

Record of Proceedings, Including Reasons for Adjournment

In the Matter of

Licensee Atomic Energy of Canada Limited

Subject Financial Guarantee for the Decommissioning of
Atomic Energy of Canada Limited's Chalk River
Laboratories Site

Date July 12, 2005

RECORD OF PROCEEDINGS

Licensee: Atomic Energy of Canada Limited

Address/Location: 2251 Speakman Drive, Mississauga, Ontario, L5K 1B2

Purpose: Financial guarantee for the decommissioning of Atomic Energy of Canada Limited's Chalk River Laboratories site

Proposal received: December 16, 2003 and March 18, 2005

Dates of hearing: September 16, 2004
May 20, 2005

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

Members present: L.J. Keen, Chair A.R. Graham
C.R. Barnes M. J. McDill
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See Appendix A	

Date of Adjournment: May 20, 2005

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1. Introduction

The Canadian Nuclear Safety Commission (the Commission¹) requires that the operators of nuclear facilities establish and maintain acceptable financial guarantees for the ultimate decommissioning of their facilities. A financial guarantee must be in place and sufficient to cover the planned decommissioning activities, including in the event of a premature shutdown of the facility.

CNSC Regulatory Guide G-206, *Financial Guarantees for the Decommissioning of Licensed Activities* (Guide G-206) provides guidance on the attributes of an acceptable financial guarantee in terms of liquidity, certainty and adequacy of value, and continuity. CNSC Regulatory Guide G-219, *Decommissioning Planning for Licensed Activities* (Guide G-219), outlines the CNSC's expectations with respect to the formulation of related and credible estimates of decommissioning costs based on a systematic planning of future decommissioning activities.

In May 2003, when the Commission last renewed the operating licences for Atomic Energy of Canada Limited's (AECL) Chalk River Laboratories (CRL), and the MAPLE medical isotope reactors and the New Processing Facility (NPF) (also located within the CRL site)², the Commission concluded that AECL had not yet established acceptable financial guarantees for the decommissioning of the facilities. The Commission therefore added the following condition to each of the renewed operating licences:

“The licensee shall, on or before December 31, 2003, provide to the Commission for the purpose of a public hearing and decision by the Commission, a proposal for a financial guarantee for the future decommissioning of [CRL, the MAPLE facility, the New Processing Facility].”³

In response to these licence conditions, AECL submitted, as its proposed financial guarantee, a letter dated December 11, 2003 from the then Minister of Natural Resources Canada (the Honourable Herb Dhaliwal) to the President of the Commission stating that, as an agent of Her

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 Canadian Nuclear Safety Commission, May 27, 2003, *Record of Proceedings, Including Reasons for Decision, in the Matter of Atomic Energy of Canada Limited, Application for the Renewal of the Chalk River Laboratories Nuclear Research and Test Establishment Operating Licence*, including Errata dated June 29, 2003.

Canadian Nuclear Safety Commission, May 27, 2003, *Record of Proceedings, Including Reasons for Decision, in the Matter of Atomic Energy of Canada Limited, Application for the Renewal of the Operating Licence for the MAPLE Reactors*, including Errata dated June 29, 2003.

Canadian Nuclear Safety Commission, May 27, 2003, *Record of Proceedings, Including Reasons for Decision, in the Matter of Atomic Energy of Canada Limited, Application for the Renewal of the Nuclear Substance Processing Facility Operating Licence for the New Processing Facility*, including Errata dated June 29, 2003.

³ licence condition 12.1 in licence NRTEOL-01.00/2006 (Chalk River Laboratories); licence condition 11.1 in licence NPROL-62.00/2005 (MAPLE facility); and licence condition 10.1 in NSPFOL-03.00/2005 (New Processing Facility)

Majesty in Right of Canada, AECL's liabilities are ultimately liabilities of Her Majesty in Right of Canada.

Issues:

In considering the matter, the Commission was required to decide:

1. if the responsibilities of Her Majesty in Right of Canada, as stated in the December 11, 2003 letter from the former Minister of Natural Resources Canada to the President of the Commission, constitutes an acceptable financial guarantee for the decommissioning of the CRL site, including the MAPLE reactors and NPF; and
2. whether AECL's Decommissioning Plan for the CRL site meets the CNSC expectations for providing a description of the future decommissioning activities and reasonable basis for estimating future decommissioning costs.

Public Hearing:

On September 16, 2004, the Commission held a one-day public hearing in Ottawa, Ontario to consider AECL's proposed financial guarantee. Following the proceedings on that day, the Commission decided that additional information was needed before it could reach a decision. The Commission decided therefore, pursuant to Rule 14 of the *CNSC Rules of Procedure*, to adjourn the public hearing to May 20, 2005. The Notice of Adjournment was published on October 5, 2004. A copy of the Notice of Adjournment is attached as Appendix B to this *Record of Proceedings*.

To assist in the continuation of the public hearing, the Commission, as described in the Notice of Adjournment, requested that AECL and CNSC staff file supplementary information. Specifically, the Commission requested that CNSC staff clarify, by November 15, 2004, the CNSC's requirements and expectations for the CRL site Preliminary Decommissioning Plan(s) (PDP). The Commission also requested AECL to describe, by March 18, 2005, how it has met, or is planning to meet, each of those expectations in addition to providing a revised PDP(s) and associated public consultation plan. The Commission further instructed CNSC staff to file its assessment of AECL's supplementary documentation by April 18, 2005. The public was invited to intervene at the continuation of the public hearing on May 20, 2005. The date set by the Commission for the filing of supplementary interventions was May 6, 2005.

