

# Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant  Cameco Corporation

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Subject Application for the renewal of the mining  
operating licence for the Rabbit Lake  
Operation

Date October 24, 2003



## 1. Introduction

Cameco Corporation (Cameco) has applied to the Canadian Nuclear Safety Commission (CNSC) for a 5-year renewal of its uranium mining operating licence for the Rabbit Lake Operation. The current operating licence for the Rabbit Lake Operation UMOL-MINEMILL-RABBIT.06/2003 expires on October 31, 2003. In addition to seeking permission to continue the currently authorized activities, Cameco has applied to proceed with part of the planned reclamation of the A-Zone open-pit mine at the Rabbit Lake Operation by removing portions of the dike that isolate the pit from Collins Bay of Wollaston Lake.

The Rabbit Lake Operation is located on the western shore of Wollaston Lake in northern Saskatchewan, approximately 750 kilometers north of Saskatoon, Saskatchewan. The Rabbit Lake Operation consists of an active underground uranium mine (Eagle Point Mine), three inactive and partially reclaimed and flooded open-pit mines (A-Zone, B-Zone and D-Zone Mines), a mill, various mine and mill waste management systems, and associated site facilities. The current licence also authorizes Cameco to possess, store, transfer, import, use and dispose of nuclear substances and radiation devices.

Issues:

In considering the application, the Canadian Nuclear Safety Commission (the Commission) was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*, if:

- a) Cameco is qualified to carry on the activities that the licence would authorize; and
- b) if, in carrying on those activities, Cameco would make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

Public Hearing:

The Commission, in making its decision, considered information presented for a two-day public hearing held on June 25, 2003 and September 24, 2003 in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*. During the public hearing, the Commission received written submissions and heard oral presentations from Cameco (CMD 03-H22.1, CMD 03-H22.1A and CMD 03-H22.1B), CNSC staff (CMD 03-H22, CMD 03-H22.A and CMD 03-H22.B) and twenty-four 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 concluded that Cameco is qualified to carry on the activities that the licence will authorize. The Commission also determined that Cameco, in

carrying on those activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, issues Uranium Mine Operating Licence UMOL-MINEMILL-RABBIT.07/2008 to Cameco Corporation, Saskatoon, Saskatchewan, for the Rabbit Lake Operation. The licence is valid from November 1, 2003, to October 31, 2008, unless suspended, amended, revoked or replaced.

The Commission includes in the licence the conditions recommended by CNSC staff as set out in the draft licence attached to CMD 03-H22.B, with the following modification:

Condition 1.4 is modified to read as:

“The licensee shall maintain a Preliminary Decommissioning Plan and a financial guarantee that are acceptable to the Commission or a person authorized by the Commission.”

The Commission also requests that CNSC staff present a report to the Commission on the performance of Cameco and the Rabbit Lake Operation at the approximate mid-point in the licence term; that is, approximately May 2006. The mid-term status report will address, but will not necessarily be limited to, the areas identified by CNSC staff during the hearing as not currently meeting CNSC expectations, or as yet to be assessed. The mid-term report will be presented at a public proceeding of the Commission.

### **3. Issues and Commission Findings**

In making its licensing decision under section 24 of the *Nuclear Safety and Control Act*, the Commission considered a number of issues relating to Cameco’s qualifications to carry out the proposed activities, and the adequacy of the proposed measures for protecting the environment, the health and safety of persons, national security and international obligations to which Canada has agreed. The Commission’s findings on these issues are summarized in this section.

The Commission notes that many of the issues examined are interdependent. For example, determining the adequacy of performance in a specific safety area often requires an examination of the licensee’s past and current performance in that area, together with the relevant aspects of performance assurance and facility design that will affect future performance. As such, the findings of the Commission presented below are based on the Commission’s consideration of all of the information and submissions available for reference on the record for the hearing.

### **3.1 Radiation Protection**

As part of its evaluation of the adequacy of provisions for protecting the health and safety of persons, the Commission considered the past performance and future plans of Cameco in the area of radiation protection.

With respect to the protection of workers from radiation, CNSC staff reported that Cameco continues to adequately control radiation doses at the Rabbit Lake Operation. All doses to workers have remained well below regulatory limits.

CNSC staff noted, however, that while Cameco's radiation protection program (as described in its radiation Code of Practice) is acceptable, the implementation of that program is not currently meeting all aspects of CNSC requirements. CNSC staff stated that the deficiencies in Cameco's implementation of the radiation protection program pose a low risk of Cameco falling significantly below requirements. Therefore, CNSC staff is of the view that the issues can be addressed as part of its ongoing compliance activities. CNSC staff noted that a further audit of the radiation protection program at the Rabbit Lake Operation is scheduled for November 2003.

In summary, CNSC staff noted that in order to satisfy the CNSC's expectations, Cameco needs to improve how it delivers radiation protection programs in a timely manner, monitors the delivery of the program elements to specific objectives, and provides accurate and timely submissions to the CNSC. CNSC staff noted that it is generally satisfied with Cameco's response to these issues to date and that it expects improvement to continue.

More specifically on the identified deficiencies, CNSC staff noted that Cameco has experienced difficulties in ensuring that continuous radon progeny monitors are always located in the workplaces where there is a potential for elevated concentrations. In response to this concern, Cameco reported that it has refurbished existing monitors and purchased new alpha working-level monitors, and has placed a high priority on ensuring the timely deployment of the monitors in the required areas. In its supplementary information, CNSC staff confirmed that it is now satisfied that sufficient radon progeny monitors have been installed in the higher risk work areas.

CNSC staff further reported that Cameco was encountering problems in the operation, monitoring and maintenance of the ventilation system in the Eagle Point Mine. That system is important for controlling dust and radon concentrations in the work areas. While the problems resulted in temporary interruptions of the mine ventilation system, CNSC staff noted that Cameco effectively implemented proper contingency actions as set out in the Code of Practice (such as temporary mine evacuations) to ensure there were no significant doses to the workers from these problems. Cameco further described for the Commission the mine ventilation problems it encountered and outlined the corrective actions taken to improve the reliability of equipment and overall efficiency of the system. In response to a question from the Commission on the current status of the corrective actions, Cameco reported that the work to rectify the ventilation problems has been largely implemented. CNSC staff noted that it is currently verifying this and that the system operation and effectiveness will be the subject of an audit later in 2003.

