid waste storage system. The Follow-Up Program would also include groundwater monitoring during excavations and a review of the CRL Stormwater Management Practice and Infrastructure.

Conclusions on the Likelihood and Significance of Adverse Environmental Effects

40. Based on the considerations and reasons noted above, the Commission agrees with CNSC staff's conclusion in the Screening Report that the proposed Liquid Waste Storage Facility is not likely to cause significant adverse environmental effects, taking into account the identified mitigation measures.
41. The Commission is also satisfied that the likelihood and significance of the effects have been identified with reasonable certainty.
42. Furthermore, the Commission is satisfied that the CNSC licensing and compliance program responsible for ensuring the final design and implementation of the follow-up and monitoring program and reporting the program results will be adequate for verifying and, if necessary, identifying where additional mitigation measures may be required during the project implementation.

Nature and Level of Public Concern

43. With respect to public concern as a factor in its consideration of whether to refer the project to the federal Minister of the Environment for a review panel or mediator, the Commission first examined whether the public had sufficient opportunity to become informed about the project and the Environmental Assessment, and express their views on it.
44. As noted in paragraph 27 above, the Commission is satisfied that AECL and CNSC staff consulted appropriately with the public, First Nation and other interested stakeholders. The Commission is therefore satisfied that the public had adequate opportunity to become informed about the project and express any concerns.
45. CNSC staff reported that, other than the comments received from Environment Canada and Health Canada, no comments were received from the public or other stakeholders on the EA Guidelines or the draft Screening Report.
46. With respect to the comments and recommendations made to AECL on its draft EA Study Report, the Commission requested that AECL be prepared to address the issues raised for consideration in the context of a licensing hearing on the liquid waste storage facility.

47. The Commission therefore decides not to refer the project to the Minister of the Environment for referral to a review panel or mediator (i.e., pursuant to paragraph 20(1)(c) of the CEEA).

Conclusion

48. The Commission concludes that the environmental assessment Screening Report attached to CMD 06-H111 is complete and meets all of the applicable requirements of the *Canadian Environmental Assessment Act*.
49. The Commission concludes that the project, taking into account the appropriate mitigation measures identified in the Screening Report, is not likely to cause significant adverse environmental effects.
50. Furthermore, the Commission also concludes that, at this time, it will not request the federal Minister of the Environment to refer the project to a review panel or mediator in accordance with the provisions of the CEEA.
51. Therefore, the Commission, pursuant to paragraph 20(1)(a) of the CEEA, decides to proceed with the consideration of a licence application under the *Nuclear Safety and Control Act* which, if approved, would allow the project to proceed.

Marc A. Leblanc
Secretary,
Canadian Nuclear Safety Commission

Date of decision: March 30, 2006

Date of release of Reasons for Decision: April 25, 2006