



Canadian Nuclear  
Safety Commission

Commission canadienne  
de sûreté nucléaire

# Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Cameco Corporation

Subject Application for Renewal of the Uranium Mine  
Licence for the McArthur River Operation

Public Hearing Date October 1, 2 and 3, 2013

## 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 Licence for the McArthur River Operation.

Application received: December 21 and 31, 2012

Date of public hearing: October 1, 2 and 3, 2013

Location: Kikinahk Friendship Centre,  
320 Boardman Street, La Ronge, Saskatchewan

Members present: M. Binder, Chair  
R. Velshi S. McEwan  
R. J. Barriault M. J. McDill  
A. Harvey D.D. Tolgyesi

Secretary: M.A. Leblanc  
Recording Secretary: B. Gerestein  
Senior General Counsel: J. Lavoie

<b>Applicant Represented By</b>			<b>Document Number</b>
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<b>Intervenors</b>
See Appendix A

**Licence:**        Renewed

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## 1.0 INTRODUCTION

1. Cameco Corporation (Cameco) has applied to the Canadian Nuclear Safety Commission<sup>1</sup> for the renewal of the Uranium Mine Licence for its McArthur River Operation located in northern Saskatchewan. The current operating licence, UMOL-MINE-McARTHUR.02/2013, expires on October 31, 2013. Cameco requested a renewal of the licence for a period of 10 years.
2. Cameco is currently authorized to:
  - a) operate a nuclear facility comprised of an underground mine, an underground ore-processing facility, a surface ore load-out facility, a waste management system, and associated site facilities;
  - b) mine and process ore and mineralized waste from the facility; and
  - c) possess, store, transfer, import, use, and dispose of nuclear substances and radiation devices that are required for, or associated with, laboratory studies and fixed gauge usage.
3. Cameco discovered the McArthur River ore body in 1988. In 1997, the Joint Federal/Provincial Panel on Uranium Mining in Northern Saskatchewan filed its recommendation, which included support for development of the McArthur River deposit. The Atomic Energy Control Board (AECB), the predecessor of the CNSC, issued regulatory approval to construct the underground and surface facilities in 1997 and 1998. The AECB issued a licence in 1999 to allow production mining. Mining has been ongoing at McArthur River since 1999. Cameco's operating licence was renewed by the CNSC in 2004 and 2008.
4. Cameco has applied to the CNSC for a licence renewal for a 10-year period to mine and process ore from the facility. The licence would allow Cameco to continue to mine the underground ore reserves, operate the ore handling, storage and transportation systems, and manage the associated waste rock facilities.

### Issue

5. 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> (NSCA):
  - a) if Cameco is qualified to carry on the activities 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.

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

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

## Public Hearing

6. The Commission, in making its decision, considered information presented at a public hearing held on October 1, 2 and 3, 2013 in La Ronge, 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 considered written submissions and heard oral presentations from CNSC staff (CMD 13-H14) and the Applicant (CMD 13-H14.1). The Commission also considered oral and written submissions from 25 intervenors (see Appendix A for a detailed list of interventions). The hearing was webcasted live via the CNSC Web site, and video archives are available for a three-month period following this decision. A *Summary Record of Proceedings, Including Reasons for Decision*, was issued on October 29, 2013.

## **2.0 DECISION**

7. 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 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 Licence issued to Cameco Corporation for its McArthur River Operation located in northern Saskatchewan. The renewed licence, UMOL-MINE-MCARTHUR.00/2023, is valid from November 1, 2013 until October 31, 2023, unless suspended, amended, revoked or replaced.

8. The Commission includes in the licence the conditions as recommended by CNSC staff in CMD 13-H14.
9. With this decision, the Commission directs CNSC staff to provide annual reports on the performance of the McArthur River Operation, as part of the CNSC's Annual Report on Nuclear Fuel Cycle Facilities in Canada. CNSC staff shall present these reports at public proceedings of the Commission. A special focus on the environmental performance of the McArthur River Operation with emphasis on releases to air, water and soil, is expected to be part of the annual reports. Some of the proceedings may be held in Saskatchewan with public participation.
10. The Commission also accepts the revised financial guarantee for decommissioning of the McArthur River Operation.

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<sup>3</sup> Statutory Orders and Regulations (SOR)/2000-211.

11. The Commission accepts CNSC staff's recommendation regarding the delegation of authority in the Licence Conditions Handbook (LCH). The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the LCH.
12. The Commission requests that Cameco prepare timeline estimates for completion of each of the major reclamation and decommissioning activities planned at the McArthur River Operation. Updates of the remediation and decommissioning plans and timelines will be presented as part of the aforementioned annual reports by CNSC staff on the performance of the McArthur River Operation.

### **3.0 ISSUES AND COMMISSION FINDINGS**

13. In making its licensing 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.
14. During the public hearing, the Commission heard from a number of intervenors about the economic benefits and disadvantages of uranium mining and also heard about possible alternatives to nuclear energy. While the Commission appreciates the viewpoints of intervenors on these issues, these issues were deemed to be outside the scope of subjects the Commission is able to consider under the NSCA in arriving at a decision. Therefore, these issues, while important to the local communities and individuals, are not discussed in these reasons for decision.
15. The Commission also heard different viewpoints regarding the process used for the development of collaborative agreements between Cameco and the neighbouring communities. These agreements outline the future business relationship between the parties. The Commission notes that it does not take any position on the process to develop an agreement or on the business interests of the parties. The Commission noted, however, that the agreements contain obligations with respect to communications between the parties which are important as they relate to Cameco ensuring that local communities are informed and consulted about current and future endeavours. These communications are discussed further in this Record of Proceedings.
16. In their intervention, Sierra Club alleged that the CNSC may be acting contrary to its statutory mandate in regard to Canada's international obligations. The Commission disagrees with this submission. The CNSC regulates the nuclear industry by licensing activities only where satisfied that the applicant "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 CNSC is not responsible for the implementation of all of the international obligations to which Canada has agreed. While Sierra Club invokes the *Convention on Long-Range Transboundary Air Pollution* and the 1998 Heavy Metals Protocol and Protocol on Persistent Organic Pollutants, it is the *Canadian Environmental*

*Protection Act, 1999*<sup>4</sup> (CEPA) that deals specifically with international air pollution. The CNSC does not administer the CEPA. In addition, the *Declaration on the Protection of the Arctic Environment*, the Arctic Environmental Protection Strategy, the Arctic Monitoring and Assessment Program or the Arctic Council, do not create binding obligations on Canada nor the CNSC as it relates to this application for renewal.

17. In regard to the Espoo Convention, the obligation to conduct environmental assessments has been implemented under the *Canadian Environmental Assessment Act 2012* (CEAA 2012)<sup>5</sup>. Thus, it is the Environment Minister who determines which projects require an EA to be conducted by the CNSC, and this is done for projects that have the potential to cause adverse environmental effects. In the matter at hand, the Commission concluded that an EA was not required under the CEAA 2012 for the licensing actions that were considered by the Commission. More details on this topic are provided in section 3.15 of this document.

### **3.1 Management System**

18. The Commission examined Cameco's Management System which covers the framework that establishes the processes and programs required to ensure that the McArthur River Operation achieves its safety objectives and continuously monitors its performance against these objectives, and fosters a healthy safety culture.
19. CNSC staff reported that it had reviewed the management system performance for the McArthur River Operation and rated Cameco's performance within this safety and control area (SCA) as satisfactory.

#### *3.1.1 Quality Management*

20. Cameco reported that the McArthur River Quality Management Program (QMP) was built according to ISO management standards. Cameco added that site programs are reviewed and revised as required, and that these programs are submitted to the CNSC for acceptance. CNSC staff confirmed that Cameco submitted a revision of the operation's QMP for consideration and this was accepted by CNSC staff in April 2013.
21. Cameco noted that regulatory audits and inspections are conducted on a regular basis to determine the effectiveness of the quality management system, and that there are no outstanding regulatory inspection items related to the quality management system.
22. Cameco reported that re-certification of the McArthur River's operation's environmental management system to ISO 14001:2004 was granted in 2011 following an audit earlier in the year. Surveillance audits were subsequently conducted in 2012 and 2013, and all of the findings have been addressed.
23. CNSC staff reported that there will be continued evaluation of Cameco's management system and its implementation, which will be reviewed as part of the regular compliance program.

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<sup>4</sup> S.C. 1999, c.33.

<sup>5</sup> S.C. 2012, c.19, s.52 (hereinafter, "CEAA 2012")

### *3.1.2 Organization*

24. Cameco informed the Commission about the structure of ownership of the McArthur River Operation, and explained the organizational structure. They noted that the McArthur River Operation is a joint-venture project operated by Cameco and owned by Cameco (70%) and AREVA Resources (30%).
25. Cameco also informed the Commission that contractor management (non-Cameco personnel) is directed by the corporate Contractor Management Program (CMP) which is guided by a suite of documents within the QMP. The CMP is designed to ensure that:
  - Risks are evaluated to identify and eliminate or control hazards;
  - Duties of contractors are clearly understood;
  - Contractors are adequately trained and qualified for the work; and
  - Cameco maintains oversight.
26. CNSC staff indicated that it monitored and validated the management system processes used for the licensed activities during the current licensing period through their inspection process. A focussed inspection was held in 2012 and CNSC staff found that Cameco's management system was appropriate to achieve the committed goals and objectives. During the inspection, three low risk deficiencies were noted and Cameco dealt with them. Following CNSC verification of the actions taken, the action notices were closed.