Another radiation protection concern reported by CNSC staff relates to a number of instances where radiation exposure action levels were exceeded for individual workers at the Eagle Point Mine. Action levels are set well below the regulatory limits to ensure the timely correction of potential risks to workers. For those events, it was determined that procedures for controlling exposures to long-lived radioactive dust were either not being followed, or not effective. Deficiencies in the implementation of dosimetry procedures and supervisor radiation protection training were also found to have contributed to the higher exposures.

In response to questions from the Commission on what has been done to address these findings, Cameco stated that it revised its program manuals and revised and improved the delivery of its training programs. Cameco noted that it continues to provide basic radiation protection training to all staff and contractors. This includes training sessions, regular supervisory safety meetings, and on-the-job reviews of the radiation protection procedures with the crews in the mine. Furthermore, Cameco noted that radiation protection staff now provides coverage in the mine 24 hours per day.

In response to the Commission's questions on the above-noted control of radioactive dust issue, Cameco stated that, since the above-noted incidents arose, it has made significant efforts to better control dust in the mine through the use of water and improved ventilation of occupied areas. CNSC staff and Saskatchewan Labour expressed their satisfaction with these measures and noted that the contribution of radioactive dust to the overall doses received by the workers is acceptable and significantly less than in the past at Eagle Point Mine. CNSC staff, however, stressed the need for continuous vigilance in the control of dust in the mine and that this will form part of the CNSC audit of the radiation protection program planned for later in 2003. Cameco further noted that the dose rates from all sources, including gamma radiation, radon progeny and dust, continue to improve as illustrated by the monitoring results from the second quarter of 2003.

In their interventions, Marion and Jim Penna, and B. Adamson, expressed concerns about the reported deficiencies in the implementation of the radiation protection program. These intervenors are of the view that there remains too much uncertainty about the effectiveness of the programs. In expressing this view, B. Adamson referred to the higher incidence of cancer among former miners from the Elliot Lake and Bancroft mines as evidence of an inability to account for all of the mechanisms of exposure to alpha radiation that contribute to long-term risks to the workers. While the Commission is concerned about the identified deficiencies in the implementation of the radiation protection program at the Rabbit Lake Operation, the Commission, based on the information presented, is satisfied that appropriate steps have been, or are being taken, to correct the problems. The Commission notes that the doses to the workers are well below, and continue to improve in comparison to, the regulatory limits. Those limits have been conservatively set using the best available scientific information and international expert opinion.

Based on the above information and considerations, the Commission concludes that Cameco has made, and will continue to make, adequate provision for the protection of people from radiation at the Rabbit Lake Operation. The Commission expects Cameco to continue to improve its implementation and reporting on the radiation protection program, and that full compliance with

the CNSC's requirements will be realized in the near future. The Commission requests CNSC staff to provide the Commission with a progress report on the implementation and effectiveness of the radiation protection program at the Rabbit Lake Operation as part of the requested mid-term progress report. CNSC staff may also report any significant radiation protection issues or incidents by way of Significant Development Reports at regularly scheduled meetings of the Commission.

### **3.2 Conventional Health and Safety**

Also with respect to the protection of persons at the Rabbit Lake Operation, CNSC staff reported that Cameco's conventional (i.e., non-radiological) safety program and its implementation currently meet CNSC's expectations and the requirements of Saskatchewan Labour. Cameco noted that, as of April 30, 2003, the Rabbit Lake Operation had operated for a period of 44 months without a lost-time accident and that trends in the number of incidents continue to be favourable. CNSC staff and Cameco provided information on a number of reported safety incidents (including minor accidents and potential incidents), and described how those incidents were investigated. CNSC staff reported its satisfaction with how Cameco has responded to each incident. Cameco identified a number of initiatives used to promote safety, including an effective Occupational Health and Safety Committee, safety training, safety stand-down days, the assignment of line management accountability for safety, daily morning safety visits, and periodic safety reviews and audits.

In response to questions from the Commission on Cameco's overall policies regarding safety, Cameco stated that safety and the promotion of a strong safety culture among the workers, is of top priority and central to the operating philosophy of the company at all levels.

Based on this information, the Commission is satisfied that Cameco has made, and will continue to make, adequate provision for the protection of persons from conventional (non-radiological) hazards at the Rabbit Lake Operation.

### **3.3 Environmental Protection**

To determine whether Cameco will make adequate provisions to protect the environment while carrying out the proposed activities at the Rabbit Lake Operation, the Commission considered the potential for the continued facility operations and proposed breaching of the A-Zone dike to adversely affect the environment.

In this regard, CNSC staff reported that Cameco has an acceptable and extensive environmental protection program in place and that the implementation of that program meets CNSC requirements.

### 3.3.1 Mill Operations and Treated Effluent

#### Atmosphere:

With respect to the effects of the Rabbit Lake Mill on the atmosphere, CNSC staff reported that the sulphur dioxide emissions from the sulphuric acid plant (the most significant potential source of contaminated emissions from the mill) has, with the exception of occasional exceedances of the Saskatchewan hourly release limits during plant start-up, been acceptable overall. All other emissions from the Rabbit Lake Operation to the atmosphere are acceptable and within applicable regulatory limits.

Based on this information, the Commission is satisfied that adequate provisions are being made to protect the atmosphere at the Rabbit Lake Operation.

#### Liquid Effluent:

CNSC staff explained that, with the exception of small amounts of seepage from the waste areas, all contaminated site drainage and effluents from the Rabbit Lake Operation are collected and treated prior to release to the Horseshoe Creek drainage system. Horseshoe Creek drains to Horseshoe Pond and ultimately to Hidden Bay of Wollaston Lake.

With respect to the impact of the effluent on the downstream environment, CNSC staff reported that, although the quality of the effluent from the treatment plant has consistently been within the limits set by the Province of Saskatchewan, a substantial accumulation of uranium and other metals in the sediments of Horseshoe Creek and Horseshoe Pond has been observed. CNSC staff reported that the extent of the uranium accumulation in the sediment is now such that wildlife and aquatic organisms in that system are at risk due to the chemical toxicity of the uranium. CNSC staff observed that, while Horseshoe Pond continues to support a relatively healthy fish population, the benthic invertebrate communities in the pond, when compared to reference sites, are simpler in structure and generally include species that are more tolerant to contamination. CNSC staff expressed concern that the spatial extent of these effects may continue to expand throughout the drainage system and to Hidden Bay if the current releases of uranium from the treatment plant are allowed to continue. CNSC staff noted that there are currently no observable effects on the biological communities in Hidden Bay despite some observed minor contamination of the sediments (uranium and molybdenum).

