



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 Amendment of Waste Nuclear
Substance Licence for the Port Hope Long-Term
Low-Level Radioactive Waste Management
Project

Public Hearing
Date October 24, 2012

Canada

RECORD OF PROCEEDINGS

Applicant: Atomic Energy of Canada Limited

Address/Location: Chalk River, Ontario, K0J 1J0

Purpose: Application for Amendment of Waste Nuclear Substance Licence for the Port Hope Long-Term Low-Level Radioactive Waste Management Project

Application received: July 19, 2012

Date of public hearing: October 24, 2012

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

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M. J. McDill A. Harvey
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Secretary: M.A. Leblanc
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Senior General Counsel: J. Lavoie

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Intervenors			
See appendix A			

Licence: Replaced

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INTRODUCTION

1. Atomic Energy of Canada Limited (AECL) has applied to the Canadian Nuclear Safety Commission¹ for an amendment to the Waste Nuclear Substance Licence for its Port Hope Long-Term Low-Level Radioactive Waste Management Project (Port Hope Project) to release the hold point to authorize Phase II of the project and extend the expiry date to December 31, 2022. The current licence, WNSL-W1-2310.00/2014, expires on December 31, 2014.
2. The Port Hope Project is a component of the Port Hope Area Initiative (PHAI), which is a community-based project established by the Government of Canada and the Municipalities of Port Hope and Clarington to develop and implement a safe, long-term management solution for historic low-level radioactive waste (LLRW) in the Port Hope area. The PHAI also includes the Port Granby Project. The Municipalities of Port Hope and Clarington are located on the north shore of Lake Ontario, about 100 kilometres east of the City of Toronto.
3. The LLRW is the result of radium and uranium refining and processing activities carried out by the former company Eldorado Nuclear Limited and its predecessors during the period 1933 to 1955. The LLRW currently exists within licensed facilities for waste consolidation and temporary storage and waste management, as well as in miscellaneous unlicensed sites, including the Port Hope Harbour, the former municipal landfill site and numerous small-scale sites. The Port Hope Project also includes the remediation of five industrial waste sites that are the result of other historic manufacturing activities, not related to Eldorado Nuclear Ltd. uranium and radium refining.
4. The Port Hope Project is conceived as a three-phase project. Phase I is the transition phase that includes the possession and management of the nuclear substances at the Welcome Waste Management Facility (WWMF). Phase II is the implementation phase that includes construction of the long-term WMF (LTWMF), integration of the waste from the WWMF and cleanup and remediation of the off-site historic waste within the Municipality of Port Hope. Phase III is the post-closure phase, involving long-term monitoring and maintenance of the LTWMF. The Port Hope Project is now in its third year of Phase I.
5. The current licence, WNSL-W1-2310.00/2014, includes a hold point described in licence condition 1.4, which restricts AECL from conducting the Phase II project activities until the supporting documentation specified in Appendix C of the current licence is submitted and accepted by the Commission. With its decision in 2009 on the issuance of the current licence, the Commission directed AECL to appear before the Commission to present the required technical information prior to initiating Phase II construction or remediation activities.

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.

6. With this application for an amendment of the current licence, AECL submitted all the documentation required for authorization of Phase II of the project. Removal of the hold point would allow AECL to complete Phase I and proceed with Phase II of the project, which is anticipated to last seven to ten years. Phase III of the project is not encompassed within this application and would require separate licence amendment.

Issue

7. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*²:
 - a) if AECL is qualified to carry on the activity that the amended 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

8. Pursuant to section 22 of the NSCA, the President of the Commission established a Panel of the Commission to review the application. The Commission, in making its decision, considered information presented for a public hearing held on October 24, 2012 in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*³. During the public hearing, the Commission considered written submissions and heard oral presentations from CNSC staff (CMD 12-H10) and AECL (CMD 12-H10.1). The Commission also considered written submissions from 36 intervenors (see Appendix A for a detailed list of interventions).
9. Whereas the Commission invited the public to participate by means of written interventions, several intervenors requested to make oral presentations in support to their written submissions and complained about the inability to do so. The panel of the Commission denied these requests and noted that written submissions were an appropriate means to receive submissions from the public as the project has already been approved, and that the purpose of the present public hearing was to consider the lifting of a hold point set out in the core AECL Port Hope Project decision rendered in October 2009 and to renew the licence for the period necessary to complete Phase II, providing that the requirements and conditions set out during the 2009 hearing have been fulfilled to the Commission's satisfaction. The Commission notes that the NSCA and CNSC Rules of Procedure provide that proceedings shall be dealt with as informally and expeditiously as the circumstances and considerations of fairness permit, and the Commission is satisfied that it allowed for the presentation of information in a manner that enabled the Commission to determine the matter before it in a fair manner.

² Statutes of Canada (S.C.) 1997, chapter (c.) 9.

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

DECISION

10. Based on its consideration of the matter, the Commission concludes that AECL is qualified to carry on the activities that the licence will authorize. The Commission is of the opinion that AECL, in carrying on these activities, 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*, replaces the Waste Nuclear Substance Licence, WNSL-W1-2310.00/2014, issued to Atomic Energy of Canada Limited for its Port Hope Long-Term Low-Level Radioactive Waste Management Project located in Port Hope, Ontario. The new licence, WNSL-W1-2310.00/2022, is valid from November 15, 2012 to December 31, 2022.

11. The Commission includes in the licence the conditions as recommended by CNSC staff and set out in the draft licence attached to CMD 12-H10 authorizing Phase II of the project.
12. With this decision, the Commission directs AECL to prepare annual status reports on the progress of Phase II activities. The Commission also directs CNSC staff to provide annual reports on the Port Hope Project as part of the Nuclear Cycle and Facilities Regulation Annual Report. AECL and CNSC staff shall present their reports at public proceedings of the Commission. The public would be invited to provide written interventions in the context of these public proceedings.
13. The Commission accepts CNSC staff's recommendation regarding the delegation of authority as outlined in the draft Licence Conditions Handbook.
14. The Commission does not accept CNSC staff's recommendation regarding future licence amendments as outlined in the CMD 12-H10, and does not delegate to a CNSC staff Designated Officer the power to consider or authorize future licence amendments and Phase III of the Port Hope Project. The Commission will exercise these powers.

ISSUES AND COMMISSION FINDINGS

15. In making its decision, the Commission considered a number of issues relating to AECL's qualification to implement the requested conditions and carry out the proposed activities, as well as 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.

16. As requested in licence condition 1.4 and specified in Appendix C of the current licence, WNSL-W1-2310.00/2014, in order to remove the hold point and obtain the Commission's approval to initiate Phase II of the project, AECL was required to submit the following documents for the on-site project activities:

- Environmental Assessment Follow-up Program;
- Water Treatment Definition;
- Detailed Design Description Report: Long-term Low Radioactive Waste Management Facility;
- Detailed Design Description Report: Welcome Waste Management Facility – Excavation Plan;
- Port Hope Project Quality Assurance Plan;
- Port Hope Project Radiation Protection Plan;
- Port Hope Project Environmental Management and Protection Plan for Construction Activities;
- Port Hope Project Site Security Plan;
- Port Hope Project Radioactive Material Transportation Plan;
- Port Hope Project Training Plan;
- Port Hope Project Occupational Health & Safety Plan; and
- Port Hope Emergency Plan.

AECL was also required to submit the following documents for the off-site project activities:

- Detailed Design Description Report: Remediation Sites; and
- Port Hope Project Environmental Management and Protection Plan for Off-site Activities.

AECL has submitted all required documents. CNSC staff has evaluated the submitted documents and made their recommendations to the Commission.

