

**Canadian Nuclear  
Safety Commission**

**Commission canadienne de  
sûreté nucléaire**

**Public hearing**

**Audience publique**

**October 6<sup>th</sup>, 2011**

**Le 6 octobre 2011**

Public Hearing Room  
14<sup>th</sup> floor  
280 Slater Street  
Ottawa, Ontario

Salle d'audiences publiques  
14<sup>e</sup> étage  
280, rue Slater  
Ottawa (Ontario)

**Commission Members present**

**Commissaires présents**

Dr. Michael Binder  
Dr. Moyra McDill  
Dr. Ronald Barriault

M. Michael Binder  
Mme Moyra McDill  
Dr Ronald Barriault

**Secretary:**

**Secrétaire:**

Ms. Kelly McGee

Mme Kelly McGee

**Senior Counsel :**

**Conseiller principal:**

Mr. Jacques Lavoie

M. Jacques Lavoie

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Ottawa, Ontario

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--- Upon commencing at 9:05 a.m./

L'audience débute à 09h05

**Opening remarks**

**MS. MCGEE:** Bonjour, Mesdames et Messieurs.

Bienvenue à l'audience publique de la Commission canadienne de sûreté nucléaire.

Mon nom est Kelly McGee. Je suis la secrétaire de la Commission et j'aimerais aborder certains aspects touchant le déroulement des audiences.

The Canadian Nuclear Safety Commission is about to start a public hearing on the application by New Brunswick Power Nuclear to renew the Power Reactor Operating Licence for the Point Lepreau Generating Station and the request for the approval to reload fuel and restart the Point Lepreau Nuclear Generating Station.

During today's business, we have simultaneous translation.

Des appareils de traduction sont disponibles à la réception. La version française est au poste 2 and the English version is on channel 1.

Please keep the pace of your speech

1 relatively slow so that the translators have a chance to  
2 keep up.

3 L'audience est enregistrée et transcrite  
4 textuellement; les transcriptions se font dans l'une ou  
5 l'autre des langues officielles compte tenu de la langue  
6 utilisée par le participant à l'audience publique.

7 I'd also like to note that this proceeding  
8 is being video webcasted live and that the proceeding is  
9 also archived on our website for a three-month period  
10 after the closure of the hearing.

11 Les transcriptions seront disponibles  
12 sur le site web de la Commission dès la semaine  
13 prochaine.

14 To make the transcripts as meaningful as  
15 possible, we would ask everyone to identify themselves  
16 before speaking.

17 As a courtesy to others in the room, please  
18 silence your cell phones and other electronic devices.

19 Monsieur Binder, président et premier  
20 dirigeant de la CCSN, présidera l'audience publique  
21 d'aujourd'hui.

22 Mr. President.

23 **THE CHAIRMAN:** Thank you, Kelly.

24 Good morning and welcome to the public  
25 hearing of the Canadian Nuclear Safety Commission.

1                   Mon nom est Michael Binder, je suis le  
2                   président de la Commission canadienne de sûreté nucléaire.

3                   Je souhaite la bienvenue aux gens ici  
4                   présents et à ceux qui se joignent à nous par  
5                   webdiffusion.

6                   I would like to begin by introducing the  
7                   Members of the Commission that are here with us today.

8                   On my right is Dr. Moyra McDill, and on my  
9                   left is Dr. Ronald Barriault.

10                  We've just heard from Kelly, the Secretary  
11                  of the Commission, and we have Jacques Lavoie, Senior  
12                  General Counsel to the Commission, with us here today on  
13                  the podium.

14  
15                  **11-H14 / 11-H14.A**

16                  **Adoption of Agenda**

17  
18                  **THE CHAIRMAN:** So with this information, I  
19                  would like to call for the adoption of the agenda of the  
20                  Commission, as outlined in 11-H14.A.

21                  Do we have concurrence?

22                  So for the record, the agenda is adopted.

23                  Kelly, you have some additional information  
24                  to share with us?

25                  **MS. MCGEE:** This is Day One of the public

1 hearing of NB Power's applications.

2 The Notice of Public Hearing, 2011-H-06,  
3 was published on July 26, 2011 and a revised notice was  
4 published on August 9, 2011 to change the date for Hearing  
5 Day Two in New Brunswick.

6 Submissions from NB Power and CNSC staff  
7 were due on September 6, 2011. A confidential submission  
8 pertaining to security has also been filed by CNSC staff  
9 and will be discussed in closed session after the public  
10 portion of the hearing.

11 September 28, 2011 was the deadline for  
12 filing of supplementary information. The presentations  
13 from NB Power Nuclear and CNSC staff were also filed at  
14 that time.

15 I wish to acknowledge the presence in the  
16 room of Mr. Ernest MacGillivray, Director for Emergency  
17 Services at New Brunswick Emergency Measures Organization.

18 Also in attendance today is Dr. John Adams,  
19 Seismologist at Natural Resources Canada.

20 Mr. MacGillivray and Dr. Adams will be  
21 available for questions after the presentations.

22 **THE CHAIRMAN:** Okay, we're ready to start  
23 with a presentation from NB Power.

24 The first one is on the request to reload  
25 fuel and the second is on the restart, the licence

1 renewal.

2 So I understand that Mr. Thomas, you will  
3 make the presentation. Please proceed, sir.

4

5 **New Brunswick Power Nuclear**

6 **(NB Power Nuclear):**

7 **Application to renew the Power**

8 **Reactor Operating licence for the**

9 **Point Lepreau Generating Station**

10 **And request for the approval to**

11 **Reload fuel and restart Point**

12 **Lepreau Nuclear Generating**

13 **Station**

14

15 **11-H11.1 / 11-H11.1A / 11-H12.1 / 11-H12.1A**

16 **Oral presentation by**

17 **NB Nuclear Power**

18

19 **MR. THOMAS:** Bonjour, Monsieur le président  
20 et membres de la Commission, Members of the Commission.  
21 For the record, my name is Gaëtan Thomas. I am the NB  
22 Power President and CEO.

23 Firstly, thank you very much for allowing  
24 us to present in front of the Commission today.

25 When we combine our renewable portfolio

1 with non-emitting generation from Point Lepreau, once  
2 Point Lepreau is back to service by the fall of 2012, our  
3 in-province energy requirements will be produced by close  
4 to 70 percent non-emitting generation; more than two-  
5 thirds. Point Lepreau, alone, will provide over one-third  
6 of this non-emitting energy free of CO<sub>2</sub>, free of sulphur  
7 dioxides and free of nitrogen oxides.

8 When you add the significant investment in  
9 the plant, it is easy to appreciate the importance of this  
10 project to our company's future stability and to ensure  
11 stable rates to our customers over the long term.

12 I'm pleased to report that our  
13 refurbishment project is progressing very well now and you  
14 will hear progress on many fronts by our team members  
15 including on key programs such as corrective action  
16 program, fire protection -- where we already spent over  
17 \$50 million -- and the lessons learned from Fukushima.  
18 From top down, bottom up and peer to peer, complete  
19 support on safety and quality, we have achieved an  
20 excellent safety record in spite of the complexities and  
21 many adversities encountered during the diligent execution  
22 of our refurbishment project.

23 These two anchors, safety and quality, will  
24 significantly increase the likelihood of reliable plant  
25 operation for the next 25 to 30 years. I want to

1 acknowledge publicly all the men and women on site,  
2 employees and contractors, who made a lot of sacrifices to  
3 turn around the momentum of this project.

4 This project continues to receive great  
5 support from the local communities and we appreciate the  
6 developing relationship with many stakeholders including  
7 those sharing different views. First Nations are  
8 providing interesting perspectives and meaningful insights  
9 that will allow continued open and frank discussions.

10 I will now introduce my team. On my right  
11 here I have Blair Kennedy, who is the Vice-President of  
12 Nuclear and Chief Nuclear Officer. I have Rod Eagles, who  
13 is the Refurbishment Project Director and Deputy Chief  
14 Nuclear Officer. We have Wade Parker, who is our Station  
15 Director. We have Kathleen Duguay, who is our Public  
16 Affairs Manager. We have Michael Hare in the back, who is  
17 our Commissioning Restart and Production Manager. We have  
18 Charles Hickman, who is our Health and Safety and  
19 Environment Manager; and we have Paul Thompson, who is our  
20 Regulatory Affairs Manager. I would also acknowledge the  
21 presence of Ernie MacGillivray who is working closely with  
22 us to ensure we are ready for restart.

23 So I will now turn it over to Blair  
24 Kennedy.

25 **MR. KENNEDY:** Good morning, Mr. Chair, and

1 Members of the Commission. For the record, my name is  
2 Blair Kennedy. As stated, I am the Vice-President and  
3 Chief Nuclear Officer for NB Power Nuclear.

4 With the permission of the Chairman and the  
5 Commissioners, I would request that we deal with the  
6 licence renewal first and then the approval to reload  
7 fuel.

8 **THE CHAIRMAN:** Are you talking about the  
9 particular slide deck?

10 **MR. KENNEDY:** The slide deck, yes.

11 **THE CHAIRMAN:** Yes, go ahead.

12 **MR. KENNEDY:** We appreciate the opportunity  
13 to speak with you today on our application for the renewal  
14 of the operating licence for the Point Lepreau Generating  
15 Station, which also includes the on-site waste storage  
16 facility.

17 The written supplemental materials  
18 submitted with this presentation forms a part of the oral  
19 presentation. Our presentation today will be done in two  
20 parts. Wade Parker, Station Director, will provide you  
21 with an update on the station operations with respect to  
22 the CNSC's industrial report and our request for the power  
23 reactor operating licence renewal. Mr. Rod Eagles,  
24 Refurbishment Director, will provide you with an update on  
25 the refurbishment project and the request for the approval

1 to reload fuel and restart the Point Lepreau Generating  
2 Station.

3 I want to take this opportunity to -- again  
4 to confirm the understanding and the commitment of NB  
5 Power's Board of Directors and the Executive to the safe  
6 and reliable operation of the Point Lepreau Generating  
7 Station. It is a responsibility we understand and take  
8 very seriously from the top right down to the shop floor.  
9 We focus on our responsibility; we are committed to the  
10 safe and reliable operation of the Point Lepreau  
11 Generating Station. Our Board will ensure that both our  
12 physical plant and our people are capable of meeting that  
13 goal.

14 The application prescribed how NB Power  
15 Nuclear met the requirements of the *Nuclear Safety and*  
16 *Control Act* and associated regulations. Due to time  
17 constraints of this oral presentation, we have limited the  
18 discussion to selected topics.

19 I will now turn to Wade Parker, our Station  
20 Director, to begin our presentation.

21 **MR. PARKER:** Good morning, Mr, Chair, and  
22 Members of the Commission. For the record, my name is  
23 Wade Parker, Station Director, Point Lepreau Nuclear  
24 Generating Station.

25 The presentation outline, as you can see,

1 will cover health, safety, and environment; security and  
2 safeguards, safety and control areas; public engagement;  
3 Fukushima; various improvements; and it will also include  
4 a conclusion.

5 NB Power Nuclear meets the requirements and  
6 manages all aspects of its operations under overall  
7 quality assurance program called the Management System as  
8 per CSA standard N28605. The Management System is a  
9 foundation of our process-based organization with a  
10 cornerstone being quality. It is a combination of the  
11 culture and interrelated activities that are used to  
12 direct and perform work and includes management and  
13 support of personnel to enable them to implement the  
14 established, documented processes to ensure the  
15 performance objectives are achieved safely, consistently,  
16 efficiently, and in a quality manner.

17 The requirements of the *Nuclear Safety and*  
18 *Control Act* and its associated regulations, as well as  
19 Canadian Standards and CNSC regulatory documents are  
20 incorporated into our processes. The NB Power Nuclear  
21 Management System process model provides a framework that  
22 defines the executive core and support processes that  
23 identifies the activities we perform to achieve our  
24 overall performance objectives.

25 The executive processes are the primary

1 processes used to manage the business. They describe how  
2 we set and communicate business direction and provide  
3 management oversight. These processes assist us on our  
4 road to operating excellence through operating experience,  
5 corrective-action program, self assessment and independent  
6 assessment, as well as external drivers such as industry  
7 standards and international benchmarks.

8 The process model shown on the previous  
9 slide is a cornerstone for managing the three foundational  
10 elements of the station. Those three elements are people,  
11 plant, and process. It gives us the tools to move towards  
12 excellence and provides the framework for documenting each  
13 of these elements.

14 The documents describe the measures  
15 established to meet the applicable standards and achieve  
16 the station's goals and objectives, whether the objectives  
17 are in the area of people, for an example, training;  
18 plant, an example, in relationship to the reliability of  
19 maintenance or process, an example of that would be a  
20 relation to work management.

21 The Nuclear Management Manual is a top-  
22 tiered document. The Management System's tiered-documents  
23 approach allows us to logically arrange the documents and  
24 each process, and the interconnections of each process are  
25 easily obtained and adhered to by staff to ensure the

1 required behaviours are demonstrated in everything we do.

2 This slide is a high-level organizational  
3 chart for NB Power Nuclear that illustrates the layers of  
4 oversight of the operation of our facility. From the  
5 bottom up, the Director's level, note the independence  
6 from station of the independent assessment and performance  
7 improvement areas as well as oversight by the Vice-  
8 President Nuclear of the Director's team.

9 At the Vice-President level note the  
10 oversight by the President and CEO and by the External  
11 Oversight Committee.

12 And at the President and CEO level note be  
13 oversight by the Nuclear Oversight Committee and the NB  
14 Power Board of Directors.

15 The following slides will cover the  
16 elements of health, safety, and environment program.  
17 These will include conventional safety; radiation  
18 protection, including ALARA; and the environment.

19 Our focus on the safety of workers and the  
20 public has been and will always be reinforced at all  
21 levels of the organization.

22 Over the licence period we have and will  
23 continue to maintain a team of safety professionals who,  
24 in conjunction with corporate safety and the station joint  
25 health and safety committee, ensure that work is planned

1 and executed safely in accordance with relevant safety  
2 expectations and procedures.

3 Since the start of the licence period we  
4 have worked more than 15 million person hours with a  
5 workforce which peaked at approximately 2,800 workers.  
6 This includes supplemental staff.

7 Over that time we have maintained an  
8 excellent safety record as compared with other industries  
9 and as reflected by Workers Compensation Board rates which  
10 are in line with rates for office workers and below rates  
11 for other heavy industries by a factor of 10.

12 Throughout the licence period and  
13 particularly during the refurbishment outage, NB Power  
14 Nuclear has placed a great deal of effort on the goal of  
15 radiation protection and keeping radiation doses as low as  
16 reasonably achievable.

17 As with conventional safety, the radiation  
18 protection and ALARA programs are supported by a dedicated  
19 team of professionals and specialists who, through a  
20 review of radiation work permits, field presence, and  
21 challenge meetings ensure the work is planned and executed  
22 safely. The ALARA Committee meets monthly and provides  
23 essential oversight.

24 Over the licence period we have made  
25 extensive use of operating experience. For example, in

1 preparing for the refurbishment outage and its successful  
2 management of alpha contamination and provided operating  
3 experience to other utilities with regard to challenges we  
4 have overcome.

5 Over the licence period we have also  
6 certified two new senior health physicists in accordance  
7 with CNSC requirements.

8 During the licence period we have managed  
9 radiation work successfully, dose to individuals and  
10 public was managed below limits and contamination is being  
11 controlled. The follow slide provides additional  
12 information on doses during the licence period.

13 This slide depicts worker radiation dose  
14 and public dose over the licence period. The individual  
15 dose data show the worker's dose was controlled  
16 significantly below regulatory limits of 100 millisieverts  
17 in five years with a maximum of 50 millisieverts in any  
18 single year.

19 The highest individual doses during the  
20 period occurred during the removal of reactor components,  
21 as part of refurbishment, as was planned, and managed  
22 successfully through our ALARA program.

23 The public dose data, plotted on a  
24 logarithmic scale at the right, show that we continue to  
25 control dose to the public; averaging 0.7 microsieveverts

1 per year, approximately 1,000 times below the legal  
2 limits.

3 The station has a comprehensive  
4 environmental management system which is registered to ISO  
5 14001 standard. Like other programs at the station, the  
6 environment management system relies on and is linked with  
7 our station processes to ensure all related requirements  
8 are met.

9 Early in the licence period the solid  
10 radioactive waste operating licence was rolled into the  
11 power reactor operating licence. In 2007 additional low-  
12 and intermediate-level waste management facilities were  
13 constructed and have been used during the refurbishment  
14 outage.

