

# Record of Proceedings, Including Reasons for Decision

In the Matter of

Applicant New Brunswick Power Nuclear Corporation

Subject Application for the Renewal of the Power  
Reactor Operating Licence for the Point Lepreau  
Nuclear Generating Station

Hearing Dates February 16, 2006 and May 18, 2006

**RECORD OF PROCEEDINGS**

Applicant: New Brunswick Power Nuclear Corporation

Address/Location: P.O. Box 600, Lepreau NB, E5J 2S6

Purpose: Application for the renewal of the Power Reactor Operating Licence for the Point Lepreau Nuclear Generating Station

Application received: November 28, 2005

Date(s) of hearing: February 16, 2006 and May 18, 2006

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

Members present: C.R. Barnes, presiding Member M. J. McDill  
A.R. Graham J.A. Dosman

Secretary: M.A. Leblanc

Recording Secretary: P. Bourassa

General Counsel: J. Lavoie

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<b>Intervenors</b>	<b>Document Number</b>
See appendix A	

**Licence:** Issued  
**Date of Decision:** May 18, 2006

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## **Introduction**

1. New Brunswick Power Nuclear Corporation (NB Power Nuclear) has applied to the Canadian Nuclear Safety Commission (CNSC)<sup>1</sup> for the renewal of its Power Reactor Operating Licence for the Point Lepreau Nuclear Generating Station (PLNGS) for a period of five years.
2. The PLNGS is located in the Province of New Brunswick on the Lepreau Peninsula. The nuclear facility consists of a single CANDU-6 unit with a total net rated capacity of 630 megawatts.
3. The proposed five-year licence period includes an 18-month maintenance outage to retube the reactor and refurbish the station with the intention to extend the operation of the PLNGS for 25 to 30 years. The proposed retube activities (hereafter referred to as the Retube) would include the replacement of all fuel channels, calandria tubes and feeder pipes while the refurbishment activities (hereafter referred to as the Refurbishment) would include additional repairs, replacement, inspections and upgrades.

## Issues

4. In considering the application, the Commission was required to decide, pursuant to subsection 24(4) of the *Nuclear Safety and Control Act*:<sup>2</sup>
  - a) if NB Power Nuclear is qualified to carry on the activity that the licence would authorize; and
  - b) if, in carrying on that activity, NB Power Nuclear 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

5. The Commission, in making its decision, considered information presented for a public hearing held on February 16, 2006 and May 18, 2006 in Ottawa, Ontario. The public hearing was conducted in accordance with the *Canadian Nuclear Safety Commission Rules of Procedure*.<sup>3</sup> During the public hearing, the Commission received written submissions and heard oral presentations from CNSC staff (CMD 06-H4, CMD 06-H4.A, CMD 06-H4.B and CMD 06-H4.C) and NB Power Nuclear (CMD 06-H4.1, CMD 06-H4.1A and

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<sup>1</sup> 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.

<sup>2</sup> S.C. 1997, c. 9.

<sup>3</sup> S.O.R./2000-211.

CMD 06-H4.1B). The Commission also considered oral and written submissions from 36 intervenors (see Appendix A for a detailed list of interventions).

### **Decision**

6. Based on its consideration of the matter, as described in more detail in the following sections of this *Record of Proceedings*, the Commission concluded that NB Power Nuclear is qualified to carry on the activity that the licence will authorize. The Commission also determined that NB Power Nuclear, 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 Nuclear Power Reactor Operating Licence PROL 17.00/2011 to New Brunswick Power Nuclear Corporation, Lepreau, New Brunswick, for the Point Lepreau Nuclear Generating Station. The licence is valid from July 1, 2006 to June 30, 2011.

7. The Commission includes in the licence the conditions recommended by CNSC staff as set out in the draft licence attached to CMD 06-H4.C, with the following modification to licence condition 12.1

At the conclusion of the refurbishment outage, the licensee shall obtain prior approval of the Commission before reloading fuel in the reactor and proceeding with the restart of the reactor. With the request for approval, the licensee shall provide a completion assurance report on the installation and commissioning of the improvements and modifications listed in Appendix J.

8. In this regard, the Commission will consider the request for approval, including the completion assurance report, in the context of a public hearing.
9. With this decision, the Commission requests that CNSC staff provide the Commission with an annual report on the safety performance of the facility at a public proceeding of the Commission. The report will be part of the CNSC Staff Annual Report on the Canadian Nuclear Power Industry and will include a detailed progress report related to the authorized activities associated with the Retube and the Refurbishment.

### **Issues and Commission Findings**

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

summarized in this section.

11. The Commission notes that many of the issues examined are interdependent. As such, 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**

### *Worker Protection*

12. With respect to the protection of workers from radiation, NB Power Nuclear noted that worker radiation exposures are controlled by various methods such as the implementation of administrative and action levels, job planning, access control and signposting. NB Power Nuclear also identified various areas of continuous improvement in reducing worker radiation exposures, including the maintenance and calibration of radiation protection instrumentation and improvements to the respiratory protection program to cover radiological applications.
13. CNSC staff reported that NB Power Nuclear's radiation protection program and its implementation at the PLNGS meet CNSC requirements. CNSC staff also reported that the radiation doses to the workers during the current licence period were consistently below the regulatory limit. CNSC staff concluded that individual and collective doses were kept As Low As Reasonably Acceptable (ALARA) and that radiation exposures at the PLNGS are being well managed.
14. With respect to radiation protection for the work associated with the Retube and Refurbishment of the PLNGS, NB Power Nuclear noted it was examining ways of optimizing fuel channel, feeder and calandria tube removal and replacement for contamination control and to keep doses ALARA. In this respect, a volume reduction process using remotely-controlled shielded machines would be used to reduce the time and exposure of workers. NB Power Nuclear noted that AECL, as the consultant hired to manage the Retube and Refurbishment, would be following the Station Radiation Protection procedures and use NB Power Nuclear personnel as protection assistants.
15. Greenpeace, in its intervention, expressed concern that the Retube activities were not adequately scrutinized for radiation exposure to workers.
16. In this respect, the Commission sought further information on the measures to be taken to minimize radiation exposures to workers during outage work associated with the Retube. NB Power Nuclear explained that specific ALARA planning was underway to minimize exposure, but that further information was still needed to complete the dose accumulation models associated with the Retube. With this information, expected to be available by the fall 2006, NB Power Nuclear noted that it will be able to develop individual work practices for each employee to ensure that radiation doses remain below the regulatory limits. NB

Power Nuclear also noted that annual doses to workers associated with the outage activities are expected to be significantly higher than the annual limit reported in 2005 but are expected to remain below regulatory requirements over the requested licence period.

17. The Commission requests CNSC staff to report to the Commission, as appropriate, on international practices for radiation protection during refurbishment activities in order to ensure that all possible means are taken to keep doses to workers ALARA.