### *3.1.3 Facility Management*

27. Cameco noted that, during the next 10 years, they expect to invest capital in order to expand the current infrastructure to sustain current production levels. Cameco plans to continue to develop underground workings and delineate the McArthur River deposit to the north and south of the existing mining zones.
28. CNSC staff informed the Commission that it had reviewed Cameco's management system program as it relates to future requirements and determined that the program is satisfactory.

### *3.1.4 Safety Culture*

29. Cameco noted that improving safety culture has been a focus at the McArthur River Operation since relicensing in 2008. Cameco has worked to increase the visibility of the safety department within the operation and to provide regular reviews and coaching. Additionally, all contractor groups are now included in reporting under the site-wide safety key performance indicator program, which tracks issues such as event-free days related to lost-time accidents, medical visits and use of first aid.
30. CNSC staff indicated that safety reviews are conducted using Job Hazard Assessments (JHAs) and that the Cameco process is very thorough and well documented. CNSC staff also noted that Cameco has implemented a safety and health management program to enhance identification and mitigation of risks. This program consists of planned inspections, a safety permit system, occupational health committees, a health centre

operation, incident investigations and the management of safety equipment. CNSC staff stated that it has observed and verified these safety practices during compliance inspections.

31. In submissions to the Commission, a number of intervenors, including the Canadian Nuclear Workers Council & Steelworkers 8914 and J. Little, indicated that the safety culture at the McArthur River Operation has improved during the course of the current licence. These intervenors noted that the McArthur River Operation is a safe location to work and that Cameco is continually striving to improve processes and facilities for the benefit of workers, the public and the environment.
32. Some intervenors, including A. Coxworth, stated that culture and language issues could be interfering with communications when First Nations employees wish to address concerns at the site. It was suggested that some First Nations employees may be reluctant to raise issues for fear of their livelihood, or due to limited English language skills. It was suggested by some intervenors that having a community Elder on site as a form of “ombudsman” may improve communications between First Nation employees and Cameco management.
33. In response, Cameco explained that employees have ready access to a confidential hot line they can use to report concerns. Cameco also noted that concerns may also be raised with their supervisors, the site occupational Health and Safety Committee representative, or with the company representative in their community to whom they may be better able to communicate in their native language. Cameco stated that the company has a policy of openness with its employees and that employees should not fear that raising issues would impact on their jobs. CNSC staff stated that, during its inspections, it takes the opportunity to speak with employees in confidence, and has not observed any reluctance of Cameco personnel or contractors to raise issues of concern. CNSC staff also stated that it visits the communities on a regular basis where open dialogue on facility performance is observed and encouraged.
34. The Commission enquired about safety culture improvements at Cameco from the employees’ perspective. Intervenors from the Canadian Nuclear Workers’ Council and the United Steelworkers Union (local 8914) responded that, from their perspective, safety culture at the site has improved over the years. They stated that work relationship between their organization and Cameco is good and includes regular communication, joint occupational health and safety meetings, site inspections, as well as daily toolbox meetings and weekly safety meetings where any concerns can be raised. The Union leadership has also regular meetings with the Occupational Health and Safety Committee to discuss safety issues or concerns.

### *3.1.5 Conclusion on Management System*

35. Based on its consideration of the presented information, the Commission concludes that Cameco has appropriate organization and management structures in place and that the operating performance at the McArthur River Operation provides a positive indication of the applicant’s ability to adequately carry out the activities under the proposed licence.

### **3.2 Human Performance Management**

36. Human performance management encompasses activities that enable effective human performance through the development and implementation of processes that ensure licensee staff is sufficient in number in all relevant job areas and have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.
37. CNSC staff informed the Commission that, in evaluating this SCA, it had focussed on the training of workers to safely operate the mining and processing facilities.
38. CNSC staff noted that Cameco has an effective training program in place to ensure proper training of mine operational staff. CNSC staff rated this SCA as satisfactory.

#### *3.2.1 Training*

39. Cameco indicated that the McArthur River Operation had implemented Cameco's systematic approach to training (SAT) as a key part of the Operation's training program. They noted that implementation of SAT was a significant focus during the current licence term, adding that all high-risk and medium-risk positions have been through the analysis phase of SAT.
40. Cameco provided examples of the training progress, including:
  - ensuring all McArthur River staff members have qualifications assigned to them based on their occupational role with qualifications derived from SAT requirements or regulatory or corporate requirements;
  - producing a definitive list of mandatory training qualifications where there is 100% compliance expectation for taking the training; and
  - increasing the scope of site orientation training for all new employees and contractors, which includes job hazard analysis, basic radiation training and underground orientation and safety.
41. CNSC staff indicated that this change has resulted in an improvement in training qualifications granted to new employees and helps ensure the workers have the training they require.
42. CNSC staff reported that Cameco had updated their training and development program to meet future operational requirements. CNSC staff stated that it had reviewed the program and determined that it meets CNSC requirements. Additionally, CNSC staff noted that the Cameco SAT program is fully implemented, and continued assessments of worker, manager and contractor training will be completed by CNSC staff as part of the compliance program.
43. The Commission sought further information on the degree to which the residents of northern Saskatchewan are being trained for jobs at Cameco's operations. Cameco representatives responded that the percentage of employees from northern Saskatchewan was currently over 50%. Cameco further remarked that it has been steadily increasing its focus on training in all job categories, ranging from entry-level jobs to semi-skilled and

skilled jobs. This reportedly includes promoting and supporting education opportunities at various levels, including grade 12, university, technical trades, and technician courses as offered by Northlands College in La Ronge.

44. CNSC staff reported having conducted inspections to assess the effectiveness of the training processes currently being used and verify the implementation of the training program. All of the 5 action notices resulting from these inspections have been addressed and closed.

### *3.2.2 Conclusion on Human Performance Management*

45. Based on its consideration of the presented information, the Commission concludes that Cameco has appropriate programs in place and that current efforts related to human performance management provide a positive indication of Cameco's ability to adequately carry out the activities under the proposed licence.

## **3.3 Operating Performance**

46. Operating performance includes an overall review of the conduct of the licensed activities and the activities that enable effective performance as well as improvement plans and significant future activities at the McArthur River facility. Cameco's McArthur River Ore Processing Program outlines the specific steps, equipment and procedures used to process ore safely. CNSC staff rated this SCA as satisfactory.

### *3.3.1 Conduct of Operations*

47. Cameco stated that controls are in place to ensure that workers and the environment are protected from the high-grade uranium ore mined at the site. Cameco also stated that Cameco has developed and implemented programs to minimize potential risks, maintain integrity of facilities and apply managed processes for operations and control. Cameco added that ground freezing, extensive probe-and-grout covers, and the potential use of alternate mining methods are used to mitigate risk. Cameco added that the raiseboring mining technique, where ore is removed from below, will continue to be the dominant form of mining at the McArthur River Operation.
48. Cameco stated that, during the current licence period, the McArthur River Operation had produced above the annual average production while improving safety, radiation protection and environmental performance.
49. CNSC staff reported that, during the current licence period, it had conducted regular compliance inspections of various aspects of the mine operation, including the contingency water treatment system, shaft water containment and mine ventilation system. CNSC staff added that Cameco had addressed all identified issues in a satisfactory and timely manner and that Cameco's operations were in line with CNSC staff expectations.

### *3.3.2 Operating Experience*

50. Cameco informed the Commission that the McArthur River Operation has significant experience in operating its mining facilities and noted that, after 13 years of operation, operating processes and criteria for development are well understood and documented. Additionally, the mining operation has benefitted from lessons learned at the McArthur River Operation and at other mining sites operated by Cameco.
51. CNSC staff stated that it carried out compliance inspections of the underground and surface facilities at the McArthur River Operation during the current licence period. CNSC staff verified that action notices issued by the CNSC were satisfactorily completed and in line with CNSC staff expectations. CNSC staff stated that it will continue to conduct inspections and complete desktop reviews regarding Cameco's uranium mining and surface operations at the McArthur River Operation during the proposed licence term.
52. The Commission asked Cameco where it looks to learn about and compare itself to best practices for uranium mining and milling operations, particularly in the area of safety and environment. Cameco responded that it conducts benchmarking, including through its own corrective action processes across all of its uranium mining and fuel operations, and through its involvement in organizations such as the World Nuclear Association.

### *3.3.4 Conclusion on Operating Performance*

53. Based on the above information, the Commission concludes that the performance of the McArthur River Operation during the current licensing period, along with proposed plans, provides a positive indication of Cameco's ability to carry out the activities under the proposed licence.

## **3.4 Safety Analysis**

54. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or the operation of a facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards. It supports the overall safety case for the facility. CNSC staff reviewed this SCA and rated Cameco's performance as satisfactory.
55. Cameco noted that they had completed annual risk reviews at the McArthur River Operation during the current licence term and that no new risks were identified.
56. Cameco reported that facility change control is utilized at the McArthur River Operation to ensure that any potential risks associated with physical changes to the operation are identified and appropriately controlled before implementation.
57. Cameco noted that, during the current licence period, a number of infrastructure improvements have increased the McArthur River Operation's ability to manage routine and non-routine water inflow into the mine.