Cameco and CNSC staff noted that, while some near-field effects of the effluent in this drainage system had been anticipated, the extent of the ecological risk from the contaminated sediments had not been predicted at the time the Rabbit Lake Operation began. Cameco expressed the view that the observed accumulation of uranium in the sediment may be the result of natural biological removal processes that had not been previously modelled.

To address this concern, CNSC staff recommended that the Commission add a condition to the licence (condition 2.4 in the proposed draft licence attached to CMD 03-H22.B). The proposed licence condition would require Cameco to reduce the amount of uranium released in the treated

effluent in accordance with an accepted plan and schedule, and to establish by November 30, 2003, an Administrative Level and Action Level for the control of uranium discharges in the interim. With respect to the above-noted plan and schedule for reducing uranium releases, Cameco has proposed, and CNSC staff has accepted, a 2-phase plan. The first phase, expected to last approximately 26 months, includes further laboratory testing and pilot testing in the mill and treatment plant. The second phase would last approximately 16 months and involve the design, installation and commissioning of improvements. CNSC staff noted that it has reviewed the proposed plan and schedule in conjunction with Environment Canada and Saskatchewan Environment and is satisfied that it is consistent with the requirements of the *Canadian Environmental Protection Act* (CEPA, 1999) for this type of environmental risk management initiative.

In comparing the above-noted 42-month schedule for addressing the uranium release issue to the expected few years of remaining life of the Eagle Point Mine, the Commission questioned whether the final implementation of the uranium control plan would not be too late to be effective. In response, Cameco explained that the mill effluent is only one of several sources of contaminated water that will require treatment in the long-term. Seeps, runoff and effluent from the tailings management areas will require treatment for several years after the mine and mill are shutdown. Cameco noted that it is also considering options for continued custom milling of ores from other mines. With respect to the timing of when actions to reduce uranium could be implemented, Cameco stated that it will implement, at any stage of the plan, any measures that can provide a “quick-fix” for any aspect of the uranium control issue. Cameco added that the proposed schedule is required to ensure a systematic investigation and mass-balancing of all the sources and forms of uranium from across the site to ensure there is a full understanding of the problem and of where to make the most effective changes. CNSC staff added that it will continue to work with Environment Canada in assisting with the risk management assessment of proposed control measures. CNSC staff, as part of its compliance program, will require Cameco to continuously maintain releases ALARA (as low as reasonably achievable) while the plan is being implemented.

The Commission expressed concern that the above-noted uranium contamination in the sediments of the Horseshoe Creek drainage system had not been predicted earlier and that corrective and preventative action had not been taken earlier based on known trends in the monitoring data. An intervenor, B. Adamson, raised similar concerns and expressed the view that the contamination trends and damage should have been acted upon long ago.

In response to these concerns, Cameco and CNSC staff explained that the Province of Saskatchewan has a limit for uranium in effluent and that the effluents from the Rabbit Lake Operation, while higher than at other uranium mines in Saskatchewan, have remained within a small fraction of that provincial limit. CNSC staff also noted that the CNSC licences require compliance with the federal *Metal Mining Effluent Regulations* under the *Fisheries Act* which do not have a specific limit for uranium in effluent. CNSC staff explained that the regulation of uranium in effluent under a CNSC licence is therefore based on whether or not there are possible deleterious effects on fish or fish habitat at the specific location (i.e., as per the requirements of the *Fisheries Act*). With the more recent identification of the chemical toxicity of uranium under the CEPA (1999) assessment process, CNSC staff explained that a relatively new regulatory risk

threshold for aquatic biota has become available. Therefore, while the releases and accumulation of uranium in the Horseshoe Creek system were known, the more recent understanding of its chemical toxicity to aquatic biota has prompted a relatively recent evolution in the regulatory requirements. The past assessments were based on the radiological risks which, in CNSC staff's view, remain acceptable in the affected area. The Commission accepts this explanation and notes CNSC staff's statement that it has, and will continue to work in close collaboration with Environment Canada on this issue.

With reference to Cameco's statement concerning the possibility that the build-up of uranium in the sediments may be due to a particularly efficient natural biological removal process, the Commission asked why this natural concentrating mechanism had not been previously anticipated and modelled. In response, CNSC staff noted that the pre-development environmental assessment completed in the early 1990s was focused on predicting radiological impacts to humans, and as such did not go into detailed analysis of long-term contaminant behaviour and how it could affect non-human biota in terms of either radiological or chemical toxicity. CNSC staff reiterated that current knowledge about chemical toxicity of uranium now warrants such an examination as part of an appropriate adaptive environmental management approach.

In response to a follow-up question from the Commission on what options exist for remediating the areas of the Horseshoe Creek system that have now been impacted above current thresholds of acceptability, CNSC staff stated that it was always known that the effluent from the Rabbit Lake Operation would cause near-field impacts in the Horseshoe Creek system, and that remediation of the impacted areas may be required as part of the final decommissioning of the site. The principal objective was to protect Hidden Bay and, in CNSC staff's opinion, this continues to be successful. CNSC staff further noted that various remediation and decommissioning options will need to be evaluated; however, based on the current assessment of the affected area, CNSC staff considers it unlikely that leaving the contaminated sediments *in situ* for natural recovery will be acceptable. This is because when the flow of effluent from the treatment plant stops (currently that effluent makes up a large part of the flow in the drainage system), the natural fluctuations in flow and water levels could result in a remobilization and downstream spread of contamination in the long-term.

M. Shiell, B. Adamson, L. Murphy and several other intervenors (many of whom referred to their support for the detailed intervention from M. Shiell) expressed concern that too much emphasis is now being placed on chemical toxicity of uranium and that, in their view, much is still unknown about the long term effects of alpha radiation on biota (such as from radium-226). These intervenors are particularly concerned about genetic effects that may affect future generations. They are also of the view that scientists currently know little about the dose rates that affect germ cells and, therefore, little about the genetic effects that can occur at dose rates well below those that could cause observable changes in reproductive success. These intervenors consider that much more scientific research, using modern tools in molecular biology, must be done before there can be any consensus on the long-term radiological effects of uranium mining. Furthermore, they are of the view that no further uranium mining should be permitted until that assessment work is done.