#### *Public Protection*

18. With respect to protection of the public from the effects of radiation, NB Power Nuclear reported that the estimated doses to the public resulting from the operation of the PLNGS during the current licence period were well below the public regulatory dose limit of 1 millisievert per year (1 mSv/yr), as defined in the *Radiation Protection Regulations*,<sup>4</sup> and well below the PLNGS design and operating target of 0.5 mSv/yr.
19. CNSC staff concurred with NB Power Nuclear's environmental radiation monitoring data and stated that the risk to the public has been acceptably low and will remain acceptably low during the proposed licence period.
20. An intervenor suggested that the Commission give consideration to requiring epidemiological studies in the area surrounding the PLNGS to establish baseline information of the current operations. In the opinion of this intervenor, such information would assist the public in expressing its opinions about future licensing with full understanding of how the reactor's operations may or may not affect the population.
21. In response, CNSC staff stated that a baseline epidemiological study on the risk of either cancer or hereditary diseases around nuclear power stations is not feasible. CNSC staff based this statement on the work compiled by the International Atomic Energy Agency (IAEA) and published in a report in 2004 on studies done for populations living around nuclear power plants elsewhere in the world. CNSC staff noted that the studies have shown there is no concluding proof that there is a relationship between hereditary diseases that are attributable to exposure to radiation. CNSC staff further noted that the incremental rate of cancer at the very low doses that are associated with releases of radioactive contaminants from nuclear processing or nuclear power plants is also equally low and is not detectable in populations where the natural background rate of cancer is high.
22. CNSC staff explained that public exposure to radiation around the PLNGS from various pathways such as breathing the air, eating fish and drinking milk, has been between 5 and 10 microsieverts per year ( $\mu\text{Sv}/\text{yr}$ ). This represents a small fraction of the natural background radiation for people living in that area (which is 1000 to 3000  $\mu\text{Sv}/\text{yr}$  or 1 to 3 mSv/yr) and a small fraction of the regulatory dose limit (which is 1000  $\mu\text{Sv}/\text{yr}$  or 1 mSv/yr). The CNSC staff concluded that there is sufficient information from existing studies to indicate that the radiological risk is extremely low and epidemiological studies

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<sup>4</sup> S.O.R./2000-203.

are not feasible in this case.

### *Conclusions on Radiation Protection*

23. Based on the above information and considerations, the Commission concludes that NB Power Nuclear has made, and will continue to make, adequate provision for the protection of persons from radiation at PLNGS. For further discussions of the Commission's findings in related areas, see the sections on Environmental Protection and on Staff Training.

### **Conventional Health and Safety**

24. With respect to the protection of persons from non-radiological hazards at the PLNGS, NB Power Nuclear reported that its occupational Health & Safety Program complies with the New Brunswick Occupational Health and Safety Act and associated regulations. NB Power Nuclear indicated that the Accident Severity Rate increase in 2004 was driven by a single event resulting in lengthy rehabilitation. The 2005 record has improved to 1.2 lost days per 200,000 person-hours worked which is below the industry average of 4.5 lost days per 200,000 person-hours worked.
25. CNSC staff reported that the conventional Health and Safety Program at the PLNGS meets expectations. CNSC staff monitored the implementation of the improvements to the respiratory protection program to formally document it and ensure that it meets the applicable Canadian Standards Association (CSA) standard. CNSC staff noted that it continues to monitor the effectiveness of the NB Power Nuclear's Health and Safety Program, using the Accident Severity Rate to obtain information on the proponent's performance.
26. Based on this information, the Commission is satisfied that NB Power Nuclear has made, and will continue to make, adequate provision for the protection of persons from conventional (non-radiological) hazards at the PLNGS. For further discussions of the Commission's findings in related areas, see the sections on Safety Culture and Staff Training.

### **Environmental Protection**

27. To determine whether NB Power Nuclear will make adequate provisions to protect the environment while carrying out the proposed activities at the PLNGS, the Commission considered the potential for the continued operation of the PLNGS as well as the Retube and Refurbishment activities to adversely affect the environment.
28. NB Power Nuclear identified the corporate policies that govern environmental issues at the PLNGS and noted that it has been maintaining its ISO 14001 *Environmental Management System* (EMS) certification. NB Power Nuclear stated that its emissions are monitored



continuously, samples are analyzed and discharges are controlled. As part of its activities to limit the environmental impacts of the operation of the PLNGS, NB Power noted that its gaseous waste is filtered using high efficiency particulate filters and that it uses a Vapour Recovery System to reduce tritium emissions. Furthermore, NB Power Nuclear noted that a volume reduction process has been developed to decrease the volume of waste generated as a result of the replacement of the pressure tubes and calandria tubes.

29. As evidence of the organization's support of environmental protection, NB Power Nuclear reported that the Environment Committee of Board of Directors meets regularly and is provided with updates from the operations to ensure continuous oversight and maintained commitment.
30. Based on its review of NB Power Nuclear's programs to identify, monitor and control releases of nuclear substances from the site, CNSC staff concluded that the environmental performance at the PLNGS meets CNSC requirements. CNSC staff noted that the releases of nuclear substances were consistently below the derived release limits and that there were no unplanned releases of nuclear or hazardous substances that would pose unreasonable risk during the current licence period.
31. As a result of its March 2005 inspection, CNSC staff noted several areas of strength with NB Power Nuclear's environmental protection policies and procedures and other areas that need improvement. In this respect, CNSC staff issued five action notices and one recommendation to the licensee to correct these deficiencies. CNSC staff noted there were no outstanding remedial actions from previous compliance inspections and it is satisfied with plans in place and the progress made towards improvement.
32. Greenpeace, in its intervention, expressed concern that there were no plans for long-term management of non-fuel radioactive waste to be generated from the proposed Retube and eventual decommissioning activities. In this regard, the Commission notes that long-term waste management issues were considered by the Commission during its public hearings on the EA Guidelines<sup>5</sup> and on the Environmental Assessment Screening Report<sup>6</sup> for the proposed modifications to the Point Lepreau Solid Radioactive Waste Management Facility. The hearings were held on May 22, 2002 and June 27, 2003 respectively.
33. Based on this information, the Commission is satisfied that NB Power Nuclear has made, and will continue to make, adequate provision at the PLNGS for the protection of the environment during the proposed licence period.

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<sup>5</sup> *Record of Proceedings, Including Reasons for Decision*, in the matter of New Brunswick Power Corporation, Environmental Assessment (EA) Guidelines (Scope of Project and Assessment) for the Proposed Modifications to the Point Lepreau Solid Radioactive Waste Management Facility, dated June 24, 2002.

<sup>6</sup> *Record of Proceedings, Including Reasons for Decision*, in the matter of New Brunswick Power Corporation, Environmental Assessment Screening Report – Proposed Modifications to the SRWMF, dated August 25, 2003.

## **Operating Performance**

34. The Commission considered the operating performance at the PLNGS as a further indication of NB Power Nuclear's qualifications to continue operating the plant and carry out the activities associated with the Retube and Refurbishment and, in doing so, provide adequate protection for the environment, and the health and safety of persons. The areas of operating performance that the Commission examined are described in the following sections.

### *Organization and Plant Management*

35. NB Power Nuclear described its organizational structure, noting the creation of a Nuclear Oversight Committee chaired by a member of the Board of NB Power Nuclear. The understanding and commitment of the Board to ensure the safe and reliable operation of the PLNGS was also expressed.
36. CNSC staff reported that it finds NB Power Nuclear's organization and management structure at the PLNGS to be acceptable. CNSC staff noted that the reorganization that took place in 2004 has been approved by CNSC.
37. Based on this information, the Commission is satisfied that NB Power Nuclear has appropriate organization and management structures in place.

### *Conduct of Operations*

38. NB Power Nuclear reported that the operation of the station is governed by core processes to operate, plan, maintain, schedule, establish, monitor, manage and modify the station.
39. CNSC staff reported that, based on a series of CNSC field and control room inspections and document reviews, the operations at the PLNGS during the current licensing period were adequately and safely conducted. CNSC staff added that the PLNGS staff follow procedures, perform necessary tests and verifications and comply with requirements of the Operating Policies & Principles in terms of shutdown safety of equipment.
40. Regarding outage management, CNSC staff conducted an audit in 2003 and found no issues with the implementation of the processes. CNSC staff further noted that the processes to be followed during forced outages are now included to NB Power Nuclear's outage management program. However, CNSC staff noted that NB Power Nuclear failed to provide complete and timely data on the planned hours of work. Further discussion on work hours can be found in the section on Human Performance.

