Canadian Nuclear Safety Commission

Commission canadienne de sûreté nucléaire

Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant	Atomic Energy of Canada Limited
Subject	Application for a Waste Nuclear Substance Licence for the Port Hope Long-Term Low-Level Radioactive Waste Management Project
Hearing Date	August 26 and 27, 2009

Canada

RECORD OF PROCEEDINGS

Applicant:	Atomic Energy Canada Limited
Address/Location:	Chalk River Laboratories, Chalk River, Ontario, K0J 1J10
Purpose:	Application for a Waste Nuclear Substance Licence for the Port Hope Long-Term Low-Level Radioactive Waste Management Project
Application received:	December 1, 2004
Date of hearing:	August 26 and 27, 2009
Location:	Town Park Recreation Centre, 62 McCaul Street, Port Hope, Ontario
Members present:	M. Binder, Chair C.R. Barnes A.R. Graham D. Tolgyesi B.J. Barriault A. Harvey M.J. McDill
Secretary:	M.A. Leblanc
Senior Counsel:	L. Thiele
Recording Secretary:	P. Reinhardt

Applicant Represented By		**Document Number**
• J. Miller, Vice President and General Manager of Decommissioning and Waste Management • C. Fahey, Project Director for the Port Hope Area Initiative • G. Case, Port Hope Area Initiative are, Manager of Project Engineering • H. Kleb, Regulatory Affairs Officer		CMD 09-H9.1 CMD 09-H9.1A CMD 09-H9.1B
Other stakeholders		
• Natural Resources Canada: D. McCauley, Director of Uranium and Radioactive Waste Division • Cameco Corporation: A. Oliver, Vice-President, Fuel Services Division and T. Smith, Senior Environmental Specialist		
CNSC staff		**Document Number**
• P. Elder • D. Howard	• R. Barker • P. Thompson	CMD 09-H9 CMD 09-H9.A CMD 09-H9.B
Intervenors		**Document Number**
See appendix A		

Licence: issued

Table of Contents

Introduction

1. Atomic Energy of Canada Limited (AECL) has applied to the Canadian Nuclear Safety Commission[1] (CNSC) for the issuance of a Waste Nuclear Substance Licence (WNSL) for the Port Hope Long-Term Low-Level Radioactive Waste Management Facility (LTWMF) Project (the Port Hope Project). AECL has requested a ten-year licence term.

2. On March 15, 2007, following a Commission Hearing, the three responsible authorities, Natural Resources Canada (NRCan), CNSC and the Department of Fisheries and Oceans (DFO), released their decision on the Environmental Assessment Screening Report (EASR) for the Port Hope Project, indicating that the project, taking into account implementation of mitigation measures, was not likely to result in significant adverse environmental effects and, thereby, allowing the proposal to proceed through the CNSC licensing process.

3. The Port Hope Project is part of the Port Hope Area Initiative (PHAI), a community-based initiative established to develop and implement a safe local long-term management solution for the historic Low Level Radioactive Waste (LLRW) in the Port Hope area. The PHAI was launched in 2001 and the terms of reference for the management of the LLRW within each of the respective communities has been defined by a Legal Agreement[2] which commits Canada and the municipalities involved to work cooperatively, to communicate openly and to regularly consult to complete the project with success. According to the arrangements made, above-ground LLRW management facilities will be designed and constructed in each community to safely contain the historical waste that has accumulated within each community for several years. The PHAI also includes the Port Granby Long-Term LLRW Management Project for which a Screening Environmental Assessment Report was approved by the CNSC on August 19, 2009.

4. Port Hope's connection to the nuclear industry began in the 1930s when the former Eldorado Mining and Refining Limited (Eldorado) built its first facility in the Municipality. Radium and later uranium from northern Canada were shipped and refined in Port Hope. The waste from these refining processes became a source of contamination within the community during the plant's early years of operation. The contaminated waste was later dispersed within Port Hope from 1933 to 1948. From 1948 to 1955, the waste was then placed and stored outside the town at the Welcome Waste Management Facility. Further in 1955, a new waste management facility was opened in Port Granby and operated until 1988 when Eldorado was dissolved and Cameco Corporation (Cameco) formed.

---

[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] Government of Canada, Town of Port Hope, Township of Hope, Municipality of Clarington, 2001, An Agreement for the Cleanup and the Long-Term Safe Management of Low-Level Radioactive Waste Situate in the Town of Port Hope, The Township of Hope and the Municipality of Clarington, Government of Canada, Ottawa, Ontario

5. In 1988, Cameco took over the ownership of the Welcome Waste Management Facility (WWMF) and the Port Granby Waste Management Facility. During the 1970s, contaminated waste was discovered on private properties in Port Hope and elevated radon gas levels were detected inside some Port Hope private residences. To address this issue, the Federal-Provincial Taskforce on Radioactivity was created; it was led by the former Atomic Energy Control Board. Between 1976 and 1981, more than 400 Port Hope properties were remediated and approximately 100,000 cubic metres of contaminated soil were shipped to AECL's Chalk River laboratories where that waste remains in safe storage. Since 1982, on behalf of the Government of Canada, AECL's Low-Level Radioactive Waste Management Office (LLRWMO) has investigated the occurrences of LLRW in Port Hope. Cleanups have been conducted and waste placed in interim storage facilities. These facilities are monitored and inspected regularly as part of the ongoing management of the waste.

6. The Port Hope Project includes the construction and operation of the LTWMF and the remediation of sites containing historic LLRW located in the Municipality of Port Hope. The Port Hope Project is being conducted on behalf of the Federal Government (Natural Resources Canada) by AECL.

7. The Commission, pursuant to a decision rendered on October 5, 2006, pursuant to section 7 of the *General Nuclear Safety and Control Regulations*[3], has exempted the Port Hope various unlicensed sites in Port Hope from licensing for the possession, management and storage of nuclear substances until December 31, 2016.

8. The activities included in the Port Hope Project are the following:
    - Interim management by AECL of the WWMF following its acquisition by the Government of Canada and until its contents are incorporated in the new LTWMF;
    - Development of the new LTWMF on and adjacent to the present site of the WWMF and incorporation of the current inventory of the WWMF waste into the new LTWMF;
    - Remediation of sites within the Municipality of Port Hope collectively contaminated with approximately 1.2 million cubic metres of historic LLRW;
    - Transport of the LLRW to the LTWMF; and
    - Maintenance and monitoring of the completed LTWMF for a period of several hundred years.

9. As part of the WNSL, AECL seeks approval for the following activities:
    - Possess, manage and store nuclear substances that are required for, associated
    - with or arise from the operation of the WWMF;
    - Possess, package, transport, transfer, manage and store the nuclear substances, except Category I, II and III nuclear-material as defined in section I of the *Nuclear Security Regulations*[4] , that are required, associated with or arise from the construction and operation of the LTWMF located in the Municipality of Port Hope.

[3] S.O.R. (Statutory Orders and Regulations) 2000-202
[4] S.O.R./2000-209

Issues

10. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*[5] (NSCA):

    a) if AECL is qualified to carry on the activity that the licence would authorize; and

    b) if, in carrying on that activity, AECL would make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

Public Hearing

11. The Commission, in making its decision, considered information presented for a public hearing held on August 26 and 27, 2009 in Port Hope, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*[6]. During the public hearing, the Commission received written submissions and heard oral presentations from CNSC staff (CMD 09-H9, CMD 09-H9.A and CMD 09-H9.B) and AECL (CMD 09-H9.1, CMD 09-H9.1A and CMD 09-H9.1B). The Commission also considered oral presentations and written submissions from 99 intervenors (see Appendix A for a list of the interventions).

12. During the public hearing, the Commission also heard from Natural Resources Canada (NRCan) which represents the Government of Canada, and Cameco Corporation which currently owns the WWMF and will, on the issuance of the WNSL sought by AECL, transfer it to the Government of Canada.

Decision

13. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concludes that AECL is qualified to carry on the activity that the licence will authorize. The Commission is also satisfied that AECL, in carrying on that activity, will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed. Therefore,

> the Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, issues a Waste Nuclear Substance Licence to Atomic Energy of Canada Limited for the Long Term Low-Level Radioactive Waste Management Project in Port Hope, Ontario. The licence WNSL-W1-2310.00/2014 is valid from the effective date of the land transfer of the Welcome Waste Management Facility property as set out in the Agreement of Purchase and Sale between Her Majesty, the Queen In Right Of Canada and Cameco Corporation and Canada Eldor Inc., and will remain in effect until December 31, 2014, unless suspended, amended, revoked or replaced.

[5] S.C. (Statutes of Canada) 1997, c. 9.
[6] S.O.R.(Statutory Orders and Regulations) /2000-211.

14. The Commission includes in the licence the conditions recommended by CNSC staff as set out in the draft licence attached to CMD 09-H9, 09-H9.A and 09-H9.B, with the following changes:

III) The following sentence is removed:

"If the land transfer is not concluded before March 31, 2010, this licence shall terminate."

