



Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

# Record of Proceedings, Including Reasons for Decision

In the Matter of

Proponent Atomic Energy of Canada Limited

Subject Environmental Assessment Screening Report  
for the Proposed Construction and Operation of  
a Bulk Materials Landfill at the Chalk River  
Laboratories

Hearing Date June 18, 2010

## **RECORD OF PROCEEDINGS**

Proponent: Atomic Energy of Canada Limited

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

Purpose: Environmental Assessment Screening Report for the Proposed Construction and Operation of a Bulk Materials Landfill at the Chalk River Laboratories

Application received: July 24, 2009

Date of hearing: June 18, 2010

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

Members present: M. Binder, Chair

Secretary: K. McGee

Recording Secretary: M. Young

## Table of Contents

<b>Introduction</b> .....	1
<b>Decision</b> .....	3
<b>Issues and Commission Findings</b> .....	3
<b>Completeness of the Screening Report</b> .....	3
<b>Likelihood and Significance of Environmental Effects</b> .....	4
<i>Adequacy of the Assessment Methods</i> .....	4
<i>Effects of the Project on the Environment</i> .....	5
<i>Effects of the Environment on the Project</i> .....	5
<i>Effects of Accident and Malfunction Events</i> .....	6
<i>Cumulative Effects</i> .....	6
<i>Follow-Up Program</i> .....	7
<i>Conclusions on the Likelihood and Significance of Adverse Environmental Effects</i> .....	7
<b>Public Participation and Aboriginal Engagement</b> .....	7
<b>Conclusion</b> .....	9

## Introduction

1. Atomic Energy of Canada Limited (AECL) has notified the Canadian Nuclear Safety Commission<sup>1</sup> (CNSC) of its intent to construct and operate a Bulk Materials Landfill at the site of its Chalk River Laboratories (CRL) located in Chalk River, Ontario. AECL's current Nuclear Research and Test Establishment Operating Licence, NRTEOL-01.06/2011 is valid until October 31, 2011.
2. The proposed landfill would be engineered to receive bulk materials containing very low levels of radioactivity. The bulk materials include dewatered sewage sludge from the CRL Sewage Treatment Plant, soils from routine excavations and like materials. The landfill would provide capacity for bulk material wastes generated over approximately 100 years. The construction of the landfill would start in the summer of 2010, with operation to begin by 2011. The landfill would occupy an area of 60 m x 100 m, located south of the existing Waste Management Area 'C' at CRL.
3. The authorization of this activity requires an amendment to AECL's Nuclear Research and Test Establishment Operating Licence, NRTEOL-01.06/2011, pursuant to subsection 24(2) of the *Nuclear Safety and Control Act*<sup>2</sup> (NSCA).
4. Before the Commission can amend the licence, the Commission must, in accordance with the requirements of the *Canadian Environmental Assessment Act*<sup>3</sup> (CEAA), make a decision on an Environmental Assessment (EA) screening of the proposed project. The Commission is the sole responsible authority<sup>4</sup> (RA) for the EA. Environment Canada, Natural Resources Canada and Health Canada identified themselves as federal authorities (FAs) for the purpose of providing expert assistance to CNSC staff during the EA.
5. The EA Guidelines were presented to the Commission for approval on October 31, 2007. The Commission issued a decision<sup>5</sup> on December 11, 2007, approving the EA Guidelines. The Commission indicated that an EA Screening would be considered in a public hearing, unless there were no public comments on the EA Screening Report. The EA Guidelines were used in delegating the conduct of technical studies for the screening of this project to AECL, pursuant to section 17 of the CEAA. 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 FAs, were provided an opportunity to review the draft Screening Report prior to its finalization and submission to the Commission for this hearing and decision.

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<sup>1</sup> 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.

<sup>2</sup> Statutes of Canada (S.C.) 1997, chapter (c.) 9

<sup>3</sup> S.C. 1992, c. 37.

<sup>4</sup> Responsible Authority in relation to an EA is determined in accordance with subsection 11(1) of the CEAA.

<sup>5</sup> Refer to the Record of Proceedings on *Environmental Assessment Guidelines (Scope of Project and Assessment) for the proposed construction and operation of a Bulk Materials Landfill at the Chalk River Laboratories*, Hearing Date October 31, 2007

6. 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 Bulk Materials Landfill at the site of CRL in Chalk River, Ontario, is attached as an appendix to CMD 10-H105.

#### Issue

7. 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;
  - 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 CEAA; and
  - d) whether the Commission can proceed with its consideration of an application for a licence amendment under the *Nuclear Safety and Control Act*, consistent with paragraph 20(1)(a) of the CEAA.

#### Hearing

8. 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 June 18, 2010 in Ottawa, Ontario. During the hearing, the Commission considered written submissions from CNSC staff (CMD 10-H105) and AECL (CMD 10-H105.1).

## Decision

9. 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 10-H105 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;
- 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

10. The findings of the Commission are based on the Commission's consideration of all the information and submissions available for reference on the record for the hearing.