The public hearing was conducted in accordance with the *CNSC Rules of Procedure*. During the public hearing held on September 16, 2004 and May 20, 2005, the Commission received written submissions and heard oral presentations from AECL (CMD 04-H21.1, CMD 04-H21.1A, CMD 04-H21.1B, and CMD 04-H21.1C) and CNSC staff (CMD 04-H21, CMD 04-H21.A and CMD 04-H21.B). The Commission also considered oral and written submissions from 17 intervenors (see Appendix A for a detailed list of interventions).

2. Decision

Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*,

the Commission decides to adjourn the hearing until a complete Comprehensive Preliminary Decommissioning Plan in support of the proposed financial guarantee, including decommissioning cost estimates, is available for consideration. The hearing will continue at or before the public hearing that the Commission will hold on the proposed renewal of the CRL site licence in 2006. The specific date(s) for the continuation of the hearing will be announced later in accordance with the *CNSC Rules of Procedure*.

In adjourning the hearing, the Commission accepts that AECL's liabilities, including those for the decommissioning of the CRL site, are ultimately the liabilities of Her Majesty in Right of Canada (as stated in the aforementioned letter from the Honourable Herb Dhaliwal to the President of the Commission dated December 11, 2003). The Commission notes, however, that, while a clear understanding of financial liability is important, it does not fulfill all of the CNSC's requirements for advanced preparations for nuclear facility decommissioning. In accordance with the CNSC Regulatory Guides G-206 and G-219, a commitment to honour a decommissioning liability must be combined with preliminary decommissioning plan(s) that define the approximate size of the decommissioning liability over time (i.e., cost estimates). The Commission needs to have this information to determine that the potential liability is sufficiently characterized so that it can be disposed of in a manner consistent with the CNSC's requirements for the protection of the environment, the health and safety of persons, and national security.

The Commission is of the view that the financial guarantee must be considered together with the decommissioning plans and costing before an overall finding on its acceptability can be reached.

The Commission notes that AECL has made significant progress towards meeting the CNSC's expectations for the preparation of, in this case, a site-wide Comprehensive Preliminary Decommissioning Plan (CPDP) and associated decommissioning cost estimates. The Commission further notes that the long history and complexity of the CRL site has made this a uniquely challenging and time-consuming exercise - both for the CNSC staff in its efforts to explain how the general requirements translate and apply to this unique site, and for AECL to understand and begin a fulsome and systematic response to those requirements. However, despite this convergence of understanding and recent progress by AECL, the Commission is of the view that significant work remains to be completed before it can decide on the acceptability of the financial guarantee and related decommissioning plan for the CRL site. In particular, the Commission finds that AECL needs to complete the work on the modelling of the decommissioning costs within the CPDP. AECL and CNSC staff currently estimate that this work will be completed on or before December 1, 2005.

In addition, for the continuation of this hearing, the Commission requests that AECL provide a revised framework for a Communication and Public Consultation Plan for the continuing future decommissioning planning at CRL.

The Commission wishes to note that its decision to further adjourn this hearing is not to be interpreted as a criticism of the recent work of AECL and CNSC staff to bring this matter to a conclusion. The Commission expresses its appreciation for the greater convergence of understanding and substantial progress that has been demonstrated in the past year by AECL and CNSC staff in addressing this challenging project. The Commission considers this matter to be complex, of high importance and of considerable public interest. The Commission is therefore prepared to invest the time necessary to ensure all of the relevant information is presented to, and fully assessed by, the Commission through this public hearing process.

3. Issues and Commission Findings

In making its decision to adjourn the hearing, the Commission considered a number of issues related to the adequacy of the proposed financial guarantee and decommissioning plan for CRL. The Commission's findings on these issues are summarized below.

3.1 Adequacy of the Proposed Financial Guarantee

AECL proposed a decommissioning financial guarantee that is described in a letter dated December 11, 2003 from the Honourable Herb Dhaliwal, former Minister of Natural Resources Canada, to the President of the CNSC. In that letter, the Minister states that:

“AECL is a Schedule III, Part I Crown Corporation under the Financial Administration Act and is an agent of Her Majesty in Right of Canada. As an agent of Her Majesty in Right of Canada, AECL's liabilities are ultimately liabilities of Her Majesty in Right of Canada.”

CNSC staff expressed its concurrence with the Minister's statement. Furthermore, with reference to section 5.2 of CNSC Guide G-206 (which lists examples of acceptable forms of financial guarantees), CNSC staff concluded that AECL's proposal, being an expressed commitment from a government, is an acceptable financial guarantee. CNSC staff therefore recommended that the Commission accept the financial guarantee proposed by AECL.

CNSC staff added, however, that the financial guarantee addresses only part of what is required with respect to the making of adequate provision for the protection of the environment, persons, national security and Canada's international obligations in regard to future decommissioning of nuclear facilities. CNSC staff noted that an acceptable PDP with cost estimates is also needed to ensure the decommissioning is viable and feasible.

At the Commission's request, CNSC staff further clarified its expectations in this regard for AECL following the initial adjournment of the hearing in October 2004 (Appendix C). Based on its review of the supplementary information provided by AECL in March 2005, including the initial version of a CPDP for the entire CRL site, CNSC staff stated that it has a high level of confidence that the subsequent modelling of the decommissioning costs based on the CPDP, currently expected to be available by December 2005, would be sufficiently accurate and acceptable. The Commission wants to consider the CPDP cost estimates as part of making its determination on the acceptability of the proposed financial guarantee.