The Commission sought CNSC staff views on these concerns of the intervenors. In response, CNSC staff stated that it makes use of an extensive body of scientific information on radiation effects on biota, including alpha radiation. Much of this work is done under the auspices of the International Commission on Radiological Protection (ICRP). CNSC staff noted that, in addition to examining the scientific literature, it considers the direct evidence of very long-term effects of radiation in other locations where radiation exposures are naturally high. In this regard, CNSC staff referred to studies that have been conducted in Zimmer Lake in northern Saskatchewan. CNSC staff reported that, despite the fact that natural levels of radioactive lead, polonium and radium in Zimmer Lake are substantially higher than those found in the receiving water bodies near the uranium mines elsewhere in Saskatchewan, Zimmer Lake supports a healthy benthic invertebrate community and shows no evidence that very long-term exposure to alpha radiation has had a negative effect on the aquatic populations.

The Commission questioned CNSC staff on the significance of the reported accumulations of other metals, such as arsenic and nickel, in the sediments of the Horseshoe Creek system. CNSC staff noted that while these metals are of concern and may be contributing to the observed effects on the biota in the Horseshoe Creek system, their concentrations in the effluent, unlike uranium, are decreasing over time. CNSC staff also noted that these metals tend to bind quickly to the sediments and, as such, are not transported downstream to Hidden Bay. CNSC staff further noted that while the sediment concentrations of these metals are high relative to the Saskatchewan Sediment Quality Guidelines, they are lower than at other mine sites and are decreasing.

In response to the Commission's questions on the contamination of fish and fish flesh, CNSC staff reported that the sampling of fish from Horseshoe Pond in 1994 found elevated levels of uranium in the flesh of the fish. The amount, however, was below the reference toxicity benchmarks for human consumption. CNSC staff further reported that the fish sampling done on a 3-year cycle in the bays of Wollaston Lake have shown uranium levels that are at, or near historical background levels. When asked by the Commission why more frequent sampling of fish is not done in the Horseshoe Creek drainage system, CNSC staff responded that one must take care to ensure that the taking of fish for sampling does not itself cause serious harm to the relatively small resident populations. CNSC staff noted that, as part of the Environmental Effects Monitoring Program completed in 2002, a variety of other fish health indicators were considered. Cameco added that the sampling of fish in 1994 was only to provide a baseline for the environmental assessment of a proposed milling project and was not intended to be part of an ongoing monitoring program.

On the matter of the Link Lakes drainage system (the only other natural drainage system used for, and impacted by, releases from the Rabbit Lake Operation), CNSC staff stated that this system is not currently used, and that the effects of past operations are contained and not adversely affecting Pow Bay in Wollaston Lake. CNSC staff reported that uranium in the sediments is the only potential source of impact on the biota and that a simpler and more contaminant-tolerant benthic invertebrate community has been observed there. A possible higher incidence of cataracts in fish in the Link Lakes is also being investigated. CNSC staff indicated that it is satisfied that the studies underway to identify the preferred long-term decommissioning

options for the Link Lakes system will ensure that long-term residual effects are acceptable. The area continues to be monitored and actions will be taken in the shorter term if necessary.

Based on this information, the Commission is satisfied that Cameco is making adequate provision to protect the environment from the Rabbit Lake Operation effluents. With respect to the above-noted problems in the Horseshoe Creek system, the Commission is satisfied that appropriate steps are being taken to reduce the amount of uranium discharged and to therefore slow the rate of accumulation and spread of uranium contamination in the sediments. In this respect, the Commission accepts the CNSC staff's recommendation for the related licence condition.

While the Commission is concerned that accumulation of uranium in the sediments in the Horseshoe Creek drainage system was not identified and the trend reversed earlier, the Commission acknowledges that this was in part influenced by evolving regulatory expectations. The Commission is satisfied that the extent of the affected area will be limited and that residual effects can be ultimately addressed in final decommissioning of the site. The Commission is also satisfied that the long-term effects of radiation on the aquatic biota in the Horseshoe Creek system are not likely to be significant.

### 3.3.2 Environmental Spills and Events

CNSC staff reported that there were two minor spills during the current licence period. One was a spill of runoff from the B-Zone ore stockpile pad caused by a frozen culvert in the collection ditch. The other was a spill of treated effluent containing precipitated solids that was caused by a rupture of a weld in a polyethylene pipeline in cold weather. CNSC staff reported that, in both instances, the effects were negligible and that Cameco responded appropriately, including in the making of appropriate preventative modifications to the designs and maintenance programs.

In response to a follow-up question from the Commission on the performance of polyethylene liners at ponds used to temporarily store mine water prior to its transfer to the treatment plant, Cameco stated that some ice damage to the liners does occur each year and sometimes during the periodic cleaning of sediment from the ponds. Cameco noted, however, that a maintenance program is in place to track and repair all punctures in the liner and that groundwater monitoring in the area indicates that there has been no impact as a result of leakage.

Based on this information, the Commission is satisfied that Cameco is taking appropriate steps to prevent and respond to any unplanned releases and spills of contaminants at the Rabbit Lake Operation.

### 3.3.3 Environmental Monitoring

CNSC staff reported that, in addition to the monitoring of emissions and effluents from past and current operations, Cameco is now required to implement a 3-tier *Environmental Effects Monitoring* (EEM) Program; that is, a program designed to monitor how the surrounding environment is responding to the facility emissions and effluents. CNSC staff noted that the required EEM is linked to the CNSC's risk-based framework for environmental monitoring and

is coordinated with the EEM requirements of the *Metal Mining Liquid Effluent Regulations* under the *Fisheries Act*. EEM is currently done in the Horseshoe Creek, Link Lakes and Collins Creek systems on a 3-year cycle (last done in 2002). With reference to the effluent and EEM programs, Cameco noted that it will be rationalizing all of its monitoring programs, together with the other monitoring program underway in the area, such as the Saskatchewan State of the Environment Cumulative Effects Monitoring program and the Athabasca Working Group programs.

CNSC staff stated that, while Cameco is reporting the environmental monitoring program results in an appropriate and timely manner, CNSC staff has identified deficiencies in Cameco's data analysis and interpretation, and in particular, in its follow-up to potentially adverse trends in the results. For example, CNSC staff expressed concern about Cameco's lack of a follow-up response to an observed upward trend in the concentrations of uranium in sediments next to the B-Zone pit in Collins Bay. CNSC staff indicated that, as a result, it will be conducting a further audit of the monitoring program in the next several months.

In response to the Commission's questions on this observed deficiency in the monitoring program, Cameco acknowledged the deficiency and committed to addressing the CNSC staff's concerns. Cameco noted that the problems may be related to the large size of the monitoring program that has evolved over time (i.e., there may now be too much data to effectively manage and analyze) and the need to refocus the programs. With specific reference to the uranium concentrations in the sediment next to the B-Zone, Cameco expressed the view that the levels are still very low and may be the result of natural mineralization in the sediments, or the result of the new sediment sampling method that is being used.