## Completeness of the Screening Report

11. 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.
12. CNSC staff presented information regarding the completeness of the EA Screening Report and included the Screening Report as part of their submission to the Commission. CNSC staff stated that the Screening Report is complete and meets all requirements under subsection 16(1) of the CEEA.
13. Based on 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 are appropriate and that all of the required factors were addressed during the assessment.

14. The Commission also concludes that the EA Screening Report is complete and compliant with the requirements of the CEAA.

### **Likelihood and Significance of Environmental Effects**

15. This section contains the Commission's findings with respect to whether the project is likely to cause significant adverse environmental effects, taking into account the identified mitigation measures.
16. The activities associated with the construction of the Bulk Materials Landfill include:
- site preparation and excavation;
  - modification or construction of on-site roads and structures;
  - construction of secondary and primary composite liners;
  - construction of secondary and primary leachate collection systems; and
  - installation of a final cover at the end of the period of operation.
17. The activities associated with the operation of the Bulk Materials Landfill include:
- sampling and analysis of dewatered sewage sludge prior to the transfer to the Bulk Materials Landfill;
  - transport and emplacement of the dewatered sewage sludge and interim cover in the Bulk Materials Landfill; and
  - collection of any leachate and transfer to the CRL Sewage Treatment Plant or Waste Treatment Centre for processing.

### *Adequacy of the Assessment Methods*

18. The Screening Report contains information regarding the potential interactions between the project activities and existing environment during site preparation, construction, and operation and during relevant malfunctions and accidents. CNSC staff stated that the assessment of likely effects on the project was carried out in a step-wise manner as follows:
1. identifying potential project-environment interactions;
  2. identifying potential environmental effects;
  3. identifying mitigation measures (beyond standard design and operational measures); and
  4. determining the significance of residual effects.
19. CNSC staff also provided information regarding the evaluation criteria used to assess the significance of residual effects. CNSC staff explained that, for each residual effect identified, the factors of magnitude, geographic extent, duration, frequency and reversibility were rated as low, medium or high, using specific criteria.

20. 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*
21. CNSC staff presented information regarding the effects of the project on the environment. CNSC staff described the project activities with the potential to impact several environmental components, including atmospheric, hydrology and surface water quality, geology and hydrogeology, aquatic environment, terrestrial environment, human health, valued ecosystem components. CNSC staff identified several potential environmental effects, including those associated with noise and dust, stormwater and leachate, contaminated soil, forest habitat loss, and conventional (physical) and radiation hazards.
22. For each potential environmental impact, CNSC staff also presented mitigation measures to ensure that any environmental effects are minimized. Mitigation measures include noise and dust control, storm water management, soil monitoring and management, leachate monitoring and treatment, a fenced-in construction area, occupational health and safety procedures, and engineering and occupational controls. CNSC staff stated that, for each environmental component, no significant residual effects are expected.
23. 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*

24. CNSC staff discussed naturally occurring events that have the potential to affect the project activities. CNSC staff provided information regarding tornadoes and extreme winds, extreme weather conditions (precipitation), earthquakes and a rise in groundwater level. CNSC staff also discussed the mitigation measures that are in place in order to address the effects of the environment on the project, including the CRL Emergency Preparedness Plan, as well as the design of the project.
25. Based on its review of the Screening Report and the above-noted information, the Commission concludes that the environment is not likely to cause significant adverse effects on the project.



*Effects of Accident and Malfunction Events*

26. CNSC staff presented information regarding the potential interactions between the project activities and the existing environment during malfunction and accident scenarios. CNSC staff discussed transport accidents, the failure of engineered barriers, the failure of the leachate collection system, the failure of high level alarm and conventional accidents. CNSC staff noted that mitigation measures and contingency plans are in place to address these accidents and reduce the impact on the environment.
27. Based on its review of the Screening Report and the above-noted information, the Commission concludes that accident and malfunction events are not likely to cause significant adverse effects on the environment.

*Cumulative Effects*

28. CNSC staff presented an assessment of cumulative environmental effects. CNSC staff explained that the effects of a proposed project must be considered together with the effects of other projects and activities that are being carried out, or will be carried out, and are expected to overlap with those of the proposed project (i.e. overlap in the same geographic area and at the same time).
29. CNSC staff stated that the main sources of cumulative effects for the project are past and ongoing operations of the CRL site. CNSC staff noted that the cumulative effects of past operations are implicitly taken into account in the assessment of the project effects because they are documented as part of the existing environment for the project. CNSC staff stated that the relevant, foreseeable future projects include:
  - Shielded Modular Above Ground Storage; and
  - New Dry Storage System.
30. CNSC staff described the cumulative effects on air quality and terrestrial biota, and stated that cumulative effects are not expected. CNSC staff stated that, based on the cumulative effects assessment, no cumulative effects are likely to cause significant adverse environmental effects with the implementation of mitigation measures identified in the Screening Report.
31. Based on its review of the Screening Report and the above-noted information, the Commission concludes that, taking into account the identified mitigation measures, significant adverse cumulative effects are not expected to occur as a result of the project.