*Technical Surveillance*

41. With respect to the technical surveillance program, CNSC staff noted that NB Power Nuclear's system health monitoring program encompasses 38 safety significant systems that are reviewed by both NB Power Nuclear and CNSC staff. CNSC staff reported on progress made by NB Power Nuclear to address outstanding issues with respect to stand-by generators and the application of the system health program to the Electrical Distribution System (EDS), as identified in a 2002 inspection.
42. In response to the Commission enquiry whether the stand-by generators can provide the necessary power to maintain the plant in a safe shutdown state, NB Power Nuclear indicated that it had sufficient auxiliary power to maintain safe shutdown. NB Power Nuclear also confirmed that during the refurbishment stage, the plant will remain connected to the NB Power grid and have adequate power to support the auxiliary services required to maintain safe operation and assure public protection.

*Retube, Refurbishment and Restart Activities*

43. NB Power Nuclear explained the programs, processes and controls that would be in place to ensure safety during the Retube, Refurbishment and Restart activities, including the development of detailed procedures for commissioning, system lay-up, monitoring and return to service. NB Power Nuclear added that the work planned during the outage would be conducted under existing processes related to, for example, radiation protection, conventional safety, emergency preparedness, environmental management, safeguards, and security. This would ensure consistency with the licence requirements. The proponent further noted that it would conduct other typical outage inspection and maintenance activities as well as station capital work that may be identified for implementation during this outage interval. At the end of the outage, systems would be returned to service, normal surveillance and maintenance activities restored and performance verified to ensure operational readiness.
44. CNSC staff stated that it was satisfied with the framework that it has established over numerous meetings with NB Power Nuclear to ensure that potential hazards associated with the Retube and Refurbishment activities are characterized and managed. CNSC staff noted that appropriate oversight will be in place during the outage to ensure that NB Power Nuclear will maintain adequate provision for the health and safety of persons, and the protection of the environment.
45. Some intervenors were concerned that there were no apparent regulatory framework for life extension projects for nuclear generating stations.
46. In response to this concern, CNSC staff noted, in addition to the framework mentioned above, that it is developing a relevant project plan to include all regulatory activities required to confirm the refurbishment scope, verify proper execution of the proposed work and confirm the completion of the proposed work prior to the return to service. CNSC staff

also referred to the draft Regulatory Guide G-360, *Life Extension of Nuclear Power Plants* recently developed to document current practices that have been followed for the refurbishment of nuclear generating stations, including the development of the framework for the proposed refurbishment of the PLNGS. CNSC staff noted that this draft document was currently at the public consultation stage.

47. Several intervenors were concerned that the proposed activities associated with the Retube and Refurbishment were being considered as maintenance work and felt that these activities should not fall under an operating licence.
48. In response to this concern, the Commission is of the view that the requirements of an operating licence can ensure that appropriate actions are taken and measures are in place for continued safety during the operational states of the facility. This includes routine power operation, startups, shutdowns, maintenance, testing, design upgrades, commissioning of specific station systems and refuelling of the reactor within specified operational limits and conditions. Thus, the Commission expresses the view that the renewal of NB Power Nuclear's operating licence is the appropriate regulatory mechanism to authorize the proposed activities associated with the Retube and Refurbishment.

#### *Conclusions on Operating Performance*

49. The Commission is satisfied that NB Power Nuclear's programs, processes and controls in place for operation and Retube and Refurbishment of the PLNGS are sufficient to ensure that the activities are carried out safely.
50. The Commission is also satisfied that the existing regulatory regime, that includes the NSCA, associated regulations, licences and regulatory documents, is adequate to authorize and oversee activities such as the refurbishment of a nuclear generating station. The Commission notes that, pursuant to section 24 of the NSCA, it can authorize such activities only if the proponent is qualified to do so and, when carrying out 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.
51. Based on the above information and considerations, the Commission concludes that the operating performance at the PLNGS provides a positive indication of NB Power Nuclear's ability to adequately carry out the proposed activities under the licence.

#### **Performance Assurance**

52. As a further indication of the adequacy of NB Power Nuclear's qualifications and protection measures, the Commission examined performance assurance, including aspects of quality management, human performance, personnel training and safety culture.

*Quality Management*

53. NB Power Nuclear reported that CNSC inspections confirmed the documentation and implementation of the following three components of its Quality Management System: 1) problem identification, corrective action and operating experience; 2) design configuration control; and 3) management self-assessment. NB Power Nuclear provided information on its quality assurance program, stating it is the planned, systematic, integrated series of performance, verification, assessment and review activities assure quality of operations documented in its Quality Management System. NB Power Nuclear also noted that its Management System Process Model provides a framework that identifies the activities to achieve the performance objectives.
54. With respect to the Retube and Refurbishment projects, NB Power Nuclear noted that the project was planned to be consistent with the station's existing quality management processes. NB Power Nuclear further noted that Atomic Energy of Canada Limited (AECL), as the main contractor for the Retube and Refurbishment, has also prepared a Refurbishment Project Quality Assurance Manual to cover design, procurement and implementation activities.
55. CNSC staff reported that NB Power Nuclear's quality assurance program, and its implementation, meets CNSC expectations and is in compliance with the associated Canadian Standards Association's (CSA) N286 series of standards. CNSC staff further reported that NB Power Nuclear's independent assessments are effective in evaluating the performance of its Quality Management System.
56. In regard to the operating experience (OPEX), NB Power Nuclear's program is designed to help prevent reoccurrence of events by performing root cause analysis and documenting lessons learned, for example. CNSC staff noted that NB Power Nuclear's OPEX program is well established and implemented.
57. Taking into consideration the number external workers hired to carry an array of work associated with the Retube and Refurbishment, the Commission sought assurances that NB Power Nuclear has the programs in place and the proven skills for proper oversight of this stage of the proposed licence period. In response, NB Power Nuclear's project team will provide oversight, review and project management of AECL for the completion of the work. NB Power Nuclear added that it would be using an integrated approach to ensure that the Quality Assurance Program for the refurbishment project along with the Vendor Quality Assurance Team and the Independent Assessment Group would provide the necessary quality oversight. NB Power Nuclear also referred to its vision and its commitment to reach its goals of safe and reliable operation and to prepare for and execute Refurbishment on time and on budget.
58. CNSC staff recognized the complexity of the project but provided assurance that the parties involved can build on the experience gained as a result of retubing, refurbishment and restart activities performed at other nuclear generating stations. CNSC staff also

expressed the view that independent third party audits and verifications done at key milestones would be performed as part of the oversight of the Retube and Refurbishment.

59. Concerned with the low ratings in certain areas related to quality management, the Commission sought further assurances that the Retube and Refurbishment projects can be successfully implemented. CNSC staff noted that on-going dialogue with NB Power Nuclear on addressing the areas requiring improvement indicates that corrective measures will be in place before the start of the Retube and Refurbishment and restart of the reactor.