In response to the Commission's question on why the cost model and estimates were not available to be presented at the continuation of the hearing in May 2005, AECL stated that its internal audit organization has been engaged in validating the costing and that the Auditor General of Canada was reviewing the audit of AECL's books with respect to the estimates. AECL added that Natural Resources Canada (NRCan) has been actively involved and communicating with the Comptroller General of Canada in an effort to bring the matter to a close in as timely a manner as possible.

Several intervenors expressed concern that CNSC staff is recommending acceptance of the proposed financial guarantee in the absence of complete PDPs and related cost estimates. Sierra Club of Canada expressed the view that the Commission cannot evaluate the financial guarantee without also addressing the adequacy of the decommissioning plans and costs. Sierra Club of Canada further noted that, in its view, there is no link between the financial guarantee and the PDPs in this case. Sierra Club of Canada noted that, as a result of this, and what it considers to be a lack of an accounting of the costs in the books of government, there is, in its view, no indication of what provisions have been made to ensure the government could pay. Sierra Club of Canada described the proposed financial guarantee as a "blank cheque" type of guarantee that should not be allowed to supplant the CNSC requirement to also have an acceptable PDP and cost estimate in place. Based on these arguments, the Sierra Club of Canada recommended that the Commission reject the proposed financial guarantee and request AECL to provide a revised proposal. Concerned Citizens of Renfrew County, Greenpeace and the Ottawa-Vanier Greens in their interventions, expressed similar concerns to those of the Sierra Club of Canada and are of the view that, as a result, the Commission does not have adequate information to properly assess the financial guarantee.

In considering the above submissions of CNSC staff and the intervenors, and the information provided by AECL, the Commission notes that the issue in question is not whether AECL must have both a financial guarantee and a PDP (it is clear that both are required), but rather whether the Commission may, in this case, consider and make a decision on the acceptability of the financial guarantee separately from a decision on the PDP and cost estimates.

In considering this question, the Commission notes that, in cases where the financial guarantee is an instrument with an inherent value, such as a trust fund or bank letter of credit, the financial guarantee is inextricably linked to the cost estimates derived from the PDP and, therefore, the acceptability of the financial guarantee cannot be evaluated independently of the PDP. In such cases, the financial guarantee and the PDP must be combined in a single acceptable proposal. However, the Commission also notes that, if the proposed financial guarantee is unlimited with respect to value and time frame, such as that proposed by AECL, the Commission may consider some aspects of the financial guarantee instrument independently of the required PDP. The Commission concludes, however, that this difference only permits the Commission to consider the acceptability of the form of the financial guarantee instrument; that is, the acceptability of the institutional or administrative arrangement through which the necessary funds would be provided. In this case, the Commission accepts the statement of the government regarding its liability for AECL as an appropriate financial guarantee instrument. The Commission is of the view, however, that the financial guarantee must be considered together with the decommissioning plans and costing before an overall finding on its acceptability can be reached.

With respect to the Sierra Club of Canada's contention that, to be valid, the financial guarantee must also include specific information on how the government is accounting for the cost of the decommissioning in its books, the Commission concludes that such an accounting is not required by the CNSC. The Commission may require that AECL use a structured planning process to derive reasonable estimates of the cost of decommissioning; however, the Commission cannot direct the federal government, which has confirmed its acceptance of AECL's financial liabilities without limit, to make specific appropriations or arrangements in regard to the disposition of those liabilities. This is a matter that may be addressed subsequently by the Government of Canada. Further in this regard, AECL noted that funds for the purpose of decommissioning are currently placed in a segregated fund and that for its budgetary accounting purposes, operational activities are separated from decommissioning activities. This is discussed further in section 3.2 below.

The Sierra Club of Canada also observed that NRCan has recently become involved in assessing the site conditions and remediation options at CRL. The Sierra Club of Canada is of the view that this constitutes a redistribution of responsibilities from the licensee to the federal government. Because the CNSC also falls under the Minister of NRCan, the Sierra Club of Canada suggested that this work of NRCan places the CNSC in a potential conflict where the Commission may be unable, or unwilling, to require the preparation of a fully quantified and secured financial guarantee.

In response to this comment, the Commission points out that it is a regulatory tribunal that is completely independent in the conduct of its regulatory mandate. The Commission also notes that the work of NRCan staff in this regard in no way relieves AECL of its responsibilities under the *Nuclear Safety and Control Act*, or its associated Regulations and licence conditions, including for the purpose of having acceptable decommissioning plans and a decommissioning financial guarantee in place. The work of NRCan staff referred to by the intervenor is, in this regulatory context, similar to any other type of expert advice that AECL may seek from external agencies or consultants and in no way places the Commission, as an independent regulatory tribunal, or the CNSC staff, in a position of conflict.

Concerned Citizens of Renfrew County and Greenpeace expressed the view that AECL's proposed financial guarantee does not meet the criteria set out in CNSC Guide G-206 and that the Commission therefore cannot properly evaluate it. Specifically in this regard, Concerned Citizens of Renfrew County stated that the guarantee is not at arms length from the licensee, that it is not clear how the guarantee will be continuously maintained, and that there appears to be no provision for administration of the guarantee by defined and legally enforceable arrangements. In considering these comments, the Commission notes that the criteria in Guide G-206 are not regulatory requirements and, as guides, their applicability to different types of guarantees must be interpreted. In this case, the Commission is satisfied that an unconditional and unlimited acceptance of liability by the Crown is sufficiently independent of AECL. Furthermore, the commitment of the Crown by a Minister is a fact in law and does not require ongoing maintenance. As noted above, the Commission does not have the authority to instruct the Government of Canada on how to administer or make specific provisions in respect of this liability. However, the Commission may, and will, assure that AECL has processes in place to maintain a properly structured PDP and credible decommissioning cost estimates so that the Government of Canada has a tangible definition of the liability that it can then address at its own discretion.

