

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant Cameco Corporation

Subject Application for a Licence to Construct Surface
Facilities at the Cigar Lake Uranium Mine
Project

Date July 21, 2004

RECORD OF PROCEEDINGS

Applicant: Cameco Corporation

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

Purpose: Application for a licence to construct surface facilities at the Cigar Lake Uranium Mine Project

Application received: March 15, 2002 – updated March 31, 2004

Date(s) of hearing: July 7, 2004

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

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

Counsel: K. Moore

Secretary: M.A. Leblanc

Recording Secretary: C. Taylor

Applicant Represented By	Document Number
<ul style="list-style-type: none">• T. Rogers, Chief Operating Officer• J. Jarrell, Vice-President, Safety, Health and Environment• B. Schmitke, General Manager, Cigar Lake Project• J. Carreiro, Project Manager, Cigar Lake Project• C. Edwards, Director, Engineering and Projects• J. Takala, Director, Safety and Radiation• G. White, Project Manager for the Environmental Assessment	CMD 04-H16.1 CMD 04-H16.1A
CNSC Staff	Document Number
<ul style="list-style-type: none">• B. Howden• K. Scissons• J. Leclair• P. Flavelle• P. Thompson	CMD 04-H16
Intervenors	Document Number
None	

Licence: Issued: X
Date of Decision: July 8, 2004

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1. Introduction

On March 15, 2002, Cameco Corporation (Cameco) applied to the Canadian Nuclear Safety Commission (CNSC¹) for approval to construct and modify the facilities at its Cigar Lake Uranium Mine Project in order to bring the mine into commercial operation. The Cigar Lake Project, currently licensed under licence UMSL-EXCAVATE-CIGAR.02/2005, consists of inactive test mine facilities located at the south end of Waterbury Lake, approximately 660 kilometres north of Saskatoon, Saskatchewan in the eastern part of the Athabasca Basin. In order to operate the Cigar Lake Project on a commercial basis, Cameco would have to obtain a Uranium Mine Construction Licence from the CNSC, followed later by a Uranium Mine Operating Licence.

In an updated application for a construction licence, dated March 31, 2004, Cameco sought approval to construct certain surface facilities at the project site prior to the Commission deciding on Cameco's application for the full construction project. Cameco is of the view that completing the specified work on the surface in the summer 2004 season would be safer than winter construction, less costly, allow access to available labour, and prevent an extended delay in the overall production mining schedule, should the Commission approve the application in respect of the full construction project. Cameco expressed the view that the proposed surface construction activities are sufficiently discrete from those related to the main construction licence application and are of such limited scope that they can be considered separately by the Commission.

Cameco acknowledged that, in the event that the Commission does not grant the subsequent full construction licence, Cameco would remove the surface facilities that are the subject of this hearing. CNSC staff agreed with this proposed two-phased approach to the construction and recommended that the Commission proceed with a separate one-day hearing on the surface construction application.

The Commission decided that it would proceed with separate consideration of the surface construction project and is satisfied that proceeding in this manner would not prejudice its consideration of the application for the remainder of the construction project. The Commission is satisfied that Cameco understands that it would proceed with the surface construction entirely at its own financial risk, including with respect to the cost of removing the structures in the event the full construction licence is not granted by the Commission.

With respect to the matter of the full mine construction project, the Commission held the first day of a two-day hearing on Cameco's application for the full construction licence on the same day as this hearing on the surface facilities (July 7, 2004). The second day of the hearing on the full construction project will be held on November 17, 2004. Because the projects are related and share many of the same relevant programs and procedures, and to avoid unnecessary

¹ In this *Record of Proceedings*, the *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

duplication, the Commission decided that it would consider any relevant information presented during both hearings in making its decisions.

The surface construction activities for which Cameco is seeking approval at this time are as follows:

- installation of Shaft No. 2 headframe and associated buildings;
- erection of the Shaft No. 2 hoist building and installation of hoist components;
- installation of additional freeze plant equipment and services (to increase capacity from 100 to 500 tonnes); and
- erection of the concrete plant and related outdoor bins and equipment;

It is proposed that the following currently-authorized activities² would also be permitted to continue under the proposed construction licence:

- operation and maintenance of existing facilities (including the test mine, waste rock management areas, water treatment facilities, and support facilities);
- geotechnical investigations;
- testing of the freeze-hole drilling method; and
- possession, storage, transfer, import, use and disposal of nuclear substances and radiation devices.

For clarity, CNSC staff noted that the proposed construction licence would not include any underground construction activity and no construction of facilities that would be used for the mining, handling, storage or processing of uranium ore.