Application of the Canadian Environmental Assessment Act

17. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act*⁴ (CEAA) have been fulfilled.

⁴ S.C. 1992, c. 37

Environmental Assessment Follow-Up Program

18. CNSC staff informed the Commission that, together with National Resources Canada (NRCan), they had considered in 2001 the Project Description for the Port Hope Project submitted by AECL and determined that, pursuant to the requirements of the CEAA, a Screening Level Environmental Assessment was required. NRCan, CNSC and the Department of Fisheries and Ocean (DFO) were defined as Responsible Authorities (RA) for the purpose of this environmental assessment. NRCan assumed the leading role for the EA due to its responsibility to provide funding for the project. The Commission considered the EA Screening Report during its hearing held in 2007 and concluded that the Port Hope Project was not likely to cause adverse environmental effects, taking into account the mitigation measures identified in the EA Screening Report.
19. With its decision in 2009 on the issuance of the current licence, the Commission directed AECL to submit an Environmental Assessment (EA) follow-up program for the project, in order to meet the hold point condition for Phase II of the project.
20. AECL informed the Commission that they had developed an EA follow-up program plan, which provides the framework for the development and implementation of a follow-up program, as well as the schedule for implementing the various follow-up program elements over the course of the Port Hope Project. According to this plan, the pre-construction phase (2010-2011) included activities to confirm and supplement baseline monitoring result, while Phase II includes the verification of predicted environmental effects and the effectiveness of mitigation measures. The Phase III of the project would include verification of the predicted environmental effects and the effectiveness of the mitigation measures.
21. AECL reported that, responding to the Commission's request to submit an EA Follow-up Program, AECL had submitted the two following documents:
 - EA Follow-up Socio-Economic Effects Monitoring Plan; and
 - EA Follow-up Biophysical Effects Monitoring Plan.

AECL has also submitted annual reports on EA Follow-Up Program implementation. These reports include updates to the baseline biophysical and socio-economic data from the 2005 EA studies, to reflect current conditions.

22. AECL explained that the socio-economic monitoring program, based on the guiding principles proposed during the EA studies, includes the following individual monitoring plans:
 - Real Estate Monitoring & Property Effects Monitoring, which includes the Property Value Protection (PVP) and real estate transaction monitoring program;

- Business Monitoring;
- Traffic and Transportation System Monitoring;
- Archaeological and Heritage Resources Monitoring;
- Traditional Use of Land and Resources Monitoring; and
- Cumulative Effects Monitoring.

AECL representatives added that the socio-economic monitoring program was routinely re-evaluated and adjusted to reflect evolving site conditions or the need to focus on aspects or issues of concern.

23. AECL also informed the Commission that the Biophysical Monitoring Program incorporates the EA follow-up monitoring requirements in the Atmospheric Environment, Aquatic Environment, Geology and Groundwater Environment, Terrestrial Environment, and Human Health and Safety. AECL noted that the PHAI Management Office will ensure and verify that all identified mitigation measures prescribed in the EA Screening Report are implemented as intended, wherever a specific feature of the follow-up program includes the provision to “*verify implementation of mitigation measures*”. This verification would be performed through a variety of means, including AECL-led monitoring activities, incorporation of project-specific requirements of contractors, and quality assurance inspections.
24. CNSC staff indicated that they had assessed the EA Follow-up Biophysical Effects Monitoring Plan, as the CNSC is the lead for the follow-up activities with respect to the construction of the LTWMF and the remediation of Welcome WMF and LLRW contaminated sites in the Municipality of Port Hope. The EA Follow-up Biophysical Effects Monitoring Plan has been also assessed and accepted by DFO, the involvement of which is related to the follow-up activities regarding the cleanup and remediation of the Port Hope Harbour. NRCan, being the lead for the follow-up activities related to the socio-economic components of the project, has assessed and accepted the EA Follow-up Socio-Economic Effects Monitoring Plan.
25. CNSC staff expressed their opinion that the EA Follow-up Program for the Port Hope Project meets the requirements of the CEAA and those identified in the Port Hope Project EA Screening Report, and concluded that the program has met the condition on the hold point. CNSC staff added that no additional requirements were imposed on this project by CEAA 2012.

Property Value Protection Program

26. Several intervenors have complained about the Property Value Protection Program (PVP) and associated evaluation procedures. The Commission noted that the licence issuance for the Port Hope Project has been done under the Commission’s mandate to protect public health and safety, environment, national security and international obligation, while the PVP arbitration process is a result of the contract signed between the Port Hope Municipality and Canada, represented by NRCan. The Commission has

no responsibility under this contract and has no regulatory mandate regarding property value issues, unless a particular situation results in involvement of CNSC regulatory decision-making.

27. Recognizing that it has no responsibilities over socio-economic aspects of the project, but wishing to obtain a comprehensive understanding of the PHAI and Port Hope Project status, the Commission asked NRCan to provide more information regarding the PVP Program and complaints regarding administration of the program. A NRCan representative responded that NRCan had established the PVP program because of the concern that the project might have negative effects on the values of properties in the community, and stressed that they have made significant payouts to community members during the course of the implementation of the program. The NRCan representative added that they had heard a number of complaints and concerns expressed in the community about the program and, as a result NRCan was launching a review to find out if there was a need to take any corrective actions in terms of the implementation of the program, and what improvements might be made to the program.
28. The Commission asked if there was a relationship between the remediation and the property value that would warrant a shorter licence. AECL representatives responded that the program was successful and that 78% of claimants had received payouts in an amount totalling \$ 3.4 million and that the property values in Port Hope had risen by about 70% since the program was initiated, according to the information provided by the Northumberland Hills Association of Realtors.

Conclusion on the Application of the Canadian Environmental Assessment Act

29. Based upon the above assessment, the Commission is satisfied that an environmental assessment under the CEAA is not required for the requested removal of the hold point condition for the Phase II, and the extension of the licence duration. The Commission is also satisfied that the EA follow-up program is acceptable. While the PVPP is outside of the Commission's mandate, the Commission notices that NRCan is planning a review of the program implementation, considering the complaints received.

Management System

30. The Commission examined AECL's Management System which covers the framework that establishes the processes and programs required to ensure the organization achieves its safety objectives, continuously monitors its performance against these objectives, and fosters a healthy safety culture. The Commission particularly considered AECL's project specific Quality Assurance Plan, which has been required as a hold point condition.

Quality Management

31. AECL presented the AECL Management Manual and the supplementary document Management System Manual, which document AECL's organisational structure and describe the management system in place. The primary objective of AECL's management system is to manage and integrate the set of interrelated or interacting system elements including safety, health, environment, security, quality, economic and other elements required to ensure the protection of people, the environment and company assets.
32. AECL reported that they had established assessment and review processes, and stated that the project specific *PHAI Quality Assurance Plan* is consistent with the *AECL Management Manual* and *Management System Manual*. The QA plan summarizes the processes and practices to be applied during realization of Phase II, and clarifies the extent of their applicability to participants. This plan also describes the responsibilities of the PHAI participants and includes the established lines of communication between AECL, other PHAI participants and external organizations.
33. CNSC staff concurred and noted that these manuals are compliant with the Canadian Standards Association CSA 286-05 "*Management System Requirements for Nuclear Power Plants*". CNSC staff was of the opinion that AECL has met the hold point condition for this safety and control area (SCA). CNSC staff noted that quality assurance was the only issue relevant to this SCA that was required as a condition for removal of the hold point.

