

Record of Proceedings, Including Reasons for Decision

In the Matter of

Proponent Cameco Corporation

Subject Screening Environmental Assessment for
the Proposed Modification to the
Operation of the Blind River Refinery
Incinerator Blind River, Ontario

Hearing Date December 7, 2006

RECORD OF PROCEEDINGS

Proponent: Cameco Corporation

Address/Location: One Eldorado Place, Port Hope, Ontario, L1A 3V1

Purpose: Screening Environmental Assessment for the Proposed Modification to the Operation of the Blind River Refinery Incinerator Blind River, Ontario

Application received: n/a

Date(s) of hearing: December 7, 2006

Location: Canadian Nuclear Safety Commission (CNSC), 280 Slater St., Ottawa, Ontario

Members present: L. J. Keen, Chair
M. McDill
A. Graham

Secretary: M. Leblanc

Recording Secretary: K. McGee

Legal Counsel: S. Maislin Dickson

Date of Decision: December 7, 2006

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Introduction

1. Cameco Corporation (Cameco) submitted a project description to the Canadian Nuclear Safety Commission (CNSC¹) to seek approval to upgrade the existing incinerator at the Blind River Refinery in Blind River, Ontario to burn radioactively contaminated, combustible by-products generated from Cameco's Blind River and Port Hope facilities. Cameco also proposed to install an oil injection system to allow for the incineration of contaminated uranium-bearing waste oil.
2. Cameco's proposed upgrade will enable the incinerator to meet Canada-wide standards and provincial emission requirements that take effect on January 1, 2007, specifically the Ontario Ministry of the Environment (MOE) Guidelines A-7² and A-8³. The authorization of this activity requires an amendment to Cameco's Fuel Facility Operating Licence (FFOL 3632.0/2007).
3. In order to proceed with this activity, Cameco's Fuel Facility Operating Licence would need to be amended. Before the Commission can decide on the proposed licence amendment, the Commission must, in accordance with the requirements of the *Canadian Environmental Assessment Act*⁴ (CEAA), make a decision on an environmental assessment (EA) of the proposal. Pursuant to section 15 of the CEAA, the type of EA required for this project is a screening. The Commission is the sole responsible authority⁵ for the EA.
4. The guidelines for the EA (EA Guidelines), including statements of the scope of the project and scope of the assessment, were approved by a Designated Officer on March 29, 2005. The EA Guidelines were used in delegating to Cameco, pursuant to section 17 of the CEAA, the preparation of technical studies to satisfy the requirements of the EA Guidelines. The resulting EA Study Report was then used by CNSC staff for the preparation of the draft EA Screening Report (Screening Report). Stakeholders, including the federal authorities, were provided an opportunity to review the draft Screening Report prior to its finalization and submission to the Commission for this hearing and decision.
5. This *Record of Proceedings* describes the Commission's consideration of the Screening Report, the submission by CNSC staff, the submission received from an intervenor and the Commission's reasons for decision on the results. The Screening Report of Cameco's proposal to construct upgrades to the incinerator to increase its capacity, add pollution control equipment and on-line monitoring equipment and install an oil injection system is attached as an appendix to CMD 06-H131.

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

² Guideline A-7: *Combustion and Air Pollution Control Requirements for New Municipal Waste Incinerators* (2004).

³ Guideline A-8: *Guideline for the Implementation of Canada-Wide Standards for Emissions of Mercury and of Dioxins and Furans and Monitoring and Reporting Requirements for Municipal Waste Incinerators Biomedical Waste Incinerators Sewage Sludge Incinerators Hazardous Waste Incinerators Steel Manufacturing Electric Arc Furnaces Iron Sintering Plants* (2004).

⁴ S.C. 1992, c.37.

⁵ Responsible Authority in relation to an EA is determined in accordance with subsection 11(1) of the CEAA.

Issues

6. In considering the Screening Report, the Commission was required to decide:
 - a) whether the Screening Report is complete; that is, whether all of the factors and instructions set out in the approved EA Guidelines and subsection 16(1) of the CEAA were adequately addressed;
 - b) whether the project, taking into account the mitigation measures identified in the Screening Report, is likely to cause significant adverse environmental effects;
 - c) whether the project must be referred to the federal Minister of the Environment for referral to a review panel or mediator, pursuant to paragraph 20(1)(c) of the CEAA; and
 - d) whether the Commission will proceed with its consideration of an application for a licence amendment under the *Nuclear Safety and Control Act*, consistent with paragraph 20(1)(a) of the CEAA.

Hearing

7. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to hear this matter.
8. The Panel of the Commission (hereafter referred to as the Commission), in making its decision, considered information presented at a hearing held on December 7, 2006 in Ottawa, Ontario. During the hearing, the Commission received written submissions from Cameco (CMD 06-H131.1), CNSC staff (CMD 06-H131) and Northwatch (CMD 06-H131.2).