Footnote 1 is replaced with:

- Phase 1 activities are defined as those activities related to the continued operation of the Welcome Waste Management Facility associated with ongoing care and maintenance.
-Phase 2 on-site activities are those activities related to the continued operation of the Welcome Waste Management Facility and those related to the redevelopment of the facility into the Port Hope Long-Term Waste Management Facility.
-Phase 2 off-site activities are those activities related to the operation of the Port Hope Long-Term Waste Management Facility, the continued development of the Port Hope Long-Term Waste Management Facility and off-site remedial activities associated with the project.
- Phase 3 activities are those activities related to the post-closure operations of the Port Hope Long-Term Waste Management Facility associated with ongoing care and maintenance.

IV) b) The word "transport" is removed.

V) 1.3: the sentence is replaced with:

The licensee shall immediately provide the Commission or a person authorized by the Commission with evidence that the transfer of lands associated with the "Agreement of Purchase and Sale" between Her Majesty the Queen In Right Of Canada and Cameco Corporation and Canada Eldor Inc. has been executed.

The following two conditions are added:

1.4 The licensee shall have accepted by the Commission the following documents prior to proceeding with the following project phases:

- Phase 2 on-site activities: the documents identified in Section 1 of Appendix C
- Phase 2 off-site activities: the documents identified in Section 2 of Appendix C
- Phase 3 long-term operations: the documents identified in Section 3 of Appendix C

1.5 The licensee shall adhere to clean-up criteria set out in Appendix D to this licence for Phase 2 on-site and off-site activities.

2.1: the wording "Appendix B, C and E" is replaced with "Appendix B, C and D".

The following condition is added:

2.3 Action Levels:

The licensee shall establish acceptable action levels as set out under Section 6 of the *Radiation Protection Regulations* associated with the operation of the following facilities and within the period identified:

- Welcome Waste Management Facility Effluent Treatment Plant; prior to December 31, 2010
- Port Hope Long-Term Waste Management Facility effluent treatment plant; prior to commissioning and operating new effluent treatment processes.

Section 4 is replaced with:

4. REPORTING

4.1 The licensee shall, by April 1 of each calendar year, submit to the Commission or a person authorized by the Commission, a written report on the activities associated with the Port Hope Long-Term Low-Level Radioactive Waste Management Project for the period of January 1 to December 31 of the previous calendar year, containing information on:

a) the conduct of the licensed activities completed;

b) the results of the monitoring programs described in the documents listed in Appendix B and C of the licence and any approved modifications pursuant to condition 3.1 of this licence;

c) a summary description of events reported to the Commission or a person authorized by the Commission pursuant to section 29 of the *General Nuclear Safety and Control Regulations*; and

d) a summary description of any changes in the methods, procedures and equipment used to carry out the licensed activities.

4.2 The licensee shall, on a quarterly basis, submit to the Commission or a person authorized by the Commission, a written report containing the results of the effluent monitoring program as specified in the documents in Appendix B of this licence.

4.3 The licensee shall, upon completion of any of the following project activities, submit to the Commission or a person authorized by the Commission, a written report containing a summary description of works completed:

- Phase 2 On-Site Activities
- Phase 2 Off-Site Activities
- Final Closure of the Port Hope Long-Term Waste Management Facility.

4.4 The licensee shall submit to the Commission or a person authorized by the Commission a report on the exceedance of an action level within 10 days of becoming aware of the situation. This report should contain the following information:

a) the date, time, duration and circumstances of the action level deviation; and

b) measures taken to restore the effectiveness of the effluent treatment process.

4.5 The licensee shall immediately notify the Commission or a person authorized by the Commission of the exceedance of a discharge limit as set out in Appendix B or C to this licence and within 21 days file a written report on the situation containing the following information:

a) the date, time, location, and description of the effluent discharge limit exceeded;

b) a description of the investigation conducted and the cause established for exceeding the effluent discharge limit;

c) the effects on the environment and the health and safety of persons that have resulted or may result from the situation; and

d) the actions taken to restore the effluent concentrations to within the effluent discharge limits set out in Appendix B or C to this licence.

4.6 The licensee shall notify the Commission, or a person authorized by the Commission in writing, within 10 days of the measurement of a uranium concentration greater than 200 micrograms per litre in the effluent discharge at the Welcome Waste Management Facility.

Section 5 is removed.

Appendix B: the following reference is added:

Licensing Manual – Information in support of the Port Hope Long Term Low-Level Radioactive Waste Management Project licence application, Revision 1, AECL, June 16, 2009.

Appendix B: a table of effluent limits for the Welcome Waste Management Facility is added.

Appendix B: reporting requirement for uranium discharge is added.

Appendix C is replaced with references and effluent limits associated with Phases 2 and 3 of the Port Hope Area initiative – Port Hope Project.

Appendix D is replaced with the following Tables:

Table D.1 Clean-up Criteria for Inorganic COPC in Surface Soils
Table D.2 Clean-up Criteria for Organic COPC in Surface Soil at Industrial Sites
Table D.3 Water Quality Criteria for Discharge to the Environment
Table D.4 Water Quality Criteria for Discharge to Municipal Sanitary Sewer System
Table D.5 Water Quality Criteria for Potable Groundwater Conditions.

Appendix E is removed.

15. The licence will be valid until December 31, 2014. The Commission is of the view that this will allow AECL to continue and complete plans and designs in a number of areas, prior to the construction and remediation activities. As the Commission wishes to review information on several important programs to be implemented prior to allowing AECL to proceed with Phase 2 of the LTMWF Project, the Commission directs AECL to come back before the Commission at a public proceeding with this additional information before starting any construction and remediation activities.

16. With this decision, the Commission therefore requests that AECL present, in approximately three years or sooner, in a status report or as part of an application for licence amendment, all the documentation required before the start of Phase 2 of the project, as listed in Appendix C of the licence. This documentation shall be previously reviewed by CNSC staff. The status report, application for licence amendment or approval, as is the case, will be presented at a public proceeding of the Commission. The Commission also expects AECL to apply for a licence amendment, as necessary, as soon as practicable after the new water treatment system is implemented and operational, so that the list of the contaminants and related release limits included in the licence is updated. AECL may fulfill both requests as part of a simple comprehensive application for a licence amendment.

17. As Cameco Corporation (Cameco) currently holds a licence for the Welcome Waste Management Facility, it is noted that Cameco has applied to the CNSC Designated Officer to seek revocation of its licence when the WSNL issued to AECL becomes effective.

18. Finally, the Commission notes that the exemption issued by the Commission for various sites in the Port Hope area, on October 5, 2006 remains in effect until December 31, 2016, or until the substances are moved.

Rulings

19. In the hearing, questions regarding the jurisdiction of the CNSC were raised by two intervenors. One intervenor made an oral request to the Commission for two rulings under Rule 20(3) of the *CNSC Rules of Procedure* regarding the scope of its jurisdiction.

20. One intervenor stated that, in the event that there were property owners in Port Hope who did not want to participate in the cleanup of the low-level radioactive waste (LLRW) as proposed by the licence applicant, there would be nothing that the Commission would have the authority to do, under the *Nuclear Safety and Control Act*, to address such reticence.

21. CNSC staff responded that, in a situation where there are reasonable grounds to believe that nuclear substances are present, a contaminated property that was not going to be part of the PHAI might require other regulatory measures that will be determined by a CNSC inspector or the CNSC generally. The NSCA allows the Commission to exercise any powers it finds necessary for the purposes of the Act, recognising the need to balance privacy rights and public interests. Consequently, the Commission is of the view that the NSCA provides the powers to the CNSC to take measures as warranted.

22. The Lake Ontario Waterkeeper (LOW) made an oral request for rulings on whether the CNSC has the jurisdiction to regulate industrial waste disposal and the discharge in the environment of non-nuclear substances such as Polycyclic Aromatic Hydrocarbons (PAHs), oil and grease.

23. The Commission has full regulatory authority over any nuclear substances or contamination from nuclear substances in the Municipality of Port Hope and also has full authority to regulate the discharge of radioactive nuclear substances and hazardous substances associated with or arising from an activity that is licensable under the NSCA. Regarding industrial waste or discharge to the environment of substances that have not been associated with the nuclear industry, as set out in section 71 of the NSCA, the Commission does not regulate their remediation, unless or until that waste is commingled with, or is an integral part of, the nuclear-related licensed activity.

24. Consequently, and mindful of the fact that many of the concerns of LOW relate to environmental protection and standards and that there is regulation at all levels of government in this area, the Commission is of the view that it has jurisdictional authority when the waste or discharge is commingled with, or an integral part of nuclear-related licensable activities. The Commission notes that the issuance of the licence does not obviate the need for the licence applicant to seek any applicable provincial authorizations.