Organization

34. AECL informed the Commission that a governance framework for the implementation of the PHAI had been established by NRCAN. According to this framework, PHAI is managed by the PHAI Management Office (MO) led by AECL, which is the licence holder and overall project manager. The office includes resources from AECL, Public Works and Government Services Canada (PWGSC) and NRCAN. AECL representatives added that a tripartite federal steering committee oversees the PHAI MO and provides strategic direction to the General Manager. The role of AECL is to define the licensing requirements to be included in the contracts awarded by PWGSC for construction and remediation activities and to conduct oversight related to licence requirements, while PWGSC's project personnel and designated representatives monitor daily performance.

Safety Culture

35. AECL informed the Commission that the PHAI MO has a dedicated Site Safety and Health Committee with active participation of AECL and PWGSC representatives. They noted that assurance of safety was achieved by applying self-assessment, inspection, internal audit and periodic review, and by following a number of key programs and processes designed to address the specific requirements of the PHAI and the Port Hope Project. AECL representatives added that they have achieved 170,000 hours worked without a recordable lost-time injury.

Conclusion on Management System

36. Based on its consideration of the presented information, the Commission concludes that AECL has appropriate organization and management structures in place and has met the hold point condition for this SCA.

Human Performance Management

37. Human performance management encompasses activities that enable effective human performance through the development and implementation of processes that ensure the licensee's staff have the necessary knowledge, skills, procedures and tools in place to safely carry out their duties.

Training

38. AECL informed the Commission that their *PHAI Training Plan* defines the training processes designed for the needs of the Port Hope Project. AECL stated that the plan promotes safety through the cooperation of management, employees, contractors and visitors, and is consistent with AECL's corporate training policies and programs. The training plan ensures that all project staff are qualified to perform their duties effectively and safely, using established processes and standards.
39. AECL noted that all AECL employees receive mandatory Human Performance Training and that a dedicated AECL Human Performance Branch provides programs and support that help reduce human error and the frequency and severity of unplanned events. AECL added that competency requirements had been identified for each position, and that all new workers assigned to the Port Hope Project would be required to attend awareness session to gain an understanding of the Project.

40. CNSC staff informed the Commission that, in order to meet the hold point condition for Phase II, AECL was required to submit a project-specific training plan. CNSC staff stated that the submitted *PHAI Training Plan, Revision 2*, identifies the training needs, and defines the responsibilities and processes for the orientation of new AECL employees and contractors. CNSC staff further stated that the plan is adequate to ensure that all workers are qualified to perform their duties and tasks using specified work procedures.

Conclusion on Human Performance Management

41. Based on its consideration of the presented information, the Commission concludes that AECL has appropriate programs in place. The Commission is satisfied that AECL has met the condition on the hold point for this SCA.

Operating Performance

42. Operating performance includes operating policies, reporting and trending, and application of operating experience that enable the licensee's effective performance, as well as improvement plans and significant future activities.
43. AECL informed the Commission about interim operations of the WMF and explained the Transitional Services Agreement that had been established to facilitate an orderly transfer of operational responsibility from Cameco to AECL upon acquisition of the facility by the Government of Canada in 2010. AECL added that, upon assuming the operation of the Welcome WMF, they have developed operational procedures and maintenance protocols, operational readiness and capability plans, training plans and a due diligence review of safety and housekeeping.
44. AECL further informed the Commission that CNSC had conducted two Type II compliance inspections in 2010 and had not found non-compliances. After the Type II inspection conducted in 2011, CNSC staff observed that the existing WMF had been maintained in good operating condition and had met the intent and objectives of CNSC requirements. That inspection resulted in one directive that has been addressed by AECL, and closed by CNSC staff in 2012.
45. AECL stated that there had been no exceedances of effluent discharge limits since AECL had assumed operation of the Welcome WMF and no uncontrolled releases of treated effluent to Brand Creek. AECL representatives added that they had submitted all mandatory reports including annual reports, quarterly effluent monitoring reports, and notices of uranium concentrations in effluent greater than 200 µg/L (micrograms per litre) as required.

46. AECL reported that the routine use of thermoluminescent dosimeters (TLDs) by Welcome WMF workers was instituted in 2011, after a reportable event notice was filed with CNSC staff. The notice was filed to advise that the Section 2.1, provision of the Facility Licensing Manual, requiring Welcome WMF staff to wear thermoluminescent dosimeters (TLDs) while working at the facility, had not been met. A 2010 gamma survey of the facility was used to estimate exposure of employees, contractors and visitors for the period before installation of dosimeters, and it had been determined that the doses would not have exceeded action levels or regulatory limits. AECL conducted an Apparent Cause Analysis and implemented corrective and remedial actions to address the findings and to learn from the event.
47. CNSC staff informed the Commission that AECL had submitted the required project-specific documents regarding the Detailed Design Description for LTWMF, as well as the required Water Treatment Definition for the Port Hope Project. CNSC staff reviewed the submitted documents and concluded that the proposed water treatment process will provide very significant reduction of final effluent contaminant concentrations compared to the current water treatment at Welcome WMF. CNSC staff had assessed the submitted documents, and is of the opinion that AECL has met the condition on the hold point for this SCA.
48. The Port Hope Community Health Concerns Committee, in their intervention, stated that the mandate of the project was to clean only natural uranium, while there are indications that other kinds of uranium might be present. The Commission asked for clarification of this issue. AECL representatives stated that, to the best of their knowledge, the Eldorado plant never processed enriched uranium-236. AECL assured the Commission that, if they encounter uranium other than natural, they would continue with the cleanup and deal with total uranium removal.
49. The same intervenor also expressed concern that Port Hope might require a licence as a waste site. Responding to the Commission's request to comment, CNSC staff confirmed that, by all clean-up criteria, the area is well below any requirement for a CNSC waste licence.

Conclusion on Operating Performance

50. Based on the above information, the Commission concludes that AECL's operating performance at the facility is acceptable and provides a positive indication of AECL's ability to carry out the activities under the proposed licence. The Commission is satisfied that, with the measures and programs in place, AECL is qualified to carry out the activities under the proposed licence, including the ones related to Phase II of the project.

Safety Analysis

51. The Commission examined issues related to the program areas of safety analysis in order to assess the adequacy of the safety margins provided by the design of the facility.
52. Safety analysis is a systematic evaluation of the potential hazards associated with the conduct of a proposed activity or facility and considers the effectiveness of preventive measures and strategies in reducing the effects of such hazards and supports the overall safety case for a facility.
53. AECL informed the Commission that they had submitted an addendum to their Detailed Design Description Report (DDDR) for the LTWMF. The addendum presents a synthesis of the evidence and analysis that were compiled during the EA to demonstrate the long-term safety of the applicable designs for the LTWMF. AECL representatives added that, following construction, there will be continual monitoring of the performance of the LTWMF engineered components, as well as comprehensive environmental monitoring in the area surrounding the LTWMF.
54. CNSC staff stated that, although the information required in support of an application for a WNSL does not include a specific requirement for conducting safety analysis, the analysis of potential accidents and malfunctions for the Port Hope Project was conducted as part of the EA. CNSC staff confirmed that the summary of the engineering, radiological and environmental safety indicators is provided in the Addendum to the DDDR to their satisfaction. The performance monitoring of the LTWMF components, with safety indicators and the implementation of mitigation measures, is included in the Port Hope Project design documentation, PHAI Quality Assurance Plan and Port Hope Project Environmental Monitoring Plan.

Conclusion on Safety Analysis

55. On the basis of the information presented, the Commission concludes that AECL has adequately addressed and evaluated potential hazards and is prepared for reducing the effects of such hazards.

Physical Design

56. Physical design relates to activities that impact on the ability of structures, systems and components to meet and maintain their design basis given new information arising over time, planned modifications to the facility, and taking changes in the external environment into account. The specific areas that comprise physical design for the Port Hope Project include the LTWMF containment mound and water treatment system.

