



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Record of Proceedings, Including Reasons for Decision

In the Matter of

Proponent GE Hitachi Nuclear Energy Canada Inc. (GEH-C)

Subject Screening Environmental Assessment Report for
GEH-C's Low Enriched Uranium Fuel Bundle
Production Project and amendment to its
Peterborough Nuclear Fuel Facility Operating
Licence to assemble enriched uranium fuel
bundles

Date of
Hearing January 13, 2010

RECORD OF PROCEEDINGS

Proponent: GEH-C Nuclear Energy Canada Inc.

Address/Location: 1160 Monaghan Road,
Peterborough, Ontario K9J 7B5

Purpose: Screening Environmental Assessment Report for GE-Hitachi Nuclear Energy Canada Inc.'s Low Enriched Uranium Fuel Bundle Production Project and amendment to its Peterborough Nuclear Fuel Facility Operating Licence to assemble enriched uranium fuel bundles

Submission of Project Proposal: May 2007

Date of Application for Licence Amendment: July, 27, 2009

Date of hearing: January 13, 2010

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

Members present: M. Binder, Chair
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A.R. Graham
D. Tolgyesi
B.J. Barriault
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Introduction

1. GE-Hitachi Nuclear Energy Canada Ltd. (GEH-C) has notified the Canadian Nuclear Safety Commission (CNSC) of its intention to assemble, at its Peterborough facility, low enriched uranium (LEU) fuel bundles of enrichment less than 5% U-235 by weight using uranium dioxide pellets manufactured in Wilmington, North Carolina or from an alternate supplier. In order to achieve its project, GEH-C has applied on July 27, 2009 for an amendment to its current Peterborough Nuclear Fuel Facility Operating Licence (FFOL-3621.1/2010) to be authorized to import a small amount of low enriched uranium (up to 5%) to assemble some LEU fuel bundles needed by AECL to test in the development of its new CANDU ACR-1000 reactor. GEH-C's current licence expires in December 2010.
2. Before the Canadian Nuclear Safety Commission¹ (CNSC) can make a licensing decision with respect to the proposed project and pursuant to the *Nuclear Safety and Control Act*² (NSCA), it must, in accordance with the requirements of the *Canadian Environmental Assessment Act*³ (CEAA), make a decision on the Environmental Assessment (EA) screening of the proposal. The CNSC is the sole Responsible Authority⁴ (RA) for this EA.
3. As required under sections 15 and 16 of the CEAA, Guidelines for the EA (EA Guidelines) for the proposed project, including statements of the scope of the project and scope of the assessment, were prepared by CNSC staff. On July 8, 2008, the Commission approved and issued EA Guidelines to the proponent (Scope of Project and Assessment), for the development of an Environmental Impact Statement (EIS) by GEH-C. The proposed Environmental Assessment Screening Report (EASR) was developed based on the review of the EIS and on technical studies submitted by GEH-C. The EASR is attached as an appendix to CMD 10-H2.
4. The proposed manufacturing of LEU fuel bundles at the Peterborough facility also requires an amendment to GEH-C's Fuel Facility Operating Licence. CNSC staff considerations to amend the operating licence is outlined in CMD 10-H3 and CMD 10-H3.A, which identify the facility program areas that will be or could be affected by the introduction of up to 5% enriched uranium and the necessary changes required to these program areas. GEH-C plans to continue to make natural uranium fuel bundles at its Peterborough facility for the foreseeable future and the enriched fuel bundles would be fabricated within the existing production limit in the current licence.

¹ 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 Statute of Canada, 1997, chapter (c.) 9.

³ Statute of Canada, 1992, chapter (c.) 37.

⁴ Responsible Authority in relation to an EA is determined in accordance with subsection 11(1) of the CEAA.

5. If the Commission amends the current operating licence, this licence amendment would authorize GEH-C to have an amount of enriched uranium up to one critical mass⁵ when it will be ready to proceed with a regular LEU fuel bundles production line. In such a case, the provisions of the *Nuclear Liability Act*⁶ (NLA) would apply. Therefore, the Commission would have to designate GEH-C as a Nuclear Installation under the NLA. Before this could be done, the amount of money set as the basic insurance required under the NLA would also have to be approved by the Treasury Board of Canada Secretariat (TBS). In the event that GEH-C decides to proceed with a regular production line of LEU fuel bundles, and in order to be ready to designate GEH-C as a Nuclear Installation, CNSC staff is of the opinion that the Commission should provide its instructions to initiate TBS approval of the amount for the basic insurance of \$8 million calculated by CNSC staff.

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 CEEA 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 CEEA; and
 - d) whether the Commission may proceed with its consideration of an application for a licence under the NSCA, consistent with paragraph 20(1)(a) of the CEEA.
7. In considering GEH-C application for a licence amendment, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*⁷ (NSCA):
 - e) if the licensee is qualified to carry on the activity that the amended licence would authorize; and
 - f) if, in carrying on that activity, the licensee 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.
8. In addition, the Commission is required to decide whether to instruct CNSC staff to initiate the process for the approval by the TBS of the basic insurance of \$8 million that would be necessary when the Commission designates GEH-C as a Nuclear Installation in the future.

⁵ Critical mass: The smallest mass of a fissionable material that will sustain a nuclear chain reaction at a constant level.

⁶Regulatory Statutes of Canada., 1985, c. N-28

⁷ Statutes of Canada, 1997, c. 9.

Hearing

9. The Commission, in making its decision, considered information presented for a public hearing held on January 13, 2010 in Ottawa, Ontario. During the hearing, the Commission received written and oral submissions from GEH-C (CMD 10-H3.1 and CMD 10-H3.1A) with respect to the licence amendment request and from CNSC staff, CMD 10-H2 with respect to the EASR, and CMD 10-H3, CMD 10-H3.A and 10-H3.B on its recommendations regarding GEH-C's licence request. There were no interventions.

Decision

10. Based on its consideration of the matter, as described in more detail in this *Record of Proceedings, Including Reasons for Decision*,

the Commission decides that:

- a) the Environmental Assessment Screening Report appended to CMD 10-H2 is complete; the scope of the project and the scope of assessment were appropriately determined in accordance with sections 15 and 16 of the *Canadian Environmental Assessment Act*, 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;
- c) it will not refer the project to the federal Minister of the Environment for his referral to a review panel or mediator; and
- d) it will proceed to consider GE-Hitachi Nuclear Energy Canada Ltd.'s 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*.

the Commission also decides, pursuant to section 24 of the *Nuclear Safety and Control Act*, to amend GE-Hitachi Nuclear Energy Canada Ltd.'s Fuel Facility Operating licence, FFOL-3621.1/2010, for its Peterborough facility. The amended licence, FFOL-3621.2/2010, remains valid until December 31, 2010.