Issues and Commission Findings

25. In making its licensing decision under section 24 of the NSCA, the Commission considered a number of issues relating to AECL's qualifications to carry on 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.

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

Radiation Protection

27. 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 AECL in the area of radiation protection.

28. AECL's *Organization, Responsibilities, Mandate and Scope of Nuclear Compliance Programs*, referred to in the Licensing Manual, provide a framework to identify processes, organization and responsibilities, internal and external requirements, management system for effective operation and ongoing guidance for the Radiation Protection Program.

29. AECL reported that, as determined in the EA Screening Report[7] (EASR), the workers that will excavate on-site[8] waste and place on-site and off-site[9] waste in the new mound, should receive an estimated annual radiation dose between 1.6 and 2.7 mSv. AECL added that it estimated the annual dose for workers who will conduct sediment dewatering at Port Hope Harbour to be approximately 7.6 mSv. The estimated doses remain below the dose limits for Nuclear Energy Workers (NEW) outlined in the *Radiation Protection Regulations*[10], these doses being 50 mSv for a one-year dosimetry period and 100 mSv for a five-year dosimetry period.

30. AECL reported that the annual predicted radiation doses to the Port Hope residents from clean-up activities would be between 0.06 to 0.12 mSv for an adult and 0.25 mSv for an infant. As a comparison, AECL added that the Port Hope resident current average annual dose was in the order of 1.4 mSv for an adult and 2.6 mSv for an infant, which is below the average annual dose of 3 mSv for an average Canadian. AECL noted that these 3 mSv included 2 mSv/year from natural sources and 1 mSv/year from human-made sources (i.e., medical and industrial). AECL noted that the specific Port Hope project Radiation Protection Plan, requested by CNSC staff prior to the beginning of the construction phase, will respect the "as low as reasonably achievable" (ALARA) principle.

31. The Commission requested more information on how the truck drivers will be monitored and how the wash water would be handled during the project. AECL responded that the workers would be considered as NEW, and that they would be monitored as part of the Radiation Protection Program. AECL added that the handling of the wash water would be part of the Environmental Management Plan, and that both of these programs would be reviewed by CNSC staff before the construction phase. CNSC staff confirmed that these two programs were required before the construction could start. CNSC staff noted that AECL, through the LLRWMO present in Port Hope, has been doing a similar type of work for a long period of time and that it has a lot of experience on doing small-scale cleanups, which experience can be applied to the larger scale Port Hope Project.

32. Among the intervenors that do not support the project, several raised concerns about the potential effects on their health and on their children's health from contaminated dust generated during waste excavation and transportation. These intervenors also raised concerns about the health of the workers during the construction and remediation phase. Many requested that some studies be conducted on the health of the population of Port Hope before, during and after the LTWMF Project is over. They also requested that the project be referred to a review panel under the *Canadian Environmental Assessment Act*[11] (CEAA) to reassess its potential negative interactions with the environment. CNSC staff responded that the screening report had looked at potential exposure of the public from the operation of the LTWMF as well as from the clean-up activities in town, and that a monitoring program was required. The program to be developed by AECL will monitor air, soil and water quality to make sure that exposure to members of the public remain as low as possible.

---

[7] Screening Environmental Assessment for the Proposed Port Hope Long-Term Low-Level Radioactive Waste Management Project, http://www.nuclearsafety.gc.ca/eng/commission/pdf/2007-01-24-Decision-LLRWMO-EA-Screening-e-final.pdf

[8] On-site waste refers to waste already present at the Welcome Waste Management Facility

[9] Off-site waste refers to all other wastes to be remediated in Port-Hope that are outside the WWMF

[10] S.O.R. (Statutory Orders and Regulations)/2000-203

[11] S.C. (Statutes of Canada) 1992, c. 37

33. The Commission asked AECL to elaborate on the management of dust as requested by some intervenors. AECL answered that, in the EASR, a dust management program was supposed to be ready at the time of licensing, but because of the phased approach for the licensing, this documentation would be available later, at the same time as the detailed design. The Commission further asked AECL how it was planning to schedule the work that has to be done near schools or sites where children are present. AECL responded that, in that case, the excavation work would happen during the winter period to minimize the effects of the removal of landfill material and the odours generated during that activity. AECL added that meetings with the school boards and school principals had been held to discuss the situation.

34. The Port Hope Community Health Concerns Committee (PHCHCC) raised some concerns with respect to the monitoring of the different uranium isotopes present in the waste. CNSC staff responded that the different uranium isotopes, present at very low levels in the waste, were considered as part of the background and were not, at these levels, a concern in Canada or anywhere else in the world.

35. Based on the information provided, the Commission is of the opinion that AECL has made, and will continue to make, adequate provision for the protection of workers and the public from radiation. The Commission is satisfied that all appropriate precautions will be taken to minimize exposure to radiation to workers and members of the public, including from dust. The Commission is also of the opinion that the level of uranium isotopes in waste does not represent a significant risk to workers or to the public.

Environmental Protection

36. To determine whether AECL will make adequate provisions to protect the environment while carrying on the proposed activities at the Port Hope LTWMF, the Commission considered if the operation of this facility could potentially have adverse effects on the environment.

37. CNSC staff confirmed that AECL's Environmental Protection Program in place at other AECL sites will be used to implement AECL Port Hope specific Environment Program to ensure compliance with legal and environmental requirements for the LTWMF project.

38. CNSC staff reported that, as part of the EASR, cleanup criteria for radioactive and non-radioactive contaminants had been established depending on the future use of the lands (residential or non-residential). CNSC staff added that these criteria were based on dose constraints of 0.3 mSv/year, in agreement with CNSC Regulatory Guide G-320[12] for the long-term safety of radioactive waste management, and that they had been developed in consultation with CNSC staff, other governmental agencies, such as Health Canada and the Ontario Ministry of the Environment, and the concerned municipalities.

39. AECL noted that, as required in the LTWMF EASR, a specific Follow-Up Program (FUP) for the Port Hope Project will be developed. This FUP will include the monitoring of atmospheric, aquatic, geology and groundwater, terrestrial, socio-economics, human health, aboriginal interests and cumulative effects. AECL reported that CNSC staff will monitor the FUP with respect to the LTWMF and the remediation sites, that DFO will be responsible for the follow-up elements related to fish and fish habitats, and that NRCan will be responsible for the other follow-up elements such as those related to socio-economic environment.

[12] Regulatory Guide G–320, Assessing the Long Term Safety of Radioactive Waste Management, December 2006

40. AECL indicated that the biophysical effects management program, will verify the EA predictions to confirm that the proposed mitigation measures implemented are effective. AECL stated that baseline environmental conditions would be confirmed prior to commencing construction to update the EA study baselines identified between 2002 and 2004. AECL added that some specific biophysical data for dust and noise would be considered for their potential socio-economics effects. AECL confirmed that the results of the FUP will be reported on an annual basis to the Responsible Authorities, CNSC, DFO and NRCan and to the Municipality of Port Hope and any other interested groups.

41. On the socio-economic aspect, AECL reported that the communication program as well the Property Value Protection (PVP) Program which provides protection against potential negative effects of the project will continue throughout the proposed licence period. AECL added that discussions with stakeholders on the details of the socio-economic effects management plan were scheduled to begin mid-September 2009.

42. The Commission requested details from AECL on the potential contamination of Brand Creek which runs from the WWMF into Lake Ontario. AECL responded that, as part of the EA investigations, samples had been collected along that creek showing that the contaminant levels were below the cleanup criteria. AECL added that, as part of the resurvey program scheduled in the early part of Phase 2 of the project, more extensive investigation would be done to confirm if additional remediation work is required in the Brand Creek area. AECL noted that it was planned in the LTWMF Project that the source of contamination of Brand Creek, the current WWMF, be eliminated, which means that, in the long term, the contamination of the creek would be resolved. NRCan added that, if remediation of the creek was necessary, it would be included in the detailed design, and funding would be allocated as agreed in the Legal Agreement.

43. The Commission asked CNSC staff to comment on the uranium and arsenic levels in Brand Creek as discussed by a group of landowners in their intervention. The intervenors claimed that these levels were 49 times higher than the Ontario Water Quality Objectives for uranium, and 11 times higher for arsenic. CNSC staff responded that these numbers were reflecting the current objectives for the WWMF and were considered acceptable for the short term, but that they will be revisited as part of the project for the long-term.

44. Following a further question from the Commission on the quality of recreational water in Port Hope, CNSC staff responded had sampled around the WWMF, on the beach and in Port Hope for the past several years and that it had performed a detailed chemical analysis of the water, sediments and that analyses showed that the water was of good quality for recreational use.