Decision

9. Based on its consideration of the matter, as described in more detail in this *Record of Proceedings*, the Commission decides that:

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| <ol style="list-style-type: none">a) the Environmental Assessment Screening Report appended to CMD 06-H131 is complete; that is, the scope of the project and assessment were appropriately determined in accordance with sections 15 and 16 of the <i>Canadian Environmental Assessment Act</i>, and all of the required assessment factors were addressed during the assessment;b) the project, taking into account the mitigation measures identified in the Environmental Assessment Screening Report, is not likely to cause significant adverse environmental effects; |
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- c) it will not refer the project to the federal Minister of the Environment for his referral to a federal Environment Assessment review panel or mediator;
- d) it will proceed to consider the application for licence amendment under the provisions of the *Nuclear Safety and Control Act*, consistent with paragraph 20(1)(a) of the *Canadian Environmental Assessment Act*.

Issues and Commission Findings

10. The findings of the Commission presented below are based on the Commission's consideration of all the information and submissions available for reference on the record for the hearing.

Completeness of the Screening Report

11. In its consideration of the completeness of the Screening Report, the Commission considered whether the assessment had adequately addressed and appropriately defined the scope of project and assessment factors.
12. CNSC staff reported that, on March 29, 2005, the Designated Officer established EA Guidelines, including statements of project scope and scope of the assessment factors as required by sections 15 and 16 of the CEAA. CNSC staff stated that, in its opinion, the Screening Report contains information on the full scope of the project and for all of the factors required for a screening EA under section 16 of the CEAA and as set out in the EA Guidelines.
13. Pursuant to the *CEAA Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*⁶, Health Canada and Environment Canada were identified as federal authorities (FA) for the purpose of providing expert assistance during the environmental assessment.
14. The Ontario Ministry of the Environment was also provided with the opportunity to participate in the preparation of the draft EA Guidelines and the draft EA Screening Report. The Ontario Ministry of the Environment determined that there are no provincial environmental assessment requirements under the Ontario *Environmental Assessment Act*⁷ applicable to this project.
15. In its consideration of the scope of the project, the Commission sought further information regarding the transportation of material from Port Hope and its impact on truck traffic and the reason why Transport Canada had decided not to comment. CNSC staff stated that Transport Canada had declared that it did not have regulatory interest or function in this project. CNSC staff noted that shipments of radioactive waste between Blind River and Port Hope have been occurring since the Blind River refinery started operations in 1983. Materials are packaged and transported on public roadways in accordance with Transport Canada regulations and the *Packaging and*

⁶ S.O.R./97-181.

⁷ R.S.O. 1990, c. E.18.

*Transport of Nuclear Substances Regulations*⁸. As there is no anticipated increase in truck traffic, Transport Canada declined to comment.

16. The Commission sought clarification on the projected increased volumes of combustible and liquid waste and their impact. CNSC staff noted that the incinerator currently operates approximately 2 days per week on day shift only for approximately 6 hours per day. Under the proposed project, the incinerator would operate an additional 2 or 3 days per week with feed material introduced for up to 11 hours each day. The feed material would include contaminated combustible material that cannot otherwise be disposed of or recycled, as well as used oil contaminated with uranium, and regeneration product currently stored at the Blind River site. The capacity of the incinerator, 309 kg/hr, will not change. Further, the installation of the proposed emissions control system is expected to reduce particulate, NO_x, SO₂, acid gases, metals and dioxin/furan emissions, to ensure compliance with the Ontario Ministry of the Environment's Guideline A-7 and the Canadian Council for Ministers of the Environment *Canadian Wide Standard for Dioxins and Furans*.
17. The Commission noted that used oil was currently being stored at the site and sought details regarding the condition of the storage drums. CNSC staff confirmed that the site has accumulated an inventory of used oils that are slightly contaminated with uranium and generates used oil in the order of one drum (205 litres) per month all of which are being stored safely.
18. The Commission sought clarification as to whether tritium was discharged in the stack emissions. CNSC staff confirmed that tritium was not used at the Blind River or Port Hope facilities.
19. Based on this information and the Commission's review of the EA Guidelines and Screening Report, the Commission concludes that the scope of the project and the scope of the factors for the assessment were appropriate and that all of the required factors were addressed during the assessment.
20. The Commission also concludes that the Screening Report is complete and compliant with the requirements of the CEEA. The Commission is thus able to proceed with its consideration of the likelihood and significance of the environmental effects of the project, the adequacy of the proposed mitigation measures, and the public concerns about the project.

Likelihood and Significance of Environmental Effects

21. This section contains the Commission's findings with respect to whether the project, taking into account the identified mitigation measures, is likely to cause significant adverse environmental effects. In examining this question, the Commission first considered the adequacy of the study methods used to identify and evaluate the potential environmental effects, including the public consultation process, followed by a consideration of the predicted effects on the relevant components of the environment.