With reference to the monitoring of waterfowl and the reported uptake of some contamination by birds visiting the Rabbit Lake Operation, the Commission questioned whether further mitigation measures, such as the fencing of the In-pit Tailings Management Facility (IPTMF), should be taken. M. Shiell, in her intervention, also referred to this uptake by waterfowl, and expressed concerns that no attempts to measure the long-term genetic effects in the birds have been made. In response to these questions and concerns, Cameco stated that the waterfowl study involves very few birds due to the fact that little open water maintained in the IPTMF and therefore very few birds visit the site. As such, Cameco concluded that the risk to waterfowl is small and that no further mitigation measures are justified at this time. Monitoring of radiological contamination in the birds, however, will continue. The Commission is satisfied with this response.

Further on the matter of environmental monitoring, the Inter-Church Uranium Committee, in its intervention, recommended that an independent environmental management committee should be permitted to carry out independent studies of the ecotoxicological impacts of the effluent on biota, including the taking of samples and the conduct of assessments into the effects on the reproductive capacity and colonization of benthic communities. The Inter-Church Uranium Committee is of the view that a separate independent environmental monitoring group would facilitate better public participation and act as a public "watch dog" over the industry and regulator.

In response to the Commission's questions on what public committees or groups are currently active in relation to the mines, CNSC staff noted that the standing *Environmental Quality Committee*, which includes representation from the northern communities, is actively involved in the environmental issues and does carry out its own independent sampling in the area of the mines. Similarly, the community-based Athabasca Working Group does some independent environmental sampling. The Commission acknowledges the important contribution of these community-based groups and also points out that the CNSC is Canada's independent nuclear safety regulator.

Based on the above information and considerations, the Commission is satisfied with the adequacy of, and direction being taken to improve, the environmental monitoring programs at the Rabbit Lake Operation. The Commission is further satisfied that Cameco understands the deficiencies in the program implementation as identified by CNSC staff and that it is responding in an appropriate manner to those concerns.

### 3.3.4 Environmental Effects of the Proposed A-Zone Dike Removal

The Commission's consideration of whether Cameco will make adequate provision to protect the environment in relation to the proposed partial removal of the A-Zone dike is discussed in this section. The Commission notes that several intervenors have expressed the view that such an assessment must be conducted pursuant to the *Canadian Environmental Assessment Act* (CEAA) before the Commission can decide whether to proceed with its consideration of this part of Cameco's licence application. The Commission's findings with respect to the application of the CEAA in this case are discussed in Section 3.10 below.

With respect to the potential effects of the proposed breaching of the dike, CNSC staff, following their detailed review performed in conjunction with other federal and provincial expert departments, concluded that the proposed removal of the dike will not have a significant adverse effect on the environment. CNSC staff noted that the proposed breaching of the dike is in accordance with the CNSC-approved waste management plan that was developed prior to the construction of the mine. In preparing for this remediation activity, Cameco explained that it considered a variety of options for the final configuration of the dike, ranging from leaving it fully intact to complete removal. The study of options was done in close consultation with the local communities and other stakeholders. Cameco reported that, while all of the options would result in an acceptable environmental impact, the option that contemplates a partial removal of the dike, leaving two sections as permanent islands in the bay, is preferred in terms of both environmental impact and cost.

Noting that Cameco is proposing to leave portions of the steel cells from the dike structure permanently in place, the Commission asked about the long-term effects from the corrosion of that steel. In response, Cameco stated that the cells would be cut off below the water line to mitigate any aesthetic impact and that the rate of corrosion would be slow enough that no significant concentrations of iron in the water would result. As for the ultimate loss of structural integrity of the steel, Cameco noted that the abutments of waste rock that form the bulk of the dike, while possibly slumping somewhat over time as the steel loses strength, would remain largely in place.

In response to the Commission's request for more detailed information about the current environmental conditions in the A-Zone pit, CNSC staff and Cameco provided the following evidence: the water quality in the pit is consistently meeting the Saskatchewan Water Quality Guidelines at all depths; the concentrations of metals and suspended solids are acceptably low; and the uranium concentrations are well below the Estimated No-Effects Value applicable under the *Canadian Environmental Protection Act* (PSL). Similarly, evidence was provided to demonstrate that the sediment quality is stable, within guideline and regulatory limits, and typical of the reference sites outside the pit in Collins Bay.

M. Shiell and B. Adamson, in their interventions, expressed concern that not enough is known about the possible long-term contaminant transport from the pit. These intervenors are concerned that radioactive contaminants and their radioactive decay products will migrate up from the special wastes that were placed in the bottom of the pit and eventually escape over thousands of years into Wollaston Lake.

In response to the Commission's questions on these concerns of the intervenors, Cameco explained that the water in the pond is approximately 10 metres deep and that the dike will be breached to a 2-metre depth below the water only so to facilitate navigation. Cameco further noted that the special waste at the bottom of the pit is covered with four metres of clean till. Cameco expressed the view that while it may be possible that severe storms could cause some displacement of the sediments at the bottom of the pit, it is extremely unlikely that the special mine wastes could be exposed or displaced by natural processes. In response to follow-up questions from the Commission on this, CNSC staff reported that it has done conservative calculations to confirm that the contaminants will not diffuse up through the overlying till. CNSC staff also noted that the hydrologic data indicates a downward flow through the sediments and waste and into the bedrock below the pit. The Commission accepts this information and is satisfied that the contaminants are not likely to migrate out of the pit to a significant degree over the long term.

B. Adamson, and Marion and Jim Penna, in their interventions, pointed out that Cameco has not yet provided the CNSC with detailed plans for the proposed breaching of the A-Zone dike. These intervenors questioned how an approval could be considered in the absence of such detailed plans. In response to the Commission's questions on what the detailed plans will entail, Cameco stated that the detailed planning includes that which is necessary for the purpose of obtaining precise bids from contractors; that is, a relatively costly level of engineering design detail that is normally only completed once regulatory approvals are obtained. The Commission accepts this explanation and is satisfied that sufficient detail has been provided for the purpose of this licensing decision.