Clean-up Criteria

45. CNSC staff reported that the cleanup criteria outlined in the EA decision had been developed by AECL in consultation with public stakeholders, the Municipalities of Port Hope and Clarington, and provincial and federal authorities. The cleanup criteria were selected for radioactive and non-radioactive contaminants of potential concern (COPCs) in LLRW and soil, in harbour sediments, in water and groundwater, and in air including radon in houses. These criteria were developed following protocols, guidance and regulatory practice set by the CNSC, the Ministry of the Environment of Ontario (MOE) and Environment Canada (EC). CNSC staff also added that the Municipality of Port Hope had agreed on the criteria developed in 2006. CNSC staff added that the usage of these criteria for the LTWMF effluent would not

represent a threat to the environment. CNSC staff noted that it was specified in the EASR that these values were for screening purposes only and that, when the effluent (water) treatment system has been designed and is running, new achievable limits for the contaminants, including uranium would be available. CNSC staff noted that the licence will have to be amended to update the list of criteria included at the time the licence was issued.

46. The Commission asked AECL which contaminants will be treated with the new water system in place. AECL responded that it will treat contaminants of potential concern including radiological and inorganic contaminants such as arsenic. AECL added that these contaminants were not listed in any of the documents submitted for the current hearing, but that they had been identified in the EASR and were subject to a formal agreement with stakeholders and various responsible authorities including the Municipality of Port Hope.

47. The Commission asked CNSC staff that a list of the criteria be included in the licence. CNSC staff responded that such a list can be included in the licence as AECL already had to identify them in the EASR FUP. CNSC staff added that the list will need to be updated as further effluent characterization is achieved.

48. In response to Lake Ontario Waterkeeper's (LOW) intervention indicating that the clean-up criteria proposed by CNSC staff were well above guidelines proposed by the Province of Ontario, CNSC staff responded that the criteria, referred to by LOW, were not the final proposed release limits for the new LTWMF. CNSC staff added that these criteria or limits had been developed to estimate what would be released to the municipal water system during the active clean-up. CNSC staff noted that these criteria had been agreed on by Health Canada, Fisheries & Oceans Canada, the Ontario Ministry of the Environment and the Municipality of Port Hope. CNSC staff further added that it had been clear in the EASR that the CNSC was requiring that AECL revisit the release limits. CNSC staff also noted that surface Water Quality Objectives were not used as absolute limits by any jurisdiction, including the Province of Ontario.

Conclusion on Environmental Protection

49. Based on the information received, the Commission is satisfied that AECL has made, and will continue to make, adequate provision for the protection of the environment during the proposed licence period. The Commission is of the view that the current uranium and arsenic levels in Brand Creek are acceptable for the short term. The Commission requests that the licence include a list of all contaminants and valid release limits when the LTWMF water treatment system is operational. The Commission requests CNSC staff to continue to pay close attention to this issue and expects AECL to apply for a licence amendment when the new water treatment facility is operational so that release limits are updated.

Conventional Health and Safety

50. With respect to the protection of workers from conventional (non-radiological) hazards during the Port Hope Project, AECL reported that all workers would adhere to its Occupational Health and Safety Program, and that a project-specific PHAI Occupational Health and Safety Plan will be developed prior to the beginning of the construction phase. AECL added that workers will use personal protective equipment such as noise protection, and that other protection measures and practices will be put in place in the construction zone to reduce dust and ensure that all debris are disposed according to appropriate provincial regulations and municipal by-laws.

51. With respect to air quality, noise levels and general well-being, AECL reported that it would implement mitigation measures to reduce potential effects of the project. In respect to air quality, loaders will be instructed to travel short distances to final destination, high impact fences or moveable barriers will be used to screen particle matter, and lower emission diesel engine will be used in residential areas. In addition to these measures, AECL will conduct air quality monitoring on a regular basis. With respect to the level of noise generated by the project for residents living in areas adjacent to the LTWMF, AECL reported that some mitigation measures would be implemented; these measures are changes to hours of work and work scheduling, reduction of the amount of equipment operating concurrently, and usage of the best equipment standards and practices.

52. Based on the health and safety programs AECL already has in place at other facilities, CNSC staff is satisfied that AECL is competent to provide adequate provisions at the new LTWMF to address potential health and safety hazards.

Conclusion on Conventional Health and Safety

53. Based on this information, the Commission is satisfied that AECL has made, and will continue to make, adequate provision for the protection of persons from conventional (non-radiological) hazards at the LTWMF.

Operations

54. The Commission considered AECL's current and past operating performance as an indication of its qualifications to manage the new LTWMF and, in doing so, to provide adequate protection for the environment, the persons, and the national security and international obligations.

55. CNSC staff explained that AECL's *Organization, Responsibilities, Mandate and Scope of Nuclear Compliance Programs*, referenced in the Licensing Manual, provide a framework to identify processes, organization and responsibilities, internal and external requirements, a management system for an effective operation and an ongoing guidance for the required nuclear programs. These programs are: Environmental Protection, Physical Security, Occupational Health and Safety, Radiation Protection, Emergency Preparedness, and Fire Protection and Radioactive Material Transportation. CNSC staff reported that it had reviewed these programs already in place at AECL's other licensed facilities and confirmed that they meet regulatory requirements.

56. The Commission asked how AECL would manage the WWMF for the short-term. AECL responded that it would assume the management of the WWMF in accordance with the operational procedures and protocols currently applied by Cameco under its Waste Nuclear Substance Licence, WNSL-W1-2339.0/indf. CNSC staff considers these procedures and protocols to be acceptable for the short-term operation of the current WWMF. CNSC staff added that AECL would need to develop new procedures to govern the LTWMF.

57. The Commission asked AECL how would the contracting be managed during the LTWMF project. AECL responded that major contracting activities would be assigned to a special team of contract management experts at Public Works and Government Services Canada. AECL added that this will ensure that Canada's requirements for federal procurement processes are met.

The Port Hope Project

58. The project starts with Phase 1 which comprises the continued operation of the WWMF. Phase 1 may also include the construction of an access road to the existing WWMF site which is also the site for the new facility. The second step, Phase 2, will comprise the remediation and the restoration of the many historic and industrial waste sites throughout the Port Hope urban area and at the WWMF site itself including the transportation of the waste to the new facility and its emplacement to gradually form the engineered mound. Before, during, and following the waste emplacement, the contaminated water at the facility site will be collected and treated. Finally, the facility will be closed and the long-term monitoring and maintenance activity will start in Phase 3 of the project.

Phase 1: Planning

59. Phase 1 of the project comprises the on-going management responsibility for the WWMF and its inventory of low-level radioactive, the detailed engineering design of the LTWMF and the development and submission of the associated programs (plans) required before starting Phase 2.

60. CNSC staff confirmed that it has already assessed the following documentation submitted by AECL in support of its application for Phase 1:

- Water Treatment Strategy for the LTWMF;
- Environmental Assessment (EA) FUP Plan; and the
- Licensing Manual.

61. The Commission asked why the design of the facility was taking so long. NRCan's representative responded that a contract was to be awarded soon to a design consultant and that the design firm will provide the plans and the specifications necessary to give comprehensive cost estimates. NRCan's representative added that, following this more detailed cost estimate, NRCan will be able to provide the funding for the construction. NRCan also added that, following this, set deliverables will be provided to AECL for review and comment to ensure that the obligations of the licence are respected. The complete design will be available in approximately 3 years.

62. The Commission further asked CNSC staff whether the review of the documents (plans) required from AECL would take time. CNSC staff responded that, even if the list of documents was extensive, these documents were not new documents for AECL, but existing documents that needed to be adapted for the LTWMF project. CNSC staff confirmed that the review of the documents should be done within a short time period.

Water Treatment Strategy

63. The Water Treatment Strategy covers the installation of a new water treatment system to replace the current WWMF water treatment system. CNSC staff has reviewed AECL's proposed Water Treatment Strategy and has concluded that AECL needs to conduct further analysis in coordination with Cameco, the current manager of the WWMF, in order to define the best treatment technology for the LTWMF. CNSC staff added that AECL also needs to complete the engineering design and development of the system. In response to CNSC staff's revision of the proposed water treatment system, AECL proposed the development of a program including field data collection and analysis, bench top testing, pilot scale testing and detailed design. AECL also proposed to evaluate the water treatment system periodically to

determine if modifications were warranted. CNSC staff recommended that a first complete evaluation of the water treatment system be conducted approximately three years after the system is commissioned.

64. AECL provided a detailed description of the Water Treatment System. The Commission asked AECL about the improvements of the new water treatment system compared to the current system at the WWMF. AECL responded that the first improvement was its capacity to treat larger volumes of water due to the installation of larger pumps, and that the second improvement was the addition of the reverse osmosis process to treat the water. AECL added that it has also planned to add a storm water management pond in the system so that the non-contaminated water collected can be appropriately monitored and discharged.

65. The Commission asked CNSC staff's opinion on the ability of the proposed water treatment system to treat the different contaminants present in the waste water. CNSC staff responded that AECL had recognized the challenge of removing metals, radionuclides and organics contaminants at the same time, and that it was the reason why various options had been considered to have the most efficient treatment system. CNSC staff added that the proposed system should meet the proposed water quality objectives. CNSC staff noted that the current discharge from the WWMF had always met the licence criteria for discharge to the environment. CNSC staff noted that the effluent water, as well as the Lake Ontario water, will continue to be monitored for its quality.