⁸ S.O.R./2000-208.

Adequacy of the Assessment Methods

22. In its submission, CNSC staff outlined the methodology used in the assessment of the direct and indirect effects of the project on the environment. CNSC staff noted that the assessment of likely effects of the project on the environment was carried out in a step-wise manner.
23. The EA involved a progressive identification, screening and assessment of significance of potential interactions between the project (under both normal, and accident and malfunction conditions) and the various components of the environment, that is the geology and hydrogeology, the atmosphere, human health, and the aquatic and terrestrial environment. The assessment considered the possible environmental effects related to construction activities, normal operations, the effects under malfunction and accident scenarios and the cumulative effects with other projects in the area and the need for follow-up.
24. CNSC staff outlined in its submission the extent of the consultations that were conducted during the EA process. Based on limited interest expressed by the public in activities occurring at the Blind River Refinery and the fact that the potential risk to the environment was expected to be very low, the draft EA Screening template was not issued for public consultation. CNSC staff initiated a public comment period on the draft Screening Report, and key stakeholders, including federal authorities, were sent the Screening Report for their review.
25. The Commission is satisfied that the methods used to consult with the public during the EA, including opportunities to comment and review the Screening Report, were acceptable and provided a suitable basis for the Commission to evaluate the public concerns about the project. The Commission's findings on the public concerns are discussed further in the section below entitled Nature and Level of Public Concern.
26. Based on its review of the Screening Report and the above information, the Commission concludes that the EA methods were acceptable and appropriate.

Effects of the Project on the Environment

27. CNSC staff reported that based on the identification of environmental components and the list of Valued Ecosystem Components (VECs), 34 environmental sub-components were the focus of the assessment. As the incinerator is not expected to have any effects on water discharges, the terrestrial receptors were the most relevant. Based on the screening of the issues, CNSC staff concluded, however, that the proposed project is not likely to cause significant adverse effects on the environment, taking the identified mitigation measures into account.
28. Notwithstanding staff's assessment that the incinerator was not likely to have any effect on water discharges, the Commission asked for information on the groundwater monitoring in place at the facility. CNSC staff advised that the facility has three wells for monitoring purposes located along the shore of the Mississagi River. Groundwater monitoring through these three wells would capture any changes resulting from the project.

29. In support of its findings, CNSC staff noted that, from a total of 40 potential interactions between the project and the environment, those with measurable effects that the project would likely cause were carried forward for more detailed evaluation. CNSC staff concluded from an assessment of each of those interactions that no likely significant adverse environmental effects are expected to occur.
30. The Commission reviewed the dose assessment for members of the public. The three types of releases from the Blind River facility to the environment are air emissions, liquid effluent discharge and gamma radiation emissions from materials within the fenced area. Of these, the proposed incinerator upgrade only has potential to affect air emissions and hence doses via air related pathways. Several possible receptors (one-year old and five-year old children, adults) were considered for people living in residences near the facility, cottagers and individuals spending time near the facility for recreational purposes. Annual dose rates were calculated for existing conditions and for baseline conditions in 2035 for the continuing operations at the current licence limit.
31. CNSC staff noted that an ecological risk assessment for the Blind River refinery was conducted in 2004 and updated in 2006. The reports concluded that the routine releases of both radioactive and non-radioactive chemicals from the refinery are not expected to significantly impact the aquatic or terrestrial environment. The project will generally result in a decrease in incinerator emissions to air for parameters except uranium. The Commission sought and received CNSC staff's assurance that Cameco has targeted a maximum uranium emission rate of 4.5 gram per hour (g/h) to ensure compliance with the CNSC action level of 5 g/h from the incinerator.
32. Based on its review of the Screening Report and the above information and considerations, the Commission concludes that the proposed project, taking into account the identified mitigation measures, is not likely to cause significant adverse environmental effects.

Effects of the Environment on the Project

33. CNSC staff reported that the EA examined how severe weather, seismic events, climate change, flooding, mudslides/landslides, fire, wind, ice and snow load and extreme weather events could adversely affect the project. CNSC Staff reported that the residual effects of the environment on the project were assessed as not significant.
34. The Commission noted that the facility is located within 375 meters of the Mississagi River and 1500 meters of Lake Huron. The Commission sought assurance that the facility was not within the flood plain and that sufficient measures were being taken to mitigate the impact of flooding and the control of water flow on the Mississagi River. CNSC staff confirmed that the facility is located outside the relevant flood lines. CNSC staff also noted that the river levels were controlled by a series of dams and that the dam operator notifies all downstream occupants prior to any significant releases of water. CNSC staff further noted that there had been no history of flooding on the refinery site in the history of its operation.