57. In order to meet the hold point condition for Phase II, AECL was required to submit a Detailed Design Description for the LTWMF and Water Treatment Definition for the Port Hope Project.

Waste Water Treatment Plant

58. AECL informed the Commission about the design of the waste water treatment plant (WWTP), the LTWMF containment mound and the large and small-scale sites remediation. AECL submitted the Water Treatment Definition Report, which describes the processes and a facility required for the WWTP and outlines the design basis that was used for the subsequent detailed engineering and design. The new WWTP has been designed to meet the ongoing treatment requirements for the Contaminants of Potential Concern (COPCs) associated with the LTWMF.
59. AECL representatives said that, in order to meet the Best Demonstrated Available Technology, bench-scale and pilot-scale testing programs were conducted in 2009 and 2010 to evaluate the feasibility of the proposed approach and to determine which alternative configuration was best suited for the Port Hope Project. The tests have determined that chemical precipitation followed by reverse osmosis (RO) treatment was the preferred treatment configuration for the WWTP. Based on all test results, it was anticipated that the reduction of arsenic, uranium and radium would be greater than 90% for the full-scale WWTP. AECL representatives also said that the structural design of the building for the WWTP follows seismic requirements set by the U.S. Environmental Protection Agency and the National Building Code of Canada (NBCC), 2010, Part 4.
60. AECL also informed the Commission that the submitted Detailed Design Description Report (DDDR) provides a description and summary of the detailed design of the proposed LTWMF and the remediation of the existing Welcome WMF. The LTWMF would consist of an above-ground engineered mound encapsulating the waste, the WWTP, and supporting infrastructure. It has been designed with a containment capacity of approximately 1.9 million m³ (cubic metres), which could accommodate the waste from large and small-scale LLRW sites and industrial sites in Port Hope, the waste inventory within the existing Welcome WMF, the specified quantity of Cameco decommissioning waste and the required daily cover. The containment mound that incorporates international best practices and experience has been designed to isolate the waste from the surrounding environment and safely store the material for several hundred years. In their submission, AECL provided detailed schematics and a description regarding the design and materials to be used for the construction of waste management facilities and the remediation of the site.

Remediation of Large Scale Sites

61. With respect to remediation of large-scale sites, the contaminated sites that would be remediated during Phase II of the project are grouped into five categories. In general, the basic remediation strategy would involve the excavation of the contaminated material and transfer of the material to the LTWMF. The general approach at the large-scale sites would involve the following steps:
- Pre-Remediation – Preparation of Site;
 - Excavation and Loading of Contaminated Material; and
 - Backfill and Restoration of Site.

However, there will be a difference in these steps between the on-land sites and the Port Hope Harbour activities, and special considerations would be made for the Highland Drive Landfill due to the presence of co-mingled municipal solid waste. Prior to the excavation of contaminated sediment, a temporary wave attenuation wall would be installed at the entrance to the Harbour to isolate the dredging operations and prevent the transfer of sediment into Lake Ontario and the Ganaraska River.

62. AECL representatives noted that the Harbour will be returned to the Port Hope Harbour Commission for recreational use once remediation work is completed.

Remediation of Small Scale Sites

63. AECL further informed the Commission that surveys would be conducted prior to remediation of small-scale sites. The survey would be conducted at all 4,800 Ward 1 properties and select Ward 2 properties in close vicinity to the Welcome WMF. The existence of historical LLRW would be identified by presence of Uranium, Arsenic, Thorium-230 and Radium-226 in the soil. AECL representatives added that they had devised a classification system that would classify the small sites in five categories, depending on the level of their contamination. Based on previous property surveys, it has been estimated that within Port Hope there is approximately 150,000 m³ of historic LLRW contaminated soil above the clean-up criteria at these small-scale sites.
64. AECL provided information on a survey conducted in 2010, when 35 properties within Ward 1 of Port Hope had been surveyed to estimate cost and time requirements to conduct the large-scale resurvey work, and to perform a field trial of new remediation procedures that had been developed.

65. The Commission inquired about the pre-remediation survey of the small sites. AECL representatives responded that the radiological survey has several components. One of them is to measure summer and winter radon gas levels inside homes and other buildings. Other components include interior and exterior gamma radiation surveys, interior and exterior surface contamination surveys, and taking soil samples by bore holes and analyzing those for the presence of historic low-level radioactive waste.
66. Noting that 93% of property owners have signed consent forms to give the PHAI Management Office permission to access their properties for the survey, the Commission asked about those who did not give their consent. AECL representatives responded that only 2% of the owners turned them down in their responses, and the others could not be reached. AECL representatives added that, if there is a reason to believe that there is historic low-level waste at a property, the gathered evidence would be provided to the CNSC. CNSC staff stated that they have an agreement with AECL and if the owner refuses to allow access to the property, the CNSC would, based on the information received from AECL, organize its own sampling to verify potential presence of the historic low-level waste, and make a decision based on the finding.

Long-Term Waste Management Facility

67. CNSC staff stated that they had assessed the Detailed Design Description Report and Addendum submitted by AECL and concluded that the proposed landfill design for the LTWMF was consistent with best practices used in landfill operations and would provide adequate long-term containment and isolation of the waste from the environment. The facility design, construction procedures and proposed materials were found adequate for the specified 500-year facility design life.
68. CNSC staff further informed the Commission that, with respect to water treatment at the LTWMF, AECL had submitted the project-specific document Water Treatment Definition. The document describes the proposed new water treatment system. CNSC staff had evaluated the proposed approach and found that the AECL's choice of technology is acceptable and capable of achieving high contaminant removal efficiencies. CNSC staff had also proposed the design objectives for this water treatment system, which are included in the proposed Licence Conditions Handbook (LCH). CNSC staff pointed out that the proposed design objectives are below the regulatory limits.
69. CNSC staff added that they intend to follow the commissioning and operating of the new water treatment system for 12 months in order to define the effluent release limits based on accumulated data. At that time, AECL would be required to propose Action Levels, and to periodically review and adjust them to ensure that they remain an effective indicator of the system performance. The action levels would be defined in the LCH once they are established and accepted.

70. With respect to the water treatment at remediation sites, CNSC staff informed the Commission that they have proposed release limits for portable water treating system (PWTS) discharge to municipal sewer. The proposed release limits are based on the short-term Canadian Council of Ministers of the Environment (CCME) Surface Water Quality Guideline (SWQG). CNSC staff consider that the proposed limits for short-term release from remediation sites to Lake Ontario are protective for human health and the environment.
71. The Commission sought more details on the construction of a protective membrane used for the engineered mound and asked about expected life of the membrane. AECL representatives responded that the membrane had been developed in accordance with the industry standards for hazardous materials landfill and had been tested to last, at the minimum, for 150 years. AECL representatives added that the whole protective layer, including natural materials, was expected to last at least 500 years, and explained that the applied concept relies mostly on the physical properties of the clay that underlies the liner of the mound.
72. The Commission further asked about the oldest facilities using this kind of construction and how well it was performing. AECL representatives responded that the design of this mound is similar to a double composite base liner systems used in the USA, and that the use of clay in civil engineering has been known for thousands of years. The other components based on man-made materials have been developed and used over the last 30 years. The endurance of these materials has been tested using accelerated testing programs.
73. The Commission inquired about the statement by some intervenors that the mound site is located in a marshland. AECL representatives noted that the same intervenors brought the same question during the 2009 public hearing, and that a representative of the Ganaraska Region Conservation Authority came forth as a witness and confirmed that there is no marshland on the Welcome Waste Management Facility property. CNSC staff added that there are treatment ponds at the Welcome Waste Management Facility, which collect seepage water from the waste mound, and that it is normal to see water in the ponds.
74. The Commission sought more information on the sufficiency of the waste storage capacity. AECL representatives responded that it was premature to draw conclusion on their starting estimate that about 10% of the objects would be classified above clean-up criteria and would require remediation. Their starting estimate has been based on 35 years of experience acquired through previous work in the community; however, more realistic estimate and conclusion would be made during and after a completed radiological survey.