#### *Human Performance*

60. With respect to human performance, NB Power Nuclear noted that its program includes training, analyzing issues, and responding to trends. Furthermore, design requirements related to human factors are evaluated during design activities. NB Power Nuclear noted that several initiatives had been undertaken to improve the program such as control of work hours, changes to shift minimum complement to respond to plant upset and contingency, and a comprehensive plan to define organizational design basis to adjust staffing as needed.
61. CNSC staff reported that NB Power Nuclear's human performance program and its implementation at PLNGS were below expectations. Several areas of concern included the number and qualification of minimum complement staffing, above-recommended hours of overtime worked, and only partial implementation of a process to identify and justify engineering and technical skills to support safe operation. With respect to human performance during Refurbishment, CNSC staff stated that NB Power Nuclear must address deficiencies in design that can contribute to safety significant human errors. In conclusion, CNSC staff noted that NB Power Nuclear has been demonstrating improvements in various areas such as regular tracking of performance indicators and the production of human factors design guides. CNSC staff also noted that the issues identified were not significant in terms of risk and would be addressed by NB Power Nuclear.
62. Considering the overtime exceedance, the Commission sought clarification as to whether NB Power Nuclear has sufficient staff to carry out its current and planned activities. On Day-Two of the hearing, NB Power Nuclear provided an explanation that improper application of work time reporting procedures had erroneously indicated overtime exceedances during the current licence period. NB Power Nuclear noted that it has now implemented corrective measures to ensure accurate reporting of work hours by its staff.
63. The International Brotherhood of Electrical Workers – Local 37, in its intervention, referred to the PLNGS Joint Human Performance Working Team and attested to the strong safety culture that exists at the station.
64. Based on this information, the Commission concludes that NB Power Nuclear is taking the appropriate action to meet the CNSC's expectations for human performance at the PLNGS.

*Safety Culture*

65. The Commission considered NB Power Nuclear's safety culture as a further factor affecting quality assurance and human performance at the PLNGS.
66. NB Power Nuclear stated that safety culture is at the core of its business, noting that it is fully accountable and responsible for all safety aspects at the PLNGS, including during the Retube and Refurbishment. In this respect, NB Power Nuclear noted that it will assure oversight of AECL's required safety programs for the work it will undertake as the general contractor.
67. Several intervenors, including the Canadian Nuclear Workers Council, New Brunswick Building and Construction Trades Council, attested to the strong safety culture and safe operation at the PLNGS.
68. In response to the Commission's enquiry with respect to NB Power Nuclear's commitment to safety culture, NB Power Nuclear indicated that full commitment on the safety culture exists throughout the entire organization. As an example of evidence of this commitment, NB Power Nuclear stated that workmen's compensation rates at the PLNGS are in the lowest category in the province. NB Power Nuclear also noted that issues raised from its problem identification program are reviewed everyday, and trends are established and addressed as per priority. CNSC staff noted that safety culture evaluations performed at the PLNGS in the last years confirm this commitment to safety culture.
69. Based on this information, the Commission is satisfied that NB Power Nuclear fosters a positive safety culture at the PLNGS.

*Staffing and Training*

70. The Commission considered the adequacy of NB Power Nuclear's programs for personnel training and its staffing initiatives as a further indication of NB Power Nuclear's qualification to carry out the proposed activities under the licence, and to maintain that qualification.
71. In this respect, NB Power Nuclear provided information on the status of its relevant programs. It was noted that its training programs are reviewed as required by the Systematic Approach to Training (SAT) process. NB Power Nuclear noted that its Project Charter and Project Schedule for establishing integrated, systematic method of linking position descriptions, qualification and training programs and staffing plans had been submitted to CNSC. NB Power Nuclear also described its Management and Leadership Development Program.
72. NB Power Nuclear provided information on its five-year plan to recruit and provide training to new personnel. Specific to the Refurbishment, NB Power Nuclear noted that it

is preparing operating and training documentation for the training of personnel involved in the process. The construction trade resources for this work were estimated at 500 person-yrs, in addition to AECL's engineering support. With respect to the restart of the reactor, NB Power Nuclear noted that relevant training would be delivered to technical, operating and maintenance staff. NB Power Nuclear further noted that training of certified operating staff would cover all the design modifications and aspects specific to startup of the reactor with a fresh fuel core.

73. CNSC staff reported that NB Power Nuclear's training programs for certified staff and non-licensed operators meet requirements. With respect to the control room operator, CNSC staff noted that the SAT-based and management expectations are clearly defined. CNSC staff also noted that the shift supervisor incremental training program is clearly defined and also well designed. Deficiencies identified by CNSC staff, in areas such as the simulator portion of the training program and the continuing training for certified staff, have been addressed or will be addressed by NB Power Nuclear's corrective action plan. CNSC staff was satisfied with NB Power Nuclear's regular progress reports on improvement initiatives in this respect.
74. Regarding minimum staff complement, CNSC staff added that the Mechanical Maintenance Superintendent is authorized to act as Station Manager if the incumbent was not available.
75. Regarding Refurbishment, CNSC staff noted that issues with retention and acquisition of qualifications indicate the need for additional training and qualification requirements. Start-up of a nuclear station with fresh fuel was also identified as a rare activity that will require focused training.
76. The Commission sought assurances that there is sufficient certified staff at the PLNGS. CNSC staff responded that there were and that the programs in place were adequate to certify more staff, as required.
77. The Commission considered how the staff would be kept certified during the proposed outage. NB Power Nuclear indicated that there would be an ongoing training program, which includes simulator training, during the outage. A specialized training program for the reactor restart would also be developed and provided to the staff at that time. CNSC staff noted its satisfaction with the NB Power Nuclear's program on this aspect and confirmed that training will continue during outage and adequate provisions for on-going or refresher training will be made.
78. In response to the Commission's concern regarding the training of contractors involved with the Retube and Refurbishment, NB Power Nuclear noted that general orientation and radiation protection training would be provided to these workers, in addition to specific training being developed by AECL and integrated with the PLNGS program.
79. The Commission sought further information with respect to the contractors' professional backgrounds. NB Power Nuclear responded that through its on-going engagements with



the building and trade industry, workers have become familiar with type of work and rules associated with nuclear generating stations.

80. The Commission is satisfied with NB Power Nuclear's training programs for maintaining its qualifications during the proposed licence period and its efforts to maintain and renew the work force at the PLNGS.

#### *Conclusions on Performance Assurance*

81. Based on the above information and considerations, the Commission concludes that NB Power Nuclear has in place the necessary programs to assure continued acceptable performance at the PLNGS.

#### **Design Adequacy**

82. Many aspects of safety performance at a nuclear facility are inherent in the design of the facility and the ability of plant systems to continue to meet the design intent in light of new information, operating experience, revised safety analyses, and continuing research on safety issues. In this regard, the Commission examined issues related to the Safety Analysis, the progress in resolving Generic Action Items (GAI), and the adequacy of the design and design modifications. The objective was to assess the adequacy of the remaining safety margins afforded by the design.

#### *Safety Analysis*

83. NB Power Nuclear provided information on the safety analyses performed to support its operation licence as well as its on-going safety analysis program that assures changes to plant design and operation do not increase public risk. As part of the design review of major systems and components, stress analyses were completed to assure system performance and integrity requirements were met over the range of normal operating and emergency transients. With respect to work required prior to begin activities associated with the proposed outage, NB Power Nuclear noted that additional safety analyses and a Level II Probabilistic Safety Assessment (PSA) were underway.
84. CNSC staff reported that NB Power Nuclear's performance in the design and analysis safety areas meets requirements. CNSC staff also reported that NB Power Nuclear has been proactive in monitoring plant ageing issues and in taking action to maintain safety margins.
85. CNSC staff also reported that issues and deficiencies that have been identified during the current licence period have either been addressed adequately or are in the process of being addressed through the implementation of appropriate corrective actions to modify equipment, update reports or revise procedures and programs, as appropriate. Thus, CNSC staff expressed its satisfaction with NB Power Nuclear's approach to addressing issues

related to design and analysis.