66. AECL stated that, when the WWMF is transferred from Cameco, AECL will continue to meet all regulatory requirements for the site. AECL added that, after the evaluation of the performance of the upgraded water treatment system, it would work with CNSC staff and other appropriate authorities to confirm the criteria to be met.

67. The Commission asked Cameco if it was possible, in the mean time, to publish on its Web site the current water contaminant analyses from the WWMF. Cameco accepted the suggestion.

Licensing Manual

68. The Licensing Manual includes information on programs already developed and on additional programs to be developed and submitted to support the work for the Port Hope Project. CNSC staff confirmed that the programs that had been reviewed and met regulatory requirements.

Documents required before Phase 2

69. CNSC staff stated that it will require from AECL to develop project-specific plans for each of the programs applicable to the Port Hope Project. CNSC staff added that these plans will have to be reviewed by staff and approved by the Commission. The project specific information required before Phase 2 relates to the following areas:

1. Environmental Assessment Follow-up Program;
2. Determination of Water Strategy Treatment;
3. Detailed Engineering Design Description Report comprised of LTWMF design description, Welcome WMF Waste Excavation Management Plan, Remediation Sites Waste Excavation Management Plan, and Dust Management Plan;

4. Quality Assurance Plan;
5. Radiation Protection Plan;
6. Environmental Management and Protection Plan;
7. Security Plan;
8. Radioactive Material Transportation Plan;
9. Training Plan;
10. Occupational Health and Safety Plan; and
11. Emergency Plan.

Phase 2: Implementation Phase

70. Phase 2 of the project comprises the remediation and the restoration of the many historic and industrial waste sites throughout the Port Hope urban area and at the WWMF site itself including the transportation of the waste to the new facility and its emplacement to gradually form the engineered mound.

71. The Commission asked approximately how many sites needed to be remediated in the Municipality of Port Hope. AECL responded that previous surveys had indicated that there were approximately 300 sites within the municipality that will require small-scale remediation. AECL added that the specific location of these sites will be confirmed as part of the resurvey process and that fencing will be established at each remediation site to limit access to authorized personnel only.

72. The Commission asked AECL why the owners of residences that are included in the remediation project do not have access easily to a copy of the documents related to their property. AECL responded that the main reason was that those files contain confidential information on other properties. AECL added that it will revisit this policy with its counsel to determine if it could be revised.

73. The Commission requests AECL to make a list of these sites publicly available as soon as possible, subject to the *Privacy Act* [13] or applicable provincial legislations.

74. AECL reported that it has over 25 years of experience with this type of clean-up, including remediation of residential areas. AECL added that lessons learned from previous remediation work will be used in the project.

75. The Commission asked AECL when it would start moving waste to the new facility. AECL responded that waste transportation from off-site should happen from year 5 to year 9. AECL added that in year 4, it would start moving waste from the already existing WWMF into the new LTWMF cells. AECL further noted that the amount of waste to be moved to the new LTWMF would represent an average of 150-200 trucks per day over a ten-hour period.

76. The Commission asked AECL how the trucks would be washed after they have unloaded the waste. AECL responded that the detailed schedule of the number of trucks, where the trucks will be coming from and what will be needed in terms of washing facilities will be determined as part of the detailed design after consultation with the Municipality and the public. AECL added that, from experience, it was not necessary to wash the interior of the truck because the tarp would be put back in place again and the truck would go back to the site again to be filled

[13] R.S. (Revised Statutes of Canada), 1985, c. P-21

with more historic waste. AECL also noted that the vehicles, when at the site, will be lowered into the contaminated area on a platform and that this platform will remain clean to ensure the cleanliness of the exterior of the vehicle.

77. The Commission asked AECL how it would handle industrial waste also present on sites to be remediated. AECL responded that there were no clean-up criteria for industrial waste approved by the Ontario Ministry of the Environment, but that Public Works and Government Services Canada, which is involved in the PHAI Project, has considerable experience in the cleaning of industrial sites and will take care, if necessary, of any additional approvals required from other jurisdictions to do the work.

78. The Commission, as raised in some interventions, asked for more clarity with respect to the amount of waste to be transferred to the LTWMF. AECL responded that the number of 3.5 million cubic metres reported in the interventions had been presented earlier at a public information session as an example of a cleanup to background level. AECL added that, to comply with the EASR cleanup criteria, it is estimated that a total of approximately 1.2 million cubic metres of material would require remediation.

79. The Commission asked AECL how it would separate the historic waste from the industrial waste. AECL responded that the historic waste present in the landfill had been identified as a distinct layer and was easy to separate from industrial waste. AECL added that it was presently working with the Municipality of Port Hope and the County of Northumberland on the fate of the industrial solid waste, but that has not been determined yet.

80. CNSC staff reported that, during the EA, the robustness of the proposed design for the LTWMF had been evaluated by an expert, Dr. Rowe, a geo-engineer from Queen's University applying the International Atomic Energy Agency (IAEA) standards for the disposal of radioactive waste. CNSC staff reported that two scenarios had been considered: one was the case of a loss of institutional control when there would be no more monitoring of the site and the covers and liners would naturally degrade; and the second one was an intrusion scenario where someone would reside on the site and dig through the material. CNSC staff added that the two scenarios had been considered at two different time points, 500 years and 8,000 years after closure of the facility. In both cases, the study had concluded that the risk to human health and to the environment was acceptable and would not exceed, for radiological aspects, the limits set out by the International Commission on Radiological Protection (ICRP) and other international organizations in the case of a radiological incident. CNSC staff noted that this study would be made publicly available on the CNSC Web site.[14]

81. The Commission asked CNSC staff how the construction phase would be supervised to ensure that everything is properly done. CNSC staff responded that there will be regulatory oversight during construction, and that CNSC waste specialists will supervise the site in cooperation with other authorities like the Ministry of the Environment and Health Canada to ensure the construction follow the approved design.

[14] Nota: The Commission understands that the study report (labelled RSP-0219) is now available on the CNSC web site at http://www.nuclearsafety.gc.ca/eng/about/researchsupport/reportabstracts/report_abstracts_0607.cfm#rsp-0219.

82. The Commission asked CNSC staff to comment on some intervenors' statements that said they believed that leaving the site undisturbed would be better than digging it up and moving the waste. CNSC staff responded that the current WWMF was not built for the long term and that a long-term solution for the LLRW was needed. CNSC staff added that the purpose of the Port Hope LTWMF Project was to secure the current waste at WWMF into a properly engineered structure for the long term.

83. The Commission asked AECL to what extent it would have to excavate to create the new LTWMF since one of the intervenors was concerned that his well might be contaminated from the excavation. AECL answered that the excavation will not affect the wells across the road. AECL added that the groundwater was flowing in the northwest direction on the property and that the intervenor's well was in the southwest corner of the property. In addition, AECL reported that the aquifer was at a deeper level than the intervenor's well level. CNSC staff confirmed that the flowing direction of groundwater was effectively northwest.

84. The Commission asked for comments about the shape chosen for the mound base. AECL responded that the concave shape had been used with success in other facilities. AECL added that the convex shape had not been considered because there were some constraints in the design to keep the height of the mound to a minimum in order to minimize its view.

Harbour

85. The Commission asked AECL how the harbour would be remediated. AECL responded that the dredging of the harbour would be done by isolating the harbour during remediation using silt curtains and wave attenuation systems. AECL added that the water would be removed by hydraulic suction and directed into geo-tubes. AECL further added that processed water will be treated before it is returned to the harbour, leaving the isolation devices in place until water quality is acceptable. AECL told the Commission it was confident that, with the modern technology to be used, the remediation of the harbour would be a success.

86. The Commission asked AECL, following the Families Against Radiation Exposure (FARE) intervention raising concerns on the radium being generated in the harbour by the dredging, if that radium would be treated. AECL responded that radium as well as uranium and arsenic would be treated as part of the dredging operation.

Wetland

87. The Commission asked AECL and CNSC staff to comment on some intervenors' concerns that the proposed LTWMF was going to be located in a wetland area. AECL responded that an ecological land classification of the complete area had been performed, and that an on-site verification had also been conducted to ensure that the site was not built on a marsh. AECL added that the map used for identifying wetland as part of the LTWMF was drawn from an aerial photography and was not representing the area properly. CNSC staff confirmed that the area where the facility will be constructed was not a wetland.

88. AECL further noted that the planned LTWMF will be overlaid over the former Bailey's Auto Wrecker site, which had been the site of a former gravel pit with sandy to gravely surface soils that do not hold water like a wetland. This statement was confirmed by an expert from the Ganaraska Region Conservation Authority, present at the public hearing.