Conclusion on Acceptability of the Proposed Financial Guarantee:

Based on the above information and considerations, the Commission accepts that the statement of the government regarding its liability for AECL is an appropriate financial guarantee instrument. However, the Commission concludes that the decommissioning liability cannot be effectively discharged without a corresponding acceptable Preliminary Decommissioning Plan. Decommissioning planning enables the licensee or guarantor to deliver the necessary resources in accordance with a defined, optimized and logical sequence of work that is designed to ensure, over time, the protection of the environment, persons, national security and Canada's international obligations. The PDP must be sufficiently detailed and complete to allow AECL, its Board of Directors and the Government of Canada to fully understand the extent of the liabilities in order to ensure that sufficient preparations are made to address them.

Based on the supplementary information provided by AECL for the continuation of this hearing, including the Comprehensive Preliminary Decommissioning Plan for the CRL site, the Commission is satisfied that AECL has demonstrated its understanding of the importance of supporting its financial guarantee instrument with the appropriate planning and costing information. While AECL has made considerable progress in providing this information (as discussed further in the following section of this *Record of Proceedings*), certain of the deliverables specified by CNSC staff in CMD 04-H21.B and attached as Appendix C of this *Record of Proceedings*, remain to be completed, including the preliminary decommissioning cost modelling exercise.

The Commission concludes that a final decision on the acceptability of the financial guarantee cannot be made until the cost modelling and resulting decommissioning cost estimates can be evaluated.

3.2 Adequacy of the Comprehensive Preliminary Decommissioning Plan

As discussed in the foregoing section, the Commission considers that an acceptable PDP is needed to demonstrate that a licensee, or its guarantor, will make adequate provision to protect the environment, persons, national security and Canada's international obligations during the future decommissioning of its facility(ies).

The Commission noted during the hearing on September 16, 2004 that, while this principle was not questioned by the hearing participants, there were significantly different views expressed concerning what can be reasonably expected to be included in AECL's PDPs at this juncture, taking into account the relevant uncertainties that exist. As described in the Notice of Adjournment published October 5, 2004, the Commission requested that CNSC staff list the detailed requirements and expectations that AECL must fulfil before the CRL site PDPs could be considered acceptable. In response, AECL submitted a Comprehensive PDP (CPDP) on March 18, 2005 for the overall CRL site. AECL included the term "comprehensive" to the document title to reflect that the plan is an overarching plan that covers a site with several nuclear facilities of different types and for which facility-specific PDPs are either in place or are being prepared. The Commission's findings with respect to the views of the hearing participants and the adequacy of the CPDP are discussed below.

3.2.1 Comprehensive Preliminary Decommissioning Plan

AECL stated that the CPDP is intended to provide the overall planning context in which PDPs for the individual nuclear facilities at the CRL site will be set. It also describes how the remaining shared infrastructure and site will be decommissioned in the longer term.

AECL explained that the CPDP groups the decommissioning activities into seven logical planning envelopes. AECL further explained that the scope of the decommissioning work within each envelope has, in its view, been systematically identified on a risk-informed, priority basis using expert knowledge and site assessments and inspections. For planning purposes, AECL has assumed that the site will remain an operating nuclear installation for another 100 years and that, following the active decommissioning phases that will occur both during and after site operations, the site will remain under institutional controls for a period of approximately 300 years to allow the remaining radioactivity on the site to naturally decay to safe levels. AECL noted that it has successfully and safely completed several decommissioning activities in the past at CRL and elsewhere and this experience was drawn upon to demonstrate the technical feasibility of the decommissioning program.

AECL further noted that the CPDP will continually evolve as new information becomes available and uncertainties are removed. In this regard, AECL committed to provide annual status reports to the CNSC, beginning April 1, 2006 and to update the CPDP as required, at least once every five years. AECL stated that it considers the CPDP meets the CNSC's expectations as described in Guide G-219.

CNSC staff reported that, from its preliminary review of the document, the CRL site CPDP meets CNSC staff's expectations, and, along with AECL's plan to address the remaining deliverables, is considered by CNSC staff to be acceptable. CNSC staff stated that the level of detail presented in the CPDP is sufficient and concluded that the CPDP describes a decommissioning program that is technically feasible. CNSC staff further stated that AECL has addressed the four implementation components that were missing from the previously submitted PDPs (see Appendix C of this *Record of Proceedings*). These components are discussed in the following paragraphs.

3.2.2 Characterization and Inventory Plan

CNSC staff reported that AECL has provided in the CPDP the description of the structures to be decommissioned, including the location and characteristics, construction and operating history, site layout, and operating and management status. CNSC staff also confirmed that AECL provided reasonable estimates of the radiological, industrial and chemical hazards that it expects will be present in each area or component of the CRL site at the time of decommissioning.

