

# Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Cameco Corporation

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Subject Application to Renew the Uranium Mine  
Operating Licence for the McArthur River  
Operation

Hearing Dates June 11, 2008 and September 17, 2008

## RECORD OF PROCEEDINGS

Applicant: Cameco Corporation

Address/Location: 2121-11<sup>th</sup> Street West, Saskatoon, Saskatchewan S7M 1J3

Purpose: Application to renew the Uranium Mine Operating Licence for the McArthur River Operation

Application received: December 10, 2007

Dates of hearing: June 11, 2008 and September 17, 2008

Location: Canadian Nuclear Safety Commission (CNSC) Public Hearing Room, 280 Slater St., 14th. Floor, Ottawa, Ontario (Hearing Day One)  
Delta Bessborough, 601 Spadina Crescent East, Saskatoon, Saskatchewan (Hearing Day Two)

Members present: M. Binder, Chair            A. Harvey  
C.R. Barnes                            M. J. McDill  
A.R. Graham                          D.D. Tolgyesi

General Counsel: J. Lavoie (Hearing Day One) and L. Thiele (Hearing Day Two)

Secretary: M.A. Leblanc

Recording Secretary: M. Young

<b>Applicant Represented By</b>	<b>Document Number</b>
<ul style="list-style-type: none"> <li>• G. Grandey, President and CEO</li> <li>• D. Neuburger, Vice-President Mining</li> <li>• G. Merasty, Vice-President Corporate Social Responsibility</li> <li>• D. Bronkhorst, General Manager</li> <li>• G. Hein, Superintendent, Environment and Quality</li> <li>• T. Gitzel, Senior Vice-President and Chief Operating Officer</li> <li>• L. Mooney, Senior Legal Advisor, Safety Health and Environment</li> <li>• J. Heigh, Superintendent Safety and Systems Application</li> <li>• J. Alonso, Director, Compliance and Licensing</li> <li>• J. Jarrell, Vice President, Safety Health, Environment and Quality</li> <li>• J. Takala, Director, Safety, Health, Environment and Quality Systems</li> </ul>	CMD 08-H11.1 CMD 08-H11.1A CMD 08-H11.1B CMD 08-H11.1C CMD 08-H11.1D
<b>CNSC staff</b>	<b>Document Number</b>
<ul style="list-style-type: none"> <li>• D. Howard</li> <li>• K. Scissons</li> <li>• H. Rabski</li> <li>• G. Soare</li> </ul>	<ul style="list-style-type: none"> <li>• P. Thompson</li> <li>• F. Ashley</li> <li>• M. McKee</li> <li>• M. Vesely</li> </ul>
	CMD 08-H11 CMD 08-H11.A CMD 08-H11.B
<b>Intervenor</b>	<b>Document Number</b>
See appendix A	

<b>Others</b>	
<ul style="list-style-type: none"><li>• Ministry of Environment, represented by R. Kidd</li><li>• Saskatchewan Ministry of Advanced Education, Employment and Labour, represented by N. Crocker</li></ul>	

**Licence:** Renewed  
**Date of Release of Decision:** October 23, 2008

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## **Introduction**

1. Cameco Corporation (Cameco) has applied to the Canadian Nuclear Safety Commission<sup>1</sup> (CNSC) for the renewal of the Uranium Mine Operating Licence for its McArthur River Operation located in northern Saskatchewan. The current operating licence UMOL-MINE-McARTHUR.00/2008 expires on October 31, 2008. Cameco has applied for the renewal of this licence for a period of 5 years.
2. The McArthur River Operation includes underground mining and uranium ore processing facilities, uranium ore loading and transportation systems, waste management and ancillary facilities. Ore is extracted from the McArthur River mine, ground to a slurry in the underground grinding circuit, and pumped to the loading facility on surface. The slurry is then loaded into approved containers at the surface load-out facility and transported to Cameco's Key Lake Operation for additional processing. Low grade ore and mineralized waste rock are also transported to the Key Lake mill for blending with the ore slurry to recover the contained uranium.

## Issues

3. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*<sup>2</sup>:
  - a) if Cameco is qualified to carry on the activity that the licence would authorize; and
  - b) if, in carrying on that activity, 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

4. The Commission, in making its decision, considered information presented for a public hearing held on June 11, 2008 in Ottawa, Ontario and September 17, 2008 in Saskatoon, Saskatchewan. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*<sup>3</sup>. During the public hearing, the Commission received written submissions and heard oral presentations from CNSC staff (CMD 08-H11, CMD 08-H11.A and CMD 08-H11.B) and Cameco (CMD 08-H11.1, CMD 08-H11.1A, CMD 08-H11.1B, CMD 08-H11.1C and CMD 08-H11.1D). The Commission also considered oral and written submissions from 10 intervenors (see Appendix A for a detailed list of interventions).

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<sup>1</sup> The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

<sup>2</sup> S.C. 1997, c. 9.

<sup>3</sup> S.O.R./2000-211.

5. The Commission also held public hearings on June 11, 2008 and September 17 and 18, 2008 to consider Cameco's applications to renew the operating licences for the Key Lake Operation and the Rabbit Lake Operation. Considering that certain issues and corporate-wide programs at Cameco apply to all three facilities, and recognizing the interest that some intervenors have in more than one of Cameco's facilities, the Commission decided to consider any relevant information presented on the record for any one matter, for all three hearings.