75. Lake Ontario Waterkeeper, in their intervention, objected to the proposed design of the water treatment plant and stated that AECL would not be able to design an appropriate facility without knowing what the water quality standard and regulatory limits would be. Asked by the Commission to comment on this statement, CNSC staff explained the requested design objectives and noted that AECL did a study to determine the best demonstrated available technology, and that after determination of technology based limits, the action levels and limits are established, which are always lower than the design objectives.
76. The same intervenor expressed concerns regarding the industrial waste being mixed with radioactive waste. CNSC staff responded that the amount of industrial waste, included within the legal agreement, represent only about 0.5% of the total radioactive waste. CNSC staff added that AECL has adopted the approach to clean up the site to the MOE requirements, and that the industrial waste would be stored in separate cells. AECL added that, in case of mixed municipal and low-level waste, they would take that co-mingled waste together with the low-level radioactive waste to the mound.

Clean-up Criteria

77. AECL informed the Commission about PHAI specific clean-up criteria that were developed in 2006 to identify COPC and their concentrations within historic LLRW. These clean-up criteria had been established through consultations with the Municipality of Clarington, the Municipality of Port Hope, CNSC, Ontario Ministry of the Environment (OMOE), Health Canada and NRCan. AECL stated that the OMOE had revised in 2011 the *Soil, Ground Water and Sediment Standards*, which resulted in more stringent remediation criteria for many of the COPCs, including uranium and arsenic.
78. AECL conducted a uranium bioaccessibility study in 2012 and demonstrated that the original PHAI criterion was protective for the most exposed residential receptors. This study was accepted by the OMOE and CNSC. Nonetheless, to avoid any potential regulatory restrictions on future development and potential land use changes, the 2011 OMOE guidelines have been adopted for the Port Hope Project clean-up criteria for large- and small-scale site remediation with two exceptions – the Welcome WMF and the Highland Drive Landfill. For these sites, the original PHAI clean-up criteria values for arsenic and uranium would be applied due to their industrial nature and development constraints.
79. With respect to other radioactive COPCs, AECL added that the criterion had been developed to limit the total incremental dose to persons to 0.3 mSv/y, which is typical for clean-ups of radioactive soils and waste within Canada and internationally. This dose constraint of 0.3 mSv/y provides assurance that the incremental dose to any individual will not exceed the 1 mSv/y, which is the CNSC public dose limit.

80. CNSC staff informed the Commission that AECL has submitted the clean-up criteria as part of the Detailed Design Description for Remediation Sites. CNSC staff stated that they had assessed the remediation methods proposed by AECL for remediation of individual groups of sites and consider that the proposed remediation techniques and mitigation measures ensure an efficient removal of contaminated soil and protection of the environment.
81. With respect to the clean-up criteria, CNSC staff noted that the original clean-up criteria had been developed for the PHAI by AECL in consultation with public stakeholders, the Municipalities of Port Hope and Clarington, and provincial and federal authorities during the EA, which was approved by the Commission in 2007.
82. CNSC staff further noted that new provincial standards for clean-up of contaminated soil came into force in 2011 and AECL, following discussions with NRCan and the Municipality of Port Hope, decided to fully adopt the OMOE generic standards. CNSC staff said that applying the OMOE generic standards for the clean-up of residential and municipal properties in Port Hope eliminates any potential regulatory restrictions for using the remediated sites in the future and addresses the public concerns for not applying the more restrictive provincial standards.
83. The Commission sought more information regarding the change of the clean-up criteria and asked whether OMOE agrees with programs put in place by AECL to meet these criteria. OMOE representatives responded that the Ministry does not have objections regarding the program for the PHAI.
84. Responding to the Commission's question whether these standards have become national standards, CNSC staff noted that these were developed by the Canadian Council of Ministers of Environment as guidelines that could be accepted by some of the provinces and used for their regulations.
85. The County of Northumberland and the Municipality of Port Hope, in their interventions, stated that PHAI continues to propose to clean the Highland Drive landfill and LTWMF to a lesser standard than is being applied to all other clean-up sites. The Commission asked for comments on that statement. AECL representatives explained that there are different standards for different sites with development constraints. The differences might arise depending on the foreseeable use of the site. The criteria thus reflect the type of land use. However, the Municipality anticipates other uses of the site in the foreseeable future and wish it to be remediated by the criteria adopted for residential sites.

Conclusion on Physical Design

86. On the basis of the information presented, the Commission concludes that AECL's submissions on the Detailed Design Description of LTWMF and Water Treatment Definition are acceptable and that AECL has met the condition on the hold point for this SCA.

Fitness for Service

87. Fitness for service covers activities that are performed to ensure the systems, components and structures continue to effectively fulfill their intended purpose.
88. CNSC staff informed the Commission that there was no hold point documentation associated with this SCA, and that the compliance criteria for the on-going maintenance of the Welcome WMF, which is the only facility that AECL currently maintains as part of the Port Hope Project, are set out in the proposed LCH.

Radiation Protection

89. 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. The Commission also considered AECL's program to ensure that both radiation doses to persons and contamination are monitored, controlled, and kept as low as reasonably achievable (ALARA), with social and economic factors taken into consideration.
90. To meet the hold point condition for Phase II, AECL was required to submit a Radiation Protection (RP) Plan specific to the project, which would include the following specific areas:
 - Workers Dose Control;
 - Dosimetry Services;
 - Application of ALARA;
 - Contamination Control; and
 - Public Dose.
91. AECL informed the Commission that they have developed and field tested the PHAI RP Plan. This RP Plan describes the basis for protection from, and for measuring the workers' exposure to, ionizing radiation during the PHAI construction-related activities. It also defines a management framework and processes that are designed to ensure that radiation exposures arising from project activities will be maintained below regulatory dose limits and ALARA.

Workers Radiation Exposure

92. AECL noted that the maximum dose levels for all workers, for a worst-case scenario, were estimated between 1.6 mSv/y (milliSieverts per year) and 7.6 mSv/y assuming no ALARA measures, such as personal protective equipment and clothing, work sharing or other mitigation measures, are put into place. These worst case scenario dose levels are well below the dose limits for Nuclear Energy Workers (NEWs) (50 mSv/y, and 100 mSv over a five-year dosimetry period). Actual worker doses are expected to be substantially reduced once mitigation measures are put in place.

93. The proposed RP Plan requires contractors to establish radiological safety zones with barrier controls to maintain effective management of radiological hazards. Before being granted access to a radiological safety zone, workers would be designated as NEWs and undergo the RP training appropriate for their jobs.
94. With respect to the public radiation exposure, the incremental annual dose to the members of the public has been estimated during the environmental assessment, and are projected to be about 10% of the background radiation (not exceeding 0.25 mSv/y). For comparison, the typical dose received by an average Canadian is approximately 3 mSv/y, which includes 1.8 mSv/y from natural sources and 1.2 mSv/y from human-made sources.
95. CNSC staff informed the Commission that they had assessed AECL's submitted RP Plan, and found it consistent with AECL corporate radiation protection program. CNSC staff noted that AECL will be applying ALARA principle for the project activities, and it is expected that the real doses to workers would be lower than predicted, since AECL has developed action levels and intends to implement administrative controls such as reduction of exposure time, increased distance from waste and the use of protective shielding where required.