58. CNSC staff reported that Cameco updated its environmental risk assessment to support a project which involves changing the effluent discharge location. CNSC staff reviewed the application and found it as being within the licensing basis. CNSC staff noted the improvement in effluent quality and stated that it will continue to review monitoring data in the downstream environment.
59. As required by CNSC staff, Cameco submitted detailed information and risk assessments prior to developing new mine areas. CNSC stated that it reviewed these reports and verified through inspections that underground development was proceeding safely.
60. On the basis of the information presented, the Commission concludes that the systematic evaluation of the potential hazards and the preparedness for reducing the effects of such hazards is adequate for the operation of the facility and the activities under the proposed licence.

### **3.5 Physical Design**

61. Physical design includes activities to design the systems, structures and components to meet and maintain their design basis. The design basis is the range of conditions and events taken into account in the design of structures, systems and components of a facility according to established criteria.
62. With respect to the McArthur River Operation, this SCA focuses on the design aspects of the facility with an emphasis on the ore processing facilities, water treatment system and the ventilation system. CNSC staff reviewed Cameco's performance and rated this SCA as satisfactory.
63. Cameco reported that the McArthur River Operation has implemented and maintains a robust design control process, and provided a summary of the designs present at this facility. Cameco added that, during the current licence term, a number of additional facilities have been added both underground and on surface to improve operational efficiency and environmental performance.
64. During the current licence period, CNSC staff raised a concern regarding mine ventilation and directed Cameco to re-assess its ventilation controls. Cameco provided a detailed response which CNSC staff reviewed and found acceptable. CNSC staff approved modifications to the ventilation system that reduced radon concentrations by 29%.
65. CNSC staff reported having verified the engineering change process and the procedures used to design and construct the underground development and mining areas. CNSC staff concluded that the design and construction process is clear and allows for modifications as needed which are communicated well between technical and underground staff.
66. On the basis of the information presented, the Commission concludes that the design of the facilities at the McArthur River Operation is adequate for the operation period included in the proposed licence.

### 3.6 Fitness for Service

67. Fitness for Service covers activities that are performed to ensure the systems, components and structures at the McArthur River Operation continue to effectively fulfill their intended purpose. CNSC staff reviewed Cameco's performance and rated this SCA as satisfactory.
68. Cameco confirmed having developed and implemented a maintenance program at the McArthur River Operation to manage routine maintenance, inspection and testing to ensure the availability, reliability and effectiveness of facilities and equipment. Cameco added that, through the maintenance program, the company ensures that all assets maintain a high level of equipment integrity.
69. Cameco reported on a number of maintenance-related upgrades performed during the current licensing period, including:
- Installation of a cone-shaped bottom to the skip load-out bin that minimized contamination of clear waste material coming from underground;
  - commissioning of new fans and motors at the Shaft 2 exhaust to ensure proper ventilation underground;
  - replacement of Coverall buildings by similar structures;
  - updates to switchgear equipment at Shaft 3;
  - improvement to water management systems of the underground mine to enhance worker safety; and
  - optimization of the primary water treatment facility to improve water-handling reliability.
70. CNSC staff indicated that Cameco's maintenance department continued its preventive approach to improve the overall condition of all equipment. CNSC staff noted during regular compliance inspections that Cameco completed all safety specific equipment preventive maintenance checks on schedule. One regular compliance inspection resulted in CNSC staff issuing an action notice regarding the contingency water treatment system. In 2012, Cameco conducted a full test of the system which is designed to handle non-routine mine water inflow situations. CNSC staff verified that the system was prepared and capable of managing non-routine water inflows, and the action notice was closed.
71. CNSC staff reported that a review of the licensee's management system during regular compliance inspections confirmed that preventive maintenance activities are scheduled, completed and recorded and that the maintenance program was well documented and implemented.
72. The Commission is satisfied with Cameco's programs for the inspection and life-cycle management of key safety systems. Based on the above information, the Commission concludes that the equipment as installed at the McArthur River Operation is fit for service.

### **3.7 Radiation Protection**

73. As part of its evaluation of the adequacy of the provisions for protecting the health and safety of persons, the Commission considered the past performance of Cameco's McArthur River Operation in the area of radiation protection. The Commission also considered the radiation program at the McArthur River Operation to ensure that both radiation doses to persons and contamination are monitored, controlled, and kept as low as reasonably achievable (ALARA), with social and economic factors taken into consideration.
74. A Cameco informed the Commission that they have implemented a Radiation Protection Program (RPP) and a Radiation Code of Practice (RCOP) as required by the CNSC. Cameco informed the Commission that the radiation protection program is implemented by dedicated radiation safety personnel with management oversight. Cameco indicated that experience gained at the McArthur River Operation to date will be applied in new areas, using design and other mitigation methods, to further reduce worker exposures.
75. CNSC staff confirmed that Cameco has in place effective RPP and RCOP at the McArthur River Operation that meet CNSC staff expectations. CNSC staff rated the radiation protection SCA as satisfactory with an improving trend.

#### *3.7.1 Public Radiation Exposure*

76. Cameco stated that, with the measures in place to reduce radiation exposures on the McArthur River Operation site, doses to the public are well below the public dose limit and are not detectable from background levels of radiation received by members of the public.
77. Some intervenors, including D. Dewar, C. Paul, and the Committee for Future Generations, provided anecdotal information that cancer rates in northern Saskatchewan communities are high and that rates are attributable to the uranium mining industry.
78. In response to the Commission's questioning of this assertion, the Public Health Officer indicated that the greatest risk to developing cancer does not come from uranium mining but from tobacco smoking and that lung cancer rates, in both men and women, are elevated in northern Saskatchewan compared to southern Saskatchewan. During discussion of background radiation, the Public Health Officer noted that levels of background radiation vary from one locale to another and that background radiation levels in northern Saskatchewan are lower than in southern Saskatchewan because of the differences in soils and ground structure.
79. Some intervenors, including the Prince Albert Grand Council, English River First Nation, Sierra Club Canada and the Committee for Future Generations, expressed concern that radiation exposure to members of the public comes from the contamination of country foods including fish, wildlife and berries. Cameco representatives and CNSC staff indicated that studies conducted in support of the human health risk assessments have shown that country foods taken from or near the mine site have been shown to be free of

contamination and that country foods are as safe as supermarket foods. The Medical Health Officer indicated that ongoing monitoring of country foods is important since these foods are vital to enabling the local populations to maintain a healthy diet and their lifestyle. He stated that there is no indication that country foods are contaminated or that they are causing any health problems. With respect to those studies, CNSC staff referred specifically to the work of the community-based Athabasca Working Group, the Province of Saskatchewan's Eastern Athabasca Regional Monitoring Program, and other northern dietary surveys (e.g., Hatchet Lake).

80. Similarly, Sierra Club Canada expressed concern that radon and radioactive dust may be exhausted from the underground mine and that there was no direct monitoring of this at the ventilation discharge points. In response to questioning by the Commission on this concern, Cameco referred to the extensive air and surface water quality monitoring that it carries out on, and in the vicinity of, the site. Cameco noted that it does much to control dust generation in the underground mines.

### *3.7.2 Worker Radiation Exposure*

81. Cameco reported that it establishes and reviews targets annually at the McArthur River Operation to ensure protection measures continue to be ALARA. This includes control of the primary radiological hazards at the site.
82. Cameco noted that radiation risks to workers are managed through mine design, building layout, the use of automated equipment, shielding and work practices. As an example of increasing radiation protection for workers, Cameco stated that mine ventilation was enhanced and has had a positive effect on reducing radiation exposures underground. Administrative measures used are radiation work permits, direct-reading dosimeters and continuous radon progeny monitors set up throughout the mine. With respect to the radon progeny monitors, Cameco indicated that all 95 monitors were retrofitted in 2010 and 2011 and now provide enhanced reliability, functionality and ease of use.
83. Cameco reported that the average annual effective dose for employees at the McArthur River Operation has declined from 1.41 millisieverts (mSv) in 2008 to 0.97 mSv in 2012. Over this same period, the number of employees monitored increased from 814 to 1,276. Cameco reported that the downward trend in average effective dose was attributed in part to operational improvements, and detailed those improvements. Cameco noted that initiatives are planned during the upcoming licence period that will further improve performance of the RPP. Cameco also noted that the maximum annual individual dose was always well below the regulatory limit of 50mSv/year during the licensing period. CNSC staff concurred with Cameco.
84. CNSC staff stated that an assessment of radiation protection is included in all compliance inspections at the McArthur River Operation. CNSC staff noted that several action notices were issued during the current licence period regarding dosimetry, radiation signage and upset conditions. CNSC staff verified that corrective actions were taken and that ongoing assessments are undertaken to ensure that radiation protection is given high priority with emphasis on higher risk activities. All action notices were closed.

85. CNSC staff noted that Cameco continues to focus efforts on reducing worker exposure to radiation through application of ALARA and that releases of long-lived radioactive dust and radon have been reduced. CNSC staff stated that it will continue to monitor Cameco's performance through future reviews of compliance reports and conduct of routine inspections.
86. During the licence period, there were four action level exceedances. CNSC staff confirmed that Cameco implemented corrective actions for these events which included planning for high risk activities and employee coaching and training. CNSC staff noted that high risk activities are identified on a daily basis by Cameco as part of work planning.
87. C. Paul, in her intervention, argued that the notion of "reasonably achievable" as the basis of the ALARA principle is not an appropriate objective for reducing radiation exposures; rather the intervenor argued that radiation doses should be "as low as possible" and that all available means, irrespective of cost, should be made to achieve this. In response, CNSC staff indicated that ALARA is the universally accepted principle in the field of Radiation Protection to ensure that radiation doses are kept very low, and well below that which may cause harm to human health. Application of the ALARA principle has been shown to be effective at sites regulated by the CNSC.