The Ottawa Riverkeeper and Concerned Citizens of Renfrew County, in their interventions, stated that the scope of the contamination at the Chalk River site and the associated risks to the public and the environment are, in their view, not sufficiently delineated and that a better characterization of the wastes was needed. Furthermore, the Ottawa Riverkeeper and Concerned Citizens of Renfrew County, while acknowledging the appropriate level of attention AECL has placed on radiological contamination, are of the view that insufficient information is available on non-radioactive contaminants and their potential effects on the environment. Sierra Club of

Canada and Greenpeace, in their interventions, recommended that the CNSC carry out an independent audit of waste inventories and contamination.

In response to the Commission's question on the availability of this type of characterization information for planning purposes and its availability to the public, CNSC staff stated that several sources of information were available including an assessment report on the releases of radionuclides from nuclear facilities⁴ and an Ecological Effects Review of CRL⁵, as well as annual reports for releases and associated environmental effects. CNSC staff added that the public has had the opportunity to become informed about and comment on issues such as environmental release requirements and compliance matters during licensing hearings for the CRL sites. CNSC staff further noted that the public has been consulted during the environmental assessment (EA) process for specific decommissioning projects (further discussed in section 3.4 of this *Record of Proceedings*).

With respect to the delineation and characterization of groundwater contamination on the CRL site, the Commission sought further information on the extent to which site-wide groundwater monitoring is being, or should be, included in the CPDP. CNSC staff responded that, while groundwater monitoring is being carried out for site operational purposes, all relevant information on site conditions is considered for decommissioning planning purposes and would also be included in any environmental assessments of specific decommissioning projects.

In considering whether the CRL site characterization and contaminant inventory is acceptable for the purpose of the decommissioning planning at this time, the Commission took account of the complexity of the AECL site which includes several different types of facilities in various states of operation and decommissioning, together with a number of legacy issues associated with this older site. While the Commission notes that uncertainties still remain, the Commission notes that much work has been recently done or initiated to address those uncertainties. The Commission accepts that a full characterization of the site for decommissioning purposes will be an ongoing evolutionary process. The Commission is therefore satisfied that the CPDP incorporates all currently available and relevant information and that it provides an appropriate framework for a logical and structured continuation of the site characterization and contaminant inventory work.

In response to the suggestion by some intervenors that the CNSC should conduct its own independent characterization of the site, the Commission notes that the primary responsibility for the safe and environmentally responsible management of nuclear sites rests with the licensees. Licensees are therefore required to gather the information necessary to support and demonstrate their performance. The CNSC provides regulatory oversight, including periodic compliance verification inspections and audits.

⁴ Environment Canada and Health Canada 2004. *Canadian Environmental Protection Act, 1999 Priority Substances List Assessment Report Releases of Radionuclides from Nuclear Facilities (Impact on Non-human Biota)*. ISBN 0-662-35410-9.

⁵ Hart, D.R., P. McKee and C. Wren. 2005a. Ecological effects review of Chalk River Laboratories. Hart, D.R. and P. McKee, EcoMetrix Incorporated, Brampton, Ontario and Wren, C., C. Wren & Associates Inc., Guelph, Ontario, Ref. 04-1178, January 2005.

3.2.3 Schedule for the Decommissioning Program

CNSC staff stated that AECL's conceptual schedule for the decommissioning of CRL, while not presenting specific operational timelines for the various nuclear facilities, does associate the key enabling facilities for decommissioning with the facility life cycles. CNSC staff also reported its satisfaction with AECL's proposed supplementary five-year implementation plan to be submitted in April 2006 and with AECL's plan to update the CPDP annually.

Sierra Club of Canada, in its intervention, expressed concern about the business time frames of 100 years of operation and 300 years of institutional control that AECL has assumed in the CPDP. Greenpeace similarly expressed the view that AECL's current CPDP is driven by AECL's business plan horizons and not necessarily by environmental and health considerations. Sierra Club of Canada expressed the view that such time frames involve significant and controversial cost-benefit tradeoffs that, in its view, require extensive public debate. Sierra Club of Canada also referred to Guide G-219 which states that decommissioning plans should consider the potential scenario where operations cease earlier than planned.

Ottawa Riverkeeper, in its intervention, raised concern on how the priorities for the decommissioning projects and site remediation were set to ensure the protection of the public and the environment in the absence of key information. The Ottawa Riverkeeper suggested that an independent risk assessment be done to determine the priorities. In response to this concern, CNSC staff stated that the CPDP is a process for identifying priorities and for planning remediation and other work that may be needed for proper decommissioning. Furthermore, CNSC staff noted that AECL's five-year operational plan for decommissioning, to be updated as required, and the annual status reports will ensure regulatory oversight over how high priority items are being addressed.

With respect to the Sierra Club of Canada's statement that the CPDP should address how decommissioning would unfold in the event AECL ceases operation much sooner than planned, the Commission notes that this aspect of the CNSC's guidance for decommissioning planning is less applicable in this case where the financial guarantor is a government that has assumed unlimited financial liability for the decommissioning. In the event of an early cessation of operations at CRL, the CPDP would have to be revised accordingly and any accelerated decommissioning activity would still need to fully comply with all CNSC licensing and environmental assessment requirements. The Commission notes that, even if AECL were to cease operations in the near term, the decommissioning of CRL would still need to be carried out in a controlled manner over a significant period of time.

With respect to the planned evolution of the CPDP over time, the Commission notes that there may be greater levels of uncertainty surrounding the activities that are planned for the more distant future. However, the Commission expects that, for the near-term decommissioning activities (i.e., the next 5 to 10 year period), AECL will be able to maintain a relatively high level of confidence in the planned decommissioning activities and associated cost estimates.