Public Radiation Exposure

96. CNSC staff further informed the Commission that doses to the public due to the project activities have also been estimated conservatively, and do not exceed one fourth of the regulatory limit of 1 mSv/y without mitigation measures applied.
97. Some intervenors raised the issue of contamination of the former Dr. Powers School, and complained about the lack of transparency of information. The Commission sought more information regarding the current status of contamination. AECL representatives responded that the school has been closed for a number of years due to declining enrolment. The investigation of the presence of low-level radioactive waste at the school had been completed as part of the initial investigation led by the former Atomic Energy Control Board in the early seventies. A cleanup had been undertaken and the building had met the criteria and it was determined that there was no risk or hazard to students, teachers, or the public. Subsequent concerns led to further investigations of radon concentration. All measurements had shown levels below regulatory limits, except some measurements taken when students were on holidays and ventilation systems were turned off. AECL Low Level Radioactive Waste Management office had implemented a follow-up testing program and the results had shown no contamination. When the school was sold to a development group for rehabilitation into housing, an extensive investigation had been conducted through AECL's construction monitoring program, and some historic low-level waste had been identified at the exterior of the building. Results were announced during the construction and contaminated material had been sequestered and removed. The site will be investigated again as part of a small-scale survey program.

98. Asked to comment, CNSC staff stated that the Dr. Powers School had been assessed on multiple occasions. There was no safety concern in that facility and it was below any of the clean-up criteria. CNSC staff added that the clean-up criteria were set very low and were very protective of human health and the environment.
99. Families Against Radiation Exposure (FARE), in their intervention, alleged that the dosimetry model used does not account for inhaled uranium. The Commission asked CNSC staff to comment this statement. CNSC staff responded that the methodology used was based on extensive biokinetic and dosimetry models that consider the deposition and transportation within the lung, and how much of that uranium would actually be transported through the lung to the blood stream and distributed through the rest of the body. CNSC staff stated that the intervenor cites unconfirmed, unreferenced and unsubstantiated results that could not be verified.
100. The same intervenor complained about the possibility that a large amount of LLRW be moved only meters away from schools and a sports facility. AECL representatives responded that they were fully aware of the proximity of schools and a sports facility, and noted that they will have permanent high volume air monitors at the site perimeter and that their comprehensive dust monitoring plan has many layers of defence. AECL representatives added that there is a requirement on independent dust contractors to do real-time dust monitoring, upwind and downwind of the works.

Conclusion on Radiation Protection

101. The Commission is of the opinion that, given the mitigation measures and safety programs that are in place or will be in place to control hazards, AECL will provide adequate protection to the health and safety of persons, the environment and national security, and concludes that AECL has met the condition on the hold point for this SCA.

Conventional Health and Safety

102. Conventional health and safety covers the implementation of a program to manage workplace safety hazards. The conventional health and safety program is mandated by provincial statutes for all employers and employees to minimize risk to the health and safety of workers posed by conventional (non-radiological) hazards in the workplace. This program includes compliance with the applicable Labour Codes and conventional safety training.
103. AECL informed the Commission that they had developed the PHAI Occupational Safety and Health (OSH) Plan to ensure the health and safety of employees at work is adequately protected, that legal requirements are met, and that personnel risk is controlled to a level as low as reasonably achievable (ALARA principle). AECL stated that the Plan had been revised to reflect updates to AECL's corporate OSH program.

AECL representatives noted that conventional health and safety hazards to workers include primarily dust and noise exposure, as well as physical hazards associated with construction and transportation activities. AECL representatives added that contractors are required to prepare their OSH plans and submit them to PWGSC and AECL for acceptance and implementation.

104. CNSC staff reported that, in accordance with the hold point condition, AECL has been required to submit the OSH Plan. CNSC staff further reported that they had evaluated the submitted OSH Plan, and found it compliant with the Canada Labour Code and consistent with AECL's corporate Health and Safety Program which covers the company-wide procedures, training, oversight and reporting.
105. AECL further informed the Commission that conventional hazards to the public include dust exposure, noise exposure, and traffic accidents. They presented their estimates for expected increase in carbon monoxide and nitrogen dioxide concentrations and changes in dust levels, as a result of the project activities. They stated that all expected changes are predicted to remain below established criteria, and that mitigation measures would be implemented to minimize the impact of the effects to the residents.
106. The Commission is of the opinion that the Occupational Health and Safety Plan demonstrates that applicable code and requirements will be met. The Commission considers the submission acceptable and that AECL has met the condition on the hold point for this SCA.

Environmental Protection

107. Environmental Protection covers AECL's programs to identify, control and monitor all releases of nuclear substances and to minimize the effects on the environment which may result from the licensed activities. It includes effluent and emissions control, environmental monitoring, and estimated doses to the public.
108. To meet the hold point condition, AECL was required to submit the following project-specific documents:
 - Environmental Management and Protection Plan (EMPP) for On-site Construction and Remediation Activities;
 - Environmental Monitoring Plan (EMP);
 - Environmental Protection Plan (EPP); and
 - PHAI Dust Management Requirements and Plan.
109. AECL informed the Commission that the current Welcome WMF collection and water treatment system would continue to operate until the new Welcome WTP is constructed, with its current discharge limits at 0.37 Bq/L for Radium-226, 0.50 mg/L for arsenic and a pH between 6.0 and 9.0. They commented that, since AECL had

assumed operation of the Welcome WMF, the effluent releases have been a fraction of the established discharge limits. AECL representatives added that, once the new Welcome WTP is commissioned and has been operating for a period of time, AECL would, in consultation with CNSC staff, revise the current action levels to ensure more rigorous operational control and oversight.

110. AECL reported that they had developed a comprehensive Dust Management Requirements and Plan, which provides details for the management of dust during Phase II of the Port Hope Project and fulfills the requirement in the EA for a comprehensive dust management plan and consolidates the dust management requirements for the PHAI.
111. AECL reported that they had submitted two annual reports to the CNSC on environmental follow-up programs to date, and that they plan to publish environmental monitoring data to the PHAI website.
112. CNSC staff reported that they had assessed the Port Hope Project environmental documentation and considered that the submitted plans meet the requirements for environmental monitoring and would ensure effective management and protection of the human health and the environment.
113. With respect to dust management, CNSC staff pointed out that in 2009, as a result of intervener's concerns with respect to dust management during construction and transportation of LLRW, the Commission asked AECL to develop a Dust Management Program for the project. AECL has submitted the required plan as part of the EA Follow-up Program to meet the requirements for dust management. CNSC staff is of the opinion that the plan meets the requirements for dust management set in the EA Screening Report and notes that AECL will apply the limits and requirements for dust management as per Ontario's Ambient Air Quality Criteria.
114. In their intervention, "The Nucleus" suggested that CNSC should be more closely and locally involved in the local monitoring activities, and organize a permanent site in Port Hope. The Commission asked about the possibility that CNSC open an office in Port Hope. CNSC staff responded that they have a thorough compliance verification program regarding the Port Hope Project and have a number of options to execute their duty, from sending inspectors from Ottawa or from the Darlington nuclear power plant to opening an office in Port Hope. They added that the form of CNSC presence would be determined based on detailed assessment of needs, activities to be performed and availability of resources.

Conclusion on Environmental Protection

115. Based on the above information, the Commission is satisfied that, given the mitigation measures and safety programs that are in place, AECL has met the condition on the hold point for this SCA.