Further with respect to the detailed design requirements, CNSC staff recommended that the Commission include in the licence a condition that would prevent the breaching of the dike from proceeding until the detailed plans have been reviewed and accepted by the Commission, or a person authorized by the Commission. CNSC staff further proposed that the appropriate CNSC staff Designated Officer would carry out that review and approval. CNSC staff noted that Cameco is likely to also seek permission to breach the similar D-Zone dike later during the

proposed period of the licence and therefore further proposed that the Designated Officer would, based on the experience gained on the A-Zone dike remediation, and following a public consultation process undertaken by the licensee, make the necessary licensing decisions for that project on behalf of the Commission as well.

In its consideration of the proposed role of the CNSC Designated Officer in the future licensing decisions for the A- and D-Zone dike remediation projects, the Commission notes that the Designated Officer had the authority to consider the current A-Zone proposal, but chose to bring the matter before the Commission at this public hearing due to the public interest in this important remedial step. The Commission acknowledges the appropriateness of that decision and is satisfied that the Designated Officer may proceed with the future licensing decisions concerning the A- and D-Zone dike remediation projects. The same opportunity remains for the Designated Officer to elevate those future decisions to the Commission, if warranted at the time.

Based on the above information and considerations, the Commission concludes that Cameco will make adequate provisions for the protection of the environment in carrying out the proposed breaching of the A-Zone dike. The Commission's finding on whether an environmental assessment of the project pursuant to the CEAA is required prior to the Commission making a licensing decision is discussed in Section 3.10 below.

#### 3.3.4 B-Zone Pit, Waste Rock Pile and Ore Pad

While the Commission is satisfied that the remediation of the A- and D-Zone dikes (pending CNSC staff's review and acceptance of the final detailed plans) can be done without causing significant adverse environmental impact, the Commission is not able at this time to draw the same conclusion for the B-Zone pit and waste rock pile. In this regard, the Commission sought and received assurance from CNSC staff during the hearing that the applications for the remediation of the B-Zone would come before the Commission at a public hearing.

In response to the Commission's request for further information on the performance of, and future plans for, the B-Zone pit and rock pile, Cameco reported that it is currently assessing the site with improved information on watershed delineation and a more sophisticated overburden stratigraphy model. Cameco reported that, at this time, best-fit modeling confirms that the flow is primarily from the rock pile to the B-Zone pit. Further work, including the installation of additional monitoring wells, will be undertaken to confirm the potential for other flow directions. Cameco noted that a detailed remediation plan will be based on the results of detailed monitoring studies that will continue into early 2004. Cameco indicated that part of the study includes research into the potential use of a reactive barrier for long-term, *in situ* removal of uranium from seepage. In response to a question from the Commission on whether Cameco is planning to leave the waste rock permanently in place at B-Zone, Cameco stated that a final decision on this would be made following completion of the above-noted assessment work.

With respect to current monitoring of conditions at B-Zone, the Commission questioned Cameco on what appears to be an upward trend in uranium loadings in the B-Zone pit. In response, Cameco expressed its opinion that a trend in the data is not conclusive at this time. Cameco noted that, while the data does show a slight general increase over the past 10 years, this could be

the result of the effects of operational shutdowns, variations in mill operations, and a number of water flow diversions on the site; longer-term monitoring under more stable operating conditions would be required to confirm if an upward trend exists. The Commission accepts this statement and anticipates a thorough assessment of all aspects of the B-Zone area remediation will be available when that matter comes again before the Commission for decision.

### 3.3.5 Conclusions on Environmental Protection

Based on the above information and considerations, the Commission concludes that Cameco has made, and will continue to make, adequate provision for the protection of the environment during the proposed continued operation of the Rabbit Lake Operation, including the proposed breaching of the A-Zone dike.

## 3.4 Quality Assurance

CNSC staff reported that Cameco has submitted a proposal and schedule for the design and implementation of an integrated Quality Management System, as required by a condition of the current licence. CNSC staff has accepted the proposal and is currently engaged in reviewing the specific components. CNSC staff stated that it is satisfied with Cameco's progress in this regard.

Cameco noted that quality assurance has been, and continues to be, practiced at the Rabbit Lake Operation. The program in development is designed, using the ISO quality standards as a base, to better integrate the site and corporate quality management initiatives and activities, and to facilitate the development of the key Rabbit Lake site procedures that have been requested by CNSC staff. Cameco indicated that those quality management procedures will be available by the end of 2003 and ready for formal audit by CNSC staff by June 30, 2004.

Marion and Jim Penna, in their intervention, expressed concern about what they view as a lack of a sound quality assurance program at the site and recommended that the licence not be renewed until an acceptable quality program is in place. In response to this concern, the Commission is satisfied that a quality assurance program for the Rabbit Lake Operation does currently exist and that it, supported by enhanced compliance activities of CNSC staff, will be acceptable until a corporate-wide integrated Quality Management System is in place.

The Commission is therefore satisfied that Cameco is taking appropriate steps to enhance its quality assurance programs to fully meet CNSC requirements within an acceptable time frame.

## 3.5 Fire Protection

Although CNSC staff did not report any concerns with respect to fire protection at the Rabbit Lake Operation, CNSC staff did recommend that the Commission add specific conditions to the licence that will require Cameco's Fire Protection Program to fully meet all applicable requirements of the National Building Code and National Fire Code. In its supplementary

information to the hearing, CNSC staff reported that Cameco had submitted a revised Fire Protection Plan and that it is currently under review by CNSC staff.

Cameco provided a brief description of the fire protection systems and training at the Rabbit Lake Operation and, in particular, at the solvent extraction circuit where effective fire prevention and suppression is the most critical.

Based on this information, the Commission is satisfied that Cameco has made, and will continue to make, adequate provisions to protect the Rabbit Lake Operation from fire.

### **3.6 Emergency Preparedness**

With respect to emergency preparedness at the Rabbit Lake Operation, CNSC staff reported that an *Emergency Preparedness and Response Plan* is in place and that it meets CNSC expectations. Cameco elaborated on the plan, indicating that it is designed as a comprehensive all-hazards plan for both on- and off-site emergencies and that it includes training, simulations, drills, testing and coordination with off-site authorities as appropriate.

In response to a question from the Commission, Cameco confirmed that it has a 24/7 response capability coordinated from its Saskatoon offices. Cameco explained that this helps ensure continuity in the responses, but added that the Rabbit Lake Operations staff would be engaged immediately in responding to any emergency on or near the facility site. Off-site emergencies would generally involve a spill of yellow-cake while in transit.

Based on this information, the Commission concludes that Cameco continues to be adequately prepared for emergencies at the Rabbit Lake Operation.