### **Decision**

6. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concludes that Cameco is qualified to carry on the activity that the licence will authorize. The Commission is also of the opinion that Cameco, in carrying on that activity, 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*, renews the Uranium Mine Operating Licence issued to Cameco Corporation for the McArthur River Operation. The licence, UMOL-MINE-McARTHUR.00/2013, is valid from November 1, 2008 to October 31, 2013.

7. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 08-H11.B.
8. With this decision, the Commission requests that Cameco prepare a status report on the safety performance of its facility following the midpoint of the five-year licence term. CNSC staff shall also prepare a report on the results of compliance activities carried out during the first half of the licence term and on the licensee's performance during that period. Cameco and CNSC staff shall present their reports at a public proceeding of the Commission, in approximately June 2011.
9. The Commission also requests that Cameco submit to the Commission a report on the progress it has made regarding its Fire Protection program, as specified in Appendix E of the licence. Cameco's report shall be presented at a public proceeding of the Commission in September 2009.

## **Issues and Commission Findings**

10. In making its decision, the Commission considered a number of issues relating to Cameco's qualification 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.

## **Radiation Protection**

11. Cameco stated that, over the licence period, no workers received an effective dose in excess of the regulatory limits of 50 millisieverts per year (mSv/y) or 100 mSv/5 years. Cameco noted that the maximum individual dose was 10.2 mSv/y. CNSC staff further noted that, for the dosimetry period 2001 to 2005, the maximum five-year effective dose for workers was 37.3 mSv. Cameco further stated that the number of reportable incidents over the current licence period was lower than the previous licence period.
12. Cameco noted that extensive development work underground resulted in an expected trend of higher average doses to workers. Cameco stated that in order to mitigate the elevated doses to workers, additional ventilation capacity was installed in 2007 and would be commissioned in 2008. Cameco further noted that measures to capture radon-bearing water were being implemented.
13. CNSC staff reported that the radiation protection program and implementation met requirements.
14. CNSC staff summarized its oversight activities at the McArthur River Operation. CNSC staff stated that it was satisfied with investigation findings, follow-up and prevention regarding the three weekly action levels (1 mSv in 1 week) that were exceeded during the licence period. CNSC staff stated that eleven Type II inspections were conducted over the licence period, and all action items were addressed to its satisfaction. CNSC staff noted that the deficiencies identified during a Type I inspection in May 2007 did not have a significant impact on the overall effectiveness of the radiation protection program. CNSC staff stated that it is satisfied with the actions Cameco has taken to address the deficiencies.
15. The Commission concludes that the operation of the facility during the licence term has not posed an unreasonable radiation risk to workers or the public. The Commission is satisfied that the continued operation of the facility with full implementation of the radiation protection program will not pose an unreasonable radiation risk to health and safety of persons or the environment.

### **Conventional Health and Safety**

16. CNSC staff submitted that Cameco's Conventional Health and Safety program and implementation both met requirements over the licence period. CNSC staff noted that the Occupational Health and Safety program also meets the requirements of the Saskatchewan Ministry of Advanced Education, Employment and Labour (Saskatchewan Labour). CSNC staff stated that it conducted regular compliance inspections over the licence period.
17. Cameco stated that, over the licence period, lost-time injuries have been consistently low. Cameco noted that its lost-time injury frequency compares favourably with the Saskatchewan mining industry frequency. Cameco provided information regarding the serious injuries that occurred on site over the licence period and noted that corrective actions have been taken.
18. Cameco noted that a contractor fatality occurred in October 2006. Cameco explained the cause of the fatality and noted that all responsible authorities thoroughly investigated the accident. Cameco stated that following the investigation, corrective actions were taken and job hazard analysis was tightened.
19. CNSC staff stated that information regarding the fatality was presented at a Commission meeting following the fatality<sup>4</sup>. CNSC staff explained that Saskatchewan Labour, the Royal Canadian Mountain Police, Cameco safety officials and the on-site Occupational Health Committee conducted separate investigations. CNSC staff noted that the action items arising from this incident have been addressed.
20. CNSC staff noted that a contractor management program and contractor management standard were developed by Cameco. CNSC staff further noted that the development of the site safety management system is a continuous process and site safety management has increased the emphasis on risk assessment and management.
21. The Commission sought further information regarding the Occupational Health & Safety Program. Cameco responded that it has the same expectations for contractors as it has for employees, although the programs vary. Cameco stated that it conducts pre-employment medicals and that an evaluation from a doctor is required prior to a worker returning to work following an injury. Cameco noted that it encourages an early return to meaningful work. Cameco further noted that an Employee and Family Assistance Program is available to provide assistance to employees who may require it.
22. The Commission sought further information regarding the Summary of Lost Time Injury Record from 2004 to 2006, which indicated that while the frequency of injury was decreasing, the severity of injury increased. Cameco responded that the severity of injury was directly influenced by the worker fatality in 2006.

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<sup>4</sup> Refer to the Minutes of the CNSC public meeting held January 25, 2007.