86. CNSC staff noted that NB Power Nuclear has completed a number of activities in preparation for the Retube and Refurbishment. This includes detailed assessments of plant structures, systems and components to identify the required modifications and repairs, based on IAEA guidance. CNSC staff has reviewed NB Power Nuclear's Integrated Safety Review (ISR) and agrees with the majority of the findings, with additional details still to be provided and reviewed.
87. Noting that safety review for the Refurbishment work was still underway, the Commission sought assurances that it would be adequately completed in a timely manner. In response, CNSC staff expressed the confidence that a risk-informed agreement with NB Power Nuclear would be reached on this issue for the complete scope of work associated with the Refurbishment.
88. Based on the above information, the Commission concludes that the Safety Analysis for PLNGS is acceptable for the purpose of the licence renewal and that the processes for maintaining the Safety Analysis are acceptable.

#### *Safety Issues*

89. With respect to outstanding safety issues that are generic to the CANDU reactor designs, i.e., GAI, CNSC staff noted that NB Power Nuclear has satisfactorily completed work on two GAIs during the current licence period. One which dealt with core cooling in the absence of forced flow and the other with the heat transport system positive void reactivity.
90. With respect to safety issues that have arisen during the current licence period, CNSC staff noted that NB Power Nuclear has been addressing concerns with the potential for seismically induced multiple feeder failures. CNSC staff is currently reviewing NB Power Nuclear's probabilistic safety evaluation of feeder cracking prior to closing this action item.
91. Based on this information, the Commission is satisfied that the remaining action items do not represent an impediment to the granting of the proposed licence renewal.

#### *Design*

92. NB Power Nuclear reported that a CNSC inspection confirmed the proper implementation of its design configuration control process. NB Power Nuclear explained that the process is in place to ensure control of plant status changes that could result from operations, maintenance or temporary design modifications.
93. With respect to the proposed Refurbishment, NB Power Nuclear stated that the modifications will be commissioned to demonstrate that the changes meet the design

intent. NB Power Nuclear provided a description of the key activities planned during the outage and the systems, equipment, and components that would be affected by the design changes.

94. CNSC staff indicated that the proposed modifications must be consistent with modern standards and practices, noting that some changes were being proposed to correct past deficiencies that have become apparent over the operating years. CNSC staff noted that the proponent's design programs and implementation meet requirements. CNSC staff noted that certain areas with respect to NB Power Nuclear's design change process had been improved; notably inadequate design completion assurance, procurement and document control, and measures to address human factors in design change process have been addressed.
95. With respect to the design of the steam lines, an intervenor expressed concern that there were no plans to move the lines from their current position above the control room, which the intervenor felt posed a safety risk.
96. In response to the Commission's enquiry in this regard, NB Power Nuclear stated that it is establishing a leak test for the steam lines and has commissioned a study to make sure the lines will be safe for the next 30 years. NB Power Nuclear noted that it would improve the design as appropriate based on the result of this study. CNSC staff noted it is satisfied with the mitigating measures put in place to ensure safety in this regard.

#### *Conclusions on Design Adequacy*

97. On the basis of the information presented, the Commission concludes that the design of the PLNGS is adequate for the operation period included in the proposed licence.
98. The Commission is satisfied with the proposed modifications that NB Power Nuclear has planned to carry out during the Retube and Refurbishment. The Commission is also satisfied that NB Power Nuclear will continue to modify the facility design in an appropriate and timely manner in response to new issues and as new information becomes available.

#### **Fitness for Service**

99. The Commission considered whether NB Power Nuclear is maintaining the critical components of the facility design fit-for-service so that structures, systems and components important to safety remain effective throughout the life of the plant. This section includes an examination of NB Power Nuclear's maintenance program, the monitoring and maintenance of the structural integrity of key components, and the reliability of special safety systems.

100. CNSC staff reported that physical condition of the components at the PLNGS meet requirements.

*Maintenance*

101. NB Power Nuclear reported that it has processes established for preventive and corrective maintenance activities to maintain all its systems, structures and components. With respect to the Primary Heat Transport feeders, NB Power Nuclear has been carrying out extensive and frequent inspections to provide high confidence in the safe and reliable operation of the feeders. The Life Cycle Management Plan enables NB Power Nuclear to ensure that risks associated with feeder degradation are kept acceptably low.
102. CNSC staff reported that NB Power Nuclear has demonstrated continuous improvement with respect to its maintenance program and implementation during the current licence period, as evidenced by the reduction of maintenance work order backlog. However, CNSC staff remained concerned with the proponent's management of the backlog and will continue to monitor performance in this area.
103. Considering the extent of the maintenance-related activities planned during the Retube and Refurbishment, the Commission questioned NB Power Nuclear's plan to carry out regular maintenance inspections during the pre-outage phase of the proposed licence period. NB Power Nuclear responded that it intends to carry out all normal programs up into the planned outage as well as during the outage as appropriate. CNSC staff noted that the normal oversight compliance program will be carried out throughout the proposed licence period.

*Structural Integrity*

104. CNSC staff rated the structural integrity programs and implementation as below requirements. CNSC staff noted that this rating was pending its review of recently submitted Periodic Inspection Program (PIP) for the primary heat transport and safety system pressure boundaries. The PIP has been updated to reflect a more recent standard. CNSC staff noted that NB Power Nuclear's supplementary inspection and ageing management programs for feeders, steam generators and pressure tubes meet requirements.
105. Concerned that the proponent's inspection program is based on an outdated standard, the Commission sought clarification on how safety has been affected. CNSC staff explained that the inspection's objective is to verify the robustness of systems and thus to ensure that components are fit for service by detecting degradation mechanisms. This enables a licensee to take appropriate measures to address safety concerns. CNSC staff is satisfied that this is being carried out by the current inspections at the PLNGS, although the PIP is based on an outdated standard. CNSC staff concluded that it is satisfied that safety is not being compromised.

### Steam Generators

106. CNSC staff reported that metallurgical examination and periodic inspections of the steam generator tubes found no significant degradation had occurred since last surveillance. Furthermore, a life assessment study concluded that overall condition of components appear good.
107. CNSC staff noted that, although the monitoring and management program for the steam generators meets CNSC requirements, NB Power Nuclear needs to improve its maintenance of an integrated program for monitoring the health of the steam generators. In this regard, NB Power has contracted AECL to develop an integrated life cycle management plan to address the issue.

### Pressure Tubes

108. CNSC staff reported that an action item has been opened which recommends that NB Power Nuclear review the programs and procedures relevant to maintaining the structural integrity of fuel channels. In this regard, NB Power Nuclear has initiated a Heat Transport System Life Cycle Management improvement project.
109. CNSC staff stated that NB Power Nuclear's action plan for continued assessment of pressure tube degradation and its approach to managing fuel channel ageing meets requirements.
110. With respect to Refurbishment, CNSC staff stated it was satisfied with design documents for replacement of the fuel channels and will be reviewing NB Power Nuclear's revised calandria tube design for compliance.

### Reactor Feeder Pipes

111. NB Power Nuclear noted that a test analysis has shown that outside surface cracks are caused by creep cracking. To address this degradation issue, NB Power Nuclear indicated it would continue to review and update the Life Cycle Management Plan, including conducting comprehensive feeder integrity inspections to provide high confidence in safe reliable operation of Primary Heat Transport feeders.
112. CNSC staff reported that the proponent's plan for continued assessment of degradation and approach to ageing meets requirements and its periodic and in-service inspections meet the relevant CSA standard. CNSC staff noted that the cracking may be caused by stress corrosion or low temperature creep but added that the cracking has acceptably small effect on safety until the planned Refurbishment. Until then, six outlet feeders will be replaced due to the potential to exceed 40% wall thickness loss before next outage. CNSC staff stated that the replacement objective during the Refurbishment is to reduce or eliminate

feeder cracking and thinning. CNSC staff noted that it would review the design modifications to ensure compliance.