Expectations for required documents

89. CNSC staff stated its expectations that the documents required from AECL would be consistent with the EA conclusions and compliant with NSCA requirements and associated regulations and with any other federal or provincial requirements. CNSC staff added that it would take into consideration any new policies, standards and guidelines that may come into force prior to the LTWMF entering into Phase 2.

90. Due to the lack of information on several important programs to be implemented to proceed with Phase 2, the Commission directed AECL to come back before the Commission at a Public Hearing with all this required information before starting any construction and remediation activities.

Phase 3: Post Closure of the Port Hope Project

91. Phase 3 of the project comprises the long-term maintenance and monitoring of the facility for hundreds of years. During that phase, operational aspects of the long-term facility, such as surface water management, leachate collection and treatment, will be carried out to ensure that it continues to function as intended. The initial part of Phase 3, approximately the first 100 years, will focus on confirmation that the facility is operating as expected.

92. CNSC staff stated that Phase 3 is not covered by the proposed licence and will be the subject of a future licensing action but Phase 3 is an important part of the project as already defined in the EASR.

93. The Commission asked if similar projects aimed at lasting up to 500 years existed elsewhere. AECL responded that, at the time when the community was developing their concept for long-term waste management facility, examples were cited in the United States, where very similar projects were to be constructed at Fernauld and at Waldon Springs. AECL added that, while the experience with these projects is still recent, the design basis and the materials used for the LTWMF were considered to be the industry best practice for the isolation and containment of these types of wastes. AECL also added that a very extensive monitoring program during the monitoring and maintenance phase will be in place to ensure that performance of the mound continues to meet requirements.

94. The Commission asked if the monitoring program in place for the facility would be maintained after the closure of the project. NRCan responded that, in the Legal Agreement, there was a provision indicating that the Government of Canada commits to continue the environmental monitoring and the property compliance program beyond the closure of the facility to ensure that any potential problem would be addressed adequately.

Expectations and required documents

95. CNSC staff reported that the key document required for Phase 3 is the Long-Term Monitoring and Maintenance Plan that should consider the occurrence of leachate, the generation of gas and the monitoring of the cover and base liner systems in the facility. CNSC staff added that regular performance monitoring will be conducted to ensure that the operational and containment elements of the facility are functioning as intended. CNSC staff noted that the proposed ten-years licensing period does not cover Phase 3 of the project and would be the subject of a future licensing process.

Conclusion

96. Based on the information received, the Commission concludes that AECL's operating performance at its other licensed facilities provides a positive indication of AECL's ability to adequately carry on the activities under the proposed licence and that AECL has in place the necessary programs to assure acceptable performance at the proposed LTWMF. The Commission is satisfied that the precautions planned during the clean-up activities will adequately protect the workers and the public.

Quality Management

97. AECL noted that it uses review processes, such as internal audits, safety reviews and quality assurance assessments, to evaluate its management system and to ensure that all the elements in place are adequate, effective, economically efficient, and compliant with the requirements to achieve the LTWMF project. AECL confirmed that the Vice-President and General Manager of Decommissioning and Waste Management is responsible for the Port Hope Project proposed licence and that she directly reports to AECL's Senior Vice-President and Chief Nuclear Officer.

98. AECL reported that NRCan had established a project governance framework for the implementation of the PHAI, and that the core of this framework was the PHAI Management Office established within AECL. AECL added that this Management Office has its own Project Director, who will be responsible for the management of the strategic, technical, financial and regulatory aspects of the Port Hope Project, and for the conduct of the work and the coordination of the activities with the following organizations: AECL, NRCan and Public Works & Government Services Canada.

99. AECL confirmed that licensable elements of the Port Hope Project will be subject to the ISO 9001:2000 quality assurance standard and that all of the other elements not subject to the licence will be subject to the best industry practices.

100. The Commission asked about the responsibilities of the municipalities that have signed the Legal Agreement with the Government of Canada. AECL responded that they have the obligations to consult with NRCan, and to communicate and assist AECL in its efforts to move the project forward. AECL added that the municipalities also have to be committed to facilitate the implementation of the project by ensuring that municipal permitting is facilitated.

101. The Commission asked who would cover the expenses linked to any additional tests required in the Municipality as well as on private properties during the project. Port Hope's Mayor responded that any testing of that nature would be at the expense of NRCan through the PHAI.

Conclusion on Quality Management

102. Upon consideration of the above information, the Commission concludes that AECL is taking adequate steps to comply with all CNSC quality management and assurance requirements.

Emergency Preparedness and Fire Protection

Emergency Preparedness

103. With regards to emergency preparedness, AECL reported that its Emergency Preparedness Program was designed to ensure a state of readiness to mitigate the effects of an abnormal or emergency situation in order to protect humans and the environment. AECL added that its personnel is qualified and trained through the conduct of drills and exercises.

104. The Commission asked for more information on the emergency preparedness program. AECL responded that it was developing a specific Port Hope Project emergency preparedness program that will be reviewed by CNSC staff. AECL added that the Municipality of Port Hope also has a very effective emergency preparedness program in place to deal with the local industries. AECL noted that, in the case of a traffic accident with a vehicle transporting LLRW, its *Response Plan for Off-Site Transportation Accidents Involving Radioactive Material* would be followed.

Fire Protection

105. With regards to fire protection, AECL reported that it already possesses a fire protection and security program and that project-specific plans for these programs will be developed rior to the construction phase of the LTWMF.

Conclusion on Emergency Preparedness and Fire Protection

106. Based on the information presented, the Commission is satisfied that AECL is making, and will continue to make, adequate provisions for emergency preparedness and fire protection at the LTWMF.

Public Consultation and Concerns

Public Consultation

107. As stated in the *Record of Proceedings, Including Reasons for Decision* for the Screening Environmental Assessment for the *Proposed Port Hope Long-Term Low-Level Radioactive Waste Management Project*, the Commission is satisfied that the methods used by AECL, the other RAs and CNSC staff to consult with the public, other interested stakeholders, and First Nations (Curve Lake, Hiawatha and Alderville Councils) have been appropriate and that the public had adequate opportunity to be informed about the project and express concerns.

108. The Commission asked for reassurance that a thorough public information process would be in place during the term of the project so the public of the Municipality of Port Hope and surrounding areas are able to have full confidence that the project is proceeding as expected.

109. AECL noted that Port Hope residents, the Municipality and other stakeholders were involved in major decisions, such as alternative means of conducting the project, identification of transportation routes and clean-up criteria. AECL added that, with the Legal Agreement, the PVP Program was initiated and that a major communications initiative was put in place to explain it to the public, the real estate and legal communities. Communication and consultation initiatives continued after the completion of the EASR. AECL also reported that it has been engaged in extensive discussions with the Municipality of Port Hope regarding the potential use of the site after the closure of the LTWMF and that this discussion will continue on a regular basis.

110. AECL stated that upcoming consultation activities will include the property resurvey program and the EA FUP activities, such as the socio-economic effects mitigation plan. AECL added that it was aiming at developing and implementing programs and activities that will meet the overall information and communication needs during future phases of the Port Hope Project. AECL reported that surveys were being conducted on an ongoing basis within the community to evaluate the level of satisfaction, such as changes to people's sense of well-being and health, and that these surveys will be a key factor in ensuring the community is well informed regarding the project as it progresses, particularly through the Construction and Development phases. AECL indicated that the following tools are going to be used to communicate effectively with the community:

- Printed materials, including newsletters, pamphlets and brochures;
- Information centres in remediation areas;
- Interactive media websites;
- Municipal/Project Monitoring Advisory Committee liaison and activities;
- Presentations to local organizations;
- News releases and other interaction with local print and broadcast media; and
- Advertisements in local media.

111. AECL reported that, in the past seven years of annual public opinion surveys, there has been a steady increase in public confidence in the project's ability to effectively and safely manage Port Hope's LLRW over the long-term. AECL added that, in the fall of 2008, over 90 percent of respondents were aware of the project and 78 percent of residents surveyed expressed confidence that the waste can be safely managed at the new facility.

112. CNSC staff confirmed that it will continue to monitor AECL's public information program, and that if there were issues for which consultation or discussion were not recognized to be adequate, CNSC staff might require AECL to make changes to the program.

Public Concerns

113. In the intervention submitted on behalf of the Municipality of Port Hope, the Mayor reported that the Municipality has been stigmatized by the presence of the waste, and that this had severe and extensive repercussions on Port Hope businesses. She added that the completion of the construction and the development phase of the LTWMF will bring important benefits to the Municipality including the removal of the stigma attached to the community and the restoration of the environment. She confirmed that the Municipality wanted the project to move ahead as soon as possible, while ensuring the protection of the public, the environment and the workers. She concluded that the Municipality supports CNSC staff recommendations that a licence be issued for the ten-year period provided that the hold points be a condition in the licence. She noted that some issues still needed to be resolved, but that this should be done during the detailed design stage. AECL confirmed that it would take the Municipality's concerns into account.