Although the Commission is satisfied with the conceptual time line provided in the CPDP, the Commission noted the absence of the more specific operational timelines as identified by CNSC staff as one of the missing deliverables. Without this information, the Commission concluded

that the CRL site schedule for the decommissioning program is currently incomplete for the purpose of the CPDP.

3.2.4 Process for the Development of Support and Enabling Facilities

AECL noted that, in response to the CNSC staff's instructions (Appendix C), the CPDP now addresses how and when enabling and support infrastructure for decontamination, storage and disposal of materials arising from the decommissioning activities will be provided.

Greenpeace and the Concerned Citizens of Renfrew County, in their interventions, disagreed with the waste burial option described in the CPDP. These intervenors specifically objected to AECL's assumption that a shallow rock cavity would be used for the permanent disposal of radioactive waste. These intervenors suggested that higher priority be given to monitored above-ground retrievable storage facilities and waste site remediation. These intervenors also expressed the view that AECL has given inadequate consideration to the handling of high-level radioactive wastes. They, and the Ottawa Riverkeeper, recommended that AECL be required to provide substantially more detail in the CPDP with respect to the supporting processes involved in waste management.

In response to the Commission's examination of these issues, AECL stated that it has made, and will continue to make, its preliminary planning assumptions for waste management options based on current best international practices. AECL noted that it would take into consideration the results of any project-specific public consultation process, including any environmental assessments, before a waste management project would go forward. With respect to the intervenors' stated preference for above-ground retrievable storage of low-level waste, AECL noted that it currently operates retrievable storage of low level waste at CRL and elsewhere and could continue this practice if it should be required. With respect to high-level waste management, AECL noted that until the Nuclear Waste Management Organization makes its recommendations to the government, AECL will continue with its monitored retrievable storage on site, including the current plan to place materials currently in below-grade tile holes in above-ground dry storage. AECL further noted that enabling facilities to package high-level waste and spent fuels for ultimate emplacement in a disposal facility are included in the CPDP. CNSC staff concurred that, for planning purposes in the CPDP, it is appropriate and acceptable to assume best current international waste management practices.

The Commission notes that the ultimate fate of the radioactive waste materials stored at the site, and which will arise from the future operations and decommissioning of the CRL facilities, will depend, to a significant degree, on decisions that have yet to be taken and which are not entirely within the control or responsibility of AECL.

The Commission concludes that, in the meantime, the process described for the development of support and enabling facilities, including for waste management, is acceptable for the purpose of the current CPDP.

3.2.5 Cost Estimates and Calculation Methods

Further in response to CNSC staff instructions, AECL provided information on how it plans to provide the required cost estimates and information on the methods used to calculate the cost estimates by December 1, 2005. AECL noted that it has discussed its preliminary estimates of

the overall decommissioning costs with CNSC staff and has submitted more detailed cost estimates for the decommissioning activities scheduled to occur during the next five years. AECL also noted that it has made funding requests to Treasury Board for specific current decommissioning projects and for the work described in the CPDP related to the management of waste and maintenance of the non-operational facilities prior to their final decommissioning.

CNSC staff stated that, in order for it to review the accuracy and acceptability of those cost estimates, AECL must provide further supporting information on the cost breakdown of materials, labour, waste management, regulatory costs, etc. CNSC staff, however, also expressed its confidence that this validation of the cost estimates would be provided by the set timeline and that the cost estimates would likely be proven reasonably accurate.

As noted in section 3.1, several intervenors stated that the financial guarantee and CPDP cannot be deemed acceptable without the associated cost estimates. The intervenors raised the concern that a decision on decommissioning plans cannot be made without knowing the associated economic costs with the decommissioning activities and remediation projects. They further noted that this information has to be shared with the Commission and the public in an open and transparent manner.

Greenpeace expressed the view that the current funding mechanism does not appear to allow for the amount of funds necessary to match the proposed decommissioning activities listed in the CPDP.

Sierra Club of Canada, in its intervention, raised concern about what it views as the large number of uncertainties around the total estimated costs, including how the public response to the decommissioning plans could have a major impact on the actual funds needed.

In response to the Commission's questions regarding how the public has, or will be, engaged in the planning process, AECL stated that it plans to inform and consult closely with the public on its decommissioning plans over time with the aim to develop a better convergence of understanding on the issues which in turn will help refine the decommissioning cost estimates.

The Commission concludes that, while positive progress has been made towards the development of decommissioning costs, this important part of the CPDP remains incomplete at this time. Therefore, as discussed above, the Commission defers its final decision on the acceptability of the decommissioning financial guarantee until that information is submitted for the Commission's consideration.

3.2.6 Conclusion on the Comprehensive Preliminary Decommissioning Plan

The Commission is satisfied that AECL has adequately completed 7 of the 11 deliverables previously requested by CNSC staff and described in CMD 04-H21.B. The Commission notes however that there remain four deliverables, as follows:

- AECL to provide operational timelines for current [within the next five years] planned decommissioning activities and planned/anticipated decommissioning activities beyond five years for Planning Envelopes 1 and 7, and for support and enabling facilities.

- CNSC staff to provide feedback on the cost model for decommissioning and demolition of structures.
- AECL to develop and submit a cost model to estimate the costs of the major support and enabling facilities.
- AECL to provide a cost or a range of cost for all phases of decommissioning.

Based on the information provided, the Commission concludes that AECL's CPDP for the CRL site does not yet meet the CNSC's expectations.