113. In response to the Commission's questions regarding the low temperature creep cracking, NB Power Nuclear's AECL consultant stated that this conclusion on the likely degradation mechanism was made based on the consideration that there is no aggressive environment that could have caused the feeder pipes' degradation. NB Power Nuclear responded to the Commission's enquiry on the design modifications being proposed and their impact on the longevity of the NGS, noting that the design requirements for the replacement feeders are such that the post-refurbishment life would be achieved with adequate margin with the feeder design.

#### *Reliability of Safety Related Systems*

114. As part of general fitness for service, it is important that key safety related systems not be unavailable for significant periods of time during operation. In this regard, NB Power Nuclear noted that it has a program in place, and that reliability analyses are performed to ensure systems important to safety are sufficiently reliable to mitigate the likelihood of severe core damage or large radioactive releases after postulated initiating events. NB Power Nuclear indicated that its Reliability Program is in the process of transition to meet the CNSC Regulatory Standard S-98 revision 1, Reliability Programs for Nuclear Power Plants, as listed in the proposed licence condition.
115. CNSC staff rated NB Power Nuclear's Reliability Program and implementation as meeting requirements. The annual reliability report indicates all special safety systems at the PLNGS were fully available in 2003 and 2004. Verification activities confirm satisfactory processes are in place for collecting and treating reliability data.

#### *Equipment Environmental Qualification*

116. It is important to continually assess and verify that important safety equipment in the plant will function as designed in the harsh environments that could arise during accident conditions.
117. In this respect, NB Power Nuclear has completed the implementation of its Environmental Qualification (EQ) Program in June 2004. NB Power Nuclear provided information on the scope of its EQ Program that includes the identification of equipment and of methods to qualify equipment to survive design basis accident, as well as maintenance of EQ equipment. NB Power Nuclear noted that nearly 1500 field devices were qualified by either design modification or analysis.
118. CNSC staff reported that NB Power Nuclear's EQ Program and its implementation meet requirements. CNSC staff noted that NB Power Nuclear's status report shows all required environmental qualification work was completed in 2004, except work on fuelling machine

pump motor sets and airlock seals. CNSC staff noted that these issues are being addressed. CNSC staff concluded that NB Power Nuclear is committed to the EQ Program, and maintenance staff is aware of conditions which may impact on environmental qualification.

*Conclusions on Fitness for Service*

119. The Commission is satisfied with NB Power Nuclear's programs for the inspection and life-cycle management of safety-critical systems. Based on the above information, the Commission concludes that the PLNGS is fit for service.

**Emergency Preparedness and Fire Protection**

120. The CNSC requires that licensees, as part of their provisions for protection of persons in the conduct of their operations, be prepared to deal effectively with emergencies that may arise. In this regard, NB Power Nuclear reported that as part of its improvement program, it continues to upgrade equipment and facilities, conduct training and drills and improve its procedures. NB Power Nuclear is also planning to strengthen its Emergency Response Team performance to further enhance its on-site emergency preparedness.
121. As part of its off-site emergency preparedness, NB Power Nuclear noted that it has enhanced its current program by using the Community Notification System (CNS) as its primary method for notifying the area residents. In response to the Commission request for more detail on the CNS, NB Power Nuclear indicated that the system is tested regularly and reaches the total population of 3000 people within a 20 kilometer radius of the PLNGS.
122. CNSC staff reported that it finds the emergency preparedness program at the PLNGS to exceed CNSC expectations while the implementation of the program meets expectations. CNSC staff evaluated a major exercise involving NB Power staff and off-site authorities and determined that NB Power staff is competent and has appropriate support from other authorities.
123. L. Spear, in his intervention, expressed the view that the PLNGS emergency response team is well-trained and that the Point Lepreau wardens are also trained and ready for any emergency.

*Fire Protection*

124. With respect to fire protection in the design of the facility, NB Power Nuclear reported on several actions it has completed or is in the process of completing to address the poor rating it has received from CNSC. This includes the completion of a Fire and Building Code assessment, and upgrades and replacements of equipment. NB Power Nuclear reported that it will focus on further improvements in the fire protection equipment system

health program and completion of the National Building Code and National Fire Code reviews.

125. Regarding fire protection response, NB Power Nuclear noted it has conducted additional training and drill exercises and is in the process of completing new inspection and test procedures.
126. CNSC staff reported that NB Power Nuclear's Fire Protection program and implementation do not meet requirements. However, CNSC staff notes that the risks associated with the identified deficiencies remain acceptably low. Furthermore, CNSC staff noted the improving trend towards meeting the requirements and expects that NB Power Nuclear will be compliant by April 2008.
127. With respect to NB Power Nuclear's program and implementation's low ratings, the Commission sought further assurances that the existing program is adequate to provide fire protection at the PLNGS until compliance with requirements is reached. In response, CNSC staff stated that there is adequate response at the PLNGS, which is verified on a routine basis as part of CNSC's compliance activities. CNSC staff noted that the identified weaknesses pertain to certain fire responder assumptions made by NB Power Nuclear that are not compliant with the National Fire Code and to the documentation of inspection-related procedures and routines. CNSC staff noted that NB Power Nuclear would be addressing the outstanding fire safety analysis through a Probabilistic Safety Assessment currently underway. CNSC staff concluded that the timeframe of two years is acceptable for such an assessment and does not pose an unacceptable risk. CNSC staff further noted that the NB Power Nuclear has demonstrated significant progress in addressing these issues and thus considers NB Power Nuclear qualified and capable of implementing the required corrective actions.
128. Considering that NB Power Nuclear's own response team may be assisted by an external volunteer fire department in the event of an emergency, the Commission sought further information with respect to the type of on-going training offered to these service providers. NB Power Nuclear responded that the volunteer fire department is well-equipped and is provided with orientation, training and exercise drills. Radiation protection training is also provided to cover the full scope of fire responses.
129. The Commission also enquired as to whether the external volunteer fire department staff needed security clearance to have access to the facility. NB Power Nuclear noted that this was not necessary since its Emergency Procedures ensure that responders are escorted at all times. NB Power Nuclear further noted that the escort services bring additional safety benefits by providing radiation protection to all offsite emergency responders. CNSC staff concurred with NB Power Nuclear in this regard, noting that the escort services help to control the emergency response activities in a safe and coordinated manner.
130. The Commission is satisfied that the current deficiencies in the fire protection program and implementation do not pose an unreasonable risk to the public. The Commission is also satisfied that adequate design provisions are being made to ensure that the PLNGS has the



necessary fire protection measures.

131. The Commission concludes that emergency preparedness and fire protection at the PLNGS is adequate for the proposed licence renewal.

### **Security**

132. NB Power Nuclear stated that its site security program ensures that equipment, procedures and trained personnel are in place.
133. CNSC staff reported it actively oversees the physical protection program at the PLNGS.
134. Considering the number of contractors that would be involved in the Retube and Refurbishment activities during the proposed licence period, the Commission enquired as to whether sufficient security measures would be in place. CNSC staff indicated that it is the licensee's responsibility to ensure that appropriate security arrangements are in place, including appropriate security clearance levels to those who require site access. In this regard, CNSC staff is satisfied that the arrangements in place for contractors meet the regulatory requirements.
135. While it would not be appropriate for the Commission to discuss security matters in detail in a public document, such as this *Record of Proceedings*, the Commission is satisfied that NB Power Nuclear's performance with respect to maintaining security at the facility has been acceptable.
136. The Commission concludes that NB Power Nuclear has made, and will continue to make, adequate provisions for ensuring the physical security of the PLNGS.