15 The discharges from the site are carefully  
16 monitored. Conventional waste streams are managed in  
17 accordance with approvals from the provincial Department  
18 of the Environment and regular monitoring confirms  
19 discharge limits are met.

20 During the licence period the station  
21 purchased a new sewage treatment plant which helped ensure  
22 compliance with legal limits.

23 Radiological emissions are monitored and  
24 managed consistent with the station's derived emission  
25 limits.

1           In addition, to monitor potential impacts  
2           on the surrounding environment we have operated an  
3           extensive radiation environmental monitoring program since  
4           1976, well before the station went into operation.

5           We also have offsite laboratory that  
6           manages this program. The program results confirm the  
7           lack of impact on the surrounding environment.

8           Although the station is in a refurbishment  
9           outage with the core in a defuelled state we have  
10          continued to manage the facility as an operating nuclear  
11          power plant, with infrastructure required in areas such as  
12          security, safeguards, emergency preparedness, work  
13          management, et cetera.

14          The photos on this slide demonstrate two  
15          areas where we have made significant improvements,  
16          ensuring we meet our regulatory requirements.

17          The fire protection program in a nuclear  
18          facility is very extensive and has evolved over time. The  
19          CSA standard is quite detailed and refers to many other  
20          codes and standards. It has a number of elements which  
21          include: Number one, prevention. This includes regular  
22          inspections, hot work procedures, control of combustibles  
23          and others;

24          Number two, analysis, both deterministic  
25          and probabilistic;



1       satisfactory emergency preparedness program going into the  
2       refurbishment outage. That program covers a wide-range of  
3       events in an all-hazards approach, including medical,  
4       chemical, fire, natural events, security, and radiation.

5               The onsite emergency plan is linked with  
6       the offsite nuclear emergency plan owned by the Province  
7       of New Brunswick, this plan is regularly exercised.

8               While drills continue no offsite  
9       radiological exercises were performed during the  
10      refurbishment, as was planned, due to no fuel being in the  
11      core and the potential adverse impact on refurbishment  
12      activities.

13              However, work in the emergency preparedness  
14      area related to continual improvement continued throughout  
15      the outage. These improvements include: Number one,  
16      incorporation of station-specific severe accident  
17      management guidelines, which I will discuss more in a  
18      later slide.

19              Number two, addressing lessons learned from  
20      previous exercise;

21              Number three, adoption of an incident  
22      command system approach which is widely used throughout  
23      North America, and;

24              Number four, upgrades to information  
25      technology to improve information flow between us at the

1 Point Lepreau Generating Station and New Brunswick  
2 Emergency Measures Organization.

3 As part of our continued commitment to  
4 emergency management we will ensure that the proper  
5 elements meet our requirements and the regulations of the  
6 CNSC.

7 Simply put, severe accident management  
8 guidelines replaces the expert judgment-based approach  
9 with a structured systematic all-hazards approach to  
10 taking preventative and mitigating actions related to core  
11 cooling and containment response for accidents beyond the  
12 original design basis, including severe accidents.

13 It provides specific technical guidance to  
14 the incident commander for these very low probability high  
15 consequence events.

16 This work was based on common work  
17 performance by the Canadian nuclear industry through the  
18 CANDU Owners Group.

19 Training of necessary staff in this  
20 approach is complete and demonstration drills are underway  
21 and will be completed by the end of this year.

22 It should be noted that the SAMG supports  
23 Level 2 probabilistic safety assessment which includes the  
24 assessment of beyond-design-basis events and as well as  
25 severe accidents.

1                   As part of the life extension related  
2 activities our station implemented important design  
3 changes which aid in the response to these highly unlikely  
4 events.

5                   Severe accident management guidelines uses  
6 both the original design features as well as new safety  
7 enhancements which include: Number one, we've added  
8 passive autocatalytic hydrogen recombiners which were  
9 installed in the reactor building to mitigate the build-up  
10 of hydrogen;

11                  Number two, main control room, filtered  
12 ventilation system was installed to ensure control room  
13 staff remain at the control room panels by monitoring  
14 their air quality;

15                  Number three, calandria vault make-up line  
16 as an addition means to add water to cool the fuel without  
17 entering the reactor building;

18                  Number four, containment emergency filtered  
19 vent was installed to reduce reactor building pressure and  
20 lessen releases to the environment;

21                  Number four -- sorry, number five, severe  
22 accident monitoring system added to assist and assessing  
23 the reactor building conditions, and;

24                  Number six, there were also additional  
25 design changes such as seismic upgrades to equipment that

1 were explicitly performed to reduce the consequences of  
2 severe accidents.

3 Community involvement is an important  
4 priority for NB Power Nuclear and we continue to keep the  
5 public apprised of our station activities.

6 NB Power continues to hold public  
7 information sessions, stakeholders updates and dialogue  
8 with First Nations.

9 NB Power recognizes the importance of  
10 communicating with First Nations communities in New  
11 Brunswick through mediums such as information sessions,  
12 educational forums and open forum discussion.  
13 Representatives of NB Power are continuing to engage First  
14 Nations in meaningful conversation pertaining to NB Power  
15 businesses, stations operations, and major projects.

16 In addition to media events at the station,  
17 as well as on one-on-one interviews with our CEO and press  
18 conferences, have provided the press with clear statements  
19 from our project progress and station activities.

20 The Community Relations Liaison Committee  
21 has continued to provide a forum for the local region to  
22 identify with the station and the project team.

23 These meetings are important for discussion  
24 of the issues and concerns from the public, as well as  
25 providing them with an opportunity for more detailed

1 updates on the project which they are then able to share  
2 with their friends and neighbours.

3 NB Power Nuclear continues to have a very  
4 positive and supportive local community.

5 As a result of the earthquake and  
6 subsequent tsunami that occurred in Japan, NB Power formed  
7 a team to review lessons learned and to identify potential  
8 areas for further improvements. This included a response  
9 to the information requested by the CNSC.

10 The review incorporated information from  
11 tasks performed in support of the Point Lepreau generating  
12 station life extension and the refurbishment project,  
13 augmented by additional specific reviews and walk-downs in  
14 response to the events at Fukushima.

15 These activities were performed in concert  
16 with CANDU integrated team, domestic and international  
17 CANDU utilities, as well as AECL.

18 The review concluded that the risk related  
19 to Point Lepreau operation continues to be in line with  
20 documented licensing basis and safety case with its  
21 defence in-depth approach.

22 As mentioned in the previous slide, severe  
23 accident management guidelines, the life extension work  
24 completed in preparation for life extension has led Point  
25 Lepreau Generating Station to implement many design

1 improvements that support this conclusion.

2 We work closely with our inter-utility  
3 peers to ensure concise, factual, and align messages were  
4 shared with our employees and the public.

5 Long-term improvement plans are currently  
6 under discussion with the CNSC staff and are expected to  
7 be a topic of a site-specific action item once the CNSC  
8 staff reviews are complete.

9 In conjunction with the refurbishment  
10 activities that are taking place at our station, during  
11 the licence period Point Lepreau continued to work on  
12 station improvements that sustain operational excellence.  
13 Continuous improvement through the use of operating  
14 experience, benchmarking, peer reviews, and incorporating  
15 the latest versions of standards and regulations into our  
16 licensing basis supports this desire to always be  
17 improving.

18 This slide illustrates some of the  
19 improvements we have made in the past five-year licence  
20 period.

21 Number one, we updated our pressure  
22 boundary documents, trained staff and successfully  
23 completed internal and external audits of the program  
24 which allowed us to receive our Pressure Boundary  
25 Certificate of Registration.

1           The corrective action program has been  
2 improved by increasing management oversight, increased  
3 ownership at the working level, quality reviews of cause  
4 evaluations and corrective actions, training, and station  
5 trending.

6           Business planning has been improved through  
7 our business plans and supporting work group operational  
8 plans.

9           Supervisory field observations are used to  
10 reinforce high standards and expectations. Training has  
11 been provided to over 300 staff and nearly 7,000  
12 observations in calendar year 2010 and up to 6,000 so far  
13 in this year have been completed.

14           The ALARA program has been benchmarked and  
15 improved, reducing worker dose during running and outage  
16 conditions, and security upgrades continue to be improved  
17 to meet regulatory requirements.

18           I will now turn the presentation back to  
19 Blair Kennedy.

20           **MR. KENNEDY:** Thank you, Mr. Parker.

21           For the record, my name is Blair Kennedy;  
22 Vice-President Nuclear.

23           I submit that NB Power Nuclear is qualified  
24 to operate the Point Lepreau Generating Station and will  
25 continue to make adequate provision for the health and

1 safety of persons, both from a staff point of view and the  
2 public.

3 We will make provision for the protection  
4 of the environment and the maintenance of national  
5 security and measures required to implement international  
6 obligations to which Canada has agreed.

7 We have the necessary programs and  
8 processes in place. Performance over the licence period  
9 has been satisfactory, with the exception of certain  
10 elements of the fire protection program to which we have  
11 made prescribed commitments that have been mentioned by  
12 Mr. Parker.

13 We respectively request that the Canadian  
14 Nuclear Safety Commission renew NB Power's power operating  
15 licence for a period of five years.

16 I will now request that Rod Eagles, our  
17 Refurbishment Director provide the Commission with an  
18 update on the refurbishment project, as well as a request  
19 to reload fuel into the reactor at the Point Lepreau  
20 Generating Station.

21 Mr. Eagles?

22 **MR. EAGLES:** Good morning, Mr. Chair and  
23 Members of the Commission.

24 For the record, my name is Rod Eagles;  
25 Refurbishment Project Director and Deputy Chief Nuclear

1       Officer for NB Power Nuclear.

2                   I'm very pleased to be here today to  
3       support our request for approval to reload fuel in the  
4       reactor at Point Lepreau Generating Station.

5                   Within the current operating -- reactor  
6       operating licence issued in June of 2006 and renewed  
7       earlier this year, there are specific conditions relating  
8       to the refurbishment activities.

9                   A discussion of these conditions and the  
10      status of work to address these requirements forms the  
11      basis of our written submission and this presentation.

12                   In this slide we have outlined the topics  
13      contained within our presentation today.

14                   The refurbishment project, in its inception  
15      in 2000, was focused on a systematic evaluation of  
16      requirements to determine the scope of work and the  
17      required improvements for the station.

18                   While the project predated creation and  
19      issuance of CNSC Regulatory Document RD-360, this  
20      regulatory document is largely based on the approach  
21      applied for the Point Lepreau Generating Station life  
22      extension and refurbishment project.

23                   Within the written submission there is a  
24      table correlating the expectations of RD-360 to the  
25      information that was provided to the CNSC over the course

1 of project work.

2 Key elements of the project include an  
3 environmental assessment for the solid radioactive waste  
4 management facility which included refurbishment project  
5 activities and incremental affects of continued station  
6 operation.

7 The scope of the environmental assessment  
8 was approved by the Commission and the work of the  
9 assessment was conducted jointly with both federal and  
10 provincial government departments.

11 The environmental assessment was approved  
12 separately by both federal and provincial processes in  
13 2003.

14 The first integrated safety review in  
15 Canada was performed to the IAEA Guidelines for periodic  
16 safety reviews. The integrated safety review included all  
17 of the safety factors identified in the Periodic Safety  
18 Review Guidelines, including: Extensive plant condition  
19 assessment; comparison of Point Lepreau Generating Station  
20 design against modern standards; review of safety  
21 analysis; production of state-of-the-art Level II  
22 probabilistic safety assessment to replace the earlier  
23 safety design matrix studies; updating of the safety  
24 report to incorporate changes made during the  
25 refurbishment, as well as new fuel conditions and new

1 analysis for events in CNSC Regulatory Document C-6,  
2 Revision 1 that were not already included or bounded by  
3 events contained with the station safety report.

4 And, preparation of an integrated  
5 improvement plan for the post-refurbishment operation.

6 While NB Power has incorporated a number of  
7 important safety improvements over the years, a  
8 considerable number of improvements were identified and  
9 executed during the refurbishment outage to position  
10 station well for another 25 to 30 years of operation and  
11 to align with international practice for refurbished  
12 units.

13 As mentioned earlier, the power reactor  
14 operating licence contained two specific conditions  
15 relating to the refurbishment activities. Licence  
16 Condition 12.1 requires NB Power Nuclear to obtain  
17 Commission approval prior to reloading fuel and proceeding  
18 with the restart of the station, and to provide Commission  
19 completion assurance reports for the improvements outlined  
20 in Appendix J of the licence.

21 I will speak to the status of commissioning  
22 activities for these specific items later in this  
23 presentation.

24 Licence Condition 12.2 requires approval of  
25 the Commission or by an authorized delegate, prior to

1 proceeding beyond regulatory hold points are: Fuel  
2 reload; release of reactor shutdown guarantees; operation  
3 above .1 percent of reactor power; and operation above 35  
4 percent power.

5 The designation of this authority by the  
6 Commission to approve proceeding at the various regulatory  
7 hold-points is consistent with past practice on other  
8 refurbishment projects.

9 Over the course of the project, annual  
10 updates on the status of work have been provided to the  
11 Commission. At the time of our most recent presentation  
12 to you in January of this year, we were in the process of  
13 completing polishing of the calandria tube sheet bores in  
14 preparation for re-installation of the calandria tubes.  
15 This polishing work was completed and the calandria tube  
16 installation and testing have also been successfully  
17 completed.

18 The project is currently just over 50  
19 percent complete on the installation of fuel channels,  
20 with the expectation that this work will be completed by  
21 the end of December 2011.

22 The next steps in reactor work after the  
23 fuel channel installation are to refill the moderator,  
24 install lower feeders and to load fuel.

25 The overall project schedule issued last

1       October continues to be met with the target to complete  
2       the re-tubing work by May 2012. Achieving this date would  
3       lead to an overall completion of the Phase III  
4       commissioning and return-to-service activities by NB Power  
5       by the fall of 2012.

6               The project team remains focused on  
7       achieving the project completion in a safe, reliable  
8       return to service for the station.

9               Appendix J of the Power Reactor Operating  
10       Licence describes 21 modifications and activities which  
11       are to be completed prior to return to service.

12              As an update to the information previously  
13       submitted in this slide, I can report that all of the fuel  
14       commissioning actions have -- are either complete or have  
15       been commissioned up to the point permitted by the current  
16       plant state.

17              Turnover of these last few systems to  
18       operations will be completed shortly.

19              One activity, the reactor re-tubing work,  
20       is still in progress.

21              In addition to the refurbishment project  
22       scope of work, a number of other plant modifications are  
23       being completed under plant capital improvement programs.

24              There are over 200 items being tracked in  
25       our design management program. The vast majority of work

1 originally planned for the refurbishment outage is  
2 complete.

3 A number of these projects provide further  
4 enhancements to safety, such as fire protection and severe  
5 accident management improvements. The severe, or beyond  
6 design-basis accident management improvements installed  
7 during this outage have direct linkage to the types of  
8 improvements being identified in the lessons learned from  
9 Fukushima and, as discussed in the licence renewal  
10 presentation, examples such as emergency containment  
11 filter vent, emergency calandria vault make-up water,  
12 hydrogen recombiners, and seismic improvements and others  
13 have been installed.

14 Also included in the refurbishment outage  
15 was an upgrade to the turbine low-pressure rotors to  
16 increase reliability and increase electrical output from  
17 the station. This upgrade will generate an expected 25  
18 megawatts of carbon-free electricity with no increase in  
19 reactor power.

20 As a result of the extension to the outage,  
21 additional capital and maintenance work has been  
22 incorporated in outage activities as part of ongoing,  
23 capital improvement and preventative and corrective  
24 maintenance programs.

25 For all of the design changes being

1 implemented at the station, a staged process of acceptance  
2 at each phase of the work is being used NB Power Nuclear.  
3 After design, acceptance by our design authority; after  
4 implementation, acceptance by our implementation lead;  
5 after commissioning, acceptance by our commissioning  
6 manager of design authority and operations superintendent.

7 At each stage, formalized documentation of  
8 that acceptance includes a record for tracking of any  
9 remaining deficiencies.

10 Upon completion of the commissioning  
11 completion assurance, this information is also provided to  
12 CNSC staff for their information and records.

13 In addition to the commissioning design  
14 changes, systems that were dormant or in a laid-up state  
15 are also validated and tested as appropriate to confirm  
16 that they are fit for return to operation.