Issues:

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

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

Public Hearing:

The Commission, in making its decision, considered information presented for a public hearing held on July 7, 2004 in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*. During the public hearings, the Commission received written submissions and heard oral presentations from Cameco (CMD 04-H16.1 and CMD 04-H16.1A) and CNSC staff (CMD 04-H16). There were no interventions.

² CNSC Licence No. UMSL-EXCAVATE-CIGAR.02/2005, expiry January 31, 2005.

2. Decision

Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concludes that Cameco is qualified to carry on the activity that the proposed construction licence will authorize. The Commission also concludes 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*, issues Uranium Mine Construction Licence UMCL-MINE-CIGAR.00/2005. The licence is valid from the date signed to January 31, 2005, unless suspended, amended, revoked or replaced. Concurrent with the issuing of the above construction licence, the Commission revokes the existing licence for the Cigar Lake Project (UMSL-EXCAVATE-CIGAR.02/2005).

The Commission adds conditions to the construction licence as recommended by CNSC staff in the draft licence attached to CMD 04-H16.

3. Issues and Commission Findings

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

3.1 Radiation Protection

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

In this regard, Cameco stated that the proposed surface construction activities will not involve the use, handling or storage of nuclear substances and therefore will not result in radiological implications for the workers or the public. CNSC staff concurred that the proposed construction activities are conventional in nature and will not pose radiological risks.

With respect to the risks from exposures to gamma radiation, and from long-lived radioactive dust and radon progeny at the Cigar Lake Project site in general, CNSC staff reported that the conditions are well understood and stable, and that the risks are low compared to normal mine operations. CNSC staff also reported that it is satisfied Cameco has adequate radiation protection measures and programs in place to protect workers at the site, as set out in Cameco's radiation protection Code of Practice. As evidence of this, CNSC staff reported that the

maximum individual recorded radiation dose at the project site in 2003 (including from the underground test mining activities) was 0.15 mSv which is well below the regulatory dose for members of the public (1 mSv/year).

The Commission questioned whether the ore collected during the earlier test mining (currently stored underground) would be a potential source of radiation exposure for the workers involved in the continued care and maintenance of the existing test mine facilities. The Commission also sought information on how the radiation levels at that ore storage area would be monitored. In response, Cameco stated that no work would take place in proximity to the test mine ore storage area. Cameco noted, however, that radiological monitoring in that area would continue. That monitoring would include periodic area monitoring by a technician, and through the use of an automatic warning light system which indicates when radon levels exceed preset administrative levels designed to ensure worker protection.

Based on this information, the Commission concludes that Cameco has made, and will continue to make during the proposed licence period, adequate provision for the protection of persons from radiation at the Cigar Lake Project.

3.2 Environmental Protection

To determine whether Cameco will make adequate provisions to protect the environment during the proposed surface construction activities, the Commission considered the potential for those activities to adversely affect the environment.

In this regard, Cameco noted that the proposed surface construction activities would, with the planned proper management of any resulting conventional construction wastes, have no effect on airborne or aqueous emissions from the site and, as such, pose no incremental risk to the environment. No new areas would be disturbed and only a relatively small amount of construction waste would be produced. Cameco further noted that the proposed construction activities formed part of the screening environmental assessment of the overall Cigar Lake Mine Project that was carried out consistent with the *Canadian Environmental Assessment Act*. Following a public hearing on that environmental assessment, the Commission concluded that the project, taking into account the identified mitigation measures, is not likely to cause significant adverse environmental effects³ (see section 3.8 below for further discussion of the applicability of CEAA to this project).

CNSC staff stated that Cameco's existing policy, programs and procedures are adequate to protect the environment from the proposed activities under the licence. CNSC staff noted that the contaminants in the effluent from the project site have remained well below the applicable regulatory limits. CNSC staff added that it expects contaminant concentrations and loadings to the environment to remain low during the proposed surface construction activities.

³ Canadian Nuclear Safety Commission, June 30, 2004, *Record of Proceedings, Including Reasons for Decision in the matter of the Environmental Assessment Screening Report for the Construction and Operation of the Cigar Lake Uranium Mine Project*.

Cameco reported that, despite this good overall environmental performance, a small spill of slightly contaminated melt-water occurred at the site on May 31, 2004. In response to questions from the Commission on that event, Cameco explained that the cause was identified as a failure in a butt-fused joint in a plastic drainage pipe combined with an ice blockage in the secondary containment area. Cameco reported that it will be upgrading the drainage system to prevent a recurrence of the incident. CNSC staff stated that it is reviewing Cameco's event report and will address the matter, including corrective actions, as part of its ongoing compliance activities.