23. The Canadian Nuclear Workers Council and the United Steelworkers Union (USW) Local 8914, in its intervention, stated that safety is a priority for Cameco employees and it supports all of Cameco's safety processes. The intervenor indicated that workers are comfortable voicing their opinions concerning safety, including refusing to perform potentially unsafe work. The Commission sought further information in this regard. The intervenor stated that safety concerns are typically temporary in nature, and explained that concerns are brought to the attention of management, who address the concerns before work is resumed.
24. The Commission is satisfied that the operation of the facility during the licence period has not posed an unreasonable risk to the health and safety of workers or the public. The Commission is satisfied that, with the implementation of the Occupational Health & Safety Program, the continued operation of the facility will not pose an unreasonable risk to the health and safety of persons.

### **Environmental Protection**

25. Cameco stated that, over the licence period, the treated mine water effluent releases were all within established administrative levels with no discharge limits exceeded. Cameco provided a summary of the effluent loadings from the period 2000 to 2007, as well as a comparison of the average effluent loadings from 2005 to 2007 with those from 2000 to 2002. Cameco noted that these results indicated an increase in selenium and arsenic in the effluent.
26. Cameco stated that, despite the increases in selenium and arsenic, the effluent loading has improved over the licence period. Cameco attributed this to improvements in the effluent treatment processes. Cameco noted that the initiative to reduce molybdenum concentration in the final effluent resulted in successive improvements, with further improvements planned for 2008 and beyond. Cameco stated that it will continue to evaluate the use of the membrane filtration treatment process to further reduce molybdenum, selenium and uranium loadings.
27. Cameco provided a summary of its reportable environmental incidents over the licence period. Cameco stated that each of the incidents was determined to have no significant impact on the environment, and each was cleaned up to ensure no post-decommissioning liabilities. Cameco further stated that environmental management system (EMS) targets have been established to reduce the number of incidents.
28. Cameco stated that in support of the McArthur River EMS, it sets annual objectives and targets for continuous improvement of its environmental performance. Cameco cited improved sewage treatment performance, improved effluent treatment and water management, and reduced natural resource consumption and greenhouse gas emissions as examples of its EMS objectives.

29. Cameco provided information concerning its comprehensive Environmental Risk Assessment (ERA), which includes modelling to determine the ecological risks associated with the release of metals and radionuclides from the McArthur River Operation to air and water, with an emphasis on the treated effluent. Cameco stated that the ERA concluded that the ecological risks are small and confined to near-field locations. Cameco stated that it has conducted follow-up monitoring to confirm the risk assessment of the ERA model and will continue to perform studies to strengthen the ERA model.
30. Cameco stated that it completed a comprehensive aquatic monitoring program in 2007. Cameco explained that the program was designed to evaluate potential temporal and spatial trends in the chemistry data and confirm the results from a federal environmental effects monitoring program completed in 2004. Cameco stated that concentrations of molybdenum, selenium and uranium were generally elevated in the water, sediment, and fish tissue samples collected from exposure areas. Cameco noted that it will continue to conduct studies to verify the data.
31. CNSC staff stated that, over the licence period, both the Environmental Protection program and the implementation of the program met requirements. CNSC staff noted that Cameco is required to meet the effluent discharge limits stipulated in Appendix D of its operating licence. CNSC staff noted that the effluent discharge is subject to the *Metal Mining Effluent Regulations*<sup>5</sup>.
32. CNSC staff stated that the environmental policies, programs and procedures are incorporated into the EMS. CNSC staff reported that the EMS was audited by third-party reviewers in 2005 and in 2007 and continues to be certified to the ISO 14001 (2004) standard. CNSC staff noted that the deficiencies identified by CNSC staff in 2004 were all adequately addressed by Cameco. CSNC staff further noted that it conducts regular compliance inspections.
33. The Commission sought further information regarding Cameco's planned changes for additional molybdenum and selenium reductions in 2008. Cameco responded that its new process should significantly reduce molybdenum loadings in effluent, and keeping the two water streams apart will also have complementary reductions in arsenic and selenium. CNSC staff stated that it will continue to review and assess implementation of the molybdenum, selenium and uranium loading reduction measures.
34. The Commission asked CNSC staff whether there are any standards or licence limits for molybdenum, selenium or uranium loadings. CNSC staff responded that the *Metal Mining Effluent Regulations* are the only regulatory legal limits related to mining effluent releases in Canada and molybdenum, selenium and uranium are not regulated under those regulations. CNSC staff noted that any concerns with respect to those contaminants would be related to a long-term accumulation over time. CNSC staff stated that the modelling of long-term loadings implications to the receiving environment is being completed.

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<sup>5</sup> S.O.R./2002-222.