The Commission notes that considerable progress has been made in recent months to improve AECL's understanding of the decommissioning planning requirements and to correct the deficiencies in AECL's CPDP.

Concerning the path forward, the Commission accepts the recommendation from CNSC staff that the Commission may consider this matter again when the CRL operating licence comes before the Commission for renewal at a public hearing in early 2006. The Commission notes that, if the complete information were to be available before AECL's licence renewal hearing, it would consider continuing this hearing on the decommissioning financial guarantee and CPDP on an earlier date. The Commission is prepared to take appropriate regulatory action to ensure that there are no undue delays and that the required information is submitted within this time frame.

3.3 Public Information and Consultation

AECL described its *Framework for a Communications and Public Consultation Plan* to be used when updating the CPDP and informing the public on specific decommissioning activities. In addition to this plan, AECL stated its commitment to respond to concerns brought forward by the general public and to the concerns raised by the intervenors at this hearing. Furthermore, AECL stated it will include these intervenors in future public communication and consultation activities.

CNSC staff stated that the AECL plan is acceptable and meets the requirements of the CNSC Regulatory Guide G-217, *Licensee Public Information Programs*.

Several intervenors expressed concerns about the breadth of the targeted public and what they consider to be a lack of a meaningful consultation process. In their interventions, they suggested that AECL must reach a wider public beyond the local community surrounding Chalk River, both through various newspapers and by visiting other municipalities. The Ottawa-Vanier Greens, in its intervention, suggested that a public consultation should be used both to educate and to allow for other perspectives so that an exchange of information can take place. Sierra Club of Canada, in its intervention, rejected the notion of open-houses as an effective means to consult with the public.

Based on the information presented, the Commission concludes that AECL's Communications and Public Consultation Plan is not yet acceptable. The Commission is of the view that the plan could be improved to help develop and build public trust in AECL's capacity to plan and perform decommissioning activities, including the management of the waste generated. The

Commission therefore requests AECL to revise the plan to address the concerns raised during this hearing and to consider the various recommendations made. The Commission will consider the revised Communications and Public Consultation Plan at the time it considers the completed CPDP (i.e., during or before the public hearing on the renewal of the CRL site licence in 2006).

3.4 Environmental Assessment Process

All the intervenors requested that the CPDP be considered by a review panel under the *Canadian Environmental Assessment Act* (CEAA). They expressed their view that a review panel is a more open and transparent process for the public to be heard, noting that such a review would also allow for consideration by independent scientists.

In response to this recommendation, AECL and CNSC staff noted that the subject of this hearing was a decommissioning plan which does not trigger the requirement for environmental assessment under the CEAA. AECL and CNSC staff further noted that individual decommissioning projects to be undertaken may be subject to the CEAA and, if applicable, would involve further public consultation specific to those projects.

Based on this information, the Commission concludes that no environmental assessment of the CPDP, pursuant to the CEAA, is required before the Commission may consider and make a final decision on the financial guarantee and the CPDP. In each instance that an environmental assessment is triggered under the CEAA, the Commission will give consideration as to whether a recommendation for a review panel or mediation should be made.

4. Conclusion

The Commission has considered the information and submissions of the licensee, CNSC staff and the intervenors as presented for reference on the record for the hearing.

The Commission acknowledges that the preparation of a CPDP, including decommissioning cost estimates for the CRL site is, and will continue to be, a challenging and evolutionary process. The CRL site is large, includes a wide variety of operational and non-operational nuclear facilities, contains several different forms and types of radiological and non-radiological materials, and has a long history of operation that has created a significant legacy of environmental challenges, some of which remain to be fully characterized.

By submitting its proposed financial guarantee prior to December 31, 2003, the Commission concludes that AECL has fulfilled the requirements of licence conditions 12.1 of licence NRTEOL-01.00/2006 (Chalk River Laboratories); 11.1 of licence NPROL-62.00/2005 (MAPLE facility); and 10.1 of licence NSPFOL-03.00/2005 (New Processing Facility).

The Commission further concludes that the acceptance of liability by the Crown is an acceptable form of financial guarantee. However, to fulfill the CNSC requirements for nuclear facility decommissioning preparations, the financial guarantee must be accompanied by an acceptable CPDP, including reasonable estimates of the decommissioning costs.

In the absence of the cost modelling and estimates, the Commission concludes that a final decision on the CPDP for CRL and associated financial guarantee cannot be made at this time.

In addition, the Commission finds that AECL's *Framework for a Communications and Public Consultation Plan* to be unacceptable at this time. The Commission expects AECL to revise the framework taking into account the concerns and the recommendations made during this hearing. The Commission will consider the revised plan when it is presented as part of the completed financial guarantee and CPDP at a future public hearing.

The Commission is intent on ensuring AECL provides an acceptable CPDP and cost estimates that are viable, realistic, and based on credible technical and risk-based assessments of the facilities and sites to be decommissioned. It is the expectation of the Commission that AECL will have completed a CPDP for the CRL site, acceptable to the CNSC, prior to or before July 2006 when it is anticipated that a Commission decision on an application for renewal of the CRL operating licence will be rendered following a future public hearing. At that future public hearing or sooner, the Commission will examine the adequacy of the CPDP and, if necessary, take regulatory action to ensure any remaining deficiencies are corrected in a timely manner.