11. In addition to these two decisions, the Commission instructs CNSC staff to initiate the process in order to get TBS's approval of the \$8 million basic insurance under the NLA.

Issues and Commission Findings

12. With regards to the EASR, the Commission addressed the four issues identified in paragraph 6 under four main headings: (1) the completeness of the Screening Report, (2) the adequacy of the assessment method, (3) the likelihood and significance of environmental effects, and (4) the nature and level of public concern. The Commission's findings in each of these areas are summarized below.

13. In making its licensing decision, the Commission considered a number of issues related to GEH-C'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. 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.

EA Screening Report Consideration

Completeness of the Screening Report

15. In its consideration of the completeness of the EA Screening Report (EASR), the Commission considered whether the assessment had adequately addressed and appropriately defined the scope of the project and the assessment factors.
16. The proposed project submitted by GEH-C will involve the addition of new equipment to support a LEU manufacturing line, including a LEU pellet receipt area, a LEU fuel bundle production area, and a LEU fuel bundle storage area. The new proposed LEU fuel bundle production line will be concurrent with, but physically separate from, the existing natural uranium fuel bundle production line. No new structures or new licensed facilities are proposed, no expansion to licensed areas is proposed, and no change in production limit is requested. All activities and new equipment installation for LEU fuel bundle production are proposed to be conducted in currently licensed areas.
17. The proposed project will also require the construction of a manufacturing area for stacking, loading, closure welding and assembly of enriched uranium bundles and a separate manufacturing sub-area for the stacking, loading and closure welding of absorber elements. When the fuel bundle design requires absorber elements, these will be brought into the LEU area where they will be assembled into complete bundles.
18. The physical works involved in this project are the GEH-C Peterborough buildings and facilities required for the proposed project, including the receipt and storage arrangements for the LEU and absorber pellets, the LEU fuel bundle production line, the storage arrangements of the LEU fuel bundles, and the waste recovery facilities. The undertakings in relation to the physical works are the systems and activities required for the construction and operation of the above physical works. Operations and activities that are within the scope of the project include preparation and construction activities, operation activities, transportation and waste management. Decommissioning is not part of the scope of the project, only a decommissioning plan was considered.
19. The current EASR includes a detailed description of the project (Section 2), an analysis of potential project impacts (Section 3), the existing environment (Section 4), a description of the assessment method (Section 5), an environmental effects assessment (Section 6), a description of the public and government participation (Section 7), and the plan for a follow-up program (Section 8).

20. The Commission asked if the EASR was covering only the testing of the LEU fuel bundles, which means the first phase of the project, or the project as a whole when a full assembly line would be in place. CNSC staff responded that, when it was decided that an EA Screening Assessment was needed for the project, it was decided that the environmental assessment would cover the scope of the project, from construction of the bundles assembly line to full production and that the licensee would have to meet the requirements to have and maintain a nuclear criticality safety program.

Conclusion

21. The Commission reviewed the EASR and concluded that it is complete and in accordance with the requirements of the CEAA. The Commission is therefore able to proceed to its consideration of the adequacy of the assessment method, the likelihood and significance of the environmental effects of the project including the adequacy of the proposed mitigation measures, and the public concerns about the project.

Adequacy of the Assessment Method

22. CNSC staff confirmed that GEH-C followed, in its EA Study, the structure outlined in the EA Guidelines approved by the Commission.
23. CNSC staff noted that all project activities were examined to identify those that could possibly interact with any of the following bio-physical environmental components: air quality, noise, surface water, aquatic biota, aquatic habitat, terrestrial environment and the geological aspect of the environment including soil, hydrogeology and seismicity. Interactions of the project with human health and the socio-economic environment were also examined. For each of the components of the biophysical and socio-economic environment and for human health, the assessment considered the following activities:
 - changes to the building structure and surroundings to accommodate the project, if required;
 - design of new and relocated process equipment and layout;
 - installation of equipment into the facility for the LEU fuel bundle production line;
 - transportation of LEU pellets from North Carolina (or other locations);
 - transportation of absorber pellets from manufacturer;
 - LEU & absorber pellet receiving and storage;
 - LEU and absorber fuel pellet stacking;
 - LEU and absorber fuel element loading;
 - LEU and absorber fuel element end cap welding;
 - bundle assembly, storage, packaging, shipping and transportation; and
 - management of solid waste, and of emissions and effluents.

After having assessed the potential environmental effects of the project, mitigation measures for these potential effects were considered and the residual effects remaining after application of the measures were evaluated for their significance.

24. With respect to the adequacy of consultations, CNSC staff reported that a public registry for the EA was established and that the Canadian Environmental Assessment (CEA) Registry Reference Number for this assessment is 07-01-26561. CNSC staff reported having solicited comments from stakeholders during the development of the EA Guidelines, including the City of Peterborough, the Hiawatha First Nation, the Curve Lake First Nation, and the Alderville First Nation. CNSC staff added that notices of the comment period on the draft EA Guidelines were placed on the CEA Registry and on the CNSC Web page, and that copies of the draft EA Guidelines and notices of public comment were also available in the CNSC library and the Peterborough Public Library. CNSC staff reported that two citizens requested copies of the draft EA Guidelines during the comment period and that the only comments received were from the City of Peterborough. No comments were received from First Nations or members of the general public, including the citizens who requested the guidelines.
25. CNSC staff added that the draft EASR was available for public review for a period of at least 30 days, from September 11, 2009 until October 16, 2009, and that notices of the public review period on the draft EASR were placed on the CEA Registry and on CNSC Web page. CNSC staff noted that notices and copies of the draft EASR were also available at the Peterborough Public Library and at the CNSC Library, and that a letter and hard copies of the draft Screening Report were sent by CNSC staff on September 11, 2009 to invite the following First Nations and the Métis Nation of Ontario to comment on the report: Curve Lake, Alderville Ojibways, Ojibways of Hiawatha, Kawartha Nishnawbe First Nation. CNSC staff also noted that letters and copies of the draft EASR were sent to members of the public who had indicated an interest in the project and that an additional eight members of the public or consultants were sent copies of the report upon request during the comment period. Additional requests for the draft EASR were made after the public consultation period and copies of the report were sent out. The disposition table of comments from the public review period of the draft screening report is appended to the report.
26. The Commission asked if CNSC staff has verified if the First Nations had received the EASR that was sent to them for comments. CNSC staff responded that a follow-up had been made with the First Nations and that the Alderville First Nation and the Curve Lake First Nation had been reached and confirmed they had received the report. GEH-C added that it had also contacted the First Nations for a tour of its facility but that its invitation was declined.