35. The Commission, taking into consideration the ALARA (As Low As Reasonably Achievable) principle, sought further information regarding Cameco's plans for further reductions. Cameco stated that it expects to make improvements and to apply the best technologies available to making these reductions. Cameco stated that it believes it can significantly reduce the molybdenum and selenium in its effluent using the existing infrastructure at the McArthur River Operation. Cameco further noted that, in the future, it could utilize the experience it has obtained from similar efforts at Key Lake and Rabbit Lake to improve reductions at McArthur River.
36. The Commission sought an explanation for the increased values for arsenic and selenium over the licence period. Cameco responded that the selenium increase was due to an increased volume of water going through the treatment circuit. Cameco further responded that the arsenic increase was due to differences in the geochemistry of the ore body being mined, which resulted in changes in the effluent.
37. The Northern Saskatchewan Environmental Quality Committee (NSEQC), in its intervention, stressed the importance of environmental protection. The NSEQC expressed this need regarding three areas in particular: waste rock management, effluent quality, and the need to keep the final decommissioning of the site as a guiding principle for future developments. The Commission sought Cameco's views regarding the matters presented by the intervenor. Cameco stated that it shares the views of the NSEQC and noted that the purpose of regulatory oversight is to ensure that the environmental protection requirements are met.
38. The Commission agreed with the concept of "do not build it if you cannot decommission it." The Commission notes that it requires that licensees have a Preliminary Decommissioning Program and financial guarantee in place for the future decommissioning of their facilities.
39. The Northern Village of Sandy Bay (Sandy Bay), in its intervention, expressed concerns regarding the environmental impact of the McArthur River Operation on its community. Sandy Bay noted that it is not considered an 'impact community'. The Commission sought clarification from Cameco regarding the status of Sandy Bay as an impact community. Cameco responded that Sandy Bay is considered a secondary impact community, based on a definition stipulated in a land lease agreement with the government of Saskatchewan.
40. Regarding the environmental concerns of the intervenor, the Commission inquired about the impact of cumulative effects on Sandy Bay. CNSC staff responded that the cumulative effects were determined in a Joint Panel study from 1992 to 1997. CNSC staff stated that the cumulative impacts from the facilities located in the region have been assessed and have been found to be acceptable. CNSC staff noted that the impact of these effects form the basis of the licence for the facilities. A representative of the Saskatchewan Ministry of Environment stated that the province continues to run a cumulative effects program and that an annual report is produced.

41. Based on the above information, the Commission is satisfied that facility operations are effectively controlled with the Environmental Protection Program and mitigation measures in place, and that they do not pose an unreasonable risk to the health and safety of persons or the environment. The Commission is of the opinion that that Cameco has made, and will continue to make, adequate provisions for the protection of the environment during the proposed licence period.

## **Operational Performance**

### *Mine Operation*

42. CNSC staff stated that, over the licence period, Cameco's Mine Operations sub-program and implementation met requirements. CNSC staff stated that it conducted compliance inspections over the licence period, and Cameco addressed the action notices and recommendations arising from these inspections in a satisfactory manner.
43. CNSC staff reported that all of Cameco's proposed modifications to mine operations were sufficiently described and supported for CNSC staff review, and all development proposals were submitted in accordance with licence conditions. CNSC staff further stated that mine engineering processes are being followed and documented, and an effective design and adaptive management process for ground control is being carried out.
44. CNSC staff noted that Cameco's planned mining activities continue to focus on Zone 4 and panel 5 of Zone 2 as future production areas. CNSC staff stated that the necessary processes and systems are in place to carry out the identified planned activities, and CNSC staff will continue to evaluate the development applications and assess compliance.
45. The Commission sought further information from CNSC staff regarding the licence requirements for future developments. CNSC staff responded that any applications for continued developments of the ore body are reviewed to confirm that they are within the scope of the licensed activities approved by the Commission.
46. The Commission sought further information on the annual production limit of uranium at the site. CNSC staff explained that this limit is based on Cameco's licence application and the original assessments of the project. The production rate for the McArthur mine must also take into consideration the volume of material that can be stockpiled on site and that can be transported and milled at the Key Lake site. CNSC staff noted that the production volume is also taken into consideration to determine the adequacy of the safety programs in place for the protection of the health and safety of persons and of the environment.

*Process Operations*

47. CNSC staff stated that, over the licence period, Cameco's Process Operations sub-program and its implementation met requirements. CNSC staff stated that it conducted compliance inspections over the licence period, and Cameco addressed the action notices and recommendations arising from these inspections in a satisfactory manner. CNSC staff further stated that process facilities are operated and maintained in accordance with the methods provided in the licensing documentation.

*Waste Management*

48. Cameco stated that it has four lined pads for the interim storage of potentially problematic waste rock. Cameco described the details concerning the types of waste allotted to each pad, including mineralized waste rock and potentially acid generating waste rock, and the amount of waste currently being stored. Cameco noted that it performs ongoing maintenance to ensure that the pads meet design criteria.
49. Cameco stated that it has implemented immediate plans to reduce the quantities of waste rock generated from development activities and is reviewing options for consuming mineralized waste rock through McArthur River mining processes.
50. CNSC staff stated that, over the licence period, Cameco's Waste Management Operations sub-program and its implementation met requirements. CNSC staff stated that it conducted compliance inspections over the licence period, and Cameco addressed the action notices and recommendations arising from these inspections in a satisfactory manner. CNSC staff reported that geotechnical inspections found no significant deficiencies. CNSC staff further reported that modifications were sufficiently described and supported for CNSC staff review. CNSC staff stated that it will continue to assess the molybdenum reduction plan in place, as well as the proposed uranium and selenium improvement projects.
51. The Commission asked Cameco to discuss its efforts to reduce waste rock on site. Cameco responded that there are mining techniques to control extra waste rock, and potentially acid generating rock is recycled.

*Packaging and Transport*

52. CNSC staff stated that, over the licence period, the Packaging and Transport sub-program and its implementation met requirements. CNSC staff stated that it conducted a Type I inspection in December 2007, and action notices and recommendations were identified. CNSC staff stated that Cameco's responses and follow-up actions will be evaluated to ensure that the issues are addressed.