*Follow-Up Program*

32. CNSC staff described the follow-up program for the project. CNSC staff stated that the objectives of the follow-up program are to confirm the results of the EA, to assess the performance of the planned mitigation measures and to identify the effects of the project that may not have been predicted.
33. CNSC staff stated that the objectives of the follow-up program can be met through monitoring activities performed under AECL's Environmental Protection Programs at the CRL site. CNSC staff explained that the Environmental Protection Program includes environmental monitoring at and around the site, and effluent verification monitoring at release points. CNSC staff stated that AECL's Radiation Protection Program includes a Personnel Radiation Dosimetry Program to provide data on occupational radiation exposure. CNSC staff included a summary of AECL's environmental monitoring activities and noted that additional groundwater monitoring wells will be installed at the site.
34. CNSC staff stated that the CNSC's licensing and compliance program is used as the mechanism for ensuring the final design and implementation of any follow-up program and the reporting of program results. CNSC staff further stated that the results of the follow-up program would be reported in the next appropriate AECL *Status Report on Follow-Up for Environmental Assessments at Chalk River Laboratories*.
35. Based on its review of the Screening Report and the above-noted information, the Commission is satisfied that the proposed scope of the follow-up program will be adequate for verifying and, if necessary, identifying where additional mitigation measures may be required during the project implementation.

*Conclusions on the Likelihood and Significance of Adverse Environmental Effects*

36. Based on the considerations and reasons noted above, the Commission concludes that the proposed project is not likely to cause significant adverse environmental effects, taking into account the identified mitigation measures.
37. The Commission is satisfied that the likelihood and significance of the effects have been identified with reasonable certainty.

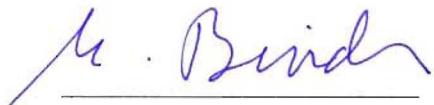
**Public Participation and Aboriginal Engagement**

38. 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 examined whether the public had sufficient opportunity to become informed about the project and the Environmental Assessment, and express their views on it. The Commission examined the nature and level of concern expressed by the public.

39. CNSC staff stated that, pursuant to subsection 18(3) of the CEAA, the CNSC provides opportunities for the public, provincial and municipal governments and Aboriginal Peoples to review the draft screening report and provide comments to CNSC staff. CNSC staff stated that it provided the public with an opportunity to comment on the draft EA Guidelines from July 17, 2007 to August 17, 2007. CNSC staff noted that the request for comments was posted on the CNSC Web site, and copies of AECL's project description and the draft EA Guidelines were mailed directly to stakeholders and the nearby Aboriginal community and citizens. CNSC staff reported that no comments from the public or Aboriginal Peoples were received during the review period for the draft EA Guidelines.
40. CNSC staff noted that AECL's EIS indicated that AECL's public consultation program had provided the general public, elected officials, Aboriginal Peoples, special interest groups and the media with the opportunity to become informed about the project and raise issues of concern. CNSC staff stated that there had been limited interest from these groups and no concerns were raised.
41. CNSC staff described the engagement with Aboriginal Peoples. CNSC staff stated that AECL contacted the Algonguins of Pikwàkanagàn and no issues were raised. CNSC staff reported that representatives from the CNSC met with the Métis Nation of Ontario (MNO) Consultation Assessment Coordinator on November 26, 2009 and advised them of the Bulk Materials Landfill Project EA Screening. CNSC staff noted that they also corresponded with the MNO and asked them to submit any comments or concerns regarding the Bulk Materials Landfill Project and no comments were received.
42. CNSC staff stated that they provided the public, the Algonguins of Pikwàkanagàn, and the MNO with an opportunity to comment on the draft Screening Report during the public review and comment period and no comments were received. In addition, CNSC staff stated that the FA's reviewed the draft Screening Report and Environment Canada provided comments and recommendations, which were incorporated into the final Screening Report.
43. Based on the information provided in the Screening Report, the Commission is of the view that there was sufficient opportunity for the public to be informed and express its views on the project. The Commission is satisfied that no public concerns were raised during the EA process. The Commission is satisfied that the remaining issues can be addressed in the follow-up program and future consideration of the licence amendment application. The Commission therefore decides not to refer the project to the Minister of the Environment for referral to a review panel or mediator under paragraph 20(1)(c) of the CEAA.

**Conclusion**

44. The Commission concludes that the EA Screening Report attached to CMD 10-H105 is complete and meets all of the applicable requirements of the *Canadian Environmental Assessment Act*.
45. 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.
46. 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 CEAA.
47. Therefore, the Commission, pursuant to paragraph 20(1)(a) of the CEAA, can proceed with the consideration of a licence amendment under the *Nuclear Safety and Control Act* which, if approved, would allow the project to proceed.



Michael Binder  
President,  
Canadian Nuclear Safety Commission

AUG 18 2010

Date