### **Non-Proliferation and Safeguards**

137. CNSC staff reported that NB Power Nuclear's program for the safeguarding of material and non-proliferation and its implementation meet expectations.
138. NB Power Nuclear indicated that it has received regular visits by IAEA inspectors during the current licence period. NB Power Nuclear also noted that core discharge monitors were installed in 2004 to monitor spent fuel movements and provide backup for bundle counters. As well, digital monitoring operating system cameras were installed in 2005.
139. Based on this information, the Commission is satisfied that NB Power Nuclear has made, and will continue to make, adequate provisions in the areas of safeguards and non-proliferation at the PLNGS that are necessary for maintaining national security and measures necessary for implementing international agreements to which Canada has agreed.

### **Decommissioning and Financial Guarantees**

140. In order to ensure that adequate resources will be available to meet the same regulatory requirements for safety, environmental protection and security during the future decommissioning of the PLNGS, the Commission requires that adequate plans and financial guarantees for decommissioning and long-term management of waste be put in place and maintained in a form acceptable to the Commission.
141. NB Power Nuclear explained that its financial guarantee is comprised of two components: a Nuclear Fuel Waste Trust and a Used Fuel Management and Decommissioning Funds Escrow. As a result of updates to the Decommissioning Financial Guarantee and the Preliminary Decommissioning Plan and cost estimate, NB Power Nuclear confirmed the completion of additional funding arrangements and revised Schedule A to the CNSC Financial Security and Access Agreement.
142. CNSC staff stated that NB Power Nuclear reviewed its Preliminary Decommissioning Plan and financial guarantee by June 30, 2005, as per the current licence condition. With the decision to proceed with the refurbishment of the PLNGS, further revision to the funding schedule was needed. CNSC staff reviewed the revised amount determined and deposited by NB Power Nuclear to this effect and found the financial guarantee acceptable.
143. The Commission concludes that the decommissioning financial guarantee for the PLNGS is acceptable for the purpose of the licence renewal.

### **Nuclear Liability Insurance**

144. CNSC staff reported that the insurance coverage of \$75 million meets the requirements of the *Nuclear Liability Act*<sup>7</sup> (NLA) and that the insurance coverage provided by the Nuclear Insurance Organization of Canada and their two co-insurers has been confirmed for the current policy term. CNSC staff also noted that NB Power Nuclear also holds insurance policies to cover on-site damages and costs which could be incurred following an accident with off-site consequences.

### **Canadian Environmental Assessment Act**

145. Before making a licensing decision, the Commission must be satisfied that all applicable requirements of the *Canadian Environmental Assessment Act*<sup>8</sup> (CEAA) have been fulfilled.
146. CNSC staff indicated that the application to renew the licence for the PLNGS under subsection 24(2) of the NSCA is not prescribed for the purposes of paragraph 5(1)(d) of

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<sup>7</sup> R.S.C. 1985, c. N-28.

<sup>8</sup> S.C. 1992, c. 37.

the CEAA in the *Law List Regulations*<sup>9</sup>. Since there are no other CEAA triggers for this project that involve the CNSC, CNSC staff submitted that an EA under CEAA is not required.

147. CNSC staff also indicated that the effects of accidents and malfunctions associated with the operation of the reactor were assessed in the environmental assessment conducted by a panel in 1975. Therefore, CNSC staff concluded that the project can be excluded under section 2.1(1) of the *Exclusion List Regulations*<sup>10</sup> of CEAA.
148. CNSC staff further submitted that an EA under CEAA is not required for refurbishment activities as the effects of the refurbishment and continued operation of the reactor were assessed in the environmental assessment conducted in 2003 and can be excluded under item 2 of the *Exclusion List Regulations*.
149. Saint John Citizens Coalition for Clean Air and Greenpeace, in their interventions, expressed the view that the proposed refurbishment activities do not fall within the scope of activities associated with the renewal of an operating licence. The intervenors further contested CNSC staff's submission that the scope of the EA carried out in 2003 included the Retube and Refurbishment. In this regard, the intervenors recommended that an EA be conducted to consider the environmental impacts of the proposed associated activities.
150. Considering the information presented during the course of this hearing with respect to the scope of the activities associated with the proposed refurbishment of the PLNGS, the Commission accepts the CNSC staff's position that the proposed Retube and Refurbishment constitutes maintenance activities that can be included in the consideration of a licence renewal application. In this respect, the Commission is satisfied that the proposed activities can be authorized under the renewal of NB Power Nuclear's current operating licence.
151. The Commission also notes that the EA conducted in 2003 included the refurbishment activities that will generate the waste to be managed and the incremental environmental effects of the proposed continued operation of the PLNGS following the Retube and Refurbishment.
152. The Commission accepts CNSC staff's interpretation of the CEAA and thus is satisfied that the requirements of the CEAA for an environmental assessment of NB Power Nuclear's application for licence renewal have been fulfilled. The Commission concludes that no further environmental assessment of the proposed operation, Retube and Refurbishment of the PLNGS is required, pursuant to the CEAA, before the Commission may consider and make a decision on this licence application under the NSCA.

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<sup>9</sup> S.O.R./94-636.

<sup>10</sup> S.O.R./94-639.

## **Public Information Program**

153. NB Power Nuclear outlined the various aspects of its public information program that features presentations, public and key stakeholder meetings, community relations liaison committee, Web site postings, special visits and workshops on various topics, and publication of business plans, annual reports and environmental reports. NB Power Nuclear also noted that it tracks and follows up on issues that arise from the various briefings and sessions.
154. NB Power Nuclear reported that public surveys performed in 2000, 2003, and 2004 indicated that the public is informed of the operations and the proposed refurbishment activities of the PLNGS. In response to the Commission's question on the statistical accuracy of the survey, NB Power Nuclear confirmed that a statistical survey was done, where members of the public were randomly chosen throughout the Province of New Brunswick.
155. CNSC staff noted that NB Power Nuclear's public information program meets the applicable regulatory requirements of the *Class I Nuclear Facilities Regulations*<sup>11</sup> and is consistent with the CNSC Regulatory Guide G-217, *Licensee Public Information Programs*.
156. Considering the scope of activities and costs associated with the Retube and Refurbishment, the Commission expressed the view that an enhanced communication plan should be in place to ensure the availability of timely information on specific issues such as safety and project milestones. In this respect, the Commission questioned NB Power Nuclear on how it is planning to report to its stakeholders on the status of the proposed projects.
157. In response, NB Power Nuclear noted that its organizational structure, including two oversight committees and an executive refurbishment committee, is set up to ensure continued information sharing among all levels of the organization throughout the proposed licence period and project executions. With respect to keeping the public informed, NB Power Nuclear noted that it has been disseminating information on the proposed activities for a long period and that the general community is well informed on the proposed activities. NB Power Nuclear expressed its commitment to ensure continued public awareness by providing, for example, regular updates on the Refurbishment status via its Web site, at quarterly community liaison committee meetings, by access to a toll-free project info-line and via its media relations.
158. A. Harding, V. Aucoin and the Town of Rothesay, in their interventions, attested to the openness of NB Power Nuclear's communication and information program, noting that the information sessions have been pertinent and accurate.
159. Several other intervenors attested to NB Power Nuclear's involvement in and commitment to the community.

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<sup>11</sup> S.O.R./2000-204.