Emergency Management and Fire Protection

116. Emergency Management and Fire Protection covers the provisions for preparedness and response capabilities which exist for emergencies and for non-routine conditions at the Port Hope Project. This includes nuclear emergency management, conventional emergency response, and fire protection and response. To meet the hold point condition for Phase II, AECL was required to submit an Emergency Plan specific to the project.
117. AECL informed the Commission that their PHAI Emergency Plan addresses the emergency management issues that could result from any type of emergency concerning the Port Hope Project during Phase II. AECL noted that the plan also deals with relations with local law enforcement, medical emergency and fire services. AECL representatives added that AECL had also developed a *PHAI Incident Response Coordination Procedure*, which describes the responsibilities of the PHAI Management Office personnel, planning procedures and managing response to emergencies affecting the PHAI projects. The annual emergency assessments are conducted by the Emergency Preparedness Program Authority, and the AECL Fire Protection Program Manager completes regular inspections at the PHAI Management Office and the Welcome WMF.
118. Contractors involved in construction operations are also required to produce their own emergency plans and submit them for acceptance to AECL, which would conduct oversight of a contractor's emergency plan implementation.
119. AECL representatives added that protocols for collaboration with the local response agencies, namely the Port Hope Fire Department, Port Hope Police Department, Ontario Provincial Police and Northumberland Emergency Medical Services, had also been developed.
120. CNSC staff reported that they had assessed the submitted PHAI Emergency Plan, and were of the opinion that it meets the emergency management guidelines of *CNSC document G-225 "Emergency Planning for Class I Facilities and Uranium Mines and Mills"*. The plan is consistent with the AECL Emergency Preparedness Program and ensures that all components of emergency preparedness and response are effectively maintained.

Conclusion on Emergency Management and Fire Protection

121. Based on the above information, the Commission concludes that the Emergency Plan is acceptable and that AECL has met the condition on the hold point for this SCA.

Waste Management

122. Waste management is the core operation of the Port Hope Project, and as new waste would not be produced during realisation of this remediation project, this SCA is not applicable in this case.

Security

123. With respect to site security issues, AECL was required to submit a project specific Site Security Plan, in order to meet the hold point condition for Phase II.
124. AECL presented to the Commission their PHAI Security Plan that addresses the responsibilities, relationship with local law enforcement, and implementation of elements of the security plan, such as training, drills, exercises and various physical security components. The plan is based on applicable legislation, regulations and operating licences and is consistent with AECL's corporate security policies and programs.
125. CNSC staff reported that their assessment of the PHAI Security Plan has shown that the plan establishes the security arrangements that are to be in place for the Port Hope Project sites. CNSC staff consider the plan commensurate with the risk level of the PHAI projects and meets the requirements of the General Nuclear Safety and Control Regulations.
126. The Commission concludes that AECL has made adequate provisions for ensuring the physical security of the sites, and is of the opinion that the PHAI Security Plan is acceptable and that AECL has met the condition on the hold point for this SCA.

Safeguards

127. The CNSC's regulatory mandate includes ensuring conformity with measures required to implement Canada's international obligations under the Treaty on the Non-Proliferation of Nuclear Weapons. Pursuant to the Treaty, Canada has entered into safeguards agreements with the IAEA. The objective of these agreements is for the IAEA to provide credible assurance on an annual basis to Canada and to the international community that all declared nuclear material is in peaceful, non-explosive uses and that there is no undeclared nuclear material or activities in this country.
128. CNSC staff stated that this SCA is not relevant to this case since the material that would be handled under the Port Hope remediation project has no obligations arising from the Canada/IAEA Safeguards Agreement. The Commission agrees with this statement.

Packaging and Transport

129. Packaging and transport covers the safe packaging and transport of nuclear substances to and from the Port Hope Project sites. The Port Hope Project must adhere to the *Packaging and Transport of Nuclear Substances Regulations*⁵ and Transport Canada's *Transportation of Dangerous Goods Regulations*⁶ for all shipments leaving the site. The *Packaging and Transport of Nuclear Substances* apply to the packaging and transport of nuclear substances, including the design, production, use, inspection, maintenance and repair of packages, and the preparation, consigning, handling, loading, carriage and unloading of packages containing nuclear substances.
130. To meet the hold point condition for Phase II, AECL was required to submit a Radioactive Material Transportation Plan specific to the project that would adhere to the CNSC's, Transport Canada and IAEA Regulations on packaging and transport.
131. AECL informed the Commission that they had developed and would implement the PHAI Radioactive Material (RAM) Transportation Plan consistent with AECL's corporate program for RAM transportation. AECL explained that all contaminated material excavated from the Remediation Sites would be transported to the LTWMF and backfill/construction material would be transported to the Remediation Sites via prescribed municipal, county and provincial roads.
132. AECL further informed the Commission that PWGSC contractors would be required to have their RAM transportation plans accepted by AECL, and would be responsible for following the *Transportation of Dangerous Goods Act* and *Regulations* and have experience with Class 7 material (radioactive material consignments). AECL will conduct oversight of the RAM transportation activities for the duration of Phase II. AECL representatives explained that the trucks will be loaded within the controlled work areas, cargo covered with a tie-down tarpaulin and their exterior surfaces would be decontaminated and monitored prior to departure. All vehicles will be dedicated to the RAM transportation until decontaminated and released.
133. CNSC staff informed the Commission that they consider that the PHAI Radioactive Material Transportation Plan meets the requirements of *Packaging and Transport of Nuclear Substance Regulations* and *Transport of Dangerous Goods Regulations*.
134. Base on the above information, the Commission is satisfied that AECL is meeting regulatory requirements regarding packaging and transport, and concludes that the PHAI RAM Transportation Plan is acceptable and that AECL has met the condition on the hold point for this SCA.

⁵ SOR/2000-208

⁶ SOR/2001-286

Aboriginal Consultation

135. The common law Duty to Consult with Aboriginal communities and organizations applies when the Crown contemplates actions that may adversely affect established or potential Aboriginal or treaty rights.
136. AECL informed the Commission that consultation with First Nations and Aboriginal Groups has been an integral component of the Port Hope Project and presented a list of consultation meetings held between 2005 and 2012. AECL added that Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation and Metis Nation of Ontario have expressed an ongoing interest in the project, and that other Aboriginal groups, including Mohawks of the Bay of Quinte, Mississaugas of Scugog, the Chippewas of Georgina Island First Nation, Oshawa Metis Council and Northumberland Metis Council have also been informed about the project, based on their proximity to the project, inclusion in other projects in the area or as signatories to the Williams Treaty. In June 2012, local First Nations groups toured the Port Hope and Port Granby project sites, and shared information through a series of presentations.
137. CNSC staff informed the Commission that Aboriginal consultations had been integrated into the environmental assessment and regulatory review process for this project, and noted that following the January 2007 public hearing for the EA Screening Report, the Commission was satisfied that the methods used by AECL and Responsible Authorities to consult with First Nations had been appropriate and First Nations had adequate opportunity to express concerns. CNSC staff also noted that, out of 99 interventions submitted for the 2009 public hearing, none were from Aboriginal groups, or raised any concerns regarding potential or established Aboriginal or treaty rights.
138. Based on this information, the Commission is satisfied that a duty to consult was fulfilled by the Commission process and by the opportunities that were afforded for consultation within that process.