### **3.7 Security**

CNSC staff reported that Cameco's Rabbit Lake Operation security program and its implementation are acceptable. CNSC staff noted that, following the terrorist events in the United States on September 11, 2001, Cameco completed a vulnerability analysis and risk assessment and prepared a Security Program Report. This led, in CNSC staff assessment, to a number of notable improvements in security at the site.

Based on this information, the Commission is satisfied that Cameco is adequately maintaining the physical security of the Rabbit Lake Operation.

### **3.8 Public Information Program**

CNSC staff stated that it considers that Cameco's public information program meets the regulatory requirements of the CNSC for such programs. The program makes use of a variety of communication methods, including the use of community-based working groups and

committees, a northern affairs office, a newsletter, a website, public meetings on specific issues, and a variety of informal communications with the public. Cameco highlighted the importance and success of the community-based Environmental Quality Committee and Athabaska Working Group in its communications program. Cameco also referred to a community-based environmental monitoring program (now in its fourth year) and to a successful northern youth workshop sponsored by Cameco.

Based on this information, the Commission concludes that Cameco has an acceptable public information program.

### **3.9 Decommissioning Plan and Financial Guarantee**

CNSC staff reported that an acceptable *Preliminary Decommissioning Plan* (PDP) and financial guarantee in the form of a letter of credit for \$36 million are in place. Cameco added that the PDPs for the various components of the site were finalized in 2001.

The Commission noted that CNSC staff is not recommending a licence condition that requires Cameco to maintain a PDP acceptable to the Commission, or a person authorized by the Commission. In response to the Commission's questions in this regard, CNSC staff explained that such a licence condition is not required since the requirement to have an approved PDP in place is in the *Uranium Mines and Mills Regulations* and that licence condition 3.1 states that Cameco may not significantly modify the licensing documents without the prior written approval of the Commission or person authorized by the Commission.

The Commission considered this explanation and decided that explicit reference to the PDP will be retained in the licence for added clarity. The Commission therefore modified the proposed licence condition 1.4 to read as:

“The licensee shall maintain a Preliminary Decommissioning Plan and a financial guarantee that are acceptable to the Commission or a person authorized by the Commission.”

Marion and Jim Penna, in their intervention, questioned whether the financial guarantee for decommissioning was actually in place, and whether it was possible to correct the damages to the environment from uranium mining with any amount of money. With respect to these concerns, the Commission is satisfied that a letter of credit is an acceptably secure financial instrument for the purpose of a financial guarantee. The Commission also accepts that the cost estimates for remediating and ultimately decommissioning the Rabbit Lake Operation are reasonable. The Commission further notes that the estimates are subject to periodic review and revision.

Based on this information, the Commission is satisfied that adequate preliminary decommissioning plans and financial guarantees are in place for the Rabbit Lake Operation.

### 3.10 Canadian Environmental Assessment Act

Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act* (CEAA) have been fulfilled. In this case, CNSC staff stated that no environmental assessment is required under the CEAA because the proposed continued operation of the Rabbit Lake Operation and proposed breaching of the A-Zone dike was previously assessed under the former *Environmental Assessment Review Process Guidelines Order* (EARPGO) and that effective mitigation measures have been largely implemented. CNSC staff concluded therefore that Schedule I, Part I, Section 2 of the CEAA *Exclusion List Regulations* and Schedule 1, Part III, section 29 of the same regulation apply and therefore that a further environmental assessment under the CEAA is not required.

M. Shiell, B. Adamson, Marion and Jim Penna, L. Murphy, Mining Watch Canada, and several other intervenors who expressed support for the intervention made by M. Shiell, expressed the view that, according to their interpretation of the CEAA, an environmental assessment under the CEAA is required before the Commission may consider the application. Those intervenors are also of the view that, for the purpose of the proposed breaching of the A-Zone dike, a Comprehensive Study under the CEAA is required because it is, in their opinion, a major uranium mine decommissioning project and of great concern to the public.

Following its consideration of the CEAA and the *Exclusion List Regulations*, and after further examination of the views and opinions of the CNSC staff, intervenors and the proponent during this public hearing, the Commission concluded that environmental assessments pursuant to the CEAA are not required for either the continuation of currently authorized activities at the Rabbit Lake Operation, or the proposed breaching of the A-Zone dike.

The Commission is satisfied that the environmental assessment Panel conducted pursuant to the EARPGO in 1992/1993 (the Hindmarsh Panel) considered the current and proposed activities at the Rabbit Lake Operation. The Commission is also satisfied that the Government of Canada responded to the recommendations of the Hindmarsh Panel by carrying out, under the regulatory framework of the former Atomic Energy Control Board (AECB) and current CNSC, the studies that the Hindmarsh Panel concluded as necessary to verify whether the impacts of the A- and D-Zone mines are insignificant. On the basis of the evidence presented (and summarized in Section 3.3 above), including the reported results of a recent detailed review of the current proposal to breach the A-Zone dike by a panel of experts from various relevant federal and provincial government departments, the Commission concludes that, with the implementation of the appropriate mitigation measures, the effects of the mining and proposed progressive mine remediation at the Rabbit Lake Operation has not caused, and is unlikely to cause, significant adverse environmental effects. The Commission is further satisfied that, throughout the development, operation and remediation of the mines at the Rabbit Lake Operation to date, appropriate and effective impact mitigation measures have been applied and adapted as necessary to ensure the environmental effects remained insignificant. The Commission is of the view that this type of follow-up and adaptive environmental management, following an initial predictive assessment phase, is an important integral part of the federal environmental assessment process and, in this case, is responsive to, and consistent with, the recommendations of the Hindmarsh Panel.

Therefore, the Commission concludes that the proposed continued operation of the Rabbit Lake Operation and modification of the A-Zone dike was previously assessed under the EARPGO process, that the environmental effects of the project have been determined to be insignificant, and that effective impact mitigation measures have been largely implemented. The Commission therefore concurs with the CNSC staff's interpretation of the CEAA and *Exclusion List Regulations* in this case and concludes that an environmental assessment under the CEAA is not required before the Commission can make a decision on the licence application pursuant to the *Nuclear Safety and Control Act*.

The Commission further notes that, given that this project was the subject of a panel review under EARPGO, if it were not for the Court ruling in the Interchurch/McLean Lake matter<sup>1</sup>, the transitional provisions of the CEAA (section 74) could be considered for application in this case.