Environmental Monitoring:

CNSC staff further noted that a comprehensive environmental monitoring program is in place at the Cigar Lake Project and that appropriate modifications will be made to that program to accommodate the proposed increase in activity on the surface. CNSC staff noted that the environmental effects monitoring (EEM) part of the program meets the requirements of the federal *Metal Mining Effluent Regulations* and is subject to detailed reviews by a Technical Advisory Panel (TAP) which consists of experts from CNSC, Environment Canada, Fisheries and Oceans Canada, and Saskatchewan Environment.

In response to questions from the Commission on how the TAP carried out its assessment, CNSC staff explained that the TAP evaluated Cameco's environmental studies and programs against detailed guidelines prepared by Environment Canada in support of the *Metal Mining Effluent Regulations*. The TAP also met with Cameco staff to discuss the program. The TAP concluded that the EEM to be carried out in 2004 meets all of the applicable requirements. In response to follow-up questions from the Commission on the EEM and role of the TAP, Cameco acknowledged that the TAP structure was helpful in harmonizing for the licensee the requirements of the various relevant federal and provincial authorities involved. Cameco also noted that the primary thrust for the EEM in 2004 is to complete and refine the understanding of baseline environmental conditions in support of future mine operations.

Based on this information, the Commission concludes that Cameco has made, and will continue to make adequate provision for protecting the environment during the proposed construction period.

3.3 Conventional Health and Safety

Further with respect to the protection of persons at the Cigar Lake Project, the Commission examined the planned program and past performance of Cameco in the area of conventional (i.e., non-radiological) health and safety.

In this regard, CNSC staff reported that Cameco has an Occupational Health and Safety Program in place at the Cigar Lake Project. The program, which is documented in Cameco's Mining Facility Program Manual, is the subject of harmonized regulatory review involving the CNSC, Saskatchewan Labour, and Human Resources Development Canada. There were no reported medical incidents or lost-time accidents in the past three years at the project site. CNSC staff

stated that it is satisfied Cameco's health and safety program meets, and will continue to meet, the applicable regulatory requirements.

The Commission asked if contract workers on the site receive the same rigorous safety training and are required to meet the same standards for safety as Cameco's staff. In response, Cameco assured the Commission that this is, and will continue to be, the case at the Cigar Lake Project. Cameco added that the contractors have their own Occupational Health and Safety Committee, as required by the *Canada Labour Code*, and that meetings are held each morning with the workers on site to discuss safety issues.

In a related line of questioning, the Commission sought information on how Cameco is able to instill an appropriate safety culture at the site when such a large proportion of the workers are contractors. In response, Cameco stated that safety and safety culture is embedded in the contractual arrangements with the contractors and that this includes requirements for direct participation in Cameco's various safety programs, reviews and training.

In response to the Commission's questions on the living conditions that will exist during this initial construction phase and the nature of the shift work, Cameco stated that the accommodations are typical of a northern work camp and are comfortable and clean. Cameco also noted that the shift rotations and daily shift hours will be in compliance with the regulatory requirements.

Based on this information, the Commission concludes that Cameco has made, and will continue to make, adequate provision for the protection of workers from conventional (i.e., non-radiological) hazards during the proposed construction activities.

3.4 Operating Performance

To further assess how Cameco is likely to perform during the proposed construction phase, the Commission examined Cameco's past operating performance at the Cigar Lake Project, as well as Cameco's performance assurance programs, including Cameco's Quality Assurance Program.

Past Operating Performance:

With respect to past operating performance, the Commission examined information on the general conduct of operations, test mine operations, waste management operations, packaging and transport of materials, and regulatory reporting. For each of these factors, CNSC staff reported that Cameco's performance has been satisfactory and that, with the various controls and processes in place, is expected to continue to be acceptable during the proposed surface construction activities.

Quality Assurance:

Cameco reported that it revised its QA documentation to support the planned construction phases and submitted it to CNSC staff in April 2004. CNSC staff reported that, although its review of

the revised QA program for the overall construction program is not yet complete, CNSC staff is satisfied that Cameco's existing management systems and controls will be adequate to effectively and safely manage the surface construction work. CNSC staff noted that the facilities to be constructed are based on standard designs and are of limited scope and complexity. CNSC staff further noted that Cameco is currently preparing a corporate Quality Management System applicable to all of its facilities – the most recent revision having been submitted on March 17, 2004.