Marc A. Leblanc
Secretary,
Canadian Nuclear Safety Commission

Date of decision to adjourn: May 20, 2005
Date of release of Record of Proceedings: July 12, 2005

APPENDIX A – Intervenors

Intervenors	Document Number
Concerned Citizens of Renfrew County, represented by Ole Hendrickson	CMD 04-H21.2 CMD 04-H21.2A CMD 04-H21.2B
Sierra Club of Canada, represented by E. May	CMD 04-H21.3 CMD 04-H21.3A CMD 04-H21.3B
Ottawa-Vanier Greens, represented by M. Thierrin	CMD 04-H21.4
Ottawa Riverkeeper, represented by M. Brown	CMD 04-H21.5
Greenpeace Canada, represented by S-P. Stensil	CMD 04-H21.6
M. Henry	CMD 04-H21.7
T. Lavigne	CMD 04-H21.8
G.Wallenwein	CMD 04-H21.9
R. Meloche	CMD 04-H21.10
D. Heywood	CMD 04-H21.11
N. Allen	CMD 04-H21.12
C. Massicotte	CMD 04-H21.13
S. Haggerty	CMD 04-H21.14
S. Morley	CMD 04-H21.15
G. Daicos	CMD 04-H21.16
J. Monaghan	CMD 04-H21.17
L. Julien	CMD 04-H21.18

Notice of Adjournment of Public Hearing and Request for Supplementary Information

In the matter of:

Atomic Energy of Canada Limited (AECL) financial guarantee for decommissioning AECL's Chalk River Laboratories (CRL), including the MAPLE Reactors and New Processing Facility.

On September 16, 2004, the Canadian Nuclear Safety Commission (Commission) commenced a one-day public hearing on the above matter. Following the proceedings, the Commission determined that additional information is needed before it can reach a final decision. The Commission decided therefore, pursuant to Rule 14 of the CNSC *Rules of Procedure*, to adjourn the public hearing to May 20, 2005.

To assist in the continuation of this public hearing, AECL and CNSC staff are requested to file with the CNSC Secretariat, as a minimum, the following information in the form of supplementary Commission Member Documents:

- With reference to the specific sections of AECL's June 25, 2004 CRL site *Preliminary Decommissioning Plan* (PDP), and the related CNSC regulations, guides and policies⁶, CNSC staff is requested to provide, on or before November 15, 2004, a detailed listing and description of the CNSC's requirements and expectations that AECL must fulfill before the CRL site PDP can be considered acceptable.
- AECL is requested to provide, on or before March 18, 2005:
 - detailed information on how it has met, or is planning to meet, each of the CNSC requirements and expectations described in the above information request.
 - a further revision of the CRL site PDP and/or a detailed work plan and schedule for completing the PDP in accordance with the above information.

⁶ Including but not necessarily limited to:

CNSC Regulatory Guide (G-219), *Decommissioning Planning for Licensed Activities*, June 2000;
CNSC Regulatory Guide (G-206), *Financial Guarantees for the Decommissioning of Licensed Activities*, June 2000; and
CNSC Regulatory Policy (P-290), *Managing Radioactive Wastes*, July 2004.

- a plan for how it will consult with the public in the periodic review and updating of the CRL site PDP over time.
- CNSC staff is requested to provide, on or before April 18, 2005, its preliminary assessment of the above-requested information from AECL.

In addition to the above information, the Commission reserves the right to request additional information prior to the continuation of the hearing on May 20, 2005.

The public is invited to intervene at the continuation of the public hearing. Intervenors are requested to submit the contents of their written or oral interventions to the CNSC Secretariat on or before May 6, 2005.

Marc A. Leblanc
Secretary
Canadian Nuclear Safety Commission

Date of decision: September 24, 2004
Date of publication: October 5, 2004

APPENDIX C – Outstanding Implementation Components and Deliverables

Four decommissioning plan implementation components were left outstanding at the September 16, 2004 hearing, as follows:

- a characterization and inventory plan to provide an assessment of liabilities on the site;
- a schedule for the decommissioning program, showing timelines for various facilities;
- a process for developing support and enabling facilities; and
- information on the methods used to develop the cost estimates.

To address these four components and in response to the Commission's direction in the Notice of Adjournment (see Appendix B of this *Record of Proceedings*), on November 10, 2004, CNSC staff provided to AECL a list of eleven required deliverables. The following eleven deliverables were selected so that, if AECL provided them and CNSC staff found them acceptable, the four outstanding implementation components would be resolved:

1. A revision to the CRL PDP to include a complete listing of all structures, affected lands and waste management areas on the CRL site.
2. Review the distributed civil services on the CRL site and update the PDP where required.
3. Ensure that the plume from Glass Block site 2 is adequately dispositioned.
4. A revision to the PDP concerning its waste management areas and on/off site landfill sites capacity to handle decommissioning waste until 2010.
5. Re-examine the Planning Envelopes to determine that structures have been dealt with in a conservative manner.
6. Re-examine and revise the appropriate tables in the PDP in order to provide more details of the steps to be taken to implement the decommissioning strategy and approach.
7. Provide processes and timelines for implementing support and enabling facilities for the various planning envelopes.
8. Provide operational timelines for current [within the next five years] planned decommissioning activities and planned/anticipated decommissioning activities beyond five years for Planning Envelopes 1 and 7, and for support and enabling facilities.
9. CNSC staff to provide feedback on the cost model for decommissioning and demolition of structures.
10. Develop and submit a cost model to estimate the costs of the major support and enabling facilities.
11. Provide a cost or a range of cost for all phases of decommissioning.