Conclusion

27. The Commission is satisfied that the method used to consult during the EA, including opportunities to comment and review the EASR, is acceptable and provides a suitable basis for the Commission to evaluate the public concerns about the project. The Commission's findings on public concerns are discussed further in the section below entitled Nature and Level of Public Concern (see paragraph 67). Based on its review of the EASR and the above information, the Commission concludes that the EA methods are acceptable and appropriate, and that the EASR is complete and compliant with the requirements of the CEAA.

Likelihood and Significance of Environmental Effects

28. 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 considered the predicted effects on the relevant components of the environment.

Effects of the Project on the Environment

29. CNSC staff reported that interactions between the environmental components and the project works are illustrated in Table 4 of the proposed EASR. CNSC staff added that these interactions were analyzed to determine whether they are likely to result in a measurable effect and, if so, to describe that effect on the relevant Valued Ecosystem Components (VECs).

Atmospheric Environment

30. CNSC staff reported that negligible effects are anticipated from construction activities and that only the levels of potassium hydroxide were expected to rise, but were estimated to remain well below the regulatory limit. CNSC staff added that particulate matter, total suspended particulates, uranium air emissions, beryllium, potassium hydroxide and greenhouse gas emissions are all expected to be well below the criteria and standards. CNSC staff added that mitigation measures involving HEPA filter installation were planned in the pellet stocking and loading area.
31. The Commission asked why the beryllium emissions have increased by a factor of 2 between 2007 and 2008. GEH-C responded that, with these extremely low numbers, small differences were hard to quantify with the available measuring techniques. GEH-C added that these amounts remain negligible.
32. The Commission asked if, at long term, there was any possibility for uranium, beryllium or potassium hydroxide to precipitate and accumulate in the lining of the stack. GEH-C responded that the release concentrations of these three parameters are so low that the potential for accumulation is negligible. CNSC staff added that the Ontario Ministry of Environment (OME) is closely monitoring beryllium deposits and that there is no evidence of any accumulation. CNSC staff confirmed that, in the case there was accumulation of one of these substances in the long term, this would be taken into consideration in the decommissioning plan.
33. The Commission asked GEH-C how air emissions would be controlled and monitored. GEH-C responded that all airborne contamination monitoring will be performed by dedicated environment health and safety staff according to established procedures and that the results will be analysed at the facility, verified by an external lab and communicated to staff. GEH-C noted that, in most cases, the concentrations measured remain a small fraction of the action levels.

34. The Commission asked CNSC staff what is the impact of atmospheric stability on the diffusion of pollutants in the atmospheric environment. CNSC staff responded that atmospheric stability is a meteorological terminology that depends on wind motion and temperature, and that, in the worst-case scenario, it can allow the contaminants to disperse in a very tight frame for long distances without being diluted. CNSC staff added that, in better conditions, the contaminant plume rises far away from the ground, mixes really well and therefore is well diluted.

Noise

35. CNSC staff reported no planned significant increases in noise which means it will remain below acceptable limits.

Conventional Health and Safety

36. CNSC staff reported that construction activities associated with the proposed project present no unusual or incremental hazard to construction workers. It added that any activity that could potentially interact with conventional worker health and safety will be mitigated by GEH-C's well-established Occupational Safety and Health Procedures, which include usage of protective clothing by the operators when handling hazardous material and appropriate training on emergency procedures.

Radiation and Radioactivity

37. CNSC staff reported that potential radiological concerns were associated with external gamma radiation and that the gamma dose rates will increase with increasing enrichment. CNSC staff added that, based on calculations, it is expected that the unshielded gamma dose rate increases by a factor of 3 for the 5% enrichment. CNSC staff added that, as mitigation, GEH-C will install additional shielding into the ceiling and walls of the LEU processing area and that no substantial inventory of LEU will be stored in the LEU processing area. This mitigation measure will prevent the increase in gamma radiations beyond already existing levels resulting from the natural uranium processing line.

Terrestrial and Aquatic Environment

38. CNSC staff reported that the major components of the terrestrial and aquatic environments within two kilometres from GEH-C facility include the Harper Creek Wetland that is a sensitive area composed of two wetlands types (90% swamp and 10% marsh). CNSC staff added that most terrestrial environment components are either just within or outside the boundaries of the City of Peterborough and comprise a developed urban area with a mix of residential, commercial and industrial uses. CNSC staff noted that a rail corridor traverses the Local Study Area and that the GEH-C property is a fenced-off area with very limited vegetative growth with no natural features within the study area.

39. CNSC staff reported that the following potential sub-components were identified as part of the terrestrial environment: terrestrial vegetation (species and communities); wildlife (species and community) and wildlife habitat. In order to capture changes in these sub-components, a total of six measurable indicators were chosen. CNSC staff added that two potential sub-components were identified as part of the aquatic environment: surface water quality and quantity, and sediment quality. CNSC staff confirmed that these sub-components are not present within the Local and Site Study Areas.

Worker Health and Safety

40. CNSC staff reported that surface contamination monitoring results are anticipated to remain below the established GEH-C action levels for future operations. CNSC staff noted that, in the absence of mitigation, the workers' whole body, skin and extremity doses could increase by a factor of 3. CNSC staff added that the implementation of safe working practices, in addition to an ALARA analysis during the design, will mitigate this effect to keep radiation doses below CNSC regulatory dose limits. CNSC staff reported that the total effective dose to a worker was estimated to be 10 mSv/year, which is below the CNSC regulatory dose limit of 50 mSv/year and 100 mSv over 5 years. CNSC staff also reported that gamma dose rates on the second floor of Building 21 could potentially increase by a factor of 3, but that this should be limited to comparable current levels with the incorporation of shielding for nuclear criticality. Finally, CNSC staff noted that sampling of uranium in urine has remained consistently below action level at GEH-C and that it is anticipated that careful dust control will ensure similar results at the facility in the future.
41. The Commission asked how often urine analysis was performed on the workers at the facility. GEH-C responded that it was performed once every three months.

Geology

42. CNSC staff reported that no interactions were identified for geology.

Hydrogeology and Surface Water

43. CNSC staff reported that no surface waters are present in the vicinity of the project and that floor wash effluent from the project works and activities will be captured, filtered and monitored prior to discharge to the municipal treatment facility. Therefore, CNSC staff reported that no measurable effects on the surface water and sediment components are expected. CNSC staff added that it was concluded that effects on air quality and deposition on soil were negligible and that no measurable effects on soil, vegetations species and communities, and wildlife species and communities for terrestrial or aquatic biota were expected.
44. The Commission asked how the release of the washing waters is controlled. GEH-C responded that the water collected from floor washing is transferred to a drum. GEH-C added that only one barrel every three months was discharged into the municipal treatment facility and that before the barrel is discharged, its concentration is determined and reviewed by environment health and safety staff to ensure that it is within the regulatory limits.