17 It is our plan that as we approach the end  
18 of this outage that systems will be returned to service as  
19 early as possible during that restart process.

20 Operating experience gained from  
21 discussions with other utilities has led to focused  
22 benchmark visits to a number of stations in North America  
23 and in Europe.

24 This experience has led to the focus of the  
25 dedicated senior management resource to lead the readiness

1 for restart program and the parallel activity to the  
2 commissioning and return-to-service work.

3 The specific goal of the readiness to  
4 restart is to ensure transition from a project to an  
5 operational focus is made with the plant configuration --  
6 as the plant configuration is restored during  
7 commissioning activities.

8 As part of this program, NB Power Nuclear  
9 has received commitment and support of our industry peers  
10 to review and assist us in evaluating our plans, and  
11 identification of areas for improvement.

12 A restart advisory board, made up of senior  
13 executives from Ontario Power Generation and Bruce Power,  
14 has been formed to provide valuable experience from these  
15 other stations that have experienced the restart process.  
16 In addition, other industry peer groups have provided  
17 technical support and advice on restart preparedness.

18 Numerous discussions have been held with  
19 CNSC staff regarding the staged approach to return to  
20 service. In accordance with our operating licence and  
21 with reference to regulatory document RD-360, a defined  
22 four-phase approach to the restart has been agreed upon  
23 with CNSC staff.

24 It has been discussed that at each of the  
25 three phases -- each of these phases of restart will

1       require the approval of a CNSC designated officer and  
2       that, additionally, the first phase of approval will  
3       require this hearing of the CNSC Commission for approval  
4       to load fuel.

5               While all of the required dry commissioning  
6       tests will be completed at the time of approval for load  
7       fuel, not all of these tests will be completed as some of  
8       the final commissioning tests require the plant to be at  
9       some level of operational power as defined by  
10       commissioning phases B, C and D. These commissioning  
11       tests will provide final confirmation of commissioning  
12       results.

13               This concludes my portion of the  
14       presentation.

15               Thank you for your time, and I'll now  
16       return to Mr. Blair Kennedy, Vice-President Nuclear.

17               **MR. KENNEDY:** Thank you, Mr. Eagles.

18               For the record, my name is Blair Kennedy,  
19       Vice-President Nuclear, and Chief Nuclear Officer.

20               I submit that NB Power Nuclear is qualified  
21       to operate the Point Lepreau Generating Station, as  
22       outlined in our submission and in this presentation. It  
23       is our position that we have met the requirements to  
24       reload fuel in the reactor of the Point Lepreau Generating  
25       Station, and request your permission to do so.

1                   We also request that the Commission  
2                   delegate authority to a person approved by the Commission  
3                   for the approvals associated with the remaining fuel pre-  
4                   load prerequisites and the post-fuel reload regulatory  
5                   hold-points.

6                   In order to support our continued timely  
7                   progress of the project work, we respectfully request that  
8                   the Commission provide a decision on our request for the  
9                   approval to load fuel by the end of December 2011.

10                  This wraps up our oral presentation.

11                  Thank you, again, for the opportunity to  
12                  present before the Commission today.

13                  We, along with our technical support team,  
14                  will stand by to answer any questions that the  
15                  Commissioners may have.

16                  To that end though, I believe that the CNSC  
17                  staff will do their presentation at this time.

18                  **THE CHAIRMAN:** Thank you.

19                  In fact, you're right, I'd like now to move  
20                  on to the CNSC presentation as outlined in CMD 11-H11.A  
21                  and 12.B, and I understand, Mr. Jammal, you're going to  
22                  make the presentation? Go ahead.

23  
24                  **11-H11.A / 11-H12.B**

25                  **Oral Presentation by**

1           **CNSC Staff**

2

3                           **MR. JAMMAL:** Merci, monsieur le président.

4           Ici Ramzi Jammal pour l'enregistrement.

5                           Alors, encore une fois, bonjour, monsieur  
6           le président et membres de la Commission.

7                           Avec moi aujourd'hui, le docteur Greg  
8           Rzentkowski, directeur général de la direction de la  
9           réglementation des centrale nucléaires; madame Lisa Love-  
10          Tedjoutomo, directrice du programme de la réglementation  
11          de Point Lepreau; et avec elle, son personnel incluant Mr.  
12          Burton Valpy, derrière moi, superviseur du bureau de site  
13          à Point Lepreau.

14                          In addition the whole CNSC staff is present  
15          which comprises licensing compliance officer and our  
16          specialists who are involved in this file.

17                          We are here to present to you two matters  
18          for your decision regarding NB Power's application for  
19          licence renewal and the approval for the request to load  
20          fuel.

21                          This Day One hearing is an important  
22          regulatory milestone as Point Lepreau Nuclear Station is  
23          the first single-unit station in Canada on the way for  
24          full or complete full refurbishment.

25                          Mr. President, as reported to you by CNSC

1 staff during the August 10<sup>th</sup>, 2011 Commission meeting, NB  
2 Power performance in the area of emergency management and  
3 fire protection was rated below expectations.

4 As chief regulatory operations officer, I  
5 informed NB Power that we, staff, will not recommend to  
6 you, the Commission, to authorize the removal of the  
7 reactor from a guaranteed shut-down state which is planned  
8 for the summer of 2012 until the rating of the emergency  
9 management and fire protection is brought to satisfactory  
10 rating.

11 NB Power has committed to achieve this  
12 rating. I personally engaged on this matter and so did  
13 Mr. Gaëtan Thomas, Chief Executive Officer of NB Power.

14 The CNSC and NB Power agreed and signed a  
15 statement of protocol for clarity on CNSC expectation to  
16 address the emergency management, and our CNSC staff have  
17 been and has been working with NB Power on the fire  
18 protection issues.

19 As of September 28<sup>th</sup>, 2011, I have been  
20 receiving daily updates from our CNSC fire protection  
21 specialist, Mr. Grant Cherkas, on the progress of NB Power  
22 as they work towards a satisfactory resolution to the  
23 CNSC.

24 Mr. President and Members of the  
25 Commission, the indicators to date indicate to me, and as

1 of five-thirty-five this morning, I received an email from  
2 Mr. Cherkas who clearly states that CNSC staff formally  
3 communicated their concurrence with NB Power proposed  
4 compensatory measures on Wednesday, October the 5<sup>th</sup>.

5 In addition, Mr. Cherkas and our team has  
6 been observing on-site evaluation and they're declaring  
7 that overall performance is improving and the external  
8 support to the Point Lepreau Generating Station emergency  
9 response team, or ERT, is satisfactory.

10 So my point to you is they are on track and  
11 we will update you on Day Two with respect to their  
12 progress.

13 Even though these challenges, NB Power has  
14 carried out the refurbishment of the single unit safely  
15 and has overcome technical challenges that they were  
16 resolved to the satisfaction of the CNSC staff.

17 With this conclusion, I will pass on the  
18 floor to Dr. Rzentkowski.

19 **DR. RZENTKOWSKI:** Thank you very much, Mr.  
20 Jammal. Good morning, Mr. President, and Members of the  
21 Commission.

22 The presentation today will be delivered by  
23 Ms. Lisa Love-Tedjoutomo and Mr. Jeff Ramsay who's a  
24 Senior Regulatory Program Officer assigned to the  
25 regulatory oversight of the refurbishment project and

1 return to service of the Point Lepreau Station.

2 This CNSC staff presentation integrates  
3 findings and recommendations on the licence renewal and  
4 approval to load fuel into a single presentation.

5 As shown on this slide, I will provide the  
6 background; the location of the Point Lepreau Nuclear  
7 Generating Station, recent licensing decision, the  
8 establishment of the refurbishment project, and an update  
9 on the CNSC and in-depth response to the Fukushima  
10 accident.

11 The part of the presentation pertaining to  
12 licence renewal will report on the performance of New  
13 Brunswick Power since the licence renewal in 2006. This  
14 will include details of overall station performance as  
15 well as performance for each safety and control area.

16 The part of the presentation pertaining to  
17 approval to load fuel will address the fuel-load  
18 prerequisites as well as the regulatory hold points -- all  
19 points for each of the restart phases.

20 The presentation will finish with the  
21 conclusions and recommendations for both licensing  
22 decisions. At this point, I will also describe very  
23 briefly the next two steps for Day Two.

24 This slide shows a close-up view of the  
25 Point Lepreau Nuclear Generating Station. The station is

1 located in Eastern Canada; more specifically, the station  
2 is on the Point Lepreau Peninsula along the Bay of Fundy  
3 on the shores of southern New Brunswick.

4 I would now like to provide some background  
5 on the licensing of the Point Lepreau Station. New  
6 Brunswick Power Nuclear, which will be referred to as NB  
7 Power throughout this presentation, is the licensed  
8 operator of the Point Lepreau Nuclear Generating Station.

9 NB Power was granted a 5-year operating  
10 licence during the 2006 licence renewal, with an expiry  
11 date of June 30<sup>th</sup>, 2011. Exactly six months ago, on April  
12 6, 2011, NB Power was granted a one-year renewal of the  
13 operating licence. The current licence expires on June  
14 30<sup>th</sup>, 2012.

15 In its decision to grant the licence in  
16 2006 and 2011, the Commission requested that the licence  
17 renewal and the fuel-load decision be considered together;  
18 therefore, the operating licence incorporated  
19 refurbishment activities since the renewal in 2006 and has  
20 two refurbishment-specific licence conditions, namely,  
21 Condition 12.1 and 12.2. These conditions pertain to fuel  
22 load and reactor restart.

23 In addition, Appendix J of the current  
24 operating licence lists the 21 prerequisites for fuel  
25 load. They pertain to repairs and replacement of reactor

1 structures, systems and components, and installation of  
2 safety upgrade.

3 The scope of refurbishment activities and  
4 the status of the prerequisite for fuel load will be  
5 discussed later in our presentation.

6 On my next slide, I will provide an  
7 overview of refurbishment activities at the Point Lepreau  
8 site.

9 The refurbishment timeline is illustrated  
10 in the table on this slide. On July 29<sup>th</sup>, 2005, the  
11 Provincial Government of New Brunswick approved the  
12 refurbishment of the Point Lepreau Station. On March 28  
13 2008, the plant was shut down to begin the refurbishment.  
14 In August 2011, the calandria tube installation was  
15 completed.

16 Currently, the fuel channel installation  
17 sequence is approximately 50 percent complete. This work  
18 is expected to be completed by December 2011. Feeders  
19 installation is expected to be completed by May 2012.

20 By the fall of 2012, the reactor is  
21 expected to be back online producing power. This is about  
22 18 months later than initially expected as a result of  
23 technical problems experienced during calandria tube  
24 installation.

25 I will now provide more information on the

1       conduct of refurbishment activities.

2               First of all, what is refurbishment? The  
3       basic idea behind refurbishment is to extend the station's  
4       operating life by another 25 to 30 years.

5               This is achieved through a number of  
6       construction activities that involve repairs and  
7       replacement of structures, systems and components, and  
8       installation of many safety upgrades.

9               The objective is not only to restore the  
10       original plan design basic, but to enhance it to the level  
11       defined by modern standards and practices. Therefore,  
12       personally, I prefer to use the term "plant modernization"  
13       rather than refurbishment because effectively the level of  
14       safety of the station increases from what it was  
15       originally licensed to a level that approaches, to the  
16       extent practical, that of new-build.

17       This is the unique feature of the Canadian licensing  
18       philosophy that enforces continuous safety improvement.

19               The groundwork for the reactor  
20       refurbishment, or modernization activities, began when NB  
21       Power conducted an integrated safety review referred to as  
22       ISR.

23               An ISR is a comprehensive and systematic  
24       life extension study that includes four elements. These  
25       elements are: demonstration of safety system reliability;

1 identification of the strengths and weaknesses in reactor  
2 defence in depth; comparison of the current plant to  
3 modern codes and standards; and formation of the basis for  
4 the refurbishment project.

5 The Integrated Implementation Plan,  
6 referred to as IIP, is an important aspect of an ISR that  
7 documents the plan and schedule for the safety  
8 improvements identified in the ISR.

9 IIP defines the scope of refurbishment  
10 activities. Improvements are required when a shortcoming  
11 is identified, costs are relatively moderate compared to  
12 the safety benefits, and reactor safety is below that  
13 expected of a new plant. This means that what is  
14 practical, what is cost effective, and what is state-of-  
15 the-art, has to be considered.

16 My next two slides, will provide an update  
17 on the CNSC and industry response to the Fukushima  
18 accident in the context of the Point Lepreau relicensing.

19 The March 11, 2011 Japanese earthquake,  
20 followed by the tsunami, caused enormous death and  
21 destruction to the northeast coastal region of Japan and  
22 triggered a nuclear accident at the Fukushima Daiichi  
23 station.

24 On March 17<sup>th</sup>, following those events, the  
25 CNSC issued an order under Section 12(2) of the General

1 Nuclear Safety and Control Regulations to all Class I  
2 nuclear facilities to review initial lessons learned from  
3 the event in Japan and to re-examine the safety cases of  
4 Canadian nuclear power plants.

5 NB Power provided its initial response on  
6 March 28<sup>th</sup>, noting that extensive implementation of design  
7 changes related to severe accidents had already been  
8 completed as part of refurbishment activities.

9 In a second letter on April 28<sup>th</sup>, NB Power  
10 confirmed that the review of its safety case shows that  
11 the risk related to the plant future operation continues  
12 to be very low. Some short-term measures were proposed to  
13 improve safety in light of the accident.

14 The third progress report on July 28<sup>th</sup>  
15 focused on the long-term measures which would be  
16 implemented. This included an assessment of external  
17 hazards and capability to respond to beyond design-basis  
18 accidents.

19 In the most recent letter, on September  
20 15<sup>th</sup>, NB Power has described its long-term plan which  
21 includes a schedule for each item. NB Power has committed  
22 to accelerate the completion of a number of items in its  
23 plan and to reduce the risk of severe accidents to as low  
24 as reasonably practicable.

25 CNSC staff announced the closure of

1 responses to initial requests on September 21<sup>st</sup>. CNSC  
2 staff recommendations on further enhancements to the  
3 reactor defence in-depth and emergency preparedness and  
4 response, are summarized in the draft CNSC task force  
5 report issued to the attention of Mr. Ramzi Jammal,  
6 Executive Vice President on September 30<sup>th</sup>.

7 These recommendations are generally  
8 consistent with the improvements already implemented or  
9 considered for implementation by NB Power. This will be  
10 demonstrated later in our presentation.

11 With respect to external hazards, I would  
12 like to note the Point Lepreau site has been assessed for  
13 a wide range of external events and has been evaluated and  
14 licensed on the basis of its proven ability to withstand  
15 severe seismic activity and flooding with no significant  
16 damage.

17 A design-basis earthquake for reactor  
18 structures, including the spent fuel pool, is 0.2g which  
19 is an earthquake that has a probability of occurrence of  
20 about 1 in 1,000 years. The safety objective, however, is  
21 the ability to demonstrate the prevention of severe core  
22 damage for an earthquake of up to 0.4g which has a  
23 frequency of occurrence of about 1 in 10,000 years.

24 A major tsunami adversely affecting the  
25 Point Lepreau site is not considered credible due to

1 natural protection offered by the site elevation, which is  
2 approximately 15 metres, and configuration of the ocean  
3 bottom at the Bay of Fundy. Also, storm surges generated  
4 by maximum probable hurricanes are not high enough to  
5 reach the plant elevation. It is also important to note  
6 that Point Lepreau has a robust reactor design with a  
7 strong defence-in-depth approach.

8 The probabilistic safety goals for Point  
9 Lepreau site, namely, the core damage frequency and the  
10 severe release frequency, are similar in value to those  
11 established for new builds, as discussed later in our  
12 presentation.

13 The station blackout scenario had been  
14 considered in deciding on the scope of refurbishment  
15 activities. As a result of design upgrades implemented,  
16 the self-sufficiency of the plant has been extended to  
17 about four days.

18 In addition, the reactor defence against  
19 severe accidents is being enhanced through implementation  
20 of severe accident management programs. These include  
21 associated procedures that need to be performed by  
22 operators in case of severe accidents.

23 Based on safety improvements made at Point  
24 Lepreau plant and action taken by CNSC and NB Power staff  
25 to confirm availability and readiness of installed safety

1 systems and equipment, a conclusion can be drawn that the  
2 safety case remains strong and, therefore, the risk  
3 related to plant operations continues to be very low.