Public Information Program

139. Although the information required in support of an application to remove the hold point for Phase II of the Port Hope Project does not include a specific requirement for a public information program, AECL submitted their PHAI Phase II Communication Plan accompanied with the Licensing Manual – Information in Support of the Port Hope LTWMF Project Licence Application.
140. With respect to other consultations, AECL noted that they had consulted extensively with the Municipality of Port Hope and its Municipal Peer Review Team (MPRT) in the development of the documents relevant to the WNSL. AECL also noted that they use meetings with the Ontario Ministry of Environment, Ganararska Region Conservation Authority, Haliburton, Kawartha and Pine Ridge District Health Unit and Cameco Port Hope Conversion Facility for consultations on technical matters, and to update parties on the project activities and schedules.

141. AECL provided details on their communication efforts and stakeholder outreach related to PHAI, as well as information on their on-line communications. AECL was required to incorporate public awareness and community involvement as key elements of the Port Hope Project, and will continue to provide information updates focused on the clean-up work planned for specific neighbourhoods. In these updates, AECL will also address the challenge of communicating the more technical aspects of the project, such as clean-up criteria and engineering designs. In response to this requirement, AECL had developed the Phase II Communications Plan that outlines the scope of communications and stakeholder consultations, and incorporates a wide range of activities, such as outreach and stakeholder relations, public consultations, traditional and online communications, and advertising and promotion. AECL further provided to the Commission a list of communication strategies used to engage the public and other stakeholders and to disseminate information about the Port Hope Project.
142. CNSC staff reported that they had assessed the Communication Plan for Phase II. CNSC staff concluded that the plan meets the information and communication needs for the Port Hope Project, and consider it acceptable.
143. Referring to interventions expressing concerns regarding the lack of involvement of the community in project monitoring, the Commission asked about the profile and role of the community liaison group that has been announced. AECL representatives responded that the citizen liaison group provides another channel for representatives of a diverse number of groups in the community to provide feedback to AECL regarding their efforts to inform the community about the project activities and to indicate issues of interest to the community.
144. Based on this information, the Commission is satisfied that AECL's public information program meets regulatory requirements and is effective in keeping the public informed on the Port Hope Project activities.

Financial Guarantee

145. CNSC staff stated that the financial guarantee for the Port Hope Area Initiative, for both the Port Hope and Port Granby Projects, was secured by a letter of commitment dated June 26, 2009 from the Minister of Natural Resources Canada to the President and CEO of the CNSC. In January 2012, the Minister of Natural Resources announced that the Government of Canada is investing \$1.28 billion over 10 years to clean up low-level radioactive waste in the Port Hope area.
146. Based on this information, the Commission considers that the financial guarantee acceptable for the purpose of the current application.

Cost Recovery

147. The PHAI project is exempted from the CNSC's *Cost Recovery Fees Regulations*.

Licence Length and Conditions

148. AECL has applied to extend the licence for a period of ten years. This extension, with removal of the hold point, would allow AECL to complete Phase II activities of the Port Hope Project.
149. CNSC staff supported this request and recommended that the Commission replace the current Waste Nuclear Substance Licence WNSL-W1-2310.00/2014 with a ten-year WNSL, allowing the completion of Phase II of the Port Hope Project. CNSC staff also recommended that the Commission include in the licence the conditions as set out in the draft licence attached to CMD 12-H10 and authorize Phase II of the project. In the draft Licence Conditions Handbook, CNSC staff made recommendations regarding delegation of authority. In addition, CNSC staff also recommended that the Commission bring the WNSL back to a Designated Officer process for authorizing future licensing and Phase III of the project.
150. Based on the above information and considerations, the Commission is satisfied that a ten-year licence with annual reporting is appropriate. The Commission accepts the licence conditions as recommended by CNSC staff, with reporting requirements as detailed earlier in this *Record of Proceedings*. The Commission accepts CNSC staff's recommendation regarding the delegation of authority in the draft Licence Conditions Handbook; however the Commission does not accept CNSC staff's recommendation regarding future licence amendments as outlined in CMD 12-H10, and does not delegate to a CNSC staff Designated Officer the power to consider or authorize future licence amendments and Phase III of the Port Hope Project.

CONCLUSION

151. The Commission has considered the information and submissions of CNSC staff, the applicant and all participants as set out in the material available for reference on the record.
152. The Commission concludes that an environmental assessment for an amendment of the licence for the Port Hope Project, pursuant to the *Canadian Environmental Assessment Act* is not required.

153. The Commission is satisfied that the applicant meets the requirements of subsection 24(4) of the *Nuclear Safety and Control Act*. That is, the Commission is of the opinion that the applicant is qualified to carry on the activity that the proposed licence will authorize and that the applicant will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.
154. The Commission, pursuant to section 24 of the *Nuclear Safety and Control Act*, replaces the Waste Nuclear Substance Licence, WNSL-W1-2310.00/2014, issued to Atomic Energy of Canada Limited for its Port Hope Long-Term Low-Level Radioactive Waste Management Project located in Port Hope, Ontario. The new licence, WNSL-W1-2310.00/2022, is valid from November 15, 2012 until December 31, 2022.
155. The Commission includes in the licence the conditions as recommended by CNSC staff and set out in the draft licence attached to CMD 12-H10 authorizing Phase II of the project.
156. The Commission directs AECL to prepare annual status reports on the progress of Phase II activities. The Commission also directs CNSC staff to provide annual reports on the Port Hope Project as part of the Nuclear Cycle and Facilities Regulation Annual Report. AECL and CNSC staff shall present their reports at public proceedings of the Commission. The public would be invited to provide written interventions in the context of these public proceedings.
157. The Commission accepts CNSC staff's recommendation regarding the delegation of authority as outlined in the draft Licence Conditions Handbook. However, the Commission does not accept CNSC staff's recommendation regarding future licence amendments as outlined in the CMD 12-H10, and does not delegate to a CNSC staff Designated Officer the power to consider or authorize future licence amendments and Phase III of the Port Hope Project. The Commission will exercise these powers.



Michael Binder
President,
Canadian Nuclear Safety Commission

FEB 05 2013

Date

Appendix A – Intervenors

Intervenors	Document Number
Bill Wilkerson	CMD 12-H10.2
David Henderson	CMD 12-H10.3
Rob E. Milligan	CMD 12-H10.4
Stephen True-Love	CMD 12-H10.5
Marcel Hildebrand	CMD 12-H10.6
Paul Macklin	CMD 12-H10.7
Robert Kyle	CMD 12-H10.8
Thomas Behan	CMD 12-H10.9
Julie Mavis	CMD 12-H10.10
Robert Biron	CMD 12-H10.11
Tony Dekeyser	CMD 12-H10.12
John Morand	CMD 12-H10.13
Eugene Bourgeois	CMD 12-H10.14
John Miller	CMD 12-H10.15 CMD 12-H10.15A
Bree Nixon	CMD 12-H10.16
Ryan Mason	CMD 12-H10.17
Terry Moore	CMD 12-H10.18
Sanford & Helen Anne Haskill	CMD 12-H10.19
Andy Thorne	CMD 12-H10.20
Terry Homes	CMD 12-H10.21
Rosemary McDonald	CMD 12-H10.22
Aldo D'Agostino	CMD 12-H10.23
Steven Stefanski	CMD 12-H10.24
Brian Ikeda	CMD 12-H10.25
Rick Norlock	CMD 12-H10.26
Christine Stewart	CMD 12-H10.27
Adam McCue	CMD 12-H10.28
Dave Blakely	CMD 12-H10.29
Linda Thompson	CMD 12-H10.30
Denise Carpenter	CMD 12-H10.31
Laurie Carr	CMD 12-H10.32
Mark Mattson	CMD 12-H10.33
Derrick Kelly	CMD 12-H10.34
Faye More	CMD 12-H10.35
Dennis Hogarth	CMD 12-H10.36
Pat McNamara	CMD 12-H10.37