### *3.7.3 Conclusion on Radiation Protection*

88. The Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place to control radiation hazards, Cameco provides adequate protection to the health and safety of persons and the environment.

## **3.8 Conventional Health and Safety**

89. Conventional Health and Safety covers the implementation of a program to manage workplace safety hazards. This program is mandatory for all employers and employees in order to reduce the risks associated with conventional (non-radiological) hazards in the workplace. This program includes compliance with Part II of the *Canada Labour Code*<sup>6</sup> and conventional safety training.
90. Cameco informed the Commission that it promotes a strong safety culture for employees and contractors through its Safety and Health Management Program. The program is based on the international Occupational Health and Safety Standard OHSAS 18001 and sets out the requirements for the management of health and safety aspects at the McArthur River Operation.
91. Cameco added that the core of the program is a formal health and safety operational control process, which requires mandatory participation of all departments and employees. The process includes inspections, safety meetings, personnel contacts, task observations and a five-point safety system.

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<sup>6</sup> Revised Statutes of Canada, 1985, c. L-2

92. Cameco further mentioned having developed a supervisor training program at the McArthur River Operation aimed at both Cameco and long-term contractor supervisors. The training covers supervisory responsibilities and focuses on handling work refusals, supervisory duties in an emergency and gas monitoring for confined spaces.
93. Cameco informed the Commission that external recognition of its excellence in conventional health and safety has been demonstrated through winning for the McArthur mine the regional John T. Ryan safety trophy on two occasions, 2010 and 2011, and the national award in 2010. The John T. Ryan award is given by the Canadian Institute of Mining and Metallurgy for the mining operation with the lowest lost-time accident frequency in its category. Cameco noted that there were no serious lost time injuries at the facility since the mid-term report was presented to the Commission in 2010.
94. CNSC staff informed the Commission about its verification of Cameco's safety practices through compliance inspections conducted during the current licence period. CNSC staff noted that inspections regarding conventional health and safety were also carried out by Saskatchewan Ministry of Labour Relation and Workplace Safety during the licensing period. Contraventions issued under Saskatchewan's Occupational Health and Safety Regulations<sup>7</sup> were adequately addressed.
95. CNSC staff reported that all 8 incidents that occurred during the current licence period were reported in a timely manner and in compliance with relevant regulations. Safety-related incidents were properly investigated in a timely manner. CNSC staff added that, in conjunction with the Saskatchewan Ministry of Labour Relation and Workplace Safety, it reviewed and verified the investigation reports and the proper implementation of corrective actions. The reports were acceptable to both CNSC staff and Saskatchewan Ministry of Labour Relation and Workplace Safety.
96. The Canadian Nuclear Workers Council and Steelworkers 8914 indicated that the safety culture at the McArthur River Operation is excellent, that workers are provided with appropriate training to ensure that they understand their roles and responsibilities and that the mine is a safe place to work. The intervenor also stated that all workers at the McArthur River Operation are provided with information on their rights and obligations as workers and that reporting problems or concerns is covered. This intervenor also indicated that workers are able to refuse work that they feel may be unsafe until such time as Cameco takes action and confirms that the work would be safe. The intervenor indicated that no concerns relating to a refusal on the part of Cameco to consider issues have been brought to the attention of union management.
97. The Commission questioned Cameco if it looks to other organizations to better understand and adopt industry best practices for assuring worker health and safety. In response, Cameco stated that it looks for, and shares information on safety practices across all of its own mining and other fuel-cycle operations, as well as through its involvement with organizations such as the Saskatchewan Mining Association, the Mining Association of Canada, and the World Nuclear Association.

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<sup>7</sup> 0-1.1 Reg 1 – The Occupational Health and Safety Regulations, 1996

98. Based on the information presented, the Commission is of the opinion that the health and safety of workers and the public was adequately protected during the operation of the facility for the current licence period, and that the health and safety of persons will also be adequately protected during the continued operation of the facility.

### **3.9 Environmental Protection**

99. Environmental protection covers Cameco's programs to identify, control and monitor all releases of radioactive and hazardous substances and to minimize the effects on the environment which may result from the licensed activities. It includes effluent and emissions control, environmental monitoring and estimated doses to the public. CNSC staff rated Cameco's performance in this SCA as satisfactory.
100. Cameco reported that environmental protection at the McArthur River Operation is assured by the site specific *Environmental Protection Program* (EPP) and the *Environmental Code of Practice* (ECOP). Cameco added that there are ongoing revisions to the EPP, and that the procedures and work instructions related to the program are reviewed as required or at least once every three years.
101. CNSC staff informed the Commission that it had reviewed the updated EPP and ECOP Cameco submitted as part of the licence application and found the documentation to meet CNSC expectations.
102. Cameco indicated that it maintains an ISO 14001:2004 certification for its environmental management program at the McArthur River Operation and that an ISO surveillance audit in 2012 provided a positive review and confirmed that the program meets the requirements of the standard. CNSC staff concurred with Cameco.
103. CNSC staff reported that, during the licence term, it conducted both focused and general compliance inspections which examined various aspects of environmental protection. All of the action notices originating from these inspections have been closed. Inspections have also been carried out by the Saskatchewan Ministry of the Environment; the inspection findings were shared with CNSC staff and deficiencies addressed by the licensee.

#### *3.9.1 Effluent and Emissions Control*

104. Cameco reported that the most recent McArthur River Operation Status of the Environment Report (SOE) was submitted in December 2012. The SOE concluded that air quality, surface hydrology, water quality, sediment quality and aquatic and terrestrial ecology conditions are consistent with predictions made in the 1995 environmental impact statement and interim predictions made in the 2005 Ecological Risk Assessment. Exceptions to these findings are molybdenum concentrations in some locations, but no effects have been observed. Cameco stated that, overall; the SOE demonstrates that the McArthur River Operation is effective in monitoring the effects of the operation on the receiving environment and informing management of issues requiring attention.

105. Cameco stated that inspections are an integral component of the monitoring and control system at the McArthur River Operation and that these are carried out on a daily basis by Cameco environment and/or operations staff.
106. Cameco noted that, in 2005, the McArthur River Operation completed an ecological risk assessment which recommended further evaluation and control of the molybdenum, selenium and uranium in the treated effluent stream. In response to this report, Cameco detailed the changes made to the process to improve the treated effluent concentrations for these three elements and adopted administrative and action levels for molybdenum in the EPP. These improvements resulted in substantial reductions of these 3 elements in the treated effluent. CNSC staff concurred with Cameco.
107. CNSC staff stated that treated effluent contaminant concentrations from the McArthur River Operation were well below the effluent discharge limits, passed all toxicity tests and there were no exceedances of the action levels contained in the ECOP. During the licence period, CNSC staff remarked that molybdenum and selenium concentrations were reduced and that Cameco will endeavour to reduce the levels even further.
108. An intervenor, Sierra Club Canada, stated that Cameco's waterborne releases at McArthur River for many contaminants far exceeded regulatory limits, standards or objectives – in some cases by over 1000%. Upon questioning by the Commission, it appeared that the intervenor was comparing the level of contamination in a waste stream that had not yet undergone treatment with levels of contamination in the effluent to the environment that had undergone treatment. Therefore, the levels portrayed did not accurately reflect the releases to the environment. Cameco representatives stated that all water and airborne releases to the environment are below all regulatory limits. CNSC staff concurred with Cameco.
109. Sierra Club Canada also stated that untreated effluent is released from air shaft number 3. Cameco explained that the water, which is groundwater, is released untreated since it does not come into contact with any mine water workings. The Saskatchewan Ministry of the Environment allows this release. Cameco added that the water is monitored prior to release. If the monitoring results are not satisfactory, the water is diverted to the water treatment plant.
110. In its intervention, Sierra Club Canada stated that regulatory and/or legal limits do not exist for a number of contaminants. CNSC confirmed that this is the case for a limited number of contaminants. In these instances, CNSC staff implements the precautionary principle and releases are controlled and monitored through the use of Action Levels or regulatory levels established in CNSC requirements. CNSC staff further noted that it is involved in initiatives to expand the set of parameters for which limits are established in the federal *Metal Mining Effluent Regulations*<sup>8</sup> (MMER) (including for selenium for example).
111. Sierra Club Canada discussed at length the release of mercury and cadmium to the environment and whether or not emissions are measured and causing harm. Cameco representatives stated that mercury and cadmium are not associated with their mining or

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<sup>8</sup> SOR/2002-222

milling process, and indicated that the concentrations were measured and have been found to be generally at, or below detectable levels and therefore do not pose a risk to the environment. CNSC staff confirmed that mercury and cadmium releases are not relevant to the McArthur River Operation.

112. With respect to untreated effluent released to the environment, CNSC staff indicated that effluent quality was well below the regulatory limits, with one exception. In that case, the incident was investigated and it was determined that environmental impacts were very low and that appropriate controls were put in place to ensure that similar incidents do not recur.

### *3.9.2 Environmental Incidents*

113. Cameco informed the Commission that, during the licence term, a number of reportable environmental events occurred, which included 19 spills since the beginning of 2008 as defined by the Province of Saskatchewan's Environmental Spill Control Regulations<sup>9</sup>. Cameco indicated that there was minimal impact to the environment as a result of these spills. CNSC staff concurred with Cameco. CNSC staff indicated that it reviewed the corrective actions implemented and verified that the spills were tracked, reported and the areas were cleaned up.
114. CNSC staff noted that all environmental related incidents were properly investigated in a timely manner and the resulting reports were acceptable to both CNSC staff and the Saskatchewan Ministry of the Environment.