53. Cameco stated that an accident probability and impact assessment was done in 2008 to assess the impact of transporting materials to its Key Lake Processing Facility. Cameco reported that the assessment determined that the possibility of an accident is very low, and there would be no long-term effect on the environment following cleanup.

*Significant Events / Incidents*

54. CNSC staff provided information concerning significant events and incidents over the licence period. CNSC staff stated that in all cases, it was satisfied with the actions taken by Cameco to address the events.

*Conclusion on Operational Compliance and Unplanned Events*

55. Based on the above information, the Commission concludes that facility operations are effectively controlled with the safety programs in place and that they do not pose an unreasonable risk to the health and safety of persons, the environment and national security. The Commission is satisfied that the continued operation of the facility with the safety programs in place will not pose unreasonable risk to health and safety of persons or the environment.
56. Furthermore, considering the potential impact that a change in the production limit may have on the safety programs, the Commission notes that the annual production limit from the facility shall remain at 7.2 million kilograms of uranium, as recommended by CNSC staff in the proposed licence. If the licensee requires increased operational flexibility, the Commission would consider a different approach to setting the production limit upon receipt of a licence application with supporting documentation.

**Quality Management**

57. Cameco stated that it has begun to incorporate quality management principles into its safety and control program areas. Cameco stated that it is currently focussing on four areas: Training, Corrective Action, Quality Procurement and Contractor Management. Cameco described the quality assurance principles it is applying to each of these areas.
58. Cameco further described its additional quality management initiatives, including the development of documentation and processes for various areas and noted that additional work is needed to meet its quality management expectations. Cameco stated that it is focused on implementing its quality management initiatives.

59. CNSC staff stated that, over the licence period, Cameco's Quality Management program met requirements and the implementation of that program was below requirements. CNSC staff reported that it conducted a Type I inspection in March 2004 from which two directives, 14 action notices and one recommendation were issued. CNSC staff stated that it conducted further assessments of Cameco's Quality Management program in 2006 and 2007. CNSC staff reported that progress was being made regarding the Quality Management System, but some deficiencies remain to be resolved. CNSC staff noted that Cameco recently submitted its responses and associated documentation to address the remaining items.
60. The Commission inquired about Cameco's issue of managing resources and timelines. Cameco responded that it has been increasing resources to address program areas where expectations are not being met, but it needs to be better at estimating the timeframe when scheduling projects. CNSC staff commented that the issues regarding expectations and timelines are related to the need to clearly understand problems and added that ongoing communication is a key area.
61. The Commission inquired about the status of the remaining action notices. Cameco responded that the two remaining items were regarding the calibration of critical safety, health and environment equipment, and documenting the design control process. Cameco noted that it has submitted documentation and requested closure regarding the design control process action notice. Cameco further noted that it has initiated a process for providing more oversight to ensure that calibrations are being completed. CNSC staff stated that the documented programs were reviewed, and a follow-up inspection is scheduled for October 2008.
62. Based on the above information the Commission is satisfied that facility operations with the quality assurance measures in place do not pose an unreasonable risk to the health and safety of persons or the environment. The Commission expects Cameco to make the necessary improvements during the proposed licence period such that the implementation of its Quality Management program can meet requirements.

### **Training**

63. CNSC staff stated that, over the licence period, Cameco's Training program met requirements, but the implementation of the program was below requirements. CNSC staff stated that the assessment ratings are based on the requirements for a systematic approach to training (SAT). CNSC staff stated that following a Type I inspection in March 2004 and extensive consultation, Cameco committed to implement a SAT program across all Cameco sites in Canada.
64. Cameco stated that it expects to fully implement a SAT by 2011. Cameco stated that, over the licence period, it focused on the development of the necessary information systems to manage the transition to the SAT model at each of its sites. Cameco noted that it has updated its existing training courses to be consistent with the SAT process.

65. Cameco stated that the basis of an effective SAT system is the completion of detail job task analyses (JTAs). Cameco explained that the highest priority positions are those that could have a serious safety or environmental consequence if training is not conducted on critical tasks. Cameco reported that the JTAs for the highest priority positions will be completed by the end of 2009, with 50% of those targeted for completion by the end of 2008.
66. CNSC staff stated that it is monitoring the project and is satisfied with the information Cameco has provided and the progress made to date. CNSC staff further stated that it conducted a Type II inspection in 2007 to gauge the progress made in resolving the two action notices issued during the 2004 inspection, and also to evaluate the implementation of the SAT program at the McArthur River site. CNSC staff reported that since Cameco had developed and implemented a more robust training records system, the associated action notice stemming from the 2004 inspection was closed. CNSC staff further reported that the action notice pertaining to documentation and implementation of training program processes and procedures remains open.
67. The Commission sought assurance that Cameco was on track to implement the SAT program. Cameco responded that it is moving forward on a set schedule for the implementation of the SAT program. CNSC staff confirmed Cameco submitted a schedule containing dates for when the SAT program for various positions are expected to be completed. CNSC staff noted that it would hold Cameco to that schedule, and verify the results of Cameco's JTA for high risk positions.
68. The Commission inquired about Cameco's safety cards. Cameco explained that the safety cards trigger employees to consider key safety aspects and whether they are fully trained to perform the tasks upon which they are embarking. Cameco further explained that the purpose of the safety cards is to ensure and document the supervisor-worker discussion on an act of safety and what some of the hazards in the workplace might be. Cameco noted that the safety cards are maintained by Cameco's safety department for a number of months, and are reviewed by regulators and for training purposes.
69. The Commission is satisfied that Cameco has an acceptable SAT program in place and has made significant progress in implementing the SAT program. The Commission expects that Cameco will meet its goal of full implementation by 2011.