Land Use and Transportation

45. CNSC staff reported that vehicular and truck traffic increases associated with the project for all phases were expected to be minimal and that no measurable effects were expected. CNSC staff noted that the radioactive aspects of transportation were not expected to contribute to any measurable effects, and that the federal transport regulations, which are based on international practices as described by the International Atomic Energy Agency, will be respected.

Physical and Cultural Heritage

46. CNSC staff identified no VECs for the proposed project regarding the Physical and Cultural Heritage Resources environmental component.

Socio-Economics

47. CNSC staff reported that no residual adverse environmental effects were determined in this assessment; therefore, socio-economic effects were not assessed.

Aboriginal Interests

48. CNSC staff reported that no interactions between the project and aboriginal interests were identified.

Conclusion

49. The Commission is satisfied that the likelihood and significance of the effects of the project on the environment have been identified with reasonable certainty and recognizes the importance of properly implementing mitigation measures to ensure that these are not significant. In this regard, the Commission expects CNSC staff to ensure that appropriate monitoring activities are implemented to verify whether these mitigation measures remain effective.
50. Based on its review of the EASR and the above noted information provided on the record, the Commission concludes that the proposed project, taking into account the implementation of mitigation measures identified in the EASR, is not likely to cause significant adverse effects to the environment.

Effects of the Environment on the Project

51. CNSC staff reported that potential environmental events that may affect the workers on the project's systems and structures (e.g., buildings, equipment, power system, storm water management, chemical storage area) include seismic activity, severe weather, and changes in climate. CNSC staff noted that the probability of measurable effects of external loads (e.g., wind, snow, ice and earthquake) imposed on the structures and buildings is very low. CNSC staff noted that an assessment of the effect on the structural design will be considered further during the licensing period.

52. CNSC staff added that GEH-C facilities are designed to withstand thunderstorms and wind load conditions including tornadoes, local snow and ice loads, as well as changes in climate that will affect these systems. CNSC staff also noted that transportation of feed materials, products or construction equipment will be limited during ice storms. CNSC staff added that uranium pellets and fuel bundles are transported in containers certified by the CNSC.
53. The Commission asked what measures were considered to prevent potential flooding at the GEH-C facility. CNSC staff responded that the GEH-C facility is located among the most vulnerable catchments in the city for floods. In this respect, CNSC staff added that, in 2005, the City of Peterborough prepared a flood reduction master plan and has implemented recommendations to manage flood events. As an example, GEH-C has constructed a berm 4.5 inches in height, made from aggregate and coated in epoxy paint, to contain sprinkler water and to prevent flood water contamination of the floor or equipment.
54. To avoid the release of uranium during a potential flood, CNSC staff reported that the storage vessels will be constructed in such a way that the probability of a release is expected to remain very low. CNSC staff added that the release of dust or material will be mitigated by keeping floors and surfaces that can be exposed to flood water clean at all times, and that radiation field surveys will be conducted routinely to identify the areas where material could have accumulated and that these areas would be cleaned immediately.

Conclusion

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

Effects of Malfunction and Accidents

56. CNSC staff has identified the activities potentially associated with specific malfunctions and accidents that have a reasonable probability of occurring during the lifetime of the project and these are :
 - equipment installation;
 - transportation of feed materials and products;
 - storage of feed material and products;
 - LEU fuel bundle manufacturing; and
 - ventilation and emissions control systems.
57. To avoid the release of uranium during transportation, CNSC staff noted that the shipment of pellet feed will be done in certified shipping containers that have undergone tests under normal and hypothetical accident conditions. CNSC staff added that other safety measures will be in place including safety programs, safe driving procedures and expectations, adherence to transportation regulations, traffic control and speed limit observance.

58. CNSC staff noted that the HEPA filters will be changed monthly to avoid the accumulation of dust that could potentially catch in fire. CNSC staff added that a Fire Safety Plan and an Emergency Response Plan are in place to respond to a potential fire in the HEPA filter banks.
59. CNSC staff also evaluated the effect of inadvertent nuclear criticality. CNSC staff reported that a Nuclear Criticality Safety Program that entails keeping the entire process as subcritical under normal and credible abnormal conditions that have a frequency of occurrence equal to or more than one in a million years, based on the CNSC objectives for such a program, will be developed and implemented. CNSC staff added that the offsite effective dose resulting from a highly unlikely nuclear criticality accident was determined and that contributions from direct neutron and gamma radiation, as well as radionuclide release and subsequent immersion and inhalation, were evaluated. CNSC staff noted that most of the impact would be localized within the building and that the doses to the public would remain well below the hazardous level.

Conclusion

60. Based on the above information, the Commission concludes that the impact of malfunction and accidents will be mitigated by adherence to strict safety measures.

Likely Cumulative Effects and Residual Effects

61. CNSC staff reported that no measurable or anticipated cumulative effects were identified for this project. CNSC staff also reported that after mitigation no significant residual effects are associated with this project.

Follow-Up Monitoring Program

62. A follow-up program under CEAA is a program to verify the accuracy of the EA of a project and to determine the effectiveness of any measures taken to mitigate the adverse environmental effects of the project.
63. CNSC staff reported that the CNSC licensing and compliance program will be used as the mechanism for ensuring the final design and implementation of the follow-up monitoring program, and for the reporting of the program results. CNSC staff added that the annual compliance report will be used to demonstrate that the anticipated low releases have been achieved and that the nuclear criticality safety program is effective. CNSC staff added that the annual compliance report for the three full years following the licence amendment, if granted, will be posted on the CEAA Registry to demonstrate the environmental effects are well controlled as predicted in the Environmental Impact Statement, and that the mitigation measures to lower their impact are effective.

64. The Commission asked for details with respect to the duration of the follow-up program. CNSC staff responded that, under the CEAA, the follow-up program is required to last for a period of 3 years. CNSC staff added that the elements identified in the EASR will continue to be monitored using CNSC's routine annual compliance program, and that regular inspections of the Criticality Safety Program will also be conducted during the whole licence period.

Conclusion

65. The Commission is satisfied with the proposed follow-up program and with the manner GEH-C would report the results to the CNSC through inspection results and regular annual reports.