### *3.9.3 Environmental Monitoring*

115. Cameco indicated that a comprehensive environmental effects monitoring program was undertaken in 2012 on the downstream receiving environment from the McArthur River Operation. The final report was submitted to federal and provincial regulatory agencies, including the CNSC, in June 2013. The report indicated that measurements in water and sediment were similar to or improved in comparison to previous monitoring programs. The report concluded that benthic invertebrates and fish in the receiving environment are not being adversely affected.
116. CNSC staff presented to the Commission values of the concentration limits for contaminants present in the effluents which are based on the *Metal Mining Effluent Regulations*<sup>10</sup> (MMER). CNSC staff reported that, during the current licence period, concentrations of contaminants in the effluent were well below the effluent discharge limits, passed all toxicity tests and there was only one exceedance of the action levels in ECOP. In this event, due to an improper use of the lock-out procedure, grout (cement) was spilled into the clean water holding area and then into the environment. CNSC staff confirmed that the environmental impacts were very low and verified that engineering controls implemented as a result will ensure that a similar incident does not recur.

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<sup>9</sup> D-14 Reg 1, Environmental Spill Control Regulations (1981), as amended by Saskatchewan Regulations 53/83 and 95/2005.

<sup>10</sup> SOR/2002-222

117. Some intervenors, including The Kineepik Métis Local Inc. #9 and the Prince Albert Grand Council, expressed their intention to perform their own environmental monitoring. The Saskatchewan Environmental Society, with reference to recommendations arising from previous federal environmental assessments, argued for a higher degree of independent environmental monitoring that involves a multitude of regulatory, local community, scientific and not-for-profit parties. In response, the Commission asked who else, other than the licensee, monitors the environment and how are the results consolidated and made public. CNSC staff responded that, in addition to its regulatory activities, the Province of Saskatchewan independently conducts monitoring, and that the Northern Mines Monitoring Secretariat involves the local community members in monitoring and sample collection. CNSC staff and the Saskatchewan Ministry of Environment also referred to the Eastern Athabasca Regional Monitoring Program which directly involves local communities. Information from this program, including technical reports, interpretative reports and raw data, is posted on the program public web site. The Environmental Quality Committee was established by the Province of Saskatchewan specifically to enable direct community engagement. CNSC staff stated that it is considering developing its own monitoring program for uranium mines and mills as part of an independent environmental monitoring program for the full nuclear fuel cycle. In response to further questioning by the Commission, the representative for the Saskatchewan Ministry of Environment expressed a willingness to explore further opportunities for exchange with groups such as the Saskatchewan Environmental Society and academia.
118. Some intervenors, including S. Lawrence, questioned the adequacy of methods applied for environmental monitoring. In response, Cameco described the ecological risk assessment and human health risk assessments that are undertaken in relation to Cameco's operations and stated that the company conducts extensive environmental monitoring programs that include the use of sophisticated scientific and site-specific models. The analytical models are regularly reviewed and updated. CNSC staff stated that it requires that licensees have an integrated program of environmental protection that manages all elements of their monitoring programs. The CNSC, in addition to requiring licensees to develop and maintain Environmental Management Systems that conform to the ISO 14001 international standard, establishes specific requirements for assessing and measuring potential human health and ecological risk through analytical modelling and monitoring. CNSC staff expressed its satisfaction with Cameco's environmental monitoring and risk assessment methods.
119. The Commission received further information from the Saskatchewan Ministry of Environment (MoE) on the environmental monitoring that it is carrying out under the direction of the province. The MoE representative informed the Commission about Saskatchewan's Boreal Watershed Management Strategy and the Eastern Athabasca Regional Monitoring Program. The MoE representative presented the background and explained the purpose, strategy and different ecological aspects of the project. The Commission sought more information regarding sampling distribution of country food samples and whether the results represent average values for the entire region, or if they were more local and community-specific. The MoE representative responded that the province is working with selective communities in the area; however, as the project

progresses, more and more communities are involved to provide a larger information basis. The MoE representative added that the samples that were collected so far in the various locations in the reference and exposure sites were safe to eat. CNSC staff stated that some of the exposure sites were in the proximity of uranium mines.

120. Responding to the Commission's question regarding the province's interaction with local communities on its environmental monitoring, the MoE representative noted that the results are presented to the interested communities, and that the communities have shown a high level of acceptance. The program, now in its third year, is expected to continue.
121. The Commission asked if the Eastern Athabasca Regional Monitoring Program is independent from the industry and CNSC. The MoE representative responded that the sampling program is independently reviewed by scientists and by universities, and that all of the data is fully credible. The MoE representative added that the results are publicly available and posted on the project's public web site.
122. The Commission was further assured by the MoE representative that Cameco has and continues to cooperate with the provincial environmental monitoring programs in an open and transparent manner, and that the monitoring results are not currently showing significant environmental effects from Cameco's uranium mining and milling operations.
123. In its intervention, Sierra Club Canada expressed its objection to any use of the 1 mSv human dose limit as a surrogate for environmental protection. In response to the Commission's examination of this statement, CNSC staff explained that, in fact, the 1 mSv human limit is not used for this purpose. CNSC staff explained that much is now known in the field of radioecology and the effects of radiation exposures to non-human biota. That knowledge is applied in the conduct of environmental risk assessments to establish conservative effect thresholds for the protection on non-human populations. CNSC staff actively participates internationally in advancing the science in this area.

#### *3.9.4 Conclusion on Environmental Protection*

124. Based on the above information, the Commission is satisfied that, given the mitigation measures and safety programs that are in place to control hazards, Cameco will provide adequate protection to the health and safety of persons and the environment.

### **3.10 Emergency Management and Fire Protection**

125. Emergency management and fire protection cover Cameco's provisions for preparedness and response capabilities which exist for emergencies and for non-routine conditions at the McArthur River Operation. This includes nuclear emergency management, conventional emergency response, and fire protection and response. After reviewing Cameco's performance related to the SCA, CNSC staff rated it as satisfactory.
126. CNSC staff noted that, as part of the licence renewal application, Cameco submitted revised documentation for emergency preparedness and response and fire protection to

meet regulatory and statutory requirements. CNSC staff indicated that the documentation was acceptable.

127. CNSC staff reported that, during the current licence term, it conducted inspections on both emergency management and fire protection. Cameco provided acceptable responses to the resulting action notices.

### *3.10.1 Emergency Management*

128. Cameco informed the Commission that emergency response capability at the McArthur River Operation is assured by the Emergency Preparedness and Response Program (EPRP) which defines actions, organizations, roles and responsibilities for potential emergency situations. Cameco added that this program addresses all major risks with an emphasis on medical response, facility fires and transportation incidents.
129. Cameco stated that, during the current licence term, the EPRP was updated to provide additional detail in some areas and was submitted to CNSC staff in October 2010. CNSC staff approved the revised EPRP in February 2011 and program implementation is progressing on a priority basis.
130. Cameco reported that emergency response plan training is provided to all new employees, including identification of key responsibilities during an emergency. All members of the emergency response team are trained and participate in both surface and underground operations.
131. Cameco also detailed the upgrades made to the emergency response team equipment.
132. At the request of the CNSC following the Fukushima events in 2011, Cameco retained a third-party expert to confirm that its emergency response measures are appropriate for the risks associated with potential natural events. No significant gaps were identified in the design of facilities with respect to their ability to withstand natural disasters and no significant health and safety or environmental risks were found. CNSC staff reported that all action items resulting from the licensee's review have been closed.
133. CNSC staff reported that Cameco must train Emergency Response Team members to respond in case of an emergency on surface or underground. Cameco reported that, in 2012, 59 workers were trained and certified by the Saskatchewan Ministry of Labour Relation and Workplace Safety. Also, 28 workers had obtained certificates from the Office of the Fire Commissioner for the Fire Brigade Training Program.
134. Canadian Nuclear Workers Council & Steelworkers 8914 indicated that McArthur River Operation workers are fully engaged in emergency response training and that the McArthur River mine rescue team won the Saskatchewan mine rescue competition in 2013. The union supports Cameco's emergency management measures.

### *3.10.2 Fire Protection*

135. Cameco informed the Commission that fire protection at the McArthur River Operation is managed through their *Fire Protection Program* (FPP), which meets the requirements of its operating licence from the CNSC including compliance with the *National Fire Code of Canada, 2005* and the *National Building Code of Canada, 2005*.
136. Cameco noted that CNSC staff completed an inspection of the McArthur River Operation FPP in September 2010, and that CNSC staff stated that the program exceeded expectations.
137. Cameco stated that fire protection is achieved through both physical and administrative measures. Physical measures include fire detection and alarm systems and hydrants. Administrative measures include third-party reviews, inspections, testing and training. Readiness to respond is assured through maintenance programs and training.
138. Cameco reported that a baseline Fire Hazards Assessment had been completed for the licensed facilities. The assessment identified the need for some improvements within the facilities, but overall considered the facility to be well protected against fire hazards.
139. CNSC staff indicated that, during the licence period, it had reviewed required fire protection reports and conducted compliance inspections. CNSC staff determined that Cameco had addressed action notices and recommendations arising from compliance inspections in a satisfactory and timely manner.

### *3.10.3 Conclusion on Emergency Management and Fire Protection*

140. Based on the above information, the Commission concludes that the fire protection measures and emergency management preparedness programs in place and that will be in place, at the facility are adequate to protect the health and safety of persons and the environment.