Decommissioning vs. Operation:

On the matter raised by the intervenors concerning whether the breaching of the A-Zone dike is "decommissioning" and hence subject to a Comprehensive Study under the CEAA, the Commission, after seeking clarification from CNSC staff and the proponent, concluded that the proposed breaching of the dike constitutes an important part of the operational progressive rehabilitation of the mine site. The Rabbit Lake Operation continues to be an operating site and the A-Zone dike was defined as a temporary part of the operational mine waste management plan previously approved by the AECB/CNSC. The modification of the dike is therefore a part of the operation that may be completed under an operating licence. It could also be viewed as a modification to an existing nuclear facility such that section 29 of Schedule I, Part III of the *Exclusion List Regulations* applies. The Commission notes that "decommissioning" will include all of the tasks remaining for the final close-out of the site and finds that the activity of breaching the A-Zone dike does not constitute "decommissioning" as that term is used in relation to uranium mining under the regulatory control of the CNSC.

The Commission further notes that the A-Zone pit is within the boundaries of an existing licensed uranium mining facility and is not used for tailings management. Therefore, the Commission concludes that, even if an assessment under the CEAA were required, the project would not be of a type described in the CEAA *Comprehensive Study List Regulations* and therefore a Comprehensive Study would not be required.

### **3.11 Licence Length**

Cameco has applied for a licence for a period of 5 years. In its rationale for the proposed licence period, Cameco stated that this time frame would allow for the completion of the mining at Eagle Point Mine and processing of the related ore. It would also allow time for any proposals for

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<sup>1</sup> See *Interchurch Uranium Committee Educational Co-operative v. Atomic Energy Control Board and COGEMA Resources Inc.*, T-1313-99, FCTD, September 23, 2002. The decision is under appeal to the Federal Court of Appeal.

future custom milling of ore from other sites at the Rabbit Lake Mill, or decommissioning (including any related environmental assessment studies) to be prepared.

CNSC staff recommended that the Commission accept the proposal for a 5 year licence term. With reference to the CNSC staff's criteria for recommending licence terms (CMD 02-M12), CNSC staff stated that 5 years would be commensurate with the time necessary to complete the mining and milling of ores from the site and to prepare the necessary applications and supporting studies for any future operations and/or decommissioning of the site. CNSC staff also concluded with reference to the above-noted criteria that: the hazards are well characterized; the impacts of the operation are well understood; the programs for protection of persons and the environment are established and appropriate; the CNSC and Cameco have effective compliance programs in place; and Cameco has demonstrated good compliance with the regulatory requirements over time.

The Inter-Church Uranium Committee/ Educational Cooperative, in its intervention, recommended that the Commission consider issuing only a 2-year licence to allow for the completion of the studies necessary to support the decommissioning and post-decommissioning phases. B. Adamson similarly recommended a maximum 2-year licence term if a Comprehensive Study was not to be completed under the CEEA. During that licence period, B. Adamson recommended that Cameco be required to undertake research projects, using state-of-the-art scientific methods, to obtain a better understanding of the effects of the contaminated sediments and mine ventilation emissions.

The Commission considered these recommendations and concluded that a 5-year licence term is acceptable and appropriate in this case. The Commission notes that the Rabbit Lake Operation will, for the time being, remain an operating uranium mine and mill facility. The Commission agrees that further study of the environmental effects of the operation and preparation for future remediation and decommissioning projects at Rabbit Lake Operation should not be deferred. In this regard, the Commission is satisfied that the required Environmental Effects Monitoring program and the continuing work on the remediation and decommissioning plans during the proposed period, as discussed in sections 3.3 and 3.9 above, are adequate to address the above-noted issues raised by the intervenors.

#### **4. Conclusion**

The Commission considered the information and submissions of the applicant and CNSC staff as presented in the material available for reference on the record, as well as the oral and written submissions of intervenors provided at the hearing.

The Commission concludes that Cameco is qualified to carry on the proposed activities. The Commission also concludes that Cameco, in carrying on those activities, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

The Commission therefore issues, pursuant to section 24 of the *Nuclear Safety and Control Act*, Uranium Mine Operating Licence UMOL-MINEMILL-RABBIT.07/2008 to Cameco Corporation. The licence is valid for a 5-year period from November 1, 2003 to October 31, 2008, unless suspended, amended, revoked or replaced.

The Commission includes in the licence the conditions recommended by CNSC staff in the draft licence attached to CMD 03-H22, with the following modification:

Condition 1.4 is modified to read as:

“The licensee shall maintain a Preliminary Decommissioning Plan and a financial guarantee that are acceptable to the Commission or a person authorized by the Commission.”

The Commission confirms that the Director General, Directorate of Nuclear Cycle and Facilities Regulation may exercise his/her designated authority to consider allowing the commencement of the breaching of the A-Zone dike following a review of the final project plans. The Commission further confirms that the same Designated Officer may consider and make a decision on a future application for the breaching of the D-Zone dike that is anticipated during the period of the licence. The Commission notes that the decision on the remediation of the B-Zone pit, waste rock pile, and ore storage pad will remain with the Commission and will be the subject of a future public hearing.

With this decision, the Commission requests CNSC staff to present an interim report to the Commission on Cameco's performance in the operation of the Rabbit Lake Operation. The interim status report will focus on, but will not necessarily be limited to, the areas that CNSC staff identified during the hearing as being deficient or incomplete. The interim report, due in approximately May 2006, will be presented at a public proceeding of the Commission.

Marc A. Leblanc  
Secretary,  
Canadian Nuclear Safety Commission

Date of decision: September 24, 2003

Date of release of Reasons for Decision: October 24, 2003

## Appendix A - Intervenors

<b>Intervenors</b>	<b>Document Number</b>
Maisie Shiell	03-H22.2
Canadian Uranium Alliance	03-H22.3
Neil Sinclair	03-H22.4
Daniel Parrott	03-H22.5
Lesley Forrester	03-H22.6
Alex Korshever	03-H22.7
Maria Fellner	03-H22.8
Mathilde Halla	03-H22.9
Cathy Holtslander	03-H22.10
Elvira Pöschko	03-H22.11
Alexander Sasse	03-H22.12
Iris von Knorre	03-H22.13
Robin Wood and Bettina Dannheim	03-H22.14
Bill Adamson	03-H22.15
MiningWatch Canada	03-H22.16
Sabine Ellersick	03-H22.17
Inter-Church Uranium Committee/Educational Cooperative [ICUCEC], represented by R. Fleming	03-H22.18
Bernd Frieboese	03-H22.19
Sandra Göbel	03-H22.20
Verena Levan	03-H22.21
Peter Niederberghaus	03-H22.22
Marion and Jim Penna	03-H22.23
Victor Lau	03-H22.24
Linda Murphy	03-H22.25