In response to the Commission's questions concerning the rate of progress Cameco is making toward fulfilling the CNSC's quality assurance requirements for the future phases of the project, CNSC staff reported that it is generally satisfied with the progress being made by Cameco in this regard. Cameco stated that its core programs for quality are now in place and that it is focusing on continuous improvement. CNSC staff stated that, if necessary, licence conditions would be recommended in the future to ensure Cameco continues to place adequate attention on its quality assurance program. Furthermore, CNSC staff noted that it will continue to monitor quality at the site through its normal regulatory compliance program activities.

Conclusion on Operating Performance:

Based on this information, the Commission concludes that the operating performance and QA measures at the Cigar Lake Project provide a positive indication of Cameco's ability to adequately carry out the surface activities under the proposed construction licence.

3.5 Emergency Preparedness

With respect to the protection of persons and the environment during emergencies that could arise at the Cigar Lake Project, CNSC staff reported its satisfaction with Cameco's Emergency Preparedness Program. CNSC staff reported that emergency response and rescue equipment is on site and that site personnel are adequately trained. CNSC staff also noted that Cameco has in place a mutual assistance agreement with the other mine site in the area.

Noting that between 40 to 60 new people would be on the site for the purpose of the proposed surface construction activities, the Commission questioned how Cameco would maintain an adequate understanding by all personnel of the applicable emergency processes and procedures. In response, Cameco explained that all new staff on the site (including Cameco and contractor personnel) will be required to participate in safety and emergency orientation training before commencing work. Additional training staff will be brought on site, as necessary, to ensure all new personnel receive adequate training.

Based on this information, the Commission concludes that, for the proposed surface construction activities at the Cigar Lake Project site, Cameco will be adequately prepared for emergencies that could arise.

3.6 Security

With regard to the maintenance of security at the project site during the proposed activities, CNSC staff reported that Cameco has in place, and is successfully implementing, an acceptable Security Program. In CNSC staff's view, security risks at the site will remain low during the surface construction. CNSC staff also noted that access to the site is controlled through a single locked gate. CNSC staff noted that the adequacy of the security program will be reviewed at each future stage of the project.

Based on this information, the Commission concludes that Cameco will continue to make adequate provision for maintaining security at the Cigar Lake Project site.

3.7 Safeguards and Non-Proliferation

Concerning the matter of whether Cameco will make adequate provision to ensure maintenance of Canada's international obligations for safeguards and non-proliferation, CNSC staff reported that Cameco meets, and is expected to continue to meet, all applicable requirements.

The Commission concludes, therefore, that Cameco has made, and will continue to make in respect of the proposed activities under the licence, adequate provision for maintaining Canada's international obligations for safeguards and non-proliferation.

3.8 Canadian Environmental Assessment Act

Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act* (CEAA) have been fulfilled.

In this case, and as a result of legal uncertainty that existed about the applicability of the Panel recommendations from a review held under the former *Environmental Assessment Review Process Guidelines Order*, it was decided that a Screening Environmental Assessment (EA) of the Cigar Lake Project would be carried out⁴. An EA Screening Report was prepared in accordance with the CEAA and approved EA Guidelines⁵. The proposed surface construction

⁴ The Cigar Lake project was the subject of an Environmental Assessment Panel Review under the *Environmental Assessment and Review Process Guidelines Order* (EARPGO); the Joint Federal-Provincial Review Panel submitted its recommendations on the proposal in 1997. However, the Federal Court trial decision of 2002 regarding the McClean Lake uranium mining project produced uncertainty regarding the transitional provisions of the CEAA for projects previously assessed under the EARPGO [see *Interchurch Uranium Committee Educational Co-operative v. Canada* (Atomic Energy Control Board) and *COGEMA Resources Inc.*, 2002 F.C.J. No. 1288]. CNSC staff therefore, at the request of Cameco, agreed that a new environmental assessment under the CEAA would be carried out for Cigar Lake Mining Project. The Federal Court of Appeal overturned the trial decision in its decision dated June 4, 2004 [see *Atomic Energy Control Board and COGEMA Resources Inc. v. Inter-Church Uranium Committee Educational Commission-operative*, 2004 FCA 218].

⁵ Canadian Nuclear Safety Commission, August 29, 2003, *Record of Proceedings, Including Reasons for Decision, in the matter of Cameco Corporation, Environmental Assessment Guidelines (EA Scoping) for the Proposed Construction of a Mining Facility at the Cigar Lake Project*.

activities constitute a part of the project that was examined in the Screening EA. The Commission considered the Screening Report at a public hearing held on June 10, 2004 in La Ronge, Saskatchewan⁶.