160. Saint John Citizens Coalition for Clean Air, in its intervention, stated that NB Power Nuclear should be required to report radionuclides emission, along with health information, as part of the National Pollution Release Inventory (NPRI). Furthermore, the intervenor was of the view that risk assessment and probability analysis results should be available to the public so it can be aware of risks and mitigation measures in place.
161. In response, CNSC staff noted that the NPRI is under the jurisdiction of Environment Canada and NB Power Nuclear does report its hazardous releases using this process. As for radionuclides emissions, CNSC staff noted that NB Power Nuclear is fully compliant with reporting the releases that fall under the CNSC's legislation and that these releases are publicly available. In terms of the availability of risk and reliability studies, CNSC staff indicated that these reports are also publicly available.
162. Saint John Citizens Coalition for Clean Air also expressed the need to enhance the community newsletter and liaison committee. NB Power Nuclear explained that the community liaison committee had been established to target the community residing within a 20-kilometre radius of the PLNGS as the community which had indicated the most interest. Considering the intervenor's comments, NB Power Nuclear added that it would consider expanding its outreach in this respect.
163. Based on this information, the Commission is satisfied that NB Power Nuclear's information program meets the regulatory requirements and is effective in keeping the public in the vicinity informed of the effects of the facility operations and of the effects and status of the refurbishment activities.

### **Licence Length and Interim Reporting**

164. NB Power Nuclear has applied to the CNSC for a five-year renewal of its licence. With reference to the CNSC staff criteria for recommending licence duration (as described in CMD 02-M12), CNSC staff recommended that the Commission accept and grant the proposed five-year term.
165. Several intervenors representing area municipalities, local government, workers' unions, businesses, as well as members of the public supported NB Power Nuclear's request and CNSC staff's recommendation for a five-year licence. Other intervenors submitted that the licence should be limited to 18-24 months, in line with the maintenance outage.
166. With respect to interim reporting, CNSC staff noted that it reports annually on the licensee's compliance and safety performance as part of the Annual Report on the Canadian Nuclear Power Industry. This report would include a detailed status on the on-going activities that would be authorized under the proposed licence, including the work associated with the Retube and Refurbishment. To this effect, CNSC staff would increase the scope and detail of the annual report to report on progress made and issues identified by CNSC staff on the Retube and Refurbishment.

167. CNSC staff recommended new conditions in the proposed licence to cover the restart and station return to service phases. These proposed conditions, listed as 12.1 and 12.2 in the draft licence, would require CNSC approvals for the removal of the guaranteed shutdown state and restart as well as for each increase in reactor power levels. CNSC staff requested that the authority to grant these approvals be delegated to a Designated Officer, noting that approval would be granted only once NB Power Nuclear had successfully completed a number of specified prerequisites.
168. Several intervenors expressed the view that approval for the restart of the PLNGS should be the subject of another CNSC public hearing for consideration by the Commission, and not an approval by a person authorized by the Commission.
169. With respect to the approvals to restart and return the plant to service, the Commission notes that it has the ability to delegate authority to a person authorized by it. In this case, however, considering the breadth of the work to be undertaken during the Retube and Refurbishment and the proposed licensing period of 5 years that includes both operation of the plant and a lengthy outage, the Commission has decided to exercise itself the decision whether to approve the restart of the reactor.
170. Accordingly, the proponent shall obtain approval of the Commission before reloading fuel in the reactor and proceeding with the restart of the reactor, as described in the proposed licence condition 12.1. The Commission will consider the request for approval to restart, including the completion assurance report, in the context of a public hearing.
171. Based on the above information and considerations, the Commission accepts the proposed five-year licence term. With respect to interim reporting, the Commission requests that CNSC staff present to the Commission an annual report on the safety performance at the PLNGS at a public proceeding of the Commission. The report will be part of the CNSC Staff Annual Report on the Canadian Nuclear Power Industry and will include a detailed progress report on the authorized activities associated with the Retube and the Refurbishment.

### **Conclusion**

172. The Commission has considered the information and submissions of the applicant, CNSC staff and intervenors as presented in the material available for reference on the record.
173. The Commission concludes that NB Power Nuclear is qualified to carry out the activities that will be permitted under the renewed licence. Furthermore, the Commission concludes that in carrying out those activities, NB Power Nuclear should 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.

174. The Commission therefore issues, pursuant to section 24 of the *Nuclear Safety and Control Act*, Nuclear Power Reactor Operating Licence PROL 17.00/2011 to New Brunswick Power Nuclear Corporation. The licence is valid from July 1, 2006 to June 30, 2011, unless suspended, amended, revoked or replaced.
175. The Commission includes in the licence the conditions recommended by CNSC staff in the draft licence attached to CMD 06-H4.C.
176. The Commission also decides the NB Power Nuclear shall obtain approval of the Commission before reloading fuel in the reactor and proceeding with the restart of the reactor, as described in the licence condition 12.1. The Commission will consider the request for approval, including the completion assurance report, in the context of a public hearing.
177. With this decision, the Commission requests that CNSC staff provide the Commission with an annual report on the safety performance of the facility at a public proceeding of the Commission. The report will be part of the CNSC Staff Annual Report on the Canadian Nuclear Power Industry and will include a detailed progress report on the authorized activities associated with the Retube and the Refurbishment.

Marc A. Leblanc  
Secretary,  
Canadian Nuclear Safety Commission

Date of decision: May 18, 2006

Date of release of Reasons for Decision: June 30, 2006

## Appendix A – Intervenors

Intervenors	Document Number
R. Mawhinney	CMD 06-H4.2 CMD 06-H4.2A
A. Harding	CMD 06-H4.3 CMD 06-H4.3A
R. MacKenney	CMD 06-H4.4 CMD 06-H4.4A
L.R. Spear	CMD 06-H4.5 CMD 06-H4.5A CMD 06-H4.5B
Saint John Citizens Coalition For Clean Air, represented by G. Dalzell	CMD 06-H4.6 CMD 06-H4.6A
K.A. Jonah	CMD 06-H4.7
International Brotherhood of Electrical Workers – Local 37, represented by R. Galbraith	CMD 06-H4.8
New Brunswick Society of Certified Engineering Technicians and Technologies, represented by J. Nyers	CMD 06-H4.9 CMD 06-H4.9A
Canadian Nuclear Workers Council, represented by D. Shier and D. Dixon	CMD 06-H4.10 CMD 06-H4.10A
North American Young Generation in Nuclear, represented by M. McIntyre	CMD 06-H4.11
J.L. MacLean	CMD 06-H4.12
Syed M.H. Zaidi	CMD 06-H4.13
Greenpeace Canada, represented by S-P. Stensil	CMD 06-H4.14 CMD 06-H4.14A CMD 06-H4.14B
Conservation Council of New Brunswick, represented by D. Coon	CMD 06-H4.15 CMD 06-H4.15A
Dr. M. MacBeath	CMD 06-H4.16
J.K. Sutherland	CMD 06-H4.17
J. Valardo	CMD 06-H4.18
C.C. Arbeau	CMD 06-H4.19
New Brunswick Community College – Saint John	CMD 06-H4.20
P. Zed, M.P.	CMD 06-H4.21
Association of Professional Engineers and Geoscientists of New Brunswick	CMD 06-H4.22
Energy Portfolio	CMD 06-H4.23
New Brunswick Building and Construction Trades Council	CMD 06-H4.24
New Brunswick Department of Energy	CMD 06-H4.25
Town of Rothesay	CMD 06-H4.26
Town of Grand Bay-Westfield	CMD 06-H4.27
A. Drinovz	CMD 06-H4.28



W. Pollock	CMD 06-H4.29
Canadian Manufacturers & Exporters	CMD 06-H4.30
Centre for Nuclear Energy Research	CMD 06-H4.31
City of Saint John	CMD 06-H4.32
C. Ripley	CMD 06-H4.33
Atlantic Nuclear Services Ltd.	CMD 06-H4.34
V. Aucoin	CMD 06-H4.35
Saint John Board of Trade	CMD 06-H4.36
Town of Quispamsis	CMD 06-H4.37