Nature and Level of Public Concern

66. CNSC staff reported that the consultation program was designed, as described above in paragraphs 25 and 26, to be commensurate with the magnitude of the project, the level of interest in the Peterborough community regarding the project, and the degree to which the effects of the project will be experienced by the public.
67. CNSC staff reported that a public registry for the assessment was established. CNSC staff further reported that comments on the EA Guidelines were received from the City of Peterborough, but that no comments were received from the First Nations or members of the general public, including the citizens who requested the EA Guidelines.
68. CNSC staff noted that the draft EASR was available for public review for a period of 30 days, from September 11, 2009 until October 16, 2009. CNSC staff reported that Environment Canada, the Ministry of Environment of Ontario, the City of Peterborough, the Peterborough County-City Health Unit and eight concerned citizens sent comments on the draft EASR. CNSC staff confirmed that many comments were general, in that they did not relate specifically to this project, but expressed concerns regarding the life cycle of uranium in general. However, CNSC staff added that specific comments to this project can be categorized as follows:
- Concerns regarding the transportation of nuclear substances and waste and the consequences of accidents in transport;
 - The level of uranium enrichment and its effects on public health and safety;
 - The discharge of waste into the municipal sewer system;
 - Concerns over the adequacy of public engagement; and
 - Concerns over the effects of the project on public health and safety, with particular concerns expressed over criticality safety.

CNSC staff noted that the disposition of the comments is appended to the report and added that all concerns were noted and that clarifications were made to the draft EASR where deemed appropriate. CNSC staff also noted that the public did not submit any request of intervention for the current hearing.

Conclusion

69. The Commission is satisfied that the opportunities given to the public to comment and review the EASR were acceptable. The Commission decides that the level of public concern does not warrant that the project be referred to the Minister of the Environment for referral to a review panel or mediator (i.e., pursuant to paragraph 20(1)(c) of the CEEA).

Conclusion on the EASR

70. The Commission has considered the information available in the EASR and CNSC staff's submission as presented for reference on the record for the Public Hearing.
71. The Commission concludes that the EASR attached to CMD 10-H2 is complete and meets the requirements of the CEEA for the scope of the project and the scope of the assessment established in the EA Guidelines.
72. The Commission concludes that the project, taking into account the appropriate mitigation measures identified in the EASR, is not likely to cause significant adverse environmental effects and that the public concerns expressed to date about the project do not warrant a reference to the Minister of the Environment for referral to a mediator or review panel.
73. Furthermore, the Commission also concludes that, at this time, it will not refer the project to the federal Minister of the Environment for a referral to a review panel or mediator in accordance with the provisions of the CEEA.
74. Therefore, the Commission, pursuant to paragraph 20(1)(a) of the CEEA, decides that it will proceed with the consideration of a licence application under the *Nuclear Safety and Control Act*.

Licence Amendment Request

Details on the Requested Amendment

75. CNSC staff reported that the GEH-C licence for its Peterborough facility contains a licence condition that restricts the fabrication of fuel bundles to 150 tonnes per month with a uranium-235 content of natural uranium. CNSC staff explained that the amendment request is to allow the fabrication (assembly) of fuel bundles using pellets containing up to 5.0% of enriched uranium. CNSC staff added that this licence amendment would authorize GEH-C to have an amount of enriched uranium greater than one critical mass. CNSC staff also noted that, due to this change, the provisions of the *Nuclear Liability Act* (NLA) will apply and GEH-C will have to be designated by the Commission as a Nuclear Installation before an amount of enriched uranium greater than 80 % of one critical mass is present on site.

76. CNSC staff noted that the fabrication of fuel bundles involves:
- the preparation of the zirconium alloy tubing;
 - the insertion of the enriched uranium fuel pellets into the tubes;
 - the welding of the end caps onto each end of the tube which permanently seals the uranium pellets into the tubes for their lifetime in the reactor and subsequent waste storage period.

CNSC staff added that the pellets used in this process will be imported into Canada from the United States (US) or from overseas suppliers and that the enriched fuel bundles will be fabricated within the existing production limit of the current licence. CNSC staff noted that this is the reason why the licensee has not requested any increase in the existing licence limits, including release limits or action levels.

77. The Commission asked GEH-C if it would need to construct new facilities for the production of the test bundles. GEH-C responded that some procedures would have to be updated and some rearrangements made but no major changes to the facility would be needed. GEH-C added that if it was choosing to continue to produce LEU bundles in the future, a full and new complete production line would have to be put in place.
78. CNSC staff explained that the chemical and physical properties of natural and 5% enriched uranium oxide pellets are essentially the same, but that a licence amendment is required because the introduction of enriched uranium involves the possibility that a nuclear chain reaction outside of a reactor happens. CNSC staff added that to reduce the possibility of this reaction to happen, specific safety programs are required to be in place.
79. CNSC staff noted that the regulatory safety area programs that are most likely to be affected by this amendment request are Nuclear Security, Nuclear Criticality Safety and Nuclear Safeguards. CNSC staff confirmed that these three programs and six additional program areas potentially affected by the amendment have been assessed and are discussed below.

Radiation Protection

80. 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 GEH-C in the area of radiation protection.
81. CNSC staff reported that it reviewed the existing radiation protection (RP) program and confirmed that it meets the current requirements and that it is adequate to support the operational activities introduced by the amendment. CNSC staff noted that the RP program ensures that radiation doses to workers at the facility are adequately controlled and consistently below regulatory limits.
82. The Commission asked GEH-C how many persons were currently working at the facility. GEH-C responded that between 50 and 55 employees were working on fuel production but that there were a total of 200 employees on site in the different buildings.

83. The Commission asked if the extent of the impact of an incident in the production line had been estimated. GEH-C responded that, in the EA, it was calculated that the dose estimated from an accident at the fence line, not very far from the building, from neutron, gamma, and airborne emissions would be approximately 13 millisieverts. CNSC staff added that the offsite effective dose resulting from a highly unlikely bounding nuclear criticality accident was determined and that contributions from direct neutron and gamma radiation, as well as radionuclide release and subsequent immersion and inhalation, were evaluated. CNSC staff noted that most of the impact would be localized within the building and that the doses to the public would remain well below the hazardous level.
84. The Commission asked GEH-C why there was an increasing trend in the annual effective dose between 2002 and 2008. GEH-C responded that the increased average value of 2008 was due to a single employee who was exposed to more radiation while performing special inspection and testing. GEH-C added that, in 2008, this situation was corrected by training more individuals to do the work in order to limit individual exposure. GEH-C noted that it was working with its ALARA committee to bring back these values to the historical 7-8 millisieverts, and added that the 2009 values would be available at the end of February 2010.
85. The Commission asked if some of the fuel production work could be handled remotely. GEH-C responded that the loading of the uranium dioxide pellets was a manual operation, and that, despite the use of existing equipment, new safety procedures and additional training will be needed for the employees who will work with LEU. CNSC staff added that training was very important to ensure that the radiation doses to the workers do not increase and that this would be carefully monitored.

Conclusion

86. The Commission is satisfied with the past performance of GEH-C with regards to radiation protection and is of the opinion that GEH-C will take adequate measures to maintain radiation exposure doses as low as possible and to closely monitor the workers involved in the LEU fuel production project.