4 This concludes the background portion of  
5 the presentation. I will now pass the presentation over  
6 to Ms. Lisa Love-Tedjoutomo who will discuss the licence  
7 renewal. Lisa?

8 **MS. LOVE-TEDJOUTOMO:** Thank you. Good  
9 morning, Mr. President, and Members of the Commission.

10 NB Power has applied for a renewal of the  
11 existing operating licence which expires on June 30<sup>th</sup>,  
12 2012. CNSC staff review of the renewal application  
13 confirmed that all of the information required by the  
14 *Nuclear Safety and Control Act* and its regulations was  
15 provided.

16 The proposed licence follows the new format  
17 for an operating licence. The new format includes  
18 standard licence conditions that are aligned with the CNSC  
19 safety and control areas.

20 References to licensing -- licensee  
21 documents have been removed and replaced with documented  
22 policies or programs and specific requirements, such as  
23 CSA standards, regulatory documents, and tables of  
24 numerical limits such as, for example, release limits.

25 In addition, the new format for the licence

1 is accompanied by a licence conditions handbook, or LCH,  
2 which documents CNSC requirements and expectations for  
3 each licence condition, agreements, deviations approved by  
4 the Commission and CNSC staff, and version control of  
5 documents referenced in the licence.

6 This slide summarizes the performance of  
7 Point Lepreau over the last 5 years for the 14 realigned  
8 safety and control areas, or control areas, which were  
9 first implemented in 2010.

10 The readings are described on the slide as  
11 FS, SA or BE, which equate to Fully Satisfactory,  
12 Satisfactory, or Below Expectations. To make the table  
13 easier to read, colours are used to highlight Fully  
14 Satisfactory and Below Expectations performance.

15 The dashes on the table represent that  
16 there is no safety performance rating. The dashes used  
17 for waste management and packaging and transport, as these  
18 realign control areas, were not rated separately prior to  
19 2010.

20 In 2009 some control areas were not rated  
21 as a result of refurbishment. This will be discussed in  
22 subsequent slides.

23 To help you understand the slide it is  
24 important to note that sometimes a fully satisfactory  
25 rating becomes a satisfactory rating as the industry

1 performance catches up.

2 For 2010 all the control areas were rated  
3 as satisfactory, with the exception of the control area  
4 for emergency management and fire protection.

5 The emergency management and fire  
6 protection control area was rated below expectations in  
7 2010. The reason for the below expectations rating will  
8 be discussed later in the presentation.

9 These ratings were recently published in  
10 the 2010 CNSC staff report on Canadian nuclear power  
11 plants.

12 The integrated plant rating for 2010 is  
13 satisfactory. This rating is expected to continue as  
14 satisfactory for 2011, based on station performance to  
15 date.

16 It is also expected that some improvements  
17 will start to be noticed for emergency management and fire  
18 protection control area as NB Power addresses the CNSC  
19 staff concerns.

20 The licensee's performance in each of these  
21 control areas will now be discussed in turn.

22 Management system: NB Power has an  
23 adaptive organization, the Nuclear Management Manual is  
24 updated to reflect organizational changes, thus meeting  
25 CNSC expectations. These changes were driven by the need

1 to have the organization focus first on the goal of  
2 refurbishment, then back to operation as the refurbishment  
3 nears completion.

4 The management system is transitioning to  
5 compliance with CSA N-286-05 and full compliance to the  
6 new standard is expected by June 30<sup>th</sup>, 2012.

7 For the record, I would like to provide the  
8 following administrative correction to CMD 11-H12. On  
9 page 14 under Section 3.1.2.1 on safety management,  
10 quality management oversight it was reported that NB Power  
11 will be in full compliance with CSA N-286-05 by the end of  
12 June 2011. This, however, is the result of a  
13 typographical error and was supposed to read, "by the end  
14 of June 2012."

15 Finally, NB Power has implemented a self-  
16 assessment program at Point Lepreau.

17 Human performance management: The  
18 systematic approach to training program for station staff  
19 is considered adequate following the development of a  
20 training improvement plan to address some minor issues.  
21 As a result, NB Power's training program better addresses  
22 feedback from the trainees and their supervisors to ensure  
23 effective training.

24 NB Power has updated their documentation  
25 for controlling the number of hours worked, preventing

1 errors caused by fatigue of workers working overtime.

2 In addition, there is a formalized  
3 succession planning process and training of certified  
4 staff has been maintained throughout the refurbishment  
5 period.

6 Operating performance; this control area  
7 was not rated in 2009 due to refurbishment. As many  
8 aspects of operation, such as reactor power limits and  
9 safe operating limits and conditions, were not applicable  
10 during this period.

11 As the operations program is ready for  
12 return to service this control area was rated for 2010.

13 Refurbishment began in the spring of 2008.  
14 During both the operation and refurbishment phases, NB  
15 Power staff maintained effective operating experience and  
16 corrective action programs.

17 NB Power reported events in a timely manner  
18 in accordance with S-99 requirements. It is expected that  
19 RD-99.1 will be implemented in October of 2012.

20 In addition, a strategy is in place for the  
21 implementation of the safe operating envelope, with  
22 completion expected by September 30<sup>th</sup>, 2012.

23 Safety analysis: A number of safety  
24 analyses were completed which supported the design changes  
25 made in refurbishment. These analyses were incorporated

1 into the latest version of the Safety Report.

2 New Brunswick Power closed several safety  
3 issues, including eight generic action items in the  
4 period. These issues are generic to CANDU nuclear  
5 operations and their closure was vetted by a peer group at  
6 the Convention of Nuclear Safety.

7 Point Lepreau has patterned its severe  
8 accident management program on the guidelines developed by  
9 the CANDU Owners Group.

10 The results of the probabilistic safety  
11 analysis show the goals for operating plants are met with  
12 the chance of severe core damage at 0.4 events for 10,000  
13 years of full power operation, and the chance of a large  
14 release at 0.6 event for one million years of full power  
15 operation.

16 For the record, I would like to provide the  
17 following administrative correction to CMD 11-H12; on page  
18 23 under Section 3.4.2.4 on probabilistic safety analysis  
19 the safety goals were incorrectly listed with a missing  
20 decimal point between the one and the zero, resulting in  
21 10 rather than the 1.0 that was intended.

22 Lastly, NB Power is working towards  
23 implementation of RD-310 on deterministic safety analysis.

24 Physical design: For the last three years  
25 NB Power has been incorporating many design improvements

1           into the station as part of the refurbishment project.

2                       This project's main goal was the  
3 replacement of major components, including the calandria  
4 tubes, fuel channel assemblies and feeders to the end  
5 fitting. Many other design improvements were implemented  
6 as part of the refurbishment. Some of the design  
7 improvements are considered prerequisites for fuel load  
8 and these are listed in Appendix J of the current licence.

9                       It should be particularly noted that a  
10 number of design upgrades for design-basis and beyond  
11 design-basis accidents were also included in the  
12 refurbishment scope. These will be mentioned further on  
13 the next slide.

14                      However, before turning to the next slide  
15 other elements important to this control area include  
16 configuration management, engineering change control and  
17 human factors.

18                      Configuration management and engineering  
19 change control were demonstrated to be adequate during  
20 CNSC staff inspections.

21                      With respect to human factors, NB Power  
22 systematically incorporated human factors into the design  
23 change process, as was seen during two recent projects.

24                      These projects involve retube tooling and  
25 modifications to the solid radioactive waste management

1 facility.

2 As mentioned on the previous slide, the  
3 design basis upgrades include shutdown system enhancements  
4 including improved trip coverage; enhancement to fuel  
5 channel component; enhancements to feeders to improve  
6 resistance to flow accelerated corrosion; fire detection  
7 suppression and egress improvement; and upgrades to  
8 improve seismic robustness.

9 Beyond design-basis accidents, upgrades  
10 include, calandria vault make-up line which prevents  
11 failure of the calandria due to core melt; emergency  
12 filtered vent system which prevent containment over  
13 pressure and allows for filtering of releases; hydrogen  
14 recombiners which prevent hydrogen explosions; filtering  
15 system for air to the main control room; and post-accident  
16 sampling and monitoring equipment.

17 In addition to the upgrades that were  
18 discussed on the previous slide, this slide shows the  
19 improvements required for beyond design-basis accidents  
20 from another perspective.

21 The table in this slide lists the  
22 implementation status for the CNSC Fukushima taskforce  
23 recommendations. As stated earlier in the presentation,  
24 the taskforce recommendations were issued to the Executive  
25 Vice-President on September 30<sup>th</sup> as a draft report.

1                   As you can see, NB Power has already  
2 implemented measures consistent with the recommendations  
3 and is nearly finished or working on the remaining items.

4                   Fitness for service: Due to refurbishment,  
5 this control area was not rated in 2009 since components  
6 normally evaluated were being repaired or replaced.  
7 Continuous improvement was evident in the maintenance  
8 program during the period with the performance of  
9 preventive maintenance approaching the best in the  
10 industry.

11                  Nuclear power plants have many systems  
12 operating at high temperatures and pressures, and other  
13 systems that contain radiological substances. Periodic  
14 inspection of these systems ensures that weaknesses will  
15 be detected before failures result.

16                  Periodic inspection requirements are based  
17 on standards included in the operating licence. These  
18 standards are being updated to improve safety, and their  
19 implementation is being managed in the Licence Conditions  
20 Handbook. For example, NB Power is transitioning to the  
21 2009 version of CSA N285.4 which is for periodic  
22 inspection of CANDU nuclear power plant components.

23                  Since the reactor has not been operational,  
24 Point Lepreau has not been required to perform the reactor  
25 building leak rate test. This test must be completed

1 prior to the removal of the guaranteed shutdown state.

2 CNSC has published RD-344 titled,  
3 "Aging Management for Nuclear Power Plants." This  
4 regulatory document specifies the creation of aging  
5 management plans for critical components. NB Power's  
6 aging management plans for the reactor building, steam  
7 generators, fuel channels and feeder pipes are being  
8 aligned with this document.

9 Radiation Protection: When Point Lepreau  
10 was in operation during 2006 and 2007, their performance  
11 in minimizing the radiation dose to workers and the public  
12 was better than the industry average. Following an Alpha  
13 contamination event during the refurbishment of the Bruce  
14 Nuclear Power Plant, CNSC staff sent letters to all  
15 licensees requiring them to review their measures to  
16 protect workers from this source. Point Lepreau  
17 implemented additional measures to minimize uptake of  
18 Alpha-emitting contamination which were deemed acceptable  
19 by CNSC staff. These additional measures resulted in an  
20 improved radiation protection program.

21 Prompt actions were taken by NB Power  
22 following two minor events that occurred during the  
23 period. In one event, a contaminated tool was sent to a  
24 warehouse in error and in another, a worker's hand was  
25 exposed to 10 percent of the annual limit when he freed a

1 piece of pressure tube caught in the door of a waste  
2 container. NB Power implemented measures to prevent  
3 repetition of these events, and these measures were deemed  
4 satisfactory by CNSC staff.

5 For the record, I would like to provide the  
6 following administrative correction to CMD 11-H.12. On  
7 page 39, under Section 3.7.2.3 on contamination control,  
8 the description of action item 08-12-11 neglected to  
9 mention that this action item is now closed.

10 Conventional Health and Safety: The  
11 accident-severity rate at Point Lepreau is comparable to  
12 that at other power reactor sites. During refurbishment,  
13 CNSC staff focused inspection activities on housekeeping  
14 practices due to the higher volume of material stored and  
15 disposed. Housekeeping concerns were brought to the  
16 attention of NB Power personnel and promptly resolved.  
17 CNSC staff inspectors conduct regular inspections of  
18 occupational health and safety practices with Work Safe  
19 New Brunswick. This ensures the workplace is safe from  
20 non-radiological hazards.

21 Environmental Protection: As is typical of  
22 Canadian nuclear power plants, the emissions are well  
23 below the actual limits which are set at 10 percent of the  
24 permitted release limits of a particular contaminant.  
25 Emissions of gases and liquids are monitored to ensure

1 they remain at low levels. Note that emissions of tritium  
2 were lower during refurbishment as the heavy water which  
3 contains tritium was stored during the reactor  
4 refurbishment activities.

5 Emergency Management and Fire Protection:

6 In 2008, emergency preparedness -- the predecessor of this  
7 control area -- was rated as fully satisfactory as the  
8 program exceeded the requirements for a facility  
9 undergoing refurbishment. Emergency preparedness was not  
10 rated in 2009 due to the CNSC site staff focus towards  
11 refurbishment activities.

12 Following changes in the rating methodology  
13 in 2009, emergency preparedness would have received a  
14 satisfactory rating. Emergency preparedness, under this  
15 realigned control area, continues to be satisfactory based  
16 on ongoing oversight activities by CNSC site staff.

17 In 2010, with the introduction of the  
18 realigned control areas, fire protection was added to  
19 create the emergency management and fire protection  
20 control area. Under the former safety areas, fire  
21 protection was the fifth or sixth review topic under plant  
22 design and, therefore, did not contribute substantially to  
23 the rating for plant design.

24 Following the realignment of the control  
25 areas, fire protection plays a more significant role in

1 the performance of this control area. In fact, the  
2 performance and fire protection caused this control area  
3 to be rated below expectations.

4 Fire protection issues have been tracked by  
5 the CNSC since 2004. At the last five-year licence  
6 renewal in 2006, CNSC staff told the Commission that fire  
7 protection and response did not represent an unreasonable  
8 risk provided effective corrective actions were  
9 implemented. The below expectations rating in fire  
10 protection is the result of a CNSC staff inspection of a  
11 fire drill in October 2010. This drill indicated a number  
12 of problems with the Emergency Response Team or Industrial  
13 Fire Brigade performance.

14 In addition, NB Power has a number of  
15 activities to complete to become fully compliant with the  
16 fire protection standard CSA N293-07.

17 The next slide will provide information on  
18 the control measures for fire protection.

19 Additional control measures have been  
20 established for fire protection as follows; the operating  
21 licence requires a transition to the 2007 version of CSA  
22 N293 by the end of 2014.

23 In that regard, a new hold point for  
24 continued operation has been established. The details of  
25 NB Power's transition plan to achieve compliance will be

1 described in the licence conditions handbook for the Day  
2 Two hearing.

3 The licence conditions handbook includes  
4 additional prerequisites for the guaranteed shutdown  
5 state, or GSS removal. These include compensatory  
6 measures to meet the intent of CSA N-293 and completion of  
7 inspection, testing and maintenance activities.

8 To date, however, I can report that just  
9 this week CNSC and NB Power staff confirmed the  
10 compensatory measures required to meet the intent of the  
11 standard. In total, there are 18 compensatory measures  
12 which will be included in the licence conditions handbook.

13 Furthermore, I can now report that CNSC  
14 staff concurs with NB Power's approach for the inspection,  
15 testing and maintenance plan, which will also be included  
16 in the licence conditions handbook.

17 CNSC staff has entered into a protocol  
18 agreement with NB Power which defines the schedule of  
19 drills and the performance criteria which must be met for  
20 the rating for this control area to be considered  
21 satisfactory. NB Power is required to have a satisfactory  
22 rating prior to GSS removal.

23 To date, CNSC staff has observed good  
24 progress on the drills conducted. An update on the  
25 progress of drill performance will be provided at the Day

1 Two hearing.

2 CNSC staff considers that the control  
3 measures to achieve safety improvements in this control  
4 area are adequate or, to put it another way, the control  
5 measures put in place are considered to be satisfactory.

6 Waste management. As stated earlier in  
7 this presentation, this control area was not rated prior  
8 to 2010 due to the realignment of waste management as a  
9 separate control area. CNSC staff is satisfied that NB  
10 Power has taken the necessary steps to minimize, segregate  
11 and characterize the radioactive waste generated as a  
12 result of operating the plant.

13 Storage and processing of waste within the  
14 plant is also monitored by on-site staff before it is  
15 transferred to the solid radioactive waste management  
16 facility. This facility's operations are covered by the  
17 operating licence, as Point Lepreau's licence consolidates  
18 all requirements for nuclear substances and devices.

19 Lastly, NB Power has a preliminary  
20 decommissioning plan that meets CNSC requirements.

21 Security. The details of the performance  
22 in this control area were provided in a separate  
23 classified document, CMD 11-H12.A. However, the ratings  
24 have been released for 2006 through 2010 and are presented  
25 in this table. The security program meets CNSC

1 requirements.

2 As the report contains prescribed  
3 information, the additional details will be discussed in  
4 an in camera session.