## **3.11 Waste Management**

141. Waste management covers the licensee's site-wide waste management program. CNSC staff evaluated Cameco's performance with regards to waste minimization, segregation, characterization, and storage. CNSC staff rated Cameco's performance in this SCA as satisfactory.
142. Cameco informed the Commission that major waste streams at the McArthur River Operation are mineralized waste rock, contaminated industrial waste generated through operations, and domestic waste from the camp. They noted that there are no tailings management facilities. Cameco noted that mineralized waste rock is trucked to the Key Lake operation and stored on engineered pads. The mineralized waste rock is used to blend down high-grade ore prior to milling. Clean waste rock is segregated from mineralized waste rock produced underground in order to reduce contaminated waste.

143. Cameco indicated that progressive reclamation is undertaken, where possible, during the operating life of the facility. In the future, any area no longer required to support mining activities will be considered for reclamation. Since 1998, Cameco has conducted extensive revegetation and over 100 hectares of land used in mine operations has been reclaimed.
144. Cameco reported that the McArthur River Operation handles domestic camp waste in a managed landfill. Recycling efforts have reduced non-contaminated waste volumes that go to the landfill.
145. CNSC staff stated that during the licence period, it conducted regular compliance inspections and determined that wastes, including mineralized clean rock, are managed appropriately.
146. CNSC staff added that, as part of the licence renewal application, Cameco submitted its revised waste management program and it was found to be acceptable.
147. Based on the above information and considerations, the Commission is satisfied that Cameco is safely managing waste at its McArthur River Operation.

### **3.12 Security**

148. Security covers the programs required to implement and support the security requirements stipulated in the relevant regulations and the licence. This includes compliance with the applicable provisions of the *General Nuclear Safety and Control Regulations*<sup>11</sup> and the *Nuclear Security Regulations*<sup>12</sup>.
149. Cameco informed the Commission that the McArthur River Operation's Security Program is designed to prevent the loss or theft of nuclear substances and the interference with activities at the site, and added that, during the current licence period, there were no reportable incidents.
150. CNSC staff indicated that there is no change to the security threat and risk assessment to the facility and that the overall security risks continue to be rated as low. CNSC staff rated Cameco's performance in this SCA as satisfactory.
151. The Commission is satisfied that Cameco's performance with respect to maintaining security at the facility has been acceptable.
152. The Commission concludes that Cameco has made adequate provisions for ensuring the physical security of the facility, and is of the opinion that Cameco will continue to make adequate provisions during the proposed licence period.

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<sup>11</sup> SOR/2000-202

<sup>12</sup> SOR/2000-209

### 3.13 Safeguards and Non-Proliferation

153. 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.
154. Cameco informed the Commission that integrated safeguards for the McArthur River Operation are in effect and that Cameco continues to collaborate with the CNSC and the IAEA. Cameco is required, under the safeguards requirements, to provide access to the IAEA, upon request, for verification activities at the site. Cameco stated that it had not received any requests from the IAEA for access to the McArthur River Operation during the current licence period.
155. CNSC staff reported that Cameco submits annual information to the CNSC on its operations, which forms part of Canada's annual declaration to the IAEA regarding the Canadian nuclear fuel cycle. Also, there have been no requests by IAEA inspectors to inspect the McArthur River Operation during the current licence period.
156. In its intervention, the Saskatchewan Environmental Society expressed concerns about Cameco's possible sales of uranium to India, stating that India refuses to sign the Nuclear Non-Proliferation Treaty. The Commission notes that a Canada-India Nuclear Cooperation Agreement came into force in September 2013, which allows Canadian companies to export nuclear items for peaceful uses, in accordance with Canada's nuclear non-proliferation policy. The CNSC will be responsible for the implementation of the Agreement, ensuring that Canadian exports only go to facilities in India under International Atomic Energy Agency safeguards.
157. Based on the above information, the Commission is satisfied that Cameco has made and will continue to make adequate provisions in the areas of safeguards and non-proliferation at the McArthur River Operation that are necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed.

### 3.14 Packaging and Transport

158. Packaging and Transport covers the safe packaging and transport of nuclear substances and radiation devices to and from the McArthur River Operation site. The licensee must adhere to the *Packaging and Transport of Nuclear Substances Regulations*<sup>13</sup> and Transport Canada's *Transportation of Dangerous Goods Regulations*<sup>14</sup> for all shipments leaving the facility.

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<sup>13</sup> SOR/2000-208

<sup>14</sup> SOR/2001-286

159. CNSC staff reported that Cameco submitted an updated transportation program to CNSC staff as part of the licence renewal application which was found to be in compliance with regulatory requirements.
160. CNSC staff conducted compliance inspections of workers' training records, transportation log books and package labelling and no action notices were issued. CNSC staff rated this SCA as satisfactory.
161. Cameco informed the Commission that the McArthur River Operation transports shipments of uranium ore slurry, waste rock and contaminated wastes to the Key Lake operation on an 80 km haul road that is closed to the public. These activities, Cameco reported, were conducted in accordance with the McArthur River Transportation Program and were conducted successfully, with only one incident.
162. The incident occurred on November 21, 2009, where mineralized waste rock from the McArthur River Operation was found on the haul road. The incident was considered low risk because the material was below the four Becquerel per cubic centimetre (Bq/cm<sup>2</sup>) limit. Cameco stated that corrective actions were implemented immediately following the incident and that radiation readings following the incident showed only background levels of radiation.
163. The English River First Nation asked about the safety of transportation of slurry and mineralized waste rock along the haul route between the McArthur River mine and the Key Lake mill and asked if the route is checked for contamination. The Cameco representative responded that this road is monitored regularly and that the results show no contamination. CNSC staff stated that, according to the licence conditions handbook, Cameco is required to monitor the haul road at least every three years, where gamma surveys are performed and soil samples are taken and analyzed. The results from these verifications show that the route is not contaminated with material transported from the McArthur River mine to the Key Lake mill. CNSC staff added that the licensee is required to inform the CNSC in the case of an accident and the area is cleaned up as soon as possible. The Cameco representative also noted that the transport activities are regulated both by the CNSC and Transport Canada and that the company complies with all transportation regulations in place. The Cameco representative added that the company has an emergency response assistance plan in accordance with Transport Canada's requirements.
164. Based on the above information, the Commission is satisfied that Cameco is meeting regulatory requirements regarding packaging and transport.

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

165. Sierra Club Canada stated that an environmental assessment should be conducted prior to consideration of a licence renewal. CNSC staff informed the Commission that the activities considered for the McArthur River Operation licence renewal were the subject of a Joint Federal/Provincial Panel Environmental Assessment that was completed in 1997.

166. Sierra Club Canada indicated that an environmental assessment should be conducted because the McArthur River Operation will have added emissions from a new proposed 4<sup>th</sup> air shaft. CNSC staff stated that Cameco has not applied to the CNSC for permission to construct a new shaft. CNSC staff confirmed that a thorough assessment to determine the potential risks to workers and the environment would be performed if an application is received.
167. The Commission notes that the NSCA provides a strong regulatory framework for environmental protection. Whether an environmental assessment under CEAA 2012 is required or not, the CNSC regulatory system ensures that adequate measures are in place to protect the environment and human health in accordance with the NSCA and its Regulations.

### **3.16 Aboriginal Engagement and Public Information**

#### *3.16.1 Aboriginal Engagement*

168. The common law Duty to Consult with Aboriginal communities and organizations applies when the Crown contemplates actions that may adversely affect established or potential Aboriginal or treaty rights.
169. Cameco stated that consultation and stakeholder engagement activities are primarily with people living in the Northern Village of Pinehouse, English River Denesuline First Nation (ERFN) and the adjacent village of Patuanak.
170. Cameco informed the Commission that it has developed formalized business relationships, through the signing of collaborative agreements, with Pinehouse and ERFN/Patuanak and has established satellite offices in these communities staffed by a community liaison representative. Both of the agreements commit Cameco to ongoing engagement activities with the two communities and build on the role of the liaison representative, established earlier, to serve as the primary point of contact in the community for Cameco's operations.
171. Cameco stated that, during the current licence period, 14 specific engagement events were held between January 1, 2009 and June 30, 2013 to engage northern Saskatchewan community members on events and plans related to the McArthur River Operation.
172. Cameco indicated that management personnel at the McArthur River Operation host an annual tour and meeting with the Northern Saskatchewan Environmental Quality Committee (EQC). Also, 11 other northern communities are visited each fall during the annual Cameco Northern Tour. These tours are also attended by CNSC staff.
173. CNSC staff concurred that, during the licence period, Cameco had continued to engage residents in Saskatchewan's north, and maintained open communication with Aboriginal groups and local communities, as documented in Cameco's annual reports and observed by CNSC staff.

174. CNSC staff noted that, in August 2013, it participated in community meetings with Pinehouse and English River First Nation to discuss the CNSC's regulatory role and Cameco's application to renew the licence for the McArthur River Operation.
175. CNSC staff indicated that it regularly participates in site tours, meetings and other events throughout northern Saskatchewan including the Cameco and AREVA Resources Canada Northern Tours.
176. CNSC staff reported that it had made a list of potential Aboriginal and Métis groups that may have had an interest in the licence renewal request. Based on this research, CNSC staff sent notification letters and the Notice of Hearing to these groups, which included information on the licence renewal application, Participant Funding Program and the hearing process.
177. Intervenors, including Kineepik Métis Local Inc. #9, Prince Albert Grand Council, and the Lac La Ronge Indian Band, stated that First Nations should not merely be consulted but should be part of the decision-making process regarding mine development in the north. It was noted by those intervenors that First Nations people are not just interested parties, but that they have rights to the land and that the mining companies, the CNSC and governments have an obligation to engage them fully and must enable them to have a voice in decisions affecting them and their land. Cameco representatives indicated that, through agreements reached with First Nations communities, there is a partnership that involves consultation in addition to communication and providing information. Cameco representatives indicated that they hope to have agreements in place with all communities.