35. Based on the above information, the Commission concludes that the environment is not likely to cause adverse effects on the project.

Effects of Accident and Malfunction Events

36. CNSC staff stated that it had assessed the potential effects of the following accident and malfunction events: fire at the incinerator charging area and malfunctions of the incinerator or air pollution control systems. However, CNSC staff noted that equipment installation would meet applicable fire codes, and proper safety features and fire suppression equipment would mitigate a possible fire. CNSC staff further noted that, while malfunctions of the incinerator or the air pollution control system have the potential to result in increased emissions of one or more contaminants above those expected under normal operating conditions, system interlocks and continuous operator surveillance would result in the rapid shut down of the incinerator. Furthermore, proposed controls and safeguards would limit emissions during equipment malfunctions to or below those of the current design.
37. Based on the above information and considerations, the Commission concludes that accident and malfunction events are not likely to cause adverse effects on the project.

Cumulative Effects

38. CNSC staff noted that the EA considered the cumulative effects of the project on the air quality, soil and dose calculations. The analysis considered the cumulative effects of the proposed production increase at the refinery with the proposed incinerator modifications.
39. Based on the information received, the Commission concludes that there would be no significant residual cumulative effects associated with the proposed project.

Follow-Up Program

40. The Commission questioned why there is no follow-up program proposed that would verify the model estimates. Given the scope of the proposed project, the Commission noted that it expects to see stringent testing in place to confirm the model estimates. The Commission also expressed the view that it would not be acceptable that emissions and discharges exceed the predicted level.
41. CNSC staff noted that no specific follow-up program was recommended because there were no predicted environmental effects associated with the proposed project. However, the Blind River refinery is subject to a routine monitoring program, particle size analysis of the main process stacks, stack testing to commission the incinerator and annual testing for mercury, dioxins and furans in accordance with the incinerator's MOE Certificate of Approval.

42. The Commission directs CNSC staff to ensure that the estimates and predictions set out in the EA are tested and validated once the project is implemented.
43. Based on the above information, the Commission concludes that in addition to verification of the model predictions once the project is completed, there are sufficient other monitoring requirements in place for the purposes of a follow-up program.

Conclusions on the Likelihood and Significance of Adverse Environmental Effects

44. Based on the considerations and reasons noted above, the Commission agrees with CNSC staff's conclusion in the Screening Report that the proposed project is not likely to cause significant adverse environmental effects, taking into account the identified mitigation measures.
45. The Commission is also satisfied that the likelihood and significance of the effects have been identified with reasonable certainty.

Nature and Level of Public Concern

46. With respect to public concern as a factor in its consideration of whether to refer the project to the federal Minister of the Environment for a review panel or mediator, the Commission first examined whether the public had sufficient opportunity to become informed about the project and the EA, and express their views on it.
47. As noted in paragraph 25 above, the Commission is satisfied that Cameco and CNSC staff consulted appropriately with the public and other interested stakeholders. The Commission is therefore satisfied that the public had adequate opportunity to become informed about the project and express any concerns.
48. CNSC staff reported that comments were received from Health Canada, Environment Canada and Northwatch on the draft Screening Report. No concerns were raised that would justify referring the project to the federal Minister of the Environment for a referral to a review panel or mediator.
49. The Commission considered the position taken by Northwatch that the modifications to the incinerator and expansion to incinerator operations is based on Cameco's interest in cost saving through avoiding upgrades to their Port Hope facility. The Commission notes that its assessment of the Screening Report is based on environmental considerations as well as health and safety issues and was not influenced by Cameco's business decisions.
50. The Commission also noted the concern expressed by Northwatch regarding the short time period for consultation. CNSC staff replied that the consultation period reflected the very limited public concern and community interest in previous projects at the Blind River facility.

51. The Commission therefore decides not to refer the project to the Minister of the Environment for referral to a review panel or mediator (i.e., pursuant to paragraph 20(1)(c) of the CEAA).

Conclusion

52. The Commission concludes that the environmental assessment Screening Report attached to CMD 06-H131 is complete and meets all of the applicable requirements of the CEAA.
53. The Commission concludes that the project, taking into account the appropriate mitigation measures identified in the Screening Report, is not likely to cause significant adverse environmental effects.
54. Furthermore, the Commission also concludes that, at this time, it will not request the federal Minister of the Environment to refer the project to a review panel or mediator in accordance with the provisions of the CEAA.
55. Therefore, the Commission, pursuant to paragraph 20(1)(a) of the CEAA, decides to proceed with the consideration of the licence amendment application under the NSCA which, if approved, would allow the project to proceed.

Linda J. Keen
President,
Canadian Nuclear Safety Commission

Date of decision: December 7, 2006

Date of release of Reasons for Decision: March 7, 2007