Environmental Management

87. GEH-C provided information regarding its environmental protection performance over the licence period.
88. CNSC staff reported that it has reviewed GEH-C's environmental management program and that it considers it to meet requirements. CNSC staff noted that the current releases are small and controlled and that they have a negligible impact on the environment around the facility. CNSC staff added that, with the additional activities requested at the facility, the environmental impact of the releases and the waste disposal have been reviewed in details in the EA as presented earlier in this Record of Proceedings. CNSC staff confirmed that the assessment concluded that there was no measurable impact from the fabrication of enriched fuel bundles.

89. The Commission further asked CNSC staff if the numbers outlined in its presentation were representing the potential releases for a full production line. CNSC staff responded that the numbers resulting from the EA were for the entire LEU process, and that it was demonstrated that the environmental releases would not increase if the production goes from natural uranium to 5 % LEU.
90. The Commission asked GEH-C how it would handle the waste generated from LEU fuel bundles production and asked if Chalk River was the only site approved for this type of waste in Canada. GEH-C responded that no arrangements for the waste management had been made yet with AECL, and added that other potential arrangements could be made to send back material that is still in its original form to where it was acquired, either from Wilmington or from another manufacturing site in the United States. CNSC staff confirmed that the only approved site to accept enriched uranium contaminated waste in Canada was Chalk River.

Conclusion

91. The Commission is satisfied with GEH-C past environmental performance and is of the opinion that, as demonstrated in the EASR, environmental releases will not increase with the production of 5 % LEU fuel bundles. The Commission is also satisfied that GEH-C will take appropriate measures to handle the waste generated by the use of LEU.

Operating Performance

Organization and Plant Management

92. The Commission considered the organization and plant management at GEH-C as an indication of GEH-C's qualifications to continue to safely operate the facility and, in doing so, provide adequate protection for the environment and the health and safety of persons.
93. The Commission asked CNSC staff if it was satisfied with GEH-C's organizational chart. CNSC staff responded that it had reviewed GEH-C Quality Assurance Program and management structure and that it was satisfied. CNSC staff added that GEH-C is very responsive to correcting problems and that the roles and responsibilities at each level of the organization are well defined. CNSC staff added that it is not concerned with the organizational structure even if 12 persons were reporting directly to the President.
94. The Commission further asked who was responsible for the Quality Assurance Program. GEH-C responded that it was the Quality Manager. GEH-C added that regular meetings were held every four weeks, and that the communication and dialogue within the company were good at all levels of the organization.
95. The Commission asked who was responsible for safety management. GEH-C responded that it was the Manager of Environment Health and Safety.

96. The Commission asked GEH-C how it was dealing with staff requirement and training. GEH-C responded that, for the first phase of the project, no new staff was required, but that for a full production line, new resources would have to be hired according to the volume of production.
97. The Commission asked if delaying the approval of GEH-C's amendment request until its licence renewal in December 2010 would have an important impact on its plans. CNSC staff responded that a delay would have impact on AECL's schedule for the testing of the fuel for its new reactor. CNSC staff added that fuel testing is a complex task that has to be performed early in the design of a reactor. GEH-C confirmed that the production of fuel bundles for AECL testing was critical to their new reactor design program.

Conclusion

98. The Commission is of the opinion that the roles and responsibilities at each level of GEH-C's organization are defined in such a way that it ensures that GEH-C maintains its capacity to respond adequately to potential issues.

Operational Compliance

Regulatory Safety Area Programs

99. CNSC staff reported that, based on inspection, reviews of documentation and annual compliance reports from the current licensing period, the existing safety area programs in place at GEH-C are adequate and acceptable for producing natural uranium fuel bundles. CNSC staff noted that it has reviewed the programs that could be affected by the request to assemble enriched uranium fuel bundles and that it is satisfied that these programs will ensure safety of the workers, the public and the environment.

Conclusion

100. The Commission, based on inspection, reviews of documentation and annual compliance reports during the current licensing period, is satisfied that the safety area programs in place at GEH-C are adequate and acceptable.

Nuclear Criticality Safety

101. CNSC staff reported that enriched uranium could result in a fission chain reaction outside a reactor. CNSC staff noted that, in order to manage this potential risk, the licensee must have a specific safety program called a Nuclear Criticality Safety Program. CNSC staff noted that this requirement is new for GEH-C, which means that the proposed amended licence comprises new conditions related to this program. CNSC staff added that these conditions limit the licensee to using uranium with a maximum enrichment of 5% uranium-235 and require the production of an acceptable Nuclear Criticality Safety Manual (NCSM) before any enriched uranium can be brought into the facility.

102. CNSC staff reported that GE Hitachi has a long history with the safe use of enriched uranium at its facilities in United States where the company has been producing enriched uranium boiling water reactor (BWR) fuel for more than 50 years. CNSC staff added that the Nuclear Criticality Safety Program GEH-C has developed to ensure nuclear criticality safety is based on the American National Standards Institute (ANSI)/American Nuclear Society (ANS) standards specified by CNSC staff in discussions with the licensee. CNSC staff noted that GEH-C has been drawing on this corporate experience and will produce a NCSM that describes how all the requirements of the CNSC will be met before enriched uranium is brought into the facility.
103. CNSC staff added that the proposed licence condition to not bring enriched uranium into the facility until an acceptable NCSM has been produced will be a major hold point for the licensee. GEH-C confirmed that it has already hired a nuclear criticality specialist to develop this detailed program.
104. The Commission asked GEH-C if the NCM required as a new condition was completed. GEH-C responded that a draft of the manual has been completed recently and that it had to be reviewed internally before it is submitted to CNSC staff in the first quarter of 2010. CNSC staff noted that GEH-C will describe in its manual all the controls to be in place when 80 % of LEU critical mass enters the facility. CNSC staff added that a portion of GEH-C NCSM would be approved first to allow 80 % of the LEU critical mass on site, and that the second part of the manual that covers the presence of one critical mass on site would be approved later when all requirements are in place.
105. The Commission asked CNSC staff about the amount of LEU 5 % that represents one critical mass. CNSC staff responded that the determination of a critical mass was the responsibility of the licensee because it is aware of the impurities present in the material and the requirements for enrichment. CNSC staff added that the smallest critical mass of five percent enriched uranium would represent an amount of approximately 40 kilograms of UO₂ which means that GEH-C could have in its possession up to 80% of 40 kilograms of UO₂.
106. The Commission asked GEH-C when it was expecting the assembly line for the LEU fuel bundles to be completed and in full production, or, in other words, when would it need to have an amount of more than 80 % of one critical mass of LEU at the facility. GEH-C responded that the first phase, i.e., manufacturing some LEU bundles to be tested in the AECL CANDU ACR-1000 reactor, would occur within the next two years. GEH-C noted that having a complete assembly line for LEU fuel bundles in place was dependant on AECL's success and decision with regards to its CANDU ACR-1000 reactor. GEH-C added that it was anticipating that, if LEU bundles are needed for CANDU reactors, the line would have to be in place in 2014, approximately two years before the anticipated need.
107. The Commission asked GEH-C if it was considering using LEU with a percentage greater than 5 % in the future. GEH-C responded that the scope of the EA Assessment was restricted to 5 %. CNSC staff added that if GEH-C was considering using LEU above 5 %, its request would have to go through a new EA Assessment.