114. The Commission asked CNSC staff if the public will have opportunities to voice its concerns on the project before the time of the licence renewal. CNSC staff answered that AECL would have to come back before the Commission at a public hearing for a licence amendment within the current licence term to incorporate more precise clean-up criteria which will give the public an additional opportunity to intervene on the progress of the project.

115. In their interventions, many members of the public or community groups gave their support to the Port Hope project to move forward in a timely manner. The Port Hope and District Chamber of Commerce reported that it had been involved in the Project since its inception in 2001, and stated that it is confident that the project will ensure environmental health and safety in the community and, most importantly, the protection of the residents. Several intervenors also insisted on the fact that the new LTWMF will positively change the image Port Hope has been carrying for 25 years.

116. One of the intervenors was concerned that the Legal Agreement or the EASR did not provide compensation for problems faced by the residents and the business owners directly impacted by the project. AECL responded that this would be considered as part of the specific FUP that will be developed for the project.

117. The Commission further asked NRCan if compensation would be given to landowners with regards to the decreasing value of their properties due to the impact of the project. NRCan responded that, with the Legal Agreement, a specific program named the Property Value Protection Program had been negotiated with the municipalities to give compensation to landowners if the project had an impact on the value of their property. NRCan explained that the program covers the entire Municipality of Port Hope, and that it applies at the time a property is sold if the homeowner can demonstrate that his loss can be attributed to the LTWMF Project. NRCan added that the program had been in place since 2001 and that several claims had been considered and payments allocated. NRCan noted that the program will continue to operate for two years after the closure of the facility, and that AECL will continue to monitor property values and to report to NRCan on these values and on any issues associated with the program.

118. The Commission asked if the formation of a Citizens' Advisory Committee had been considered, as requested by some intervenors. NRCan responded that the Legal Agreement provides the opportunity for the Municipality to establish a community advisory committee, but that it is the Municipality's decision to do so. The Municipality of Port Hope reported that, at this point, it had already appointed different committees to work on the project.

119. A question related to the security during the Project was raised by one intervenor. AECL responded that, in the first three years of the licence, the security systems would be maintained at the WWMF; that during the construction period, the LTWMF site as well as the WWMF remediation site would be restricted to authorized persons only. Finally, AECL added that, as agreed with the Municipality, there will be no security around the mound once the project is concluded.

Harbour Heritage Buildings

120. The Pier Group stated that it was supporting the LTWMF Project, but it requested that the Commission include in the licence a condition to ensure that the centre pier buildings remain in place during the harbour cleanup while other steps are taken to address the potential long-term possibilities for the rehabilitation of these heritage structures. The Pier Group representative noted that the demolition of the harbour buildings had been included neither in the LTWMF EA nor in the Cameco's Vision 2010 Project EA. He also added that the Municipality of Port Hope which owns the pier through the Harbour Commission appears to be determined to have these buildings demolished.

121. The Commission asked the Municipality of Port Hope and AECL for more details on the heritage buildings in Port Hope Centre Pier. The Municipality explained that the Harbour Commission, which is a separate corporation, had made a Legal Agreement by leasing the Pier with the buildings to Cameco. The Mayor, as Chair of the Harbour Commission, added that the agreement provides that Cameco should remove the buildings at the termination of its lease.

122. The Commission notes that these buildings are beyond the purview of this hearing and recognizes that leases and agreements were signed between Cameco and the Harbour Commission. The Commission further asked AECL if the buildings could be maintained while the harbour cleanup proceeds. AECL responded that clean up on the centre pier could be done with the buildings in place or removed. Cameco confirmed that it was planning to come before the Commission in fall 2009 with a project to demolish these buildings.

123. The Commission urges the Harbour Commission, Cameco, the Municipality of Port Hope and the interested citizens to work out the issues related to the Centre Pier in a satisfactory manner.

124. The Commission expresses its disappointment that the Centre Pier buildings have not been included in either the Port Hope Long-Term Low-Level Radioactive Waste Management Project EA or in Cameco's Vision 2010 EA. The Commission strongly recommends that Cameco include these buildings as part of its on-going Vision 2010 Project environmental assessment.

Conclusion on Public Consultation and Concerns

125. The Commission is satisfied that AECL's public consultation activities are effective in keeping the public in the vicinity informed of the effects of operations at the LTWMF.

Financial Guarantee

126. CNSC staff reported that the financial guarantee for the Port Hope Project is secured by a letter of commitment from the Honourable Lisa Raitt, Minister of Natural Resources Canada to Dr. Michael Binder, President and CEO of the CNSC; the letter of commitment indicates that AECL is a Schedule III, Part I Crown Corporation under the *Financial Administration Act*[15] and is an agent of her Majesty in Right of Canada; therefore, AECL's liabilities are ultimately liabilities of Her Majesty in Right of Canada, which means, that consistent with the Government of Canada policy, Her Majesty needs not to restate Her commitment in the form of a guarantee.

127. CNSC staff opined that the letter addresses the requirement for an acceptable form of financial guarantee under Subsection 3(1) (l) of the *General Nuclear Safety Regulations*[16] of the *NSCA* and meets the guidance set out in regulatory guide G-206, *Financial Guaranties for the Decommissioning of Licensed Activities*[17].

128. The Commission requested more details with respect to the funding of the project in response to several intervenors who had raised concerns on this issue. NRCan's Representative responded that an amount of $260 million was allocated at the beginning of the project. He added that, based on the Legal Agreement in place between the Federal Government and the Municipalities, the funding would be adjusted according to an updated estimate for the cost of the project before the start of the construction phase.

Conclusion on Financial Guarantee

129. Based on the information provided during this hearing, the Commission concludes that the financial guarantee for the LTWMF is acceptable for the purpose of the licence.

Safeguards and Non-Proliferation

130. CNSC staff reported that it considers that AECL has maintained a good record of compliance with safeguards requirements. Nothing associated with the LTWMF licensing would impair Canada's continuing ability to meet its international obligations.

---

[15] R.S.(Revised Statutes of Canada), 1985, c. F-11
[16] S.O.R.(Statutory Orders and Regulations)/2000-202
[17] G-206 *Financial Guaranties for the Decommissioning of Licensed Activities* , CNSC, June 2000, Cat. Number CC173-3/2-219E, ISBN 0-662-29171-9

131. Based on this information, the Commission is satisfied that AECL has made, and will continue to make, adequate provisions in the areas of safeguards and nonproliferation at the LTWMF to maintain national security and implement the international obligations to which Canada has agreed.

Application of the *Canadian Environmental Assessment Act*

132. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act*[18] (CEAA) have been fulfilled.

133. CNSC staff reminded the Commission that, in March 2007, following the January 2007 public hearing on the matter, the Commission approved *the EA Screening Report for the Proposed Port Hope Long-Term Low-Level Radioactive Waste Management Project.* The decision that the Port Hope Project was not likely to result in significant adverse environmental effects was then released, in agreement with the two other RAs, NRCan and DFO. This satisfies the CEAA requirements relating to this project.

EA Follow-up Program Plan

134. CNSC staff reported that it has reviewed the EA FUP Plan submitted by AECL for the construction and operation of the new LTWMF and concluded that while the plan was a good overview of the purpose and objective of the EA FUP, more details on the monitoring programs and the reporting of the results were still needed before Phase 2.

135. The Commission asked for details on the groundwater monitoring that will be in place once the facility is operating. AECL responded that it would monitor groundwater quality and groundwater flow direction coming from the LTWMF.

136. The Commission asked if compensation for the businesses potentially affected by the LTWMF Project was included in the EA FUP Plan. NRCan's representative responded that it was recognized in the EASR that the project could have some impacts on local businesses, particularly those with outdoor activities. NRCan added that mitigation measures had been identified in cooperation with the business members and with the Port Hope Chamber of Commerce, and that they would be implemented as part of the project. He noted that these measures are part of the socio-economic follow-up program required in the EASR.

137. The Commission concludes that all requirements under the CEAA are met and that it may consider and make a decision on the issuance of a licence for the LTWMF under the NSCA. The Commission notes that the Follow-up Program Plan provides a good overview of the Follow-up Program to be developed, but that significant work is still required in order to obtain an acceptable Follow-up Program.

[18] S.C. (Statutes of Canada)1992, c. 37.

Licence Length

138. AECL applied for a ten-year licence. CNSC staff also recommended a ten-year licence term in consideration of the low risk of the project, and taking into account the proposed project implementation timeline to allow AECL:

- to develop and submit for approval the documents that are specified as hold points in Appendix D of the licence;
- to complete the on-site activities of the project; and
- to proceed with off-site remediation activities.

139. CNSC staff proposed that hold points be included in the ten-year licence because AECL's Licensing Manual indicated that technical documentation in support of construction and operation of the LTWMF and off-site activities would be developed in stages. The hold points require that AECL do not start specified activities until the appropriate supporting documentation is submitted and accepted by the CNSC.