### 3.16.2 Public Information

178. A public information program is a regulatory requirement for licence applicants and licensed operators of a uranium mine. Paragraph 3(c)(i) of the *Uranium Mines and Mills Regulations*<sup>15</sup> requires that licence applications include "the proposed program to inform persons living in the vicinity of the mine or mill of the general nature and characteristics of the anticipated effects of the activity to be licensed on the environment and the health and safety of persons."
179. Cameco informed the Commission that it has a Public Information Program (PIP) in place with the objective to provide all stakeholders with updates related to the on-going McArthur River site activities, significant changes and projects. The program also describes how Cameco records questions and comments during engagement activities and how follow-up responses are provided.
180. CNSC staff indicated that it reviewed the PIP as part of the licence renewal application and determined that it was acceptable.
181. Cameco added that it has a public disclosure protocol in place for its northern Saskatchewan operations that is available on its website. This protocol is consistent with the CNSC Regulatory Document RD/GD-99.3, *Public Information and Disclosure*, which

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<sup>15</sup> SOR-2000-206

describes the requirements and guidance for licensees' public disclosure obligations.

182. In addition to the direct engagement, Cameco noted that it has a northern Saskatchewan website and advertises widely in print publications circulating in the north.
183. In addition to public consultation activities, the CNSC provided funding through its Participant Funding Program (PFP) to assist Aboriginal groups, members of the public and other stakeholders to participate in reviewing and commenting on the licence application through written or oral presentations. A Funding Review Committee, independent from the CNSC, reviewed the funding applications received and funding was made available to the following groups and individuals:
- English River First Nation
  - Kineepik Métis Local 9, Pinehouse
  - Prince Albert Grand Council
  - Mr. Clarence Natomagan
  - Dr. Rose Roberts
  - Saskatchewan Environmental Society
  - Sierra Club Canada.
184. Some intervenors who received funding under the PFP, including the Saskatchewan Environmental Society, R. Roberts, Kineepik Métis Local Inc. #9, English River First Nation, and C. Natomagan, indicated that the funding was very helpful in enabling them to participate in the licensing process; however, they expressed concern about lack of funding for participation in annual licence reviews if a 10-year licence were to be awarded. They indicated that the PFP program relates to licence application hearings and not to annual reviews. The Commission indicated that this would be investigated since the intent of the PFP is to enable participation during public proceedings of the Commission.
185. The Commission enquired about Cameco's efforts in providing information to the community. A member of the English River First Nation stated that personnel from Cameco visit their communities several times a year and explain events, company plans and actions for the next ten-year period.
186. A number of intervenors, including K. Scansen, the Lac La Ronge Indian Band, English River First Nation, and the Committee for Future Generations, expressed the view that, while there is communication from Cameco to local residents and communities, there was little true consultation and meaningful acceptance and use of Aboriginal Traditional Knowledge. Cameco responded that the company encourages dialogue with, and input from, community members with a view to improving the relationship and that this goes beyond providing information.
187. In its intervention, the Saskatchewan Mining Association (SMA) mentioned that 80% of the public supports the uranium mining industry. The Commission asked for more information on the survey. The SMA representative responded that the survey had been conducted by an independent expert in public polling. Cameco representatives noted that the survey had encompassed large sample of population in north Saskatchewan. Cameco representatives added that they have not influenced the content of the survey, and that they order this type of independent survey every year.

188. The Committee for Future Generations, in its intervention, expressed concern that the information being provided by Cameco was not sufficiently independent and therefore may not be credible in the eyes of the communities. On the question of independence of information, CNSC staff and other intervenors referred to the directly relevant independent work carried out by the CNSC, Province of Saskatchewan, and independent activities with community involvement such as the Eastern Athabasca Regional Monitoring Program and Athabasca Working Group which confirm that the public health and the environment are not being impacted by Cameco's operations.

### *3.16.3 Conclusion on Aboriginal Engagement and Public Information*

189. Based on this information, the Commission is satisfied that Cameco's public information program regarding the McArthur River Operation meets regulatory requirements and is effective in keeping the Aboriginal communities and the public informed of facility plans and operations. The Commission encourages Cameco to continue to create, maintain and improve its dialogue with the neighbouring communities.
190. The Commission acknowledges the efforts made in relation to the CNSC's obligations regarding Aboriginal consultation and the Legal Duty to Consult. The Commission is satisfied that the proposed licence renewal will not cause any adverse impacts to any potential or established Aboriginal or treaty rights and that the consultation activities undertaken for this licence renewal were adequate, given that no changes to the licensed activities have been requested<sup>16</sup>.

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

191. The Commission requires that the licensee have operational plans for decommissioning and long-term management of waste produced during the life-span of the facility. In order to ensure that adequate resources are available for safe and secure future decommissioning of the McArthur River site, the Commission requires that an adequate financial guarantee for realization of the planned activities is put in place and maintained in a form acceptable to the Commission throughout the licence period.
192. Cameco stated that the Preliminary Decommissioning Plan (PDP) and Preliminary Decommissioning Cost Estimate (PDCE) are updated at least once every five years in accordance with federal and provincial requirements. The most recent PDP update occurred in 2012.
193. Cameco stated that the Preliminary Decommissioning Plan (PDP) for the facility identifies, in general, the activities required to decommission the McArthur River Operation.
194. Cameco informed the Commission that the updated PDP and PCDE for the McArthur River Operation, including new irrevocable standby letters of credit in the amount of \$48.4 million, will be issued to the Saskatchewan Ministry of the Environment upon

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<sup>16</sup> Rio Tinto Alcan v. Carrier Sekani Tribal Council, 2010 SCC 43, [2010] 2 S.C.R. 650 at paras 45 and 49.

approval of the PDP and PCDE by the Commission. CNSC staff further reported that the Saskatchewan Ministry of the Environment has determined that this amount is adequate.

195. CNSC staff confirmed having reviewed the proposed PDP and considers that it meets regulatory requirements.
196. With respect to the current operations at McArthur River, CNSC staff indicated that the mine site will be left in an acceptable manner as described in the decommissioning plans and that funds are available to decommission the site in the event that the operator ceases operation without appropriate approvals.
197. Kineepik Métis Local Inc., #9, in its intervention, recommended that decommissioning and progressive reclamation activity work should directly involve the local community partners and that the decommissioning plans should be reviewed by a third party. In response to the Commission's questions on the role of third parties in the review of decommissioning plans and costs, CNSC staff responded that it expects licensees to solicit community input in reclamation and decommissioning activities, and to engage a third party in preparing its plans for regulatory approvals. CNSC staff then independently reviews the technical aspect of plans and cost estimates.
198. A number of intervenors expressed their concerns regarding decommissioning and stated that they were under the impression that Cameco envisions and acts in five-year increments while First Nations' people look ahead to a time when Cameco will no longer be mining in northern Saskatchewan. They wanted assurance that the mine sites would be left in a manner as close to pre-mining conditions as possible for many generations to come and that this should be part of the decommissioning plans. The Northern Saskatchewan Environmental Quality Committee (NS-EQC) stated that future developments should be designed and planned with final decommissioning in mind. Some intervenors, including the Committee for Future Generations and the Saskatchewan Environmental Society, added that they would like to see a plan for the mine site that continues to decommissioning and beyond. CNSC staff stated that such a long-term post-decommissioning vision is reasonable and is in place for most major nuclear facilities. Cameco representatives stated that the company conducts reclamation activities continuously and will ensure that the sites are left in a stable environmentally safe state. Cameco representatives indicated, however, that, due to uncertainties on future business opportunities, it would be difficult to add precision on the specific activities and schedules beyond that currently contained in its reclamation plans. CNSC staff stated that Cameco has an obligation to leave a site in a stable and environmentally safe condition and that measures are in place to ensure this occurs.
199. The NS-EQC noted that they have seen some evidence of decommissioning and reclamation at the McArthur River Operation site and are encouraged by what they have seen. The NS-EQC would like Cameco to continue its efforts in this regard and invited Cameco to involve local communities in the process.
200. The Commission asked if the decommissioning fund addresses the transfer of a site to institutional control program and the costs of that program. CNSC staff responded that the decommissioning, including financial guarantees and funds, is a separate process from the

institutional control, and that there is a requirement for the funds when the application is put forth for institutional control. The Saskatchewan Ministry of Environment representative clarified that financial guarantee for decommissioning includes some of the post-closure monitoring costs. After a site is released from the CNSC regulation, an appropriate financial assurance would be established for the expected long term monitoring plan.