### **Emergency Preparedness and Response**

70. Cameco stated that a CNSC staff inspection carried out in 2005 resulted in numerous recommendations for Cameco's emergency response program. Cameco stated that it addressed the recommendations through a number of actions, including incident command training for McArthur River senior management. Cameco further stated that its emergency responders are in the process of achieving industrial fire brigade member professional qualifications. Cameco noted that additional firefighting equipment has been purchased, as well as new communication equipment for emergency responders.



71. Cameco further stated that it also conducted the required emergency response drills to address testing requirements of the Saskatchewan Ministry of Advanced Education, Employment and Labour, and those under the federal *Environmental Emergency Regulations*<sup>6</sup> and *Metal Mining Effluent Regulations*.
72. CNSC staff stated that, over the licence period, Cameco's Emergency Preparedness and Response program and its implementation met requirements. CNSC staff noted that the McArthur River Operation has a mutual assistance agreement with other mine sites to ensure that a sufficient number of trained personnel can be made available.
73. CNSC staff reported that its audit of the 2005 emergency exercise concluded that the emergency response organization demonstrated preparedness and competence. CNSC staff further reported that the action notice and two recommendations were adequately addressed by Cameco.
74. The Commission sought further information regarding the treatment capacity for the water pumps in the event of an emergency. Cameco responded that it currently has a pumping capacity of 1,650 cubic metres per hour (m<sup>3</sup>/h) and it is moving towards a capacity of 2,000 m<sup>3</sup>/h. Cameco stated that it also has one backup pump for every two installed, and is confident that this pumping capacity is sufficient.
75. The Commission asked Cameco how water levels would be controlled in the event of an emergency. Cameco responded that it has water hitches, which can be moved with mine development, unlike doors.
76. The Commission asked whether Cameco has enough shafts to deal with any flooding issues that may arise. Cameco responded that it has adequate exit or egress capability, and is confident that it would not have a problem evacuating the mine in the event of inflow.
77. Based on the above information, the Commission is satisfied that the continued operation of the facility with the Emergency Management program in place or to be in place will not pose an unreasonable risk to the health and safety of persons, national security or the environment.

### **Fire Protection**

78. CNSC staff stated that, over the licence period, both Cameco's Fire Protection program and implementation were below requirements. CNSC staff explained that a third-party review identified that Cameco was in non-compliance with the *National Fire Code (1995)*<sup>7</sup>. CNSC staff stated that a corrective action plan with target completion dates has been submitted, and progress is being made with a number of issues resolved.

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<sup>6</sup> S.O.R./2003-307.

<sup>7</sup> National Fire Code of Canada 1995.

79. CNSC staff reported that it conducted a Type II inspection in March 2008, from which two directives and two recommendations were issued. CNSC staff stated that it requested an action plan to correct these deficiencies.
80. Cameco stated that all of the elements of the enhanced fire protection plan will be in place in 2008. Cameco stated that it developed a Fire Protection program manual, which it has submitted to CNSC staff for review. Cameco detailed the goals of its fire protection program. Cameco further outlined its expectations going forward to meet requirements.
81. CNSC staff stated that it reviewed the proposed content of Cameco's newly developed Fire Protection Program, and provided further guidance to Cameco. CNSC staff reported that it is currently reviewing the program document and supporting information, and it will continue to assess program and implementation.
82. The Commission expressed concerns that Cameco's Fire Protection program was below requirements. The Commission sought further information regarding Cameco's timeframe to meet CNSC requirements. Cameco responded that it will address most of the issues with program implementation by the end of 2008; however more time may be required to address issues related to the buildings at older sites. CNSC staff noted that the implementation of the improved Fire Protection program must be strongly in place before CNSC staff can conclude that it meets requirements.
83. The Commission sought further information regarding evacuation in the case of fire. Cameco responded that in the event of fire, an employee would make a notification and "stench gas" would be released into the ventilation system. Cameco explained that the stench gas has a noticeable smell, and all employees are trained to move to a refuge station upon smelling it. Cameco noted that there is no radiation hazard in the refuge stations, and as such, the mine rescue can proceed in a conventional manner, according to the mine rescue requirements of the Saskatchewan Ministry of Advanced Education, Employment and Labour.
84. Based on the above information, the Commission is satisfied that the continued operation of the facility with the Fire Protection program in place or to be in place will not pose an unreasonable risk to the health and safety of persons, national security or the environment. The Commission expects Cameco to achieve full compliance with the requirements related to operational fire safety as soon as possible.
85. The Commission requests that Cameco submit to the Commission a report on the progress it has made regarding its Fire Protection program, as specified in Appendix E of the licence. Cameco's report shall be presented at a public proceeding of the Commission in September 2009.