5 Safeguards. The rating in 2009 was lower  
6 than 2008 due to changes in the rating methodology.  
7 Canada has entered into a safeguards agreement and  
8 additional protocol with the International Atomic Energy  
9 Agency, or IAEA, to ensure compliance with the treaty on  
10 non-proliferation of nuclear weapons.

11 Under this agreement, the IAEA must verify  
12 that Canada has not diverted nuclear material from power  
13 generation to nuclear weapons.

14 Point Lepreau staff has maintained records  
15 of all nuclear material and provided access and assistance  
16 to IAEA inspectors to carry out their duties.

17 In order to better monitor transfers from  
18 the spent fuel bay to dry storage, IAEA inspectors have  
19 required NB Power to install new equipment before future  
20 transfers take place. NB Power has agreed to install the  
21 equipment.

22 NB Power continues to maintain a safeguards  
23 program which meets regulatory requirements. It is also  
24 noted that full implementation of RD-336 on accounting and  
25 reporting of nuclear material is expected by July 2012.

1                   Packaging and transport. As stated earlier  
2                   in this presentation, this control area was not rated  
3                   prior to 2010 due to the realignment of packaging and  
4                   transport as a separate control area. Its requirements  
5                   include the CNSC Packaging and Transport of Nuclear  
6                   Substances Regulations as well as Transport Canada's  
7                   Transportation of Dangerous Goods Regulations.

8                   These Regulations cover all aspects of  
9                   packaging and shipping of nuclear substances, including  
10                  the training of staff.

11                  NB Power has developed and implemented  
12                  procedures for all these activities at site. CNSC staff  
13                  conducted a compliance inspection of the program and  
14                  concluded that it meets regulatory requirements.

15                  Other information. On this slide are the  
16                  headings for other information that was included in CMD  
17                  11-H12. I will highlight the main aspects for each.

18                  CNSC staff has concluded that no  
19                  environmental assessment is required for fuel load or  
20                  licence renewal. Letters were sent out to aboriginal  
21                  groups in the area of the plant and a visit was made to  
22                  the Passamaquoddy recognition group following a good  
23                  governance approach.

24                  On July 18<sup>th</sup>, 2011, the CNSC announced its  
25                  participant funding program to help members of the public,

1 aboriginal groups and other interested stakeholders to  
2 participate in the regulatory process related to the  
3 application to renew the operating licence for Point  
4 Lepreau.

5 Four applicants were received and a final  
6 decision on successful applicants should be available  
7 soon. NB Power has consistently paid their cost recovery  
8 fees since the last 5-year renewal in 2006.

9 NB Power has an adequate financial  
10 guarantee. NB Power's public information program meets  
11 CNSC staff expectations.

12 NB Power has fulfilled its obligations for  
13 nuclear liability insurance. NB Power's operating licence  
14 is a consolidated licence that includes nuclear substances  
15 and radiation devices.

16 And, finally, NB Power is fully compliant  
17 with the nuclear non-proliferation import and export  
18 control regulations. This is the last slide on licence  
19 renewal.

20 I will now turn the presentation over to  
21 Jeff Ramsay, who will discuss the approval to load fuel,  
22 CMD 11-H11.

23 **MR. RAMSAY:** Thank you, Ms. Love-  
24 Tedjoutomo.

25 Mr. President and Members of the

1 Commission, for the record, my name is Jeff Ramsay and I  
2 am the senior regulatory program officer for the Point  
3 Lepreau refurbishment.

4 NB Power has applied for the approval to  
5 load fuel and restart the reactor. The basis for NB  
6 Power's application is described on this slide. In  
7 addition, this slide describes the refurbishment  
8 requirements and how they are incorporated into the  
9 proposed operating licence.

10 As mentioned earlier in this presentation,  
11 refurbishment has been included in the current operating  
12 licence since 2006 under licence conditions 12.1 and 12.2.

13 Licence condition 12.1 requires NB Power to  
14 request Commission approval to load fuel and provide a  
15 completion assurance report on the installation and  
16 commissioning of the improvements and modifications listed  
17 in Appendix J of the current licence.

18 Licence condition 12.2 requires approval  
19 from the Commission, or of a person authorized by the  
20 Commission, for each increase of reactor power.

21 These requirements and prerequisites are  
22 incorporated in the proposed operating licence as licence  
23 conditions 16.3 and 16.4, and are further detailed in the  
24 licence conditions handbook.

25 Licence condition 16.3 of the proposed

1 licence includes the requirement for a return to service  
2 plan in accordance with RD-360 on life extension at  
3 nuclear power plants.

4 All of the regulatory hold points are  
5 included in Licence Condition 16.4. These are discussed  
6 further on the next slide.

7 Approval to release regulatory hold points,  
8 including fuel load, is contingent on NB Power providing  
9 confirmation that they have met all established  
10 prerequisites.

11 CNSC staff has, and will, conduct reviews  
12 and inspections to verify that the required prerequisites  
13 have been met prior to releasing the regulatory hold  
14 points.

15 This slide shows the four regulatory hold  
16 points for fuel load and restart of the reactor. CNSC  
17 staff has aligned each commissioning phase with the  
18 appropriate approval that will be sought for each of the  
19 established hold points.

20 These hold points will serve as regulatory  
21 verification checkpoints to ensure operational readiness  
22 of the plant's safety systems to support full power, and  
23 also to satisfy regulatory requirements for staged  
24 increases in reactor power.

25 The established regulatory hold points

1 include fuel load, releasing reactor guaranteed shutdown  
2 state, operating above .1 percent power, and operating  
3 above 35 percent power.

4 Note that during fuel load the reactor will  
5 be in a guaranteed shutdown state.

6 As mentioned previously, the prerequisites  
7 for fuel load are defined in Appendix J of the current  
8 licence. The status and target completion dates for the  
9 Appendix J items are provided Addendum A of CMD 11-H11.

10 The following two slides will show pictures  
11 of key prerequisites for fuel load, re-tubing of the  
12 reactor and improvements to the main generator and  
13 turbines.

14 On this slide is a picture of the primary  
15 side of the Point Lepreau Station that shows the location  
16 of the replacement of the 380 fuel channels which is one  
17 of the prerequisites for fuel load.

18 Replacement of all reactor fuel channel  
19 assemblies, calandria tubes and feeder pipes or re-tubing  
20 was a major refurbishment activity.

21 This photograph shows the work in progress,  
22 a view from the end-shield of the reactor. The sketch  
23 provided shows a cross-section of the reactor at a right  
24 angle to the photograph with only 2 of the 380 fuel  
25 channels shown for simplicity.

1                   The reactor is comprised of a horizontal  
2 cylinder called the calandria, closed at each end by end-  
3 shields which support the horizontal fuel channels that  
4 span the calandria.

5                   The calandria is filled with heavy water  
6 moderator. Each fuel channel consists of an inner  
7 pressure tube which contains the fuel bundles and the  
8 heavy water primary coolant, surrounded by an outer  
9 calandria tube.

10                  Garter spring spacers maintain a gap  
11 between the calandria tubes and the pressure tubes which  
12 is filled with a circulating gas to insulate the moderator  
13 from the high temperatures in the pressure tubes.

14                  The fuel bundles provide heat to the steam  
15 generators through the end fittings and feeder pipes of  
16 which only a small stub end is shown in the schematic.

17                  Calandria tube installation at Point  
18 Lepreau is complete and, as we have heard from New  
19 Brunswick Power, the fuel channel installation is  
20 approximately 50 percent complete and is expected to be  
21 completed by the end of December 2011.

22                  The feeder installation is currently  
23 scheduled to be complete by the end of May 2012.

24                  And here we see a picture of the secondary  
25 side of the Point Lepreau Station that shows the location

1 of upgrades to the main generator and turbine which are  
2 also prerequisites for fuel load as listed in Appendix J.

3 The generator is the blue cylindrical  
4 structure in the foreground, followed by three low-  
5 pressure turbines in the background. The silver-coloured  
6 pipes bring pressurized steam to the turbines, causing  
7 them to spin and, through the common shaft, the generator  
8 produces electricity.

9 All Appendix J prerequisites for the main  
10 generator and turbine are expected to be completed by the  
11 end of December 2011.

12 I will now turn the presentation back over  
13 to Greg Rzentkowski, who will present CNSC staff's  
14 conclusions and recommendations on NB Power's request for  
15 both fuel load and licence renewal.

16 Thank you.

17 **DR. RZENTKOWSKI:** Thank you, Mr. Ramsay.

18 Based on the assessment of NB Power safety  
19 performance and the scope of status of refurbishment  
20 activities completed to date, I would like to state the  
21 following.

22 CNSC staff concludes that NB Power is  
23 qualified to operate the Point Lepreau Nuclear Generating  
24 Station.

25 NB Power has made, and should continue to

1 make, adequate provisions for the health and safety of  
2 persons, protection of the environment, and the  
3 maintenance of national security and measures required to  
4 implement the international obligations to which Canada  
5 has agreed.

6 Finally, CNSC staff concludes that an  
7 environmental assessment is not required for either the  
8 fuel load or licence renewal at this facility.

9 Furthermore, I would like to state that  
10 many design upgrades were either installed during  
11 refurbishment or are considered in the near future to  
12 specifically address severe accidents, such as the station  
13 blackout scenario experienced in Fukushima.

14 Also, notable improvements were made to the  
15 emergency response plan to ensure emergency response  
16 organizations will be able of responding effectively in  
17 case of a severe accident.

18 Based on the conclusions presented on the  
19 previous slide, CNSC staff recommends that the Commission  
20 renew the Point Lepreau operating licence until June 30<sup>th</sup>,  
21 2017, delegates authority for approval associated with  
22 regulatory hold points included in the operating licence  
23 to Mr. Ramzi Jammal, the Executive Vice-President and  
24 Chief Regulatory Operations Officer, as set out under  
25 Section 5 of the CMD 11-H12, and consider the licence

1 condition handbook in the decision to renew the operating  
2 licence.

3 CNSC staff has evaluated the results of the  
4 Integrated Safety Review conducted by NB Power, the scope  
5 and status of design improvements and modifications  
6 implemented at Point Lepreau site to date, and has also  
7 conducted regulatory inspection activities throughout  
8 refurbishment and following the Fukushima accident.

9 Based on this information, CNSC staff  
10 recommends that the Commission grants permission to NB  
11 Power to proceed with fuel load and restart of the  
12 reactor.

13 At the time of the CMD preparation, some  
14 design improvements and modifications are not yet fully  
15 commissioned and require fuel to be loaded to complete the  
16 commissioning.

17 Therefore, CNSC staff recommends that the  
18 Commission delegates authority for approval associated  
19 with fuel load prerequisites and the post-fuel load  
20 regulatory hold points, to Mr. Ramzi Jammal.

21 Mr. Jammal will approve the release of  
22 regulatory hold points based on CNSC staff verification  
23 that all prerequisites have been met.

24 It should be noted that a similar process  
25 and delegation of authority was previously approved by the

1 Commission and is currently in use for the fuel load and  
2 restart of Bruce A Nuclear Generating Station Units 1 and  
3 2.

4 Updates to CMDs 11-H11 and 11-H12 will be  
5 provided at the Day Two hearing scheduled for December 1<sup>st</sup>  
6 and 2<sup>nd</sup> in New Brunswick.

7 The updates will include the following:  
8 the results of recent inspection; the refurbishment  
9 status; and the Fukushima follow-up action plan that will  
10 include prioritization and implementation of any long-term  
11 measures that may be required.

12 CNSC staff will also report on any further  
13 aboriginal consultations held prior to Day Two.

14 Prior to concluding, I would also like to  
15 note that Natural Resources Canada, the Geological Survey,  
16 and New Brunswick Emergency Measures Organization will be  
17 invited to the Day Two hearing.

18 As indicated during the presentation, here  
19 is a table summarizing the corrections made to CMD 11-H12.  
20 There are no corrections to CMD 11-H11.

21 This concludes our presentation. Thank you  
22 for your attention.

23 We are ready to respond to any questions  
24 you may have.

25 **THE CHAIRMAN:** Okay. I think we're going

1 to break for -- take a short break here.

2 I just don't think we absorbed the  
3 correction, you just put it up there, so I assume that  
4 these are the corrections that have already been  
5 mentioned. So there's nothing new in there?

6 And since we have the emergency planning  
7 people and NRCan here today also, I think I should invite  
8 them to come up front, and right after the break I think  
9 we would be interested in asking them some interesting  
10 questions.

11 Okay? So we'll return at 11:05. Thank  
12 you.

13

14 --- Upon recessing at 10:50 a.m. /

15 L'audience est suspendue à 10h50

16 --- Upon resuming at 11:07 a.m. /

17 L'audience est reprise à 11h07

18

19 **THE CHAIRMAN:** Okay, can we start with Dr.  
20 Adams from the Geological Survey of Canada, from NRCan?

21 I know we heard some technical numbers  
22 about the seismic qualification and, as we all know, they  
23 like to talk in G numbers, but the press like to talk  
24 about something like a Richter Scale.

25 Can you actually translate some of the

1 technical issues to what's the maximum -- or maybe you  
2 should give us a couple of -- a short overview -- but your  
3 assessment of the Point Lepreau site and its seismic  
4 vulnerabilities, let me put it this way.

5 **DR. ADAMS:** Thank you. I'm Dr. John Adams,  
6 a Seismologist with Natural Resources Canada. Thank you  
7 for this opportunity to talk.

8 You've heard that the seismic resistance of  
9 the reactors are basically qualified in terms of the  
10 shaking level, percentage of G, and that's the side-to-  
11 side shaking that an earthquake would -- will induce in  
12 the plant, and engineering consequences would flow from  
13 that.

14 Now, that level -- and we referred, for  
15 example, to the design basis level would be .2G. That  
16 level of sideways shaking could come from a number of  
17 earthquakes. It could come from a big earthquake at large  
18 distance, a moderate earthquake at moderate distance, and  
19 any smallish earthquake quite close to the plant.

20 The actual equivalence is something of the  
21 order of a magnitude 6 at 18 kilometres. Now, why do we  
22 choose a magnitude 6? That's probably the most likely  
23 earthquake in probability terms that would happen, which  
24 is consistent with the probabilities we're interested in,  
25 which are roughly 1 in a 1,000 to 1 in 10,000 years.

1                   It's certainly possible that bigger  
2 earthquakes could happen, but the probability of those  
3 bigger earthquakes happening very close to the plant and,  
4 therefore, giving very, very large ground motions, is  
5 quite low. So that's taken into account.

6                   For comparison in New Brunswick, the  
7 earthquake history, the largest event was about a 5.7 in  
8 1904. It happened about 45 kilometres away from Point  
9 Lepreau. And so if we throw that in, we would not have  
10 expected that earthquake to have exceeded the design-basis  
11 value of .2G; in other words, it was about twice as far  
12 away as a magnitude 6 and it was probably about half as  
13 big. So the estimated shaking from that would probably be  
14 only one-quarter of the design.

15                   There have been concerns, of course,  
16 recently from the Fukushima accident and the earthquake in  
17 Japan that caused that.

18                   And we're in the tectonic environment in  
19 Eastern Canada where events that size, magnitude 9  
20 earthquakes, just would not happen. We don't have a plate  
21 boundary where we are. The tectonic situation in New  
22 Brunswick is similar to the whole of Eastern Canada, and  
23 we would not expect these large, great earthquakes to  
24 happen. Nevertheless, we do have the moderate ones, such  
25 as those at Passamaquoddy Bay.

1           In terms of probability, I've said that you  
2           can more or less think of the design-basis value as being  
3           a magnitude 6 earthquake; around 18 kilometres distance.  
4           But the probability of that event, which was in the  
5           presentation we heard from CNSC, was assumed to be about 1  
6           in a 1,000 years.

7           The new work that we've been doing, it  
8           looks in fact as if the seismic hazard estimates in  
9           Eastern Canada are dropping with time; that is, we may  
10          have been a little too cautious in the past.

11          And so my preliminary assessment, which  
12          I'll update for Day Two, is that that probability of  
13          shaking of .2G is probably closer to a 1 in 3 to 1 in  
14          5,000 year event which gives a little bit extra confidence  
15          in terms of the probability. It's a less likely event.  
16          And that should feed through to all of the consequences of  
17          that shaking also being less likely.

18          Thank you.

19          **THE CHAIRMAN:** So just one more point  
20          before I pass it on to the Commissioners.