201. A number of intervenors commented on historical mine operations in northern Saskatchewan that remain in an unsightly and environmentally unacceptable state years after operations has ceased. Comments were made that mine waste in some instances is contaminating lakes and rivers and that barrels and other debris litter the site, yet no one seems to be taking any action. CNSC staff noted that these “legacy” sites are now under government management and regulatory oversight, and that remediation works are now underway or in development. CNSC staff and Cameco representatives concurred that the site conditions at some historic operations are unacceptable and that, under current practice and regulatory requirements, such problems would not occur today. Cameco stated that it has policies and practices in place to ensure that mining and exploration areas are left in a clean state once an operation ceases. Cameco added that, in the course of their work, they have cleaned up areas left by previous operators. The Commission further confirmed that the poor conditions now being rectified at the other sites referred to by the intervenors would now never be permitted at any site.
202. Based on this information, the Commission considers that the preliminary decommissioning plans and related financial guarantee are acceptable for the purpose of the current application for licence renewal.

### **3.18 Cost Recovery**

203. CNSC staff informed the Commission that Cameco is in good standing with the CNSC regarding the licensing fee payment for the McArthur River Operation.

### **3.19 Licence Length and Conditions**

204. Cameco requested the renewal of the current operating licence for a period of 10 years. CNSC staff recommended the renewal of the licence for a period of 10 years, stating that Cameco is qualified to carry on the licensed activities authorized by the licence. CNSC staff also recommended that annual reports on the facility be provided for consideration by the Commission at public meetings to be held annually.
205. CNSC staff noted that it has proposed a reformed licence with an associated Licence Condition Handbook (LCH). The proposed licence format is consistent with a process of licence reform undertaken to improve the clarity and consistency of CNSC requirements and to streamline the administration of CNSC licences, while maintaining adequate regulatory oversight. The licence and the LCH follow a consistent format used for all CNSC regulated facilities.

206. CNSC staff noted that if a significant event were to occur, information on the event would be provided to the Commission by way of an Event Initial Report. Additionally, all activities, including proposed changes, would be governed by the licence and the LCH. Any changes outside of the licensing basis would require Commission review and approval through the Commission hearing process.
207. The Saskatchewan Environmental Society stated that a shorter licence term would be more appropriate given the likelihood of Cameco applying for variations or amendments during the term of the licence to deal with issues of process, production, waste management, and expansion of operations. CNSC staff noted that this application for licence renewal does not encompass any expansion. Any such application would be considered through a separate licensing process, including any federal environmental assessment that may be required.
208. The English River First Nation expressed the view that if a 10-year term were granted, there should be a mandatory public mid-term review conducted by the Commission with public participation. The Commission sought more details regarding the reporting requirements. CNSC staff stated that it was increasing the reporting frequency by recommending annual reports, instead of a mid-term report after a five-year period. These annual reports would be presented to the Commission for consideration at public meetings. CNSC staff added that a mid-term review would, therefore, not be required if annual reviews were in place.
209. CNSC staff recommended annual reviews which would be presented to the Commission for consideration at a public meeting. CNSC staff added that a mid-term review would, therefore, not be required if annual reviews were in place.
210. Based on the above information received during the course of this hearing, the Commission is satisfied that a 10-year licence is appropriate. The Commission accepts the licence conditions as recommended by CNSC staff. The Commission also accepts CNSC staff's recommendation regarding the delegation of authority, and notes that it can bring any matter to the Commission as applicable.
211. The Commission also notes that, should there be amendments proposed to the licence, these would be brought to the Commission for its consideration.

#### **4.0 CONCLUSION**

212. The Commission has considered the information and submissions of CNSC staff, the applicant and all participants 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.
213. The Commission determined that there was no requirement for an environmental assessment pursuant to subsection 5(1) of the *Canadian Environmental Assessment Act, 2012*<sup>17</sup> (CEAA). The Commission notes that the NSCA provides a strong regulatory framework for environmental protection. Whether an environmental assessment is

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<sup>17</sup> S.C. 2012, c. 19, s. 52.

required or not under CEAA 2012, the CNSC regulatory system ensures that adequate measures are in place to protect the environment and human health in accordance with the NSCA and its Regulations.

214. The Commission is satisfied that the applicant meets the requirements of subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that the applicant is qualified to carry on the activity that the proposed licence will authorize and that the applicant 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.
215. Therefore, the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, renews Cameco's uranium mine licence for its McArthur River Operation located in northern Saskatchewan. The renewed licence, UMOL-MINE-MCARTHUR.00/2023, will be valid from November 1, 2013 to October 31, 2023.
216. The Commission includes in the licence the conditions as recommended by CNSC staff and set out in the draft licence attached to CMD 13-H14.
217. With this decision, the Commission directs CNSC staff to provide annual reports on the performance of the McArthur River Operation, as part of the CNSC's Annual Report on Nuclear Fuel Cycle Facilities in Canada. CNSC staff shall present these reports at public proceedings of the Commission. A special focus on the environmental performance of the McArthur River Operation, with emphasis on releases to air, water and soil, is expected to be part of the annual reports. Some of the proceedings may be held in Saskatchewan with public participation.
218. The Commission also accepts the revised financial guarantee for decommissioning of the McArthur River Operation.
219. The Commission accepts CNSC staff's recommendation regarding the delegation of authority in the Licence Conditions Handbook (LCH). The Commission notes that CNSC staff can bring any matter to the Commission as applicable. The Commission directs CNSC staff to inform the Commission on an annual basis of any changes made to the LCH.
220. The Commission requests that Cameco prepare timeline estimates for completion of each of the major reclamation and decommissioning activities planned at the McArthur River Operation. Updates of the remediation and decommissioning plans and timelines will be presented as part of the aforementioned annual reports by CNSC staff on the performance of the McArthur River Operation.

*μ. Binder*

JAN 0 7 2014

Michael Binder                      Date  
President,  
Canadian Nuclear Safety Commission

## Appendix A – Intervenors

Kineepik Métis Local Inc., represented by V. Natomagan and M. Vermette	CMD 13-H13.2 CMD 13-H14.2 CMD 13-H15.2
Prince Albert Grand Council, represented by L. Hardlotte, J. Tsannie, P. Robillard, A. Charles, J. Tsannie and E. Hansen	CMD 13-H13.3 CMD 13-H13.3A CMD 13-H14.3 CMD 13-H14.3A CMD 13-H15.3 CMD 13-H15.3A
Candyce Paul	CMD 13-H13.5 CMD 13-H14.4 CMD 13-H15.4
Canadian Nuclear Worker’s Council and United Steelworkers Union (USW) local 891, represented by D. Shier, S. Daigneault, E. Morelli, J. MacEacheran and K. Cartier	CMD 13-H13.6 CMD 13-H13.6A CMD 13-H14.5 CMD 13-H14.5A
Saskatchewan Mining Association, represented by P. Schwann	CMD 13-H13.7 CMD 13-H13.7A CMD 13-H14.6 CMD 13-H14.6A CMD 13-H15.5 CMD 13-H15.5A
Athabasca Basin Development Limited Partnership, represented by G. Gay	CMD 13-H13.8 CMD 13-H14.7 CMD 13-H15.6
Johnson-Shoyama Graduate School of Public Policy	CMD 13-H13.9 CMD 13-H14.8 CMD 13-H15.7
Steve Lawrence	CMD 13-H13.10 CMD 13-H14.9 CMD 13-H15.8
Canadian Nuclear Association, represented by H. Kleb and M. Bernard	CMD 13-H13.12 CMD 13-H14.11 CMD 13-H15.10
Dale Dewar	CMD 13-H13.13 CMD 13-H14.12 CMD 13-H15.11

Dwayne Buffin	CMD 13-H13.14
James Little	CMD 13-H13.15 CMD 13-H14.13 CMD 13-H15.12
Snake Lake Group of Companies, represented by R. Rediron	CMD 13-H13.16 CMD 13-H14.13 CMD 13-H15.13
Rose Roberts	CMD 13-H13.17 CMD 13-H13.17A CMD 13-H14.15 CMD 13-H14.15A CMD 13-H15.14 CMD 13-H15.14A
English River First Nation, represented by M. Black and D. Reynolds	CMD 13-H13.18 CMD 13-H14.15 CMD 13-H15.15
Pinehouse Business North Development Inc., represented by J. Wriston	CMD 13-H13.19 CMD 13-H14.17 CMD 13-H15.15
Kitsaki Management Limited Partnership, represented by R. Roberts	CMD 13-H13.20 CMD 13-H14.18 CMD 13-H15.17
Saskatchewan Ministry of Environment, represented by K. McCullum	CMD 13-H13.21 CMD 13-H13.21A CMD 13-H14.19 CMD 13-H14.19A CMD 13-H15.18 CMD 13-H15.18A
Northern Saskatchewan Environmental Quality Committee, represented by N. Wolverine and S. Boyes	CMD 13-H13.22 CMD 13-H14.20 CMD 13-H15.19
Saskatchewan Environmental Society, represented by A. Coxworth and P. Prebble	CMD 13-H13.23 CMD 13-H14.21 CMD 13-H15.20
Committee for Future Generations, represented by D. Mihalicz, D. Smith and B. Lee	CMD 13-H13.24 CMD 13-H14.22 CMD 13-H15.21
Clarence Natomagan	CMD 13-H13.25 CMD 13-H14.23 CMD 13-H15.21

Sierra Club Canada, represented by J. Bennett and C. Elwell	CMD 13-H13.26 CMD 13-H13.26A CMD 13-H14.24 CMD 13-H14.24A CMD 13-H15.23 CMD 13-H15.23A
Lac La Ronge Indian Band, represented by Chief Cook-Searson	CMD 13-H13.27 CMD 13-H14.25 CMD 13-H15.24
Kirstin Scansen	CMD 13-H13.28 CMD 13-H14.26 CMD 13-H15.25