### **Public Information Program**

86. Cameco stated that public consultation activities associated with the McArthur River Operation are ongoing and intended to provide information to a broad array of individuals and organizations in both northern and southern Saskatchewan. Cameco stated that it focuses its efforts on the people resident in the communities closest to the project, which are referred to as impact communities.
87. Cameco explained that its public consultation activities are conducted under the Public Information program, which is designed to keep communities informed about uranium mining and activities in northern Saskatchewan, provide specific information relating to new projects that are currently undergoing formal assessment, provide an opportunity for community members to visit the mine site, and identify and discuss issues and concerns that stakeholders may have. Cameco provided a detailed list of its public consultation activities, which includes public meetings and working with the Northern Saskatchewan Environment Quality Committee.
88. CNSC staff stated that, over the licence period, Cameco's Public Information program and the implementation of that program both met requirements. CNSC staff noted that Cameco utilizes a variety of media channels and public consultation activities to communicate information.
89. The Commission sought further information regarding Cameco's Role Model program. Cameco stated that the Role Model program profiles northern people who have successfully struck the balance between working with Cameco and traditional activities. Cameco explained that Role Models are individuals from the north who may have started as labourers in the company, who have utilized in-house training and other support such as the career transition or the apprenticeship training programs, and have progressed and achieved some type of certification.
90. The Northern Lights School Division No. 113 (Northern Lights School), in its intervention, expressed the need for Cameco to establish a strong educational relationship with people from northern Saskatchewan, including providing work experience programs. The Northern Lights School noted that many of Cameco's employees are from this area and it is important to strengthen this relationship. The Commission sought Cameco's views on this matter. Cameco acknowledged the issues raised by the intervenor and noted that the issue of education and experience for people in northern Saskatchewan is far-reaching. Cameco stated that it has a Corporate Social Responsibility group assigned to building the partnerships required for increasing community engagement in northern Saskatchewan, which includes training and education opportunities. Cameco stated that it encourages further dialogue with the public on this matter.

91. The Commission asked how information is disseminated to smaller communities such as Sandy Bay. Cameco responded that it has the Environmental Quality Committees, in which it tries to engage most of the northern communities. Cameco further stated it encourages that Sandy Bay continue the dialogue to help Cameco better integrate with all northern communities and not just the primary impact communities.
92. The Northern Saskatchewan Women's Network Inc., in its intervention, stated that it wants ample opportunities to exist for northern women to increase and improve the cultural, social, political and economic benefits to northern Saskatchewan through the benefit of their knowledge, experience and skills. The Commission asked for Cameco's position on the matter. Cameco stated that it would welcome further discussion with this group, along with northern communities.
93. The Northern Village of Pinehouse expressed the need for Cameco to provide meaningful information and seek the opinions and advice from elders and community leaders.
94. The Commission expresses the view that a licensee's public information program should provide meaningful information in a clear and understandable manner to the public. In this respect, the Commission suggests that Cameco consider the intervenors' comments and explore other methods of presenting information in a clear and simple manner to a wider public.
95. The Commission is satisfied that Cameco's public information program is acceptable and will continue to be acceptable during the proposed licence period.

### **Security**

96. The Commission does not discuss security matters in detail in a public document, such as this *Record of Proceedings*, but notes that it is satisfied that Cameco's performance with respect to maintaining security at the facility has been acceptable.
97. The Commission concludes that Cameco has made, and will continue to make, adequate provisions for ensuring the physical security of the McArthur River Operation.

### **Safeguards**

98. The CNSC's regulatory mandate includes ensuring conformity with measures required to implement Canada's international obligations under the Treaty on the Non-Proliferation of Nuclear Weapons. Pursuant to the Treaty, Canada has entered into safeguards agreements with the International Atomic Energy Agency (IAEA). The objective of these agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activities in this country.

99. CNSC staff stated that, over the licence period, Cameco's Safeguards program met requirements. CNSC staff explained that Cameco provided CNSC staff with all reports and information necessary in a timely basis, and satisfactory procedures are in place to facilitate the prompt access of IAEA inspectors upon request. CNSC staff noted that there were no access requests during the licence period.
100. CNSC staff proposed a change to the licence in order to update the reporting requirements for Cameco. The Commission approves this change to the licence.
101. Based on the above information, the Commission is satisfied that Cameco has made and will continue to make adequate provision for the maintenance of national security and the measures required to implement international obligations to which Canada has agreed.

### **Decommissioning Plans and Financial Guarantee**

102. CNSC staff stated that it reviewed Cameco's revised preliminary decommissioning plan (PDP) and the proposed increase to the cost estimate. CNSC staff reported that the revised PDP and proposed financial guarantee amount of \$36.1 million is acceptable. CNSC staff noted that, subject to the approval of the Commission, Letters of Credit to cover this amount will be provided by Cameco.
103. Based on this information, the Commission considers that the plans for completing the Preliminary Decommissioning Plan and related financial guarantee are acceptable for the purpose of the current application for licence renewal.