21          So given the unlikely event happening  
22          though, what's the maximum tsunami that can be generated?

23          **DR. ADAMS:** Right, so tsunamis are a great  
24          concern, particularly after the Japanese experience.

25          You have to realize that to get a large

1 tsunami you have to have a very large earthquake, and  
2 since we don't think that earthquakes the size of the one  
3 in March in Japan can happen in the Atlantic, we would not  
4 expect tsunamis of comparable size.

5           However, I think the tsunamis -- other than  
6 to say that the very big earthquakes would not happen in  
7 the Atlantic, I think the tsunami -- I think I'd pass the  
8 question on to CNSC staff who've probably done the most  
9 comprehensive re-assessment of that.

10           Thank you.

11           **THE CHAIRMAN:** Dr. Barriault, you want to  
12 really become even more precise in your question here?

13           **MEMBER BARRIAULT:** Thank you.

14           I guess my question would deal with the  
15 tides of the Bay of Fundy and the elevation in comparison.

16           We know that the plant is 14 metres -- or  
17 15 metres, I guess, above a mean sea level, but is that  
18 the really maximum tide for the Bay of Fundy? Do we have  
19 storm surges? What is the maximum storm surge? In other  
20 words, how close can we get to the top of this 15 metres  
21 and what would it take to put it over the top?

22           With regard to tsunamis, I guess one of my  
23 questions is that we're dealing, again, with the Bay of  
24 Fundy and the very, very high tides. Does this impact on  
25 tsunamis at all or is that just an incidental thing?

1                   So I'll address that to whoever wants to  
2                   take the question.

3                   **MR. THOMPSON:** For the record, my name is  
4                   Paul Thompson. I'm the Manager of Nuclear Safety and  
5                   Regulatory Affairs at the Point Lepreau Generating  
6                   Station.

7                   First, I'll deal with the questions from  
8                   Dr. Barriault with regards to astronomical tides and storm  
9                   surges.

10                  Based on the work that has been done, we  
11                  looked at the maximum astronomical tide and that indicates  
12                  maximum high tide level of about 14.1 feet -- please  
13                  excuse, I'll use the old units because that's what the  
14                  study was done on and I don't want to get confused as I'm  
15                  talking to you on units -- 14.1 feet above mean sea level.

16                  In terms of the storm surge, what was done  
17                  is based on the probable maximum hurricane and the winds  
18                  are generated from that, and that could result in a total  
19                  storm surge of about 4.7 feet. And so it is assumed, of  
20                  course, that the storm surge could happen at maximum  
21                  probable tide versus an overall height of the station of  
22                  45 feet above mean sea level.

23                  Now, in addition, that is the value of  
24                  surge in relatively deep water, and then the question  
25                  really is on how much is the run-up.

1                   And so studies were done, both theoretical  
2 studies as well as a number of experiments, which  
3 represented various topography of the areas on both sides  
4 of the plant, which concluded and determined the relative  
5 heights and, therefore, distance from the total water run-  
6 up versus the station elevation.

7                   And that information is available in the  
8 July 28 submission that we did provide on Fukushima based  
9 on the earlier studies, and it showed that there is  
10 considerable elevation of 15 feet on the one side and  
11 about 2 feet on the other.

12                   And in addition to that, we've done some  
13 informal sensitivity studies to indicate that if we had  
14 much larger winds, an even bigger hurricane above what was  
15 determined as the maximum probable hurricane, it doesn't  
16 have a huge effect, a significant effect, on that maximum  
17 level because a storm surge increase was relatively minor.

18                   So it still didn't indicate that we would  
19 be overrunning the natural protection of the site.

20                   **MEMBER BARRIAULT:** Thank you.

21                   With the possibility of tsunami activity in  
22 the Bay, are you protected from that?

23                   **MR. THOMPSON:** Again, the history as you  
24 know of -- sorry, for the record, again, it's Paul  
25 Thompson.

1           The history of tsunamis on the Atlantic is  
2 very different from that on the Pacific. Again, we're not  
3 at the edge of a -- or near the edge of a continental  
4 plate.

5           In addition, the type of interaction that  
6 they had in Japan, which is subduction which results in  
7 that vertical motion, will set a wave in effect and we  
8 don't have those there.

9           There are histories previously of indirect  
10 effects of earthquakes such as off the Grand Banks, but  
11 again, the relative protection of the site from the  
12 Province of Nova Scotia, there was no significant increase  
13 as a result of that particular earthquake.

14           And so the other types of things would be  
15 much further away -- mid-Atlantic range -- volcanism, that  
16 sort of thing; again, giving potential warnings as well.

17           So there isn't any significant historical  
18 data indicating this as a problem and the studies all  
19 concluded that any challenge by tsunamis would be bounded  
20 by the effects of storm surges which, as you know,  
21 hurricanes or the remnants of hurricanes do come up the  
22 coast in the late fall, and so that was considered and  
23 that was the conclusion from those studies, sir.

24           **THE CHAIRMAN:** Excuse me, for those who are  
25 not familiar exactly with the geography of the location, I

1 wonder if somebody can actually show the location because  
2 I want to understand this particular location of the  
3 plant, how it relates to the very famous big tide of the  
4 Bay of Fundy and because -- okay, so in my simple mind,  
5 you are in the high tide where the water is rising already  
6 to -- I don't know what's the total -- the maximum 15 --  
7 and then an earthquake occurs and then a hurricane occurs  
8 on top of that, so it's a cumulative effect.

9 Will that be enough to go over the 15-metre  
10 space? I think the public needs to know it in laymen  
11 language.

12 **MR. THOMPSON:** Again, for the record, my  
13 name is Paul Thompson.

14 So, again, I'll separate out the effects of  
15 the storm surge which is generated from a hurricane versus  
16 that from a tsunami because I would not expect a hurricane  
17 and a tsunami -- a large earthquake which could possibly  
18 generate potential for a tsunami and a hurricane to happen  
19 at the same time.

20 So I will separate it, but -- and I  
21 apologize that I linked the two only in the sense that  
22 says that the potential of level increase from a tsunami  
23 is not considered significant and would be bounded by the  
24 effects of the storm surge from a hurricane.

25 And for that hurricane case, we've looked

1 at what the maximum probable hurricane -- what is the  
2 storm surge that would be generated, assumed that it  
3 happened at the astronomical high tides. So not just high  
4 tide, but in the lunar cycle as well that would maximize  
5 high tides, and considering the type of run-up that that  
6 storm surge would have at the -- considering the geometry  
7 of the ocean bottom, that would still leave margin before  
8 the site would be flooded.

9 **THE CHAIRMAN:** I notice, staff, you are  
10 here to comment on that? Go ahead.

11 **MS. LANGE:** Karina Lange.

12 What Mr. Thompson said -- we've reviewed  
13 the same document -- the original citing document is where  
14 much of the information comes from.

15 Perhaps I could reiterate the additive  
16 elevations in metres. So the average grade of the  
17 station, as you saw from the presentation, is at  
18 approximately 14 metres with high tide. As Mr. Thompson  
19 said, that would be at 14.1 feet which was about 4.3  
20 metres.

21 Considering a storm surge, as Mr. Thompson  
22 said, on top of high tide -- so you would add high tide at  
23 4.3 plus the storm surge of 1.4 metres -- those two added  
24 together would raise the water level to about 5.8 metres.

25 Then you have to consider, you know, if

1       you're at the beach and you notice how waves run up the  
2       sand before they come back down, you have to consider the  
3       effect of wind pushing the waves up and you consider the  
4       topography of the site, as well as the type of wave.

5               And modelling has shown that the wave run-  
6       up would be highest on the east side and on the west side,  
7       for instance, the wave run-up would be a total of 9  
8       metres. So that's considering high tide, storm surge and  
9       wave run-up, which it would go up to 9 metres and, again,  
10      the grade of the station is at 14 metres.

11             So if you did have an additional increase  
12      in tsunami of 1 to 2 metres on the southwest profile, it  
13      would not go over the top of the grade.

14             However, on the east side, it would  
15      approach closer to the grade but, again, you still have a  
16      few metres of buffer.

17             **THE CHAIRMAN:** Okay, thank you.

18             Dr. Barriault.

19             **MEMBER BARRIAULT:** Thank you, Mr. Chairman.

20             If we look at the picture, the dark brown  
21      at the bottom, is that seaweeds that we're seeing in front  
22      of the plant? Is this a low-tide picture or a mean-tide  
23      or a high-tide picture? Can somebody who's familiar with  
24      the area comment?

25             **MR. HICKMAN:** Charles Hickman, for the

1 record.

2 That's probably approaching low tide.  
3 Based on my experience, that's not quite full low tide,  
4 but it's approaching low tide.

5 **MEMBER BARRIAULT:** It's low tide. Thank  
6 you.

7 Thank you, Mr. Chair.

8 **THE CHAIRMAN:** Okay, Dr. Barriault, it's  
9 your turn. We'll start the actual question.

10 Maybe a word from the emergency planning  
11 people. I understand that Mr. MacGillivray is here and  
12 maybe we can get -- you heard about the emergency planning  
13 that NB Power has done.

14 First, are you in total agreement, and is  
15 there any area in which there remains some concerns, or  
16 everything is according to plan; particularly keeping the  
17 Fukushima event in mind?

18 **MR. MacGILLIVRAY:** Thank you, Mr. Chair,  
19 Commissioners. For the record, Ernest MacGillivray,  
20 Executive Director, Emergency Services for the Province of  
21 New Brunswick. And I'm also the senior official  
22 responsible for Emergency Management.

23 While we work very closely with NB Power  
24 and we probably have three strengths that I should make  
25 note of, relationships being one. And those are

1 relationships not just at a staff level, but a senior  
2 management level and an executive level. And we've been  
3 at this for 30 years, some of us, so we do know each other  
4 and work closely together.

5 We have formalized governance, not only for  
6 emergency management generally, but for this specific  
7 project to get Lepreau restarted and there are a lot of  
8 associated activities. But there is a Deputy Minister's  
9 committee; Mr. Thomas is now a member of that committee.

10 There's an ADM committee, which is  
11 responsible to deliver on various expectations, and Blair  
12 Kennedy is a member of that committee. There's a project  
13 team steering committee led by Mr. Thompson and myself.

14 On the off-site side, which is where my  
15 interest primarily lies, we have about a dozen different  
16 initiatives that are under way. Many of them are entirely  
17 within the provincial domain, but a number of those are  
18 being supported by NB Power.

19 We have a number of other activities that  
20 are joint, and the most significant of those is our  
21 training and exercise program.

22 We've been shut down for a number of years.  
23 There's a certain amount of skill and knowledge fade,  
24 personalities change, so our main effort right now is  
25 making sure that all of the various training activities

1 that need to take place for both the on-site and off-site  
2 emergency plans are in hand and pay close attention to  
3 that.

4 And there will be a number of exercises of  
5 various components. We invite the CNSC to participate in  
6 those activities. There may be appropriate opportunities  
7 for formal evaluation of components before a major  
8 validation exercise, which is planned for March.

9 So we are, sir, very closely synchronized  
10 on this. We're working together.

11 **THE CHAIRMAN:** Okay. Dr. Barriault.

12 **MEMBER BARRIAULT:** Thank you, Mr. Chairman.

13 This is to the EMO people, really.

14 The system of alarm that we have off-site,  
15 obviously, is it adequate to notify the population within,  
16 say, a 15-minute, 10 mile -- 10-kilometre or 20-kilometre  
17 distance from the plant in the event of an emergency?

18 **MR. MacGILLIVRAY:** Well, we -- I guess the  
19 short answer to that, sir, is yes.

20 We have had -- and I'm looking for my notes  
21 here. We've had a warden service since the '80s, and  
22 these are people who would knock on doors. The design for  
23 that was we should be able to knock on all the doors in  
24 about an hour.

25 We weren't satisfied with that, and in 2000

1 we deployed a direct-to-home alerting system, and it was a  
2 device-based system.

3 We're now into the third generation of our  
4 public warning system. It uses very reliable and robust  
5 high-capacity service. There are a number of channels:  
6 telephone, cellular, SMS, email and fax.

7 And, in fact, we ask the residents of our  
8 20-kilometre long-term planning zone to specify to us how  
9 they would like to be contacted, you know, day, night,  
10 what's your preference. And there's a large population  
11 that actually commutes to work.

12 They live in this area, but they may work  
13 elsewhere, so we have to accommodate multiple phone  
14 numbers for each residence, if you will, each contact.

15 So that system has been in place now for a  
16 couple of years, the new one. It's tested regularly, and  
17 it can make about 20,000 calls in about a half-an-hour, so  
18 it certainly meets the need of our target population.

19 We also have a completely redundant second  
20 mass notification system from a different service provider  
21 on separate infrastructure as a back-up. And then  
22 something the Chairman will be familiar with, we have also  
23 now in Canada deployed a national public alerting system.

24 It's in its infancy, but it has been very  
25 well supported by the provinces and Public Safety Canada,

1 Industry Canada and the CRTC. And that system is capable  
2 of doing direct-to-broadcast messages. For those who live  
3 in Ontario, this is the Red Alert system which is being  
4 used for tornadoes and the like.

5 So not all broadcasters are onside yet, but  
6 the potential is there to have broadcasting over cable and  
7 satellite channels. It's on The Weather Network and Météo  
8 Media now. We hope to add other carriers.

9 It also has some internet channels, and we  
10 are now in the process of adding 15 radio stations in  
11 southern New Brunswick, so if we have to go direct to  
12 broadcast, we'll also be able to do so over commercial  
13 radio.

14 So there's a lot of depth there in terms of  
15 our capabilities.

16 **MEMBER BARRIAULT:** Given the experience  
17 that we've had last week in New Brunswick with the land  
18 lines being down and the communications system, would that  
19 change your view on the system that you have for the area  
20 now in Saint John?

21 **MR. MacGILLIVRAY:** I think we always have  
22 to look at various risks. We've already -- and this was  
23 an unexpected event.

24 It was, in fact, a triple failure event, if  
25 you do the analysis, and we've had conversations with Bell

1       Aliant about what actually happened.

2                   We don't think this will happen again, but  
3       if it does, we'll need some work arounds.

4                   I can report that the 911 system in the  
5       province -- we have a provincial system that's also part  
6       of my portfolio -- worked fine. There were issues. If  
7       people couldn't get dial tone, they couldn't make a phone  
8       call. But there's some services where you could still  
9       receive a phone call even if you can't get dial tone. So  
10      we have to do more analysis of that.

11                  And as I've pointed out, we do have some  
12      redundant capabilities, and it is -- the other factor, I  
13      would say, in public alerting, if you'll permit me, is the  
14      human dimension. So it's not just enough to ring the  
15      bell, but people need to know what the bell means.

16                  And we're very fortunate in New Brunswick  
17      in that we have a 30-year history. There's an ongoing  
18      outreach program. We knock on every door at least once  
19      every five years, have a conversation, and people are well  
20      sensitized to the systems that we have and the kind of  
21      messages that we would deliver and the sorts of things  
22      that we expect them to do on receipt of those messages.

23                  So the population is -- has a high level of  
24      awareness of these systems and we're confident that those  
25      serve us well and the public will react accordingly.

1                   **MEMBER BARRIAULT:** Thank you.

2                   Is CNSC staff satisfied with the system?

3                   **MR. JAMMAL:** Ramzi Jammal, for the record.

4                   I will ask Mr. Luc Sigouin to respond to this question.

5                   Just to assure the Commission as Luc is  
6                   coming to the microphone that all of these evaluations  
7                   were done as part of the Fukushima task force.

8                   **MR. SIGOUIN:** Luc Sigouin.

9                   So the quick answer to the question is,  
10                  yes, we are satisfied. The systems that are in place have  
11                  various levels of redundancy and they seem to be  
12                  appropriate for the density of population and the level of  
13                  awareness that's in that planning zone.

14                  **MEMBER BARRIAULT:** Thank you.

15                  My next ---

16                  **THE CHAIRMAN:** Before you leave this, can  
17                  you talk to us a little bit about the clarity of  
18                  responsibility or the separation of responsibility for  
19                  potassium iodine in case of an emergency?

20                  What's the -- who is doing what, and where?

21                  **MR. MacGILLIVRAY:** Well, we may be unique  
22                  in Canada. I think there are some other jurisdictions  
23                  that pre-distribute, but we pre-distribute potassium  
24                  iodide and have for 30 years. And we refresh it about  
25                  every 5 years.