140. The Commission asked NRCan how long it would take, if a licence was issued, to transfer the WWMF property from Cameco to the Crown. NRCan representative responded that there has been an agreement with Cameco Corporation that the Government of Canada take over ownership of the WWMF within 60 days after a licence has been issued by the CNSC.

141. The Commission asked CNSC staff to elaborate on the necessity for AECL to have a licence before the WWMF can be transferred to NRCan. CNSC staff explained that, in the Legal Agreement and in other agreements between the Federal Government and Cameco, it has been agreed that a licence for the LTWMF would be needed to complete the transfer of the WWMF property.

Conclusion on Licence Length

142. Due to the large amount of documents required before entering the construction phase and not available at the time of the hearing, the Commission has decided not to issue a ten-year licence. The Commission decided to issue a five-year licence and requests that AECL comes before the Commission at a public hearing as soon as it can to provide the documentation required in the licence before starting any construction activity. The Commission notes that it may ask for additional status reports, whenever it considers it appropriate. The Commission further notes that it will also be provided with relevant information and updates regarding this facility should there be a significant event regarding the LTWMF. The Commission understands that this is a long-term project and looks forward to considering a licence amendment request from AECL on the improvements in environmental protection resulting from the proposed water treatment system.

Conclusion

143. The Commission has considered the information and submissions of AECL, CNSC staff and intervenors as presented in the material available for reference on the record.

144. The Commission is of the opinion that AECL is qualified to carry on the activities that will be permitted under the licence. Furthermore, the Commission is of the opinion that in carrying on those activities, AECL 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.

145. The Commission is satisfied that during the operation of the facility, given the mitigation measures and safety programs that are in place or will be in place to control hazards, the applicant will provide adequately for the protection of the environment, the health and safety of persons and national security.

146. The Commission concludes that all CEAA requirements have been met for the project, and, therefore, the Commission may make its decision with respect to the application for the issuance of the licence.

147. The Commission therefore issues, pursuant to section 24 of the NSCA, the Waste Nuclear Substance Licence for the Long-Term Waste Management Facility located in Port Hope, Ontario. The licence is valid until December 31, 2014.

148. The Commission includes in the licence the conditions recommended by CNSC staff as set out in the draft licence attached to CMD 09-H9, 09-H9.A and 09-H9.B, and as amended in the Decision section of this Record of Proceedings. With this decision, the Commission requests that AECL present, in approximately three years or sooner, in a status report, all the documentation required before the start of Phase 2 of the project, as listed in Appendix C of the licence. This documentation shall be previously reviewed by CNSC staff. The status report will be presented at a public proceeding of the Commission. The Commission also expects AECL to apply for a licence amendment as soon as practicable, prior to or soon after the new water treatment system being implemented and operational, so that the licence will include a list of all the contaminants updated with respective release limits. AECL may fulfill both requests as part of a simple comprehensive application for a licence amendment.

149. The Commission notes that the exemption issued by the Commission for various sites in the Port Hope area, on October 5, 2006 will remain in effect until December 31, 2016.

M. Binder

OCT 16 2009

Michael Binder
President,
Canadian Nuclear Safety Commission

Date

Appendix A – Intervenors

Intervenors	Document Number
David Turck	CMD 09-H9.2
Port Hope District and Chamber of Commerce, represented by J. Huffman	CMD 09-H9.3
Dean Ross	CMD 09-H9.5
Heritage Business Improvement Area of Port Hope, represented by K. Morgan-MacKenzie	CMD 09-H9.6
Ron Smith	CMD 09-H9.7
Martha Henderson	CMD 09-H9.8
John Morand	CMD 09-H9.9
Tom Lawson	CMD 09-H9.10
Blake Holton	CMD 09-H9.11
Pat McNamara	CMD 09-H9.12
Marilyn Curson	CMD 09-H9.13
Julie Thompson	CMD 09-H9.14
Municipality of Port Hope, represented by Mayor Linda Thompson and M. Stevenson	CMD 09-H9.15
Timothy J. Haynes	CMD 09-H9.16
Liz Stewart	CMD 09-H9.17
Curtis Chick Limited	CMD 09-H9.18
Derrick Kelly	CMD 09-H9.19
Cal Morgan	CMD 09-H9.20
John Floyd	CMD 09-H9.21
Bert Barraclough	CMD 09-H9.22
John Rainbird	CMD 09-H9.23
Wilfred Day	CMD 09-H9.24
Families Against Radiation (FARE), represented by B. Barraclough	CMD 09-H9.25
Renee and Peter McLachlan	CMD 09-H9.26
John Miller	CMD 09-H9.27
Anita Blackwood	CMD 09-H9.28
James S. Gilmer	CMD 09-H9.29
Frankie Liberty	CMD 09-H9.30
Quintin Begg	CMD 09-H9.31
The Pier Group, Port Hope	CMD 09-H9.32
Karen Colvin	CMD 09-H9.33
Nancy Cumberland Redner	CMD 09-H9.34
A Group of Land Owners and Residents, represented by L. Prower	CMD 09-H9.35
Port Hope Community Health Concerns Committee, represented by F. More	CMD 09-H9.36 CMD 09-H9.36A
Patricia Lawson	CMD 09-H9.37 CMD 09-H9.37A CMD 09-H9.37B
Rose Bungaro and Paula Evans-Gould	CMD 09-H9.38
Holly Blefgen and Steve Kahn	CMD 09-H9.39
Lake Ontario Waterkeeper, represented by M. Mattson	CMD 09-H9.40
Davidson Tate	CMD 09-H9.41
Bill Gorsline	CMD 09-H9.42
Rick Norman	CMD 09-H9.43

Don Sellar	CMD 09-H9.44
Lou Rinaldi, M.P.P., Northumberland- Quinte West	CMD 09-H9.45
Corporation of the Township of Hamilton	CMD 09-H9.46
Kawartha Pine Ridge District School Board	CMD 09-H9.47
Peter R. Elliott	CMD 09-H9.48
Peter Gillespie	CMD 09-H9.49
Holly Hills	CMD 09-H9.50
Durham Nuclear Health Committee	CMD 09-H9.51
Municipality of Clarington	CMD 09-H9.52
Dave Hendersen	CMD 09-H9.53
Sascha Armour	CMD 09-H9.54
Cobourg-Port Hope District Real Estate Board	CMD 09-H9.55
Douglas W. Gustar	CMD 09-H9.56
E.G. (Ted) Lacey	CMD 09-H9.57
Paul Laing	CMD 09-H9.58
Honourable Bev Oda	CMD 09-H9.59
Jeff Gilmer	CMD 09-H9.60
Paul Appleman	CMD 09-H9.61
Carm Trizzino	CMD 09-H9.62
Cyndi Gilmer	CMD 09-H9.63
Karen Trizzino	CMD 09-H9.64
Ken Swales	CMD 09-H9.65
Lynn Swales	CMD 09-H9.66
Gustave Dekking	CMD 09-H9.67
Katy Spiewak	CMD 09-H9.68
Hank Vandermeer	CMD 09-H9.69
Honourable Paul H. Macklin	CMD 09-H9.70
Julie Mavis	CMD 09-H9.71
John and Donna Quantrill	CMD 09-H9.72
Susan Dewhurst	CMD 09-H9.73
Betty Walsh	CMD 09-H9.74
Jeff Lees	CMD 09-H9.75
Lars Eriksson	CMD 09-H9.76
Rick Austin	CMD 09-H9.77
Gwen Duck	CMD 09-H9.78
David C. Monteith	CMD 09-H9.79
Eleanor Wilson	CMD 09-H9.80
Stephen Snell	CMD 09-H9.81
Bob Harrison	CMD 09-H9.82
Barbara Pemberton	CMD 09-H9.83
Lynch Rutherford Tozer	CMD 09-H9.84
Alexander Davis Watson	CMD 09-H9.85
James B. Campbell	CMD 09-H9.86
Peter Huffman	CMD 09-H9.87
Jack W.L. Goerig	CMD 09-H9.88
Stewart Raynor	CMD 09-H9.89
Cameco Corporation	CMD 09-H9.90
Rick Norlock. M.P. Northumberland-Quinte West	CMD 09-H9.91
Heather and Robert Sculthorpe	CMD 09-H9.92

Haliburton, Kawartha, Pine Ridge District Health Unit	CMD 09-H9.93
Brent Ainsworth	CMD 09-H9.94
Sanford and Helen Ann Haskill	CMD 09-H9.95
Catharine Tozer	CMD 09-H9.96
W. Robert Keyes	CMD 09-H9.97
Canadian Association of Nuclear Host Communities, represented by Mayor L. Kraemer	CMD 09-H9.98
Linda Harvey	CMD 09-H9.99
Dan Rudka	CMD 09-H9.100
Commissioners of the Port Hope Harbour	CMD 09-H9.101 CMD 09-H9.101A