108. The Commission asked GEH-C how it would address the flood risk probability with respect to criticality. GEH-C responded that the LEU production line would be constructed within an area with a dike. GEH-C added that it was also considering doing some design adjustments such as raising the floor level.
109. CNSC staff added that GEH-C had also considered using a particular geometry (first line of defence) for the LEU so that criticality would not happen even in the case of flooding. CNSC staff confirmed that an analysis assuming complete flooding of the whole building demonstrated that criticality would be avoided. CNSC staff also added that changes would be done to the fire protection system to avoid any flooding due to the sprinkler system (second line of defense).
110. The Commission asked further if the public was aware of the existence of potential criticality in the event GEH-C was bringing LEU into its facility and if additional training for the municipality fire departments, including emergency preparedness, had been considered. GEH-C responded that it was holding regular meetings with emergency organizations as well as project-specific meetings, such as the meeting held last fall when all emergency response organizations met to discuss the project. GEH-C added that facility orientation sessions were also held on an annual basis.

Conclusion

111. The Commission is satisfied with GEH-C's commitments to produce a Nuclear Criticality Safety Manual (NCSM) before any enriched uranium can be brought into the facility. The Commission is also satisfied that CNSC staff will closely monitor the potential risks linked to the presence of LEU at GEH-C's facility.
112. The Commission requested from GEH-C that, at the time of its licence renewal in the fall of 2010, it provides diagrams to reassure the Commission and to demonstrate how the probability of potential flooding has been studied and taken into account with regards to the presence of potential criticality at the facility.

Transportation

113. CNSC staff reported that the transport of enriched uranium fuel pellets to the GEH-C facility from a manufacturer outside of Canada will require CNSC transportation and import licences. CNSC staff added that the pellets will be required to be transported in a certified transport package that meets both Canadian and American requirements. At this time, GEH-C proposed to use the New Powder Container⁸ (NPC) Transportation Package already certified by the CNSC for transporting up to 5% enriched uranium by road, by rail or by air.

⁸ Canadian Certificate No CDN/E207/-85 (Rev. 3), Issue Date: Feb-07-2006, Expiry Date: Nov-30-2010, CNSC File:30-10-2-183

114. The Commission asked if other types of package could be needed for the transportation of the pellets and the bundles containing LEU. GEH-C responded that at the moment the proposed NPC package is already used at the Wilmington facility. Nonetheless, GEH-C added that, in the future, the company that provides the LEU pellets could decide to develop its own transport container and have it certified by the CNSC.
115. The Commission asked for some clarification with regards to the requirements for the type of packages used for fissile material transportation. CNSC staff responded that all fissile materials are transported in certified packages and noted that the testing, which is consistent with international standards and with the *Packaging and Transport of Nuclear Substances Regulations*, is performed by the licensee through demonstration or computer modeling calculations. CNSC staff added that, as a regulator, if a new type of package is designed in Canada, it is present to witness the testing or, if it comes from outside Canada, it performs an extensive safety assessment of the package even if it has been approved by another competent authority elsewhere in the world. CNSC staff noted that, for fissile material, the certification is issued for five years.
116. The Commission further asked who was responsible for the shipping of the material. CNSC staff responded that the consignor is responsible for the safety of the package as it is the one who has prepared the package. CNSC staff added that the entity sending the package is responsible for the safety during transportation.
117. The Commission requested more detail with respect to the transportation licence that GEH-C is required to have to transport Category III nuclear material such as LEU. CNSC staff responded that GEH-C will need a transportation licence, which requires a transportation security plan.
118. CNSC staff noted that the importation of enriched uranium into Canada will require, in addition to the transport licence, an import licence. CNSC staff noted that GE Hitachi has not applied yet for these licences.

Conclusion

119. The Commission is satisfied that GEH-C will take all the necessary measures to ensure that the transportation the LEU material into Canada and to the facility where the LEU bundles will be tested is done safely and in accordance with all related standards and with the *Packaging and Transport of Nuclear Substances Regulations*.

Conclusion on Operational Compliance

120. The Commission is satisfied that GEH-C will take all the control and protective measures to ensure that it complies with all the safety and regulatory requirements for the transportation and the handling of LEU material at its Peterborough facility.

Emergency Preparedness and Fire Protection

Emergency Preparedness

121. CNSC staff reported that the addition of a new hazard, namely the possibility of a nuclear criticality event, must be added to the existing hazards identified in the current acceptable emergency preparedness and response plans. CNSC staff noted that this hazard must be specifically identified in the licensee's Nuclear Criticality Safety Manual to be reviewed by CNSC staff. CNSC staff further added that the requirement to test the emergency preparedness procedures for a nuclear criticality event will be integrated into the existing emergency preparedness planning and subsequent drills.

Conclusion

122. The Commission is satisfied that GEH-C will integrate into its existing emergency preparedness planning and drills the emergency preparedness procedures for a nuclear criticality event.

Fire Protection

123. CNSC staff reported that GEH-C currently has an acceptable fire protection program for the Peterborough facility and that the use of up to 5% enriched uranium pellets will have little additional impact on the current fire protection arrangements. CNSC staff noted that additional fire suppression measures consistent with the requirements of the current licence conditions and with the nuclear criticality safety program will be installed if required.
124. The Commission asked if GEH-C was meeting fire protection third-party review requirements. CNSC staff responded that GEH-C was compliant with the third party review requirements and that it was addressing promptly any finding arising from these reviews.

Conclusion

125. The Commission is satisfied that GEH-C will install, as required, additional fire suppression measures consistent with the requirements of the current licence conditions and the nuclear criticality safety program.

Public Information Program

126. CNSC staff reported that the current GEH-C public information program is acceptable. CNSC staff noted that public and community meetings have been held as a result of this amendment request and that the details of the public consultation carried out for this licence amendment are outlined in the EASR.

127. The Commission, in considering one of the public concerns, asked for more details on how the public meetings held by GEH-C were advertised. GEH-C responded that the public meetings were advertised on radio stations and in newspapers as outlined in the EASR.
128. The Commission asked how the public was represented at the open-house held by GEH-C on the project. GEH-C responded that on the 120 people in attendance, 11 were from GEH-C and the rest from the public.