1                   So each household has the medication and  
2                   instructions on how it's to be used.

3                   The decision to order KI prophylaxis rests  
4                   with the Chief Medical Officer of Health and, of course,  
5                   Health is a part of our incident management system. The  
6                   Chief Medical Officer of Health is a part of our executive  
7                   group, and her staff are part of the technical assessment  
8                   group.

9                   So we don't have any concerns about knowing  
10                  when it's appropriate or providing the necessary  
11                  direction.

12                  I think a lot of people might just go ahead  
13                  and take a pill if they thought there was a risk, but we  
14                  do emphasize to people that it's a medication.  
15                  Particularly for young children, infants, it needs to be  
16                  taken in the appropriate dosages and so on.

17                  We're currently refreshing our deployed  
18                  stock of KI with households and our various stockpiles  
19                  that we have in southern New Brunswick. We have  
20                  stockpiles with public health offices, schools, hospitals  
21                  and the RCMP.

22                  And part of the process of redistributing,  
23                  of course, is re-educating the public, so we're also  
24                  undertaking that at this time.

25                  **THE CHAIRMAN:** So you didn't face the kind

1 of reaction of the public for Fukushima that in B.C. there  
2 was a run on KI and people were swallowing this stuff  
3 without any real reason?

4 So all the people now have this know when  
5 to use it and how to use it?

6 **MR. MacGILLIVRAY:** I think so, but you  
7 know, in -- re-educating is important. Even though the  
8 population is fairly stable, we go back at least once  
9 every five years and have those conversations with people.  
10 And then we have our public messaging already constructed  
11 around the issue of KI.

12 Indeed, our government and other  
13 governments were challenged during the Fukushima event to  
14 explain what KI is for, what it's not for, should people  
15 take it and so on. So yes, I think our population is well  
16 educated and would do the right thing and I wouldn't  
17 anticipate the kind of -- simply because they are familiar  
18 with the subject -- the kind of activities that took place  
19 in BC.

20 It does seem -- if you'll permit an  
21 observation; I've been at this for 10 years -- the closer  
22 you are to the plant the fewer concerns that people seem  
23 to have. And the further people are away from the  
24 problem, the more concerns they seem to have. So it  
25 speaks well to our outreach program, I think.

1                   **THE CHAIRMAN:** Staff, I wasn't aware of  
2 this model. Is that a good model? Why is it only in New  
3 Brunswick they're deploying it if that's a good model?  
4 Anybody has a comment on this?

5                   **MR. SIGOUIN:** Luc Sigouin.

6                   The model of pre-distribution to households  
7 in the planning zones is also used around Gentilly so  
8 Quebec, in concert with Organisation de sécurité civile du  
9 Québec pre-distribute KI around the G-2 facility.

10                  It's the decision of the provincial  
11 authorities on how it should be managed, either pre-  
12 distributed, as it is in New Brunswick or Quebec, or held  
13 in stock as it is in Ontario. And I believe it's the  
14 responsibility, and it was a recommendation that has been  
15 discussed with Ontario, to review if that approach is the  
16 appropriate one given what we know now. But I think the  
17 approach that is used in New Brunswick, specifically here,  
18 is a very good one, of pre-distributing and it ensures  
19 that the population does have some contact on a regular  
20 basis to understand the use of KI.

21                  **THE CHAIRMAN:** Thank you. Dr. Barriault?

22                  **MEMBER BARRIAULT:** Thank you, Mr. Chairman.

23                  My next question is with regards to, I  
24 guess, a clarification in the application to reload of a  
25 presentation on page 36. It's the Addendum A, status --

1 or the document -- I'm sorry; it's 11-H11. It's on the  
2 last page, 36. And I'm trying to understand Item Number  
3 8, so maybe somebody can explain it to me.

4 **MR. EAGLES:** Rod Eagles, for the record.  
5 Do you wish for ---

6 **MEMBER BARRIAULT:** Whoever, yes please.

7 **MR. EAGLES:** --- in this matter? And if I  
8 can confirm, it's showing as page 35 in mine, I believe,  
9 is this Addendum A of ---

10 **MEMBER BARRIAULT:** It's Addendum A.

11 **MR. EAGLES:** --- 11-H?

12 **MEMBER BARRIAULT:** And Item 8, it says:

13 "Stabilizing and plugging the 30 tubes  
14 that are susceptible to flow-induced  
15 vibration and restore full re-  
16 circulating cooling water flow  
17 capacity without impacting the  
18 capability of the moderator, heat  
19 exchanger to meet the design  
20 requirements."

21 **MR. EAGLES:** Yes, very good.

22 In the systems within the reactor building  
23 moderator cooling occurs by re-circulating the RCW water  
24 through heat exchangers located inside the reactor  
25 building. Very early on in the operation of the plant, it

1 was determined that although it wasn't necessary to have  
2 100 percent flow cooling, if we did have the 100 percent  
3 flow of the cooling water then we could get some  
4 instability in the support of the tubes.

5 So during the course of the refurbishment  
6 as we looked at other safety analysis, it was determined  
7 that it would be appropriate to increase that cooling flow  
8 to provide a greater opportunity for sub-cooling of the  
9 moderator. And so we lifted the shells off of the outside  
10 of the heat exchangers, installed devices to stabilize the  
11 tubes themselves, and in doing so now have allowed for the  
12 cooling water flow to be restored to 100 percent of its  
13 original design.

14 **MEMBER BARRIAULT:** So when you're saying  
15 plugging, you did not plug the tubes?

16 **MR. EAGLES:** In fact, as part of the work,  
17 the stabilizing of some tubes required us to insert cables  
18 through the tubes and those tubes were in fact plugged  
19 off. So it did not impact the overall design capacity of  
20 the heat exchanger, but allowed for those tubes to be  
21 dampened with the use of these cables that were snaked  
22 through the tubes themselves. And that's allowed us now  
23 to restore the capacity to 100 percent flow.

24 **MEMBER BARRIAULT:** Okay. Does CNSC want to  
25 comment on that -- on this?

1                   **DR. RZENTKOWSKI:** Plugging the tube is a  
2 standard procedure, because when a tube bundle is  
3 subjected to a cross-flow, so called fluid elastic  
4 instability phenomenon may develop which can lead even to  
5 catastrophic vibration of the tubes. And then when they  
6 start impacting each other, or impact the anti-vibration  
7 bars, the thinning process is very rapid and it may lead  
8 even to bursting of the tubes. So to avoid that, the  
9 plugging is a very routine process in stabilizing the  
10 tube.

11                   **MEMBER BARRIAULT:** I guess just an  
12 editorial comment to -- for the public to understand what  
13 this means, you may want to look at restructuring the  
14 sentence. It's -- at least it was confusing to me when I  
15 first read this sentence. Maybe a few commas in here,  
16 here and there, would help.

17                   **THE CHAIRMAN:** On the same page on Item 4,  
18 5, and 11 -- I'm a bit anal about dates. So it says, "In  
19 progress 09, 2011" on Item 4 and 5, "In progress 08,  
20 2011." So is it in progress or it's complete?

21                   **MR. RAMSAY:** Jeff Ramsay, CNSC program  
22 office.

23                   That Addendum is a status on whether we  
24 have received the commissioning assurance report for those  
25 items. And the "in progress" means that we haven't yet

1 received the commissioning assurance report. I understand  
2 from Point Lepreau that the field commissioning has been  
3 completed on those items, but there's still documentation  
4 to be prepared and submitted to us. So that's why it's  
5 showing as in progress from our end.

6 **MR. EAGLES:** Dr. Rod Eagles, for the  
7 record.

8 I concur with the statements of CNSC staff;  
9 we did complete the fieldwork, the tidying up of the  
10 paperwork, and submission of the commissioning completion  
11 assurance is not yet completed at that point.

12 **THE CHAIRMAN:** Well, I suggest the two  
13 organizations agree on a definition of complete and how it  
14 relates to date. Because to us there's -- it's either  
15 incomplete -- if you put a completion date and then you  
16 call it in progress, the date is past, it's not clear.

17 **MR. JAMMAL:** For the record, Ramzi Jammal.

18 Mr. President, however a very good point  
19 your making here, the licensee can complete all they want,  
20 we have to accept the completion.

21 **THE CHAIRMAN:** Right.

22 **MR. JAMMAL:** So the status showing in  
23 progress, that means they did do the physical work and in  
24 progress means for on our revision; point well taken.

25 **THE CHAIRMAN:** So they're late on the

1 completion then?

2 **MR. JAMMAL:** You got it. It's acceptance  
3 from staff and we'll update it for Day Two.

4 **THE CHAIRMAN:** Thank you.  
5 Dr. Barriault?

6 **MEMBER BARRIAULT:** Next question is on page  
7 21 of the same document and it's the seismic verification  
8 of pipe support. And, I guess, to what level on a Richter  
9 Scale was the seismic verification carried out at? I  
10 couldn't find any explanation. It's the second paragraph.  
11 Yes, the seismic verification of pipe support, page 21 of  
12 document 11-H11.

13 **MR. BLAHOIANU:** Yes, for the record my name  
14 is Andrei Blahoianu, Director of Engineering Design  
15 Assessment division.

16 So this is an -- the work is ongoing so  
17 staff had extensive exchange of information with the  
18 licensee. We made our comments and we provided these  
19 comments and we expect that the issue would be solved by  
20 the end of the month, this October. The licensee  
21 committed to send to us the answer to our comments by the  
22 end of this month.

23 **MEMBER BARRIAULT:** Okay. Did they tell you  
24 what level of seismic activity that they want these tested  
25 to, and perhaps to ---

1                   **MR. BLAHOIANU:** So the -- some supports  
2 were identified that they were not originally safe to  
3 qualify. So this is the important issue and we --  
4 licensee took an action that all of them would be  
5 reassessed.

6                   The methodology itself for reassessment,  
7 it's an EPI methodology and it's a method which combines  
8 the work done of the systems, safety cordon of the system.  
9 Having some very clear procedures about identifying how  
10 robust are the supports itself, it's an EPI methodology  
11 and combined also with analytical analysis when the --  
12 let's say the visual examination, it's not enough to  
13 confirm that supports are robust enough.

14                   Staff identified that some of the -- that  
15 not all prerequisites of the EPI methodology are met and  
16 we discussed the licence ---

17                   **THE CHAIRMAN:** That's not the question,  
18 Andrei. The question is, to what level, what numerical G  
19 level is the seismic qualification required for those  
20 sites?

21                   **MR. BLAHOIANU:** So all seismic  
22 qualification should be done to the, to the new level of  
23 reassessment. Items in the morning, you mentioned about  
24 the original design is 0.2 G. The plant is being  
25 reassessed to a new level, which is 0.3 G.

1                   **THE CHAIRMAN:** So that's what they are ---

2                   **MR. BLAHOIANU:** So the work could be done  
3 in accordance with the new level of qualification.

4                   **THE CHAIRMAN:** So that's the level they're  
5 going to ---

6                   **MR. BLAHOIANU:** Yeah.

7                   **THE CHAIRMAN:** Okay, thank you. And it's  
8 all going to be available in Day 2, the confirmation that  
9 it's done?

10                  **DR. RZENTKOWSKI:** I would like to add to  
11 this response.

12                                 Greg Rzentkowski, for the record.

13                                 A seismic marginal assessment is done to .3  
14 G as indicated by Mr. Andrei Blahoianu, but it's only for  
15 the systems and components. For structures, actually, the  
16 seismic marginal assessment is done to .4 G, which is  
17 higher than that assumed for the components.

18                  **THE CHAIRMAN:** Okay. But I repeat, it's  
19 all going to be updated and available for Day 2; right?

20                  **DR. RZENTKOWSKI:** That's correct.

21                  **THE CHAIRMAN:** Thank you.

22                  **MEMBER BARRIAULT:** Thank you.

23                  **THE CHAIRMAN:** Dr. Barriault?

24                  **MEMBER BARRIAULT:** And the next question is  
25 on Document 11-H12.1. And on page 6, I noticed that you

1 are upgrading the design of the turbines and the  
2 generator.

3 So does that mean that the plant will go to  
4 705 megawatts now as opposed to 600?

5 **MR. EAGLES:** Rod Eagles, for the record.  
6 That is correct, 705 megawatts.

7 **MEMBER BARRIAULT:** So my next question, it  
8 takes 45 megawatts of power to operate the plant, as I  
9 understand. What is your generator capacity?

10 Do you have 45 megawatts of generator  
11 capacity if you need it in the event of a loss of power?

12 **MR. EAGLES:** Rod Eagles, for the record.

13 If I understand your question correctly,  
14 from the 705 megawatts of gross generation, 45 megawatts  
15 are used for internal load ---

16 **MEMBER BARRIAULT:** Yeah.

17 **MR. EAGLES:** --- for all of the plant  
18 systems while we're in full operation, as our generator --  
19 the capacity for the increase in load, the answer is yes,  
20 the generator capacity was, in fact, over what was  
21 required during its original design.

22 But as part of ensuring that we don't  
23 overload the generator, we've also placed additional  
24 limits on the power factor for that generator which will  
25 reduce the total MVA rating -- shall limit the total MVA

1 rating to the nameplate on the generator.

2 **MEMBER BARRIAULT:** I guess the next  
3 question is, how long would your diesel fuel supply last  
4 to maintain a power at 45 megawatts?

5 **MR. EAGLES:** I think there's a -- perhaps a  
6 bit of clarification required here.

7 Rod Eagles, for the record.

8 When the plant would go to the requirement  
9 for standby generation, the number of plant equipment  
10 components that are operating would reduce substantially.  
11 And for standby generators, we do not require 45  
12 megawatts' worth of load.

13 I don't have the numbers on how long our  
14 fuel supply will last. Perhaps I might -- I'm being told  
15 a minimum of five days each. Thank you.

16 **MEMBER BARRIAULT:** So you have five days.

17 **THE CHAIRMAN:** I'm going to push you  
18 because we're going to be asked this. Okay.

19 So what happens after five days? So you  
20 got -- the grid is down, you're running for five days;  
21 what happens after five days? I always check on doomsday  
22 scenario.

23 **DR. P. THOMPSON:** For the record, Paul  
24 Thompson, Nuclear Safety and Regulatory Affairs Manager.

25 Our process has the ability to bring in

1 additional fuel within those five days capacities and we  
2 have various means of getting that fuel in, depending upon  
3 what the challenge is from the particular event, whether  
4 it's an on-site event or another site, an off-site site  
5 event.

6 **THE CHAIRMAN:** So you have an off-site  
7 known supplier that is available and ---

8 **DR. P. THOMPSON:** Part of the emergency  
9 preparedness program ensures that we can get the necessary  
10 fuel supplies by the various mechanisms that we need.  
11 That's all part of the emergency preparedness, is to  
12 ensure that we can get that.

13 The logistics component of our emergency  
14 preparedness ensures that we can get that delivered and we  
15 have got the necessary support from the other ends if our  
16 regular sources of supply are challenged.

17 **THE CHAIRMAN:** Thank you.

18 Dr. Barriault?

19 **MEMBER BARRIAULT:** Thank you, Mr. Chairman.

20 Would the supply be by sea also, or  
21 strictly by land?

22 **DR. P. THOMPSON:** Again, Paul Thompson, for  
23 the record.

24 It really depends, sir, on what the  
25 challenge is that's available, and that's the power of the

1 emergency preparedness programs so that if it's an on-site  
2 issue of course, then, normal land transportation is  
3 available.

4           Depending upon what the circumstances is  
5 that has challenged us, we then look to the other  
6 mechanisms which could be potentially by air or certainly  
7 by water which, you know, Point Lepreau has those -- all  
8 three, of course, access from those avenues.

9           **MEMBER BARRIAULT:** Thank you.

10           My next question is, of the original staff  
11 at the plant that have operating experiences -- or  
12 operating experience, how many are left now that were  
13 there before? In other words, how many new employees do  
14 you have that weren't there prior to the shutdown?

15           **MR. PARKER:** Wade Parker, for the record.

16           If I could attempt to answer your question.  
17 Through the life of the station, through the life of the  
18 refurbishment, as you're suggesting, our refurbishment was  
19 planned for 18 months. That is now into the 42-month  
20 period, so the question of body and staffing to support  
21 the organization, especially the operational needs, is a  
22 question that we have had to deal with.

23           Now, as was mentioned in one of the  
24 presentations, our licence staff have been -- continued  
25 their training. We have a full complement of licensed

1 staff. We have had new staff added to the various areas  
2 and the various roles, operations included.