The Federal Court of Appeal, on June 4, 2004, overturned the trial decision which had produced uncertainty regarding the transitional provisions of the CEAA. The Commission considered that, while a new environmental assessment of the Cigar Lake Project under the CEAA was not required in light of subsection 74(1) of the CEAA and the Federal Court of Appeal's decision [see 2004 FCA 218], the Commission, in any event, agreed with CNSC staff's conclusion that the project, taking into account the mitigation measures identified in the Screening Report, is not likely to cause significant adverse environmental effects.

The Commission therefore concludes that all applicable requirements under CEAA the have been fulfilled for the purpose of this licensing decision.

3.9 Decommissioning and Financial Guarantees

With respect to the decommissioning plans and related financial guarantees for the Cigar Lake Project, CNSC staff reported that Cameco has revised its plan and cost estimate for decommissioning, taking into account all of the planned construction activities (i.e., including, but not limited to the surface construction activities that are the subject of the current application). CNSC staff noted that Saskatchewan Environment is reviewing the revised cost estimate and that the existing financial guarantee (in the form of irrevocable Letters of Credit with a value of \$4.21 million) will be revised accordingly on issuance of a construction licence.

Cameco reported that revised Letters of Credit were being prepared to reflect new names and new regulatory references resulting from reorganizations that have occurred. Cameco committed to having the new Letters of Credit in place for the revised value of \$6.36 million within 30 days of the start of construction. CNSC staff indicated its acceptance of this plan.

Based on this information, the Commission is satisfied that Cameco has adequate decommissioning plans and financial guarantees in place for the purpose of the application.

3.10 Public Information Program

The Commission requires, among other things, that licensees maintain acceptable public information programs. In this regard, Cameco outlined for the Commission the various types of public information activities that it engages in on a routine basis and for the purpose of the proposed surface construction project at the Cigar Lake Project. Cameco noted in particular the

⁶ Canadian Nuclear Safety Commission, June 30, 2004, *Record of Proceedings, Including Reasons for Decision in the matter of the Environmental Assessment Screening Report for the Construction and Operation of the Cigar Lake Uranium Mine Project.*

effective use of the community-based Environmental Quality Committees established for this purpose and two project-specific community meetings.

With respect to the community meetings described by Cameco in its submission, the Commission sought information on the levels of attendance typically seen at those types of events. In response, Cameco stated that the attendance varies considerably (i.e., from about 20 to over 100) depending on the season and the issues to be discussed.

CNSC staff indicated its satisfaction with Cameco's Public Information Program and concluded that the program meets regulatory requirements and uses a suitably varied range of communication products and strategies.

Based on this information, the Commission is satisfied that Cameco has an adequate Public Information Program in place for the purpose of the proposed construction project.

3.11 Licence Period

With respect to the proposed duration of the licence, CNSC staff recommended that the Commission establish an expiry date of January 31, 2005. CNSC staff is of the view that this would provide adequate time for Cameco's application for the full construction licence to be heard and decided on by the Commission (the two day public hearing on that application is scheduled for July 7, 2004 and November 17, 2004). CNSC staff is also of the view that the relatively short duration of the surface construction licence is consistent with the CNSC staff's criteria for recommending licence terms, as set out in CMD 02-M12. In particular, CNSC staff noted that the recommended licence term is commensurate with the duration of the planned activities to be permitted under the licence.

At the hearing, Cameco expressed its agreement with the licence term recommended by CNSC staff and confirmed that it is seeking the same term from the Commission.

The Commission accepts the proposed licence term and decides that the licence will be valid from the date signed until January 31, 2005.

4. Conclusion

The Commission has considered the written and oral submissions of the applicant and CNSC staff as presented in the material available for reference on the record.

The Commission concludes that Cameco is qualified to carry on the activity that the licence will authorize. The Commission also concludes 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*, issues Uranium Mine Construction Licence UMCL-MINE-CIGAR.00/2005. The Commission adds conditions to the licence as recommended by CNSC staff in the draft licence attached to CMD 04-H16. The licence is valid from the date signed until January 31, 2005 unless suspended, amended, revoked or replaced.

Furthermore, the Commission revokes the existing licence at the Cigar Lake Project (UMSL-EXCAVATE-CIGAR.02/2005) concurrent with the coming into effect of the new construction licence.

Marc A. Leblanc
Secretary,
Canadian Nuclear Safety Commission

Date of decision: July 8, 2004

Date of release of Reasons for Decision: July 21, 2004