### **Application of the *Canadian Environmental Assessment Act***

104. CNSC staff reported that the licence renewal would be made under the authority of Subsection 24(2) of the NSCA, in respect of a renewal. The renewal of Cameco's operating licence, under that provision, is not included in the *Law List Regulations* made pursuant to Paragraph 59(f) and is not a 'trigger' pursuant to Subsection 5(1) of the *Canadian Environmental Assessment Act*<sup>8</sup> (CEAA). Therefore, a CEAA trigger does not exist for Cameco's proposal and the CNSC is not required to conduct an environmental assessment of the proposal. There are no other CEAA triggers such as funding, being a proponent or disposing of an interest in land to support the application, pursuant to Subsection 5(1) of the CEAA that involve the CNSC.
105. Based upon the above assessment, the Commission is satisfied that an environmental assessment under the CEAA is not required for Cameco's application for licence renewal.

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<sup>8</sup> S.C. 1992, c. 37

### **Licence Length and Interim Reporting**

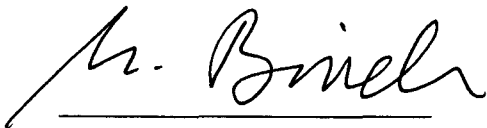
106. Cameco requested a five-year licence term. CNSC staff recommended a proposed licence term of November 1, 2008 to October 31, 2013. CNSC staff stated that the reasons for recommending the five-year licence term are based on criteria set out in CMD 02-M12<sup>9</sup>. CNSC staff also recommended that a mid-term report be submitted to the Commission near the midway point of the proposed licence period.
107. CNSC staff stated that Cameco's overall performance during the current licence period met requirements. CNSC staff explained that there is enough strength in the programs and their implementation to warrant the five-year term.
108. CNSC staff provided a detailed list of the proposed licence amendments to be incorporated in the proposed licence.
109. The Commission inquired about Cameco's future plans going forward over the proposed licence term and beyond. Cameco provided the Commission with information regarding the activities it has planned for the proposed licence period, as well as a life-of-mine production plan. Cameco stated that the immediate focus is on transitioning to new mining areas and developing mining methods that will be applied in the future.
110. The Commission sought clarification regarding the terminology used in licence condition 3.1, which states that "no significant modification to the facility... may be made without the prior written approval of the Commission or a person authorized by the Commission." Cameco responded that the determination of a "significant modification" is done through communications with CNSC staff. CNSC staff noted that it also communicates with other licensees to ensure that consistency is maintained.
111. Several intervenors, in their interventions, expressed support for Cameco's application to renew its operating licence.
112. Based on the above information, the Commission is satisfied that a five-year licence with mid-term reports is appropriate. The Commission accepts the licence conditions as recommended by CNSC staff.
113. The Commission is also of the view that deficiencies that remain in certain program areas do not constitute an unreasonable risk to the maintenance of health, safety, security, environmental protection, or conformance with international obligations to which Canada has agreed.

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<sup>9</sup> Commission Member Document CMD 02-M12, *New Staff Approach Used to Recommending Licence Period*.

**Conclusion**

114. The Commission has considered the information and submissions of CNSC staff and Cameco as set out in the material available for reference on the record, as well as the oral and written submissions provided or made by the participants at the hearing.
115. The Commission concludes that an environmental assessment of the proposed continued operation of the facility, pursuant to the *Canadian Environmental Assessment Act* is not required.
116. The Commission is satisfied that the applicant meets the requirements of subsection 24(4) of the *Nuclear Safety and Control Act*.
117. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews the Uranium Mine Operating Licence issued to Cameco Corporation for the McArthur River Operation. The licence, UMOL-MINE-McARTHUR.00/2013, is valid from November 1, 2008 to October 31, 2013.
118. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 08-H11.B.
119. The Commission requests that Cameco submit to the Commission a report on the progress it has made regarding its Fire Protection program, as specified in Appendix E of the licence. Cameco's report shall be presented at a public proceeding of the Commission in September 2009.
120. With this decision, the Commission requests that Cameco prepare a status report on the safety performance of its facility following the midpoint of the five-year licence term. CNSC staff shall also prepare a report on the results of compliance activities carried out during the first half of the licence term and on the licensee's performance during that period. Cameco and CNSC staff shall present their reports at a public proceeding of the Commission, in approximately June 2011.



OCT 23 2008

Michael Binder  
President,  
Canadian Nuclear Safety Commission

Date

## Appendix A – Intervenors

<b>Intervenors</b>	<b>Document Number</b>
Canadian Nuclear Workers' Council and the United Steel Workers Union (USW) local 8914, represented by D. Shier and J. Curry	CMD 08-H11.2 CMD 08-H11.2A
Northern Saskatchewan Environmental Quality Committee, represented by S. Clarke	CMD 08-H11.3
Northern Lights School Division No. 113, represented by A. Bishoff and R. Laliberte	CMD 08-H11.4
Northern Village of Sandy Bay, represented by Mayor I. Fietz-Ray	CMD 08-H11.5
Northern Saskatchewan Women's Network Incorporated, represented by E.R. Tinker and Mayor I. Fiezt-Ray	CMD 08-H11.6 CMD 08-H11.6A
Northern Village of Pinehouse	CMD 08-H11.7
Saskatchewan Chamber of Commerce, represented by B. Robertson	CMD 08-H11.8
Directors of St. Paul's Hospital (Grey Nuns) of Saskatoon	CMD 08-H11.9
Saskatoon Regional Economic Development Authority, represented by A. Migneault	CMD 08-H11.10
Edwards School of Business, University of Saskatchewan	CMD 08-H11.11