Conclusion

129. The Commission is satisfied with GEH-C's Public Information Program and is of the opinion that the public and the First Nations were given enough opportunity to review and comment on GEH-C's project.

Nuclear Security Program

130. CNSC staff reviewed the current program and is of the opinion that the proposed licence amendment will not require any change to the current nuclear security program for the licensed facility. CNSC staff noted that the facility's nuclear security program already meets regulatory requirements for 5% enriched uranium.

Conclusion

131. The Commission is of the opinion that the facility's nuclear security program already meets regulatory requirements for 5% enriched uranium.

Nuclear Safeguards

132. CNSC staff reported that the Peterborough GEH-C facility is subject to International Atomic Energy Agency (IAEA) safeguards requirements. CNSC staff noted that safeguards inspections are routinely carried out by the IAEA to ensure that the licensee is in compliance with these requirements. CNSC staff confirmed that the current safeguards program meet the IAEA safeguards requirements. CNSC staff added that, if enriched uranium up to 5% uranium-235 is introduced into the facility, the IAEA may change the frequency and scope of their inspections at the facility and that all relevant accountancy and operational reports submitted by the facility to the IAEA will have to be updated and maintained to accurately reflect the production changes. CNSC staff confirmed that the current safeguards licence conditions are adequate to ensure that Canada's international safeguards obligations will continue to be met.

Conclusion

133. The Commission is satisfied that the current safeguards licence conditions are adequate to ensure that Canada's international safeguards obligations should continue to be met.

Financial Guarantees and Decommissioning

134. The Commission asked if there would be any changes required with regard to GEH-C decommissioning plan and financial guarantees within the current licensing period. CNSC staff responded that the requested amendment was not going to have a significant impact on the decommissioning costs because there were no changes in the amount or the type of waste produced. CNSC staff also added that GEH-C's financial guarantee was up-to-date.

Conclusion

135. The Commission is satisfied with GEH-C's decommissioning plan and financial guarantees for the current licensing period.

Nuclear Liability Act (NLA)

136. CNSC staff noted that, before an amount of enriched uranium equal to or greater than 80 % of one critical mass is introduced into the facility, the GEH-C will have to be designated by the Commission, under the NLA as a "Nuclear Installation". CNSC staff added that, following this designation, GEH-C will be added to the list of designated Nuclear Installations consolidated in CMD 05-H35. CNSC staff confirmed that an updated CMD, including this new designation, will be presented to the Commission when it is required.
137. CNSC staff explained that the Commission is authorized to designate nuclear facilities as nuclear installations under section 2 of the NLA, and that a particular facility is designated a nuclear installation if it is licensed to contain "nuclear material" and if it is a structure that can contain a nuclear reaction or an establishment for processing or reprocessing nuclear material, or a storage place for such material. CNSC staff added that paragraph 15(1)(a) of the NLA also authorizes the Commission to prescribe the amount of basic insurance required for a designated nuclear installation, and that this level of basic insurance must be approved by the TBS prior to designation.
138. CNSC staff stated that the amount of basic insurance is determined according to certain criteria such as: the types of material present at the nuclear installation, the population density on and off-site, and the degree of containment at the facility. CNSC staff added that, based on these criteria, the Commission prescribes a level of basic insurance required by the operator up to the maximum of \$75 million set out in the NLA. CNSC staff recommended that the level of basic insurance for GEH-C, necessary to meet NLA requirements, be set at \$8 million. CNSC staff added that this amount has to be approved by TBS and that this requirement is in place to assure that the government is formally recognizing potential liability beyond the insurance coverage.

139. The Commission asked CNSC staff when the \$8 millions insurance should be in place. CNSC staff responded that the requirement to have the insurance in place would be triggered if GEH-C brings into the facility more than one critical mass of LEU. CNSC staff noted that, in the interim period, the LEU required on site for the production of only some bundles with 80 % or less of the critical mass does not trigger a situation of potential criticality. CNSC staff added that, therefore, the basic insurance was not necessary in the interim period, but that the initiation of the approval process by TBS will ensure that, when time comes, the required insurance is in place.
140. CNSC staff confirmed that, upon the Commission's instruction to do so, it will initiate the process to obtain the approval from TBS for the amount of \$8 million to cover GEH-C basic insurance. CNSC staff also committed, following TBS approval of GEH-C basic nuclear liability insurance and the designation of the facility as a Nuclear Installation, to present to the Commission an updated CMD to replace the current CMD 05-H35 to include GEH-C's Peterborough Facility as a designated Nuclear Installation.
141. CNSC staff noted that, in the event the NLA that has been presented in front of the House of Commons is approved, the liability insurance for the installations designated under the current NLA, will not change significantly.

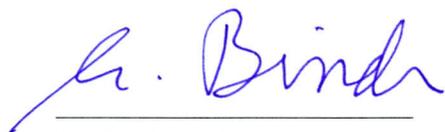
Conclusion

142. The Commission is satisfied with the amount of \$8 million recommended by CNSC staff to cover GEH-C basic insurance as requested in the NLA and instructs CNSC staff to initiate the process for its approval by TBS.

Conclusion on the Proposed Amendment

143. The Commission has considered the information and submission of GEH-C and CNSC staff as presented in the material available for reference on the record.
144. As detailed in the EASR consideration sections of this Record of Proceedings, the Commission considers that all the requirements of the CEAA are met for this licence amendment application.
145. The Commission is satisfied that GEH-C meets the requirements of subsection 24(4) of the NSCA. That is, the Commission is of the opinion that GEH-C is qualified to carry on the activity that the amended licence will authorize and that it 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.
146. The Commission, pursuant to section 24 of the NSCA, therefore amends the Nuclear Fuel Facility Operating Licence issued to GEH-C for its Peterborough Nuclear Fuel Facility. The amended licence remains valid until December 31, 2010.

147. The Commission directs GEH-C to implement a Nuclear Criticality Safety Program before the introduction of any enriched uranium in the facility.
148. The Commission instructs CNSC staff to initiate the process to get TBS' approval for the amount of \$8 million for the basic insurance necessary to meet NLA requirements. Following the approval of the basic insurance amount, the Commission will consider the designation of GE- Hitachi Nuclear Energy Canada Inc. Peterborough facility as a Nuclear Installation under the NLA before the introduction of 80 % of one critical mass of enriched uranium.
149. The Commission includes in the licence new conditions to specifically address Nuclear Criticality Safety requirements, as suggested by CNSC staff in the amended licence attached to CMD 10-H3.



Michael Binder
President,
Canadian Nuclear Safety Commission

FEB 11 2010

Date