3 Now, those training and the requirements  
4 for those individuals, they're only qualified to a certain  
5 level based on the station needs today.

6 As the station is started up, those  
7 requirements and those skill-sets will have to be added to  
8 the running station.

9 So we have a means to address those  
10 concerns and those needs and we are managing that, and we  
11 do have the staff that we need to bring the station back  
12 in operation.

13 **MEMBER BARRIAULT:** Thank you.

14 CNSC staff, are you okay with the training  
15 system, the examination, testing and whatnot?

16 **DR. RZENTKOWSKI:** Our overall assessment of  
17 the performance of the human performance program is  
18 satisfactory, and in terms of the training is satisfactory  
19 as well because the training is very well documented and  
20 implemented, it is SAT-based. I will ask Mr. Andre  
21 Bouchard to provide more details behind our assessment.

22 **MR. BOUCHARD:** Sorry for the time delay.

23 Yes, we did find their human performance  
24 program to be satisfying. If we look at human performance  
25 management, that includes training and personal

1 certification, I think that's the information you're  
2 looking for.

3 I would ask Mr. McDermott to fill you in.

4 **MR. McDERMOTT:** Chuck McDermott, Director,  
5 Personnel Certification Division.

6 We have continued to monitor both the  
7 training program and the certification program. The staff  
8 that were certified before the plant went into its outage  
9 have maintained their certification; they have maintained  
10 their training.

11 Point Lepreau decided to keep the normal  
12 shift complement in the shift complement role and so they  
13 have maintained their training.

14 As far as certification of new staff, they  
15 have continued with part of the training, but they will  
16 not be certifying any staff until the plant is back in  
17 operation, and so we have not certified any new staff  
18 since the plant was shut down.

19 **MEMBER BARRIAULT:** So I would assume that  
20 you have enough certified staff on the plant to start up?

21 **MR. PARKER:** Wade Parker, for the record.  
22 That is correct.

23 **MEMBER BARRIAULT:** Thank you.

24 Go ahead.

25 **THE CHAIRMAN:** Are there any other -- you

1 really are moving from -- I think you now have been at the  
2 refurbishment business for an extended period of time, and  
3 it seems to me that there are different people, different  
4 skills, a lot of contractors.

5 So are there any other transition issues?  
6 I know that you were talking about post-refurbishment  
7 organization and some of the transition challenges.  
8 Anything else that is related to -- you know, to this  
9 transition? Particularly our interest is in any safety  
10 issues.

11 **MR. PARKER:** Just I can give you some very  
12 specific examples of how we are -- sorry, Wade Parker, for  
13 the record.

14 Some very specific examples of how we are  
15 bringing back the required performance for a fully running  
16 station.

17 During refurbishment, there were some,  
18 let's say, work that was done on special safety systems.  
19 We re-overhauled our special safety systems. So some of  
20 the behaviours that are acceptable when you're in a  
21 refurbishment are not acceptable when you're running.

22 For example, we have requirement in today's  
23 OP&P channelized maintenance on a special safety system.  
24 You only work on one system -- one channel on a system at  
25 a time. Now, during refurbishment we had to relax that

1 just so that that work could get done.

2 We have a number of programs that are in  
3 place to re-institute these required behaviours, you know,  
4 directly related to safety. There's special safety system  
5 channelized maintenance. There's reclaiming seismic areas  
6 in the station, just to name a few of -- but there is a  
7 plan that is in place to bring back the behaviours.

8 We have a specific communications plan to  
9 make sure that the staff is aware of what is taking place  
10 in the station and how that impacts them on their personal  
11 safety as well as the safety of the station.

12 I hope that has answered your question.

13 **THE CHAIRMAN:** If I may, one of the issues  
14 here, I was just looking at your list. I think you have  
15 three pages of organizational structural changes over --  
16 since 2005. That's a lot of turnover, some senior  
17 management.

18 Maybe the most improved one is the last one  
19 where you lost your CEO. That's a joke, Gaëtan.

20 What I'm trying to emphasize is that, you  
21 know, normally you'd like some stability in an  
22 organization, and continuity. You've got -- you guys got  
23 any challenges in some organizational structural?

24 **MR. KENNEDY:** There's been some -- for the  
25 record, it's Blair Kennedy.

1                   There's been some changes, but they  
2                   basically have been at Lepreau. A lot of these changes,  
3                   the individual is still at Lepreau just taking on  
4                   different assignments other than Gaëtan. He's moved on to  
5                   the CEO.

6                   But some of those changes that you're  
7                   looking at, basically entail people that still are at  
8                   Point Lepreau and they've been long-term employees at  
9                   Point Lepreau, only just being required to do different  
10                  duties.

11                  **MR. PARKER:** Wade Parker, for the record.

12                  If I can just add to the comments?

13                  The names that have been in position for  
14                  the vice-president and the various managers on the station  
15                  side, that team has been together now for approximately  
16                  two years.

17                  There has been movement within the team, if  
18                  you understand what I'm saying, for the various needs and  
19                  the leadership roles. The specific changes that we have  
20                  made over the last period were specifically to get the  
21                  station in the proper state to have a successful restart.

22                  If you look at the line managers that  
23                  support me as well as the team, heavy in operational  
24                  background, so we are using the team members. They are  
25                  changes. They are title changes. They are still on the

1 same team, and that team is supporting everyone to have a  
2 successful restart.

3 **THE CHAIRMAN:** Thank you.

4 Dr. Barriault.

5 **MEMBER BARRIAULT:** Next question is in the  
6 same document, 11-H11.1. And I'm looking at your ---

7 **THE CHAIRMAN:** Sorry, I missed it. Can you  
8 repeat?

9 **MEMBER BARRIAULT:** Yeah. It's in Document  
10 11-H11.1.

11 **THE CHAIRMAN:** Yes.

12 **DR. BARRIAULT:** And it's on page 9. It's  
13 the chart outlining your accident. Time lost, I guess,  
14 since the refurbishment started.

15 And I notice that you had a total of nine  
16 lost-time injuries. Incidentally, your records are  
17 remarkable regards to the -- how low they are. But having  
18 said that, of those nine, have they returned to work or  
19 are they still in -- off work?

20 I didn't have the length of time that they  
21 were off work.

22 **MR. HICKMAN:** Charles Hickman, for the  
23 record.

24 I'll confirm this the Day Two hearing, but  
25 I believe that all nine of those are back to full, normal

1 work.

2 **MEMBER BARRIAULT:** Not modified duty; just  
3 their regular work?

4 **MR. HICKMAN:** Regular work.

5 **MEMBER BARRIAULT:** Okay, thank you.

6 **MR. HICKMAN:** I will add the qualifier,  
7 some of those were contractors so it will take me a little  
8 time to check, but I'm very comfortable to say that I  
9 believe they are all back to full-time normal employment,  
10 and I will confirm that for the Day Two hearing.

11 **MEMBER BARRIAULT:** Thank you.

12 I'll turn it over to Dr. McDill.

13 **THE CHAIRMAN:** Dr. McDill.

14 **MEMBER BARRIAULT:** I'll come back, though.

15 **MEMBER McDILL:** Thank you.

16 My first area of questioning relates, at a  
17 general level, to the timing of these applications for the  
18 two -- the fuel reload and the renewal.

19 Even with suggested hold points in place,  
20 there's a sense that there's still a lot to come, so just  
21 three. There's a ring beam analysis in November. In  
22 December, we have the incoming exception reports, I guess,  
23 for the Calandria tubes and the end fittings. In January,  
24 there's a report on human factors.

25 So it seems there's still quite a bit to

1           come.

2                           And in a related sense, with only sort of a  
3 month between now and Day Two, is there time for  
4 intervenors to react? For example, the fire protection  
5 plan won't be presented until Day Two.

6                           So two questions in that. Are the hold  
7 points sufficient to deal with this, these reports that  
8 are coming in, and is there time for the intervenors to  
9 react between Day One and Day Two?

10                           I guess staff and then ---

11                           **DR. RZENTKOWSKI:** Greg Rzentkowski, for the  
12 record, Director-General of Reactor Regulation.

13                           For the first time for the Day One, we  
14 prepared the licence condition handbook, and the licence  
15 condition handbook outlines prerequisites for every single  
16 hold point which is included in the licence, and also  
17 which is essential for the return to service of the  
18 station.

19                           So from that standpoint, I believe there is  
20 a lot of transparency in the way those hold points are  
21 supposed to be released from the regulatory authority --  
22 by the regulatory authority. So in terms of the public --  
23 in terms of the opportunity for public comments, I think  
24 there is an ample time to provide comments on those  
25 prerequisites.

1           At the same time, we have to remember that  
2 fuel load is currently scheduled for May of 2012, so that  
3 means between Day Two and the actual fuel load will also  
4 be plenty of time to make sure that all requirements would  
5 be completed in accordance with the prerequisites, which  
6 are now summarized in the licence condition handbook.

7           **MR. KENNEDY:** From our point of view -- for  
8 the record, it's Blair Kennedy.

9           We find that the conditions that are  
10 outlined in the licence condition handbook are acceptable  
11 to NB Power and we plan to meet those commitments.

12           **MEMBER McDILL:** Thank you.

13           **THE CHAIRMAN:** If I may be a little bit  
14 more blunt than Dr. McDill, I think she's asking what's so  
15 urgent about Day Two being in December and not put into  
16 January and February?

17           Since the hold points prevent you from  
18 doing all of these things, I'm trying -- we're trying to  
19 understand. It seems like everything is squeezed in, so  
20 it seems everything is on hold until the guaranteed safety  
21 shutdown is removed, so why is Day Two in December?  
22 That's the question.

23           And it's CNSC because CNSC set up the  
24 deadlines, right?

25           Over to you.

1                   **MR. JAMMAL:** Ramzi Jammal, for the record.  
2                   I'll take two stabs at it.

3                   Number one, the CNSC has followed the  
4                   procedures with respect to secretariat as outlined in the  
5                   CMD process, but I'll address technical issues.

6                   As Dr. Rzentkowski mentioned that the  
7                   planned activity for the fuel load is in May and the  
8                   authorization will not be granted until such time that  
9                   they have fulfilled and completed all the requirements,  
10                  the prerequisites that are already outlined with respect  
11                  to the -- already outlined in the licence condition  
12                  handbook, and the submission of NB Power will be  
13                  evaluated, confirmed and approved by CNSC staff to the  
14                  satisfaction of the CNSC.

15                  So why is it December? This is based on  
16                  planned activity to allow the interventions, to allow the  
17                  Day Two hearings to take place and establish a timeline.

18                  I'm pretty sure the Secretariat is not  
19                  going to like what I'm going to say, but if we're not  
20                  ready, we will be informing the Secretariat with respect  
21                  to what needs to be done. However, all intent of purposes  
22                  is to have all the documentation in place, all the  
23                  submissions in place in order to grant the approval.

24                  **THE CHAIRMAN:** But my question is  
25                  different. Let me ask it of Point Lepreau.

1                   Would you prefer -- because there's a lot  
2 of work that you still are committed to Day Two, would you  
3 prefer -- or there's a particular issue with the timing,  
4 would you prefer it move to January or February?

5                   **MR. THOMAS:** No, our preference -- Gaëtan  
6 Thomas, for the record.

7                   We've been planning here to focus on the  
8 readiness for restart which we will be having a lot of  
9 reviews. Our staff will be focused on doing that and if  
10 there was anything that would come out of these hearings  
11 that we would need to go further, we need to know as early  
12 as possible. There's also possibilities that we could be  
13 ahead of schedule and, again, preparing for that in the  
14 middle of, you know, a restart gets very, very difficult  
15 for our staff to focus on the restart.

16                   So it's very important for us to  
17 understand what the requirements are and we believe, like  
18 Mr. Kennedy said and Mr. Rzentkowski said -- that we have  
19 -- it's clear what's required and now we need to execute.  
20 And if there's any other consideration that we need to put  
21 into the Restart Readiness Program, we need to know now  
22 because we need to prepare for them.

23                   So it's very important that we get this and  
24 there is a possibility that we could be ahead of schedule.  
25 So, you know, we can't be in the middle of a hearing when

1 we're right in the middle of a readiness for restart  
2 review that we will have to do with our peers and with the  
3 World Association of Nuclear Operators.

4 **THE CHAIRMAN:** Dr. McDill.

5 **MEMBER McDILL:** Thank you.

6 Second area of questioning then: There are  
7 a variety of CSA standards that are not being met. One is  
8 with respect to the calandria tubes, the end fittings and  
9 so on. There is one with respect to engineering change  
10 that is generally in compliance. Fire is in transition.  
11 Building code is in transition.

12 So I wonder if for Day Two we could have a  
13 table which shows those together so we can see what --  
14 there's a lot of reading here and some of them are popping  
15 up one place and some of them are popping up in other  
16 places. So I think a table would be useful for Day Two  
17 for the intervenors.

18 And in the meantime, perhaps we could ask  
19 -- I could ask staff and Lepreau to comment on --  
20 particularly, with respect to the end fittings and the  
21 calandria tubes and the exceptions that are being made  
22 there.

23 **DR. RZENTKOWSKI:** Let me first respond to  
24 your question. So I would like to confirm that a table  
25 will be prepared and in this table, we'll summarize all

1 non-conformances with the industry standard and some of  
2 the regulatory documents.

3 This situation has manifested itself in our  
4 assessment before the relicensing hearing because we are  
5 in the unique situation here; the station is shut down for  
6 almost four years and, of course, the regulatory effort  
7 and the licensing effort was on refurbishment activities.  
8 Because of that the new standards which have been recently  
9 implemented are not published to the point that we can say  
10 that the licensee's compliant. We can walk you through  
11 every single standard separately if you wish.

12 Mr. Ken Kirkhope is here so he will respond  
13 to the question.

14 **MR. KIRKHOPE:** Ken Kirkhope, for the  
15 record.

16 Yes, in the spring we were aware of some  
17 non-conformances with the CSA material standards for the  
18 reactor components, pressure tubes and fittings and  
19 calandria tubes and the nature of these non-conformances  
20 mainly with calibration blocks used for calibrating the  
21 probes used for inspecting these components.

22 So there were minor deviations in the  
23 dimensions of the reference flaws in the calibration  
24 blocks and so we required assurance that the inspections  
25 they did would capture defects in the manufactured items

1 that a fully compliant probe or inspection would capture.  
2 So we did a lot of review and also had concurrence of the  
3 authorized nuclear inspector. New Brunswick Department of  
4 Public Safety also reviewed this so we're satisfied that  
5 all the components meet the intent of the standard, and  
6 thank you.

7 **MEMBER McDILL:** But there's supposed to be  
8 a root-cause analysis coming from AECL in January. Is  
9 that correct?

10 **MR. KIRKHOPE:** Ken Kirkhope, for the  
11 record.

12 When the calandria tube non-conformances  
13 were identified, we asked NB Power to complete a root-  
14 cause analysis to discover -- to determine the source of  
15 the -- the root cause of the non-conformances and as a  
16 result of that, they identified some areas and they  
17 committed to do an extent-of-condition review to make sure  
18 that all components that might be affected by this type of  
19 issue are addressed, and that's why we picked up  
20 additional non-conformances in the pressure tubes and the  
21 end fittings. So it's been addressed, yes. We have the  
22 root-cause analysis complete.

23 **MR. EAGLES:** Rod Eagles, for the record.

24 Just to add some clarity; the initial  
25 discovery of a non-conformance with the material

1 calibration standard used on the calandria tubes gave us  
2 pause to think and, in fact, even in advance of the CNSC  
3 staff's request to complete a root-cause assessment, we  
4 had requested that our contractor, AECL, undertake an  
5 extent-of-condition review on all of the materials used  
6 during the refurbishment project.

7           During the course of that review, we  
8 identified the additional issues with the pressure tube  
9 and with the calandria tube. Mr. Kirkhope had sort of  
10 characterized the type of issue that we have identified  
11 there with inspection activities. It seemed that the  
12 standards that were incorporated in manufacturing had not  
13 gotten updated to more recent revisions of the standards  
14 and so a root-cause assessment had picked up those issues,  
15 had identified through the extent-of-condition work where  
16 there was other challenges. Those issues have been  
17 addressed.

18           We've worked with the CNSC staff to verify  
19 that the non-conformances were not going to have an impact  
20 on the safe operation of the station and we've completed  
21 all of the extent-of-condition reviews for the balance of  
22 the materials that they have provided during the course of  
23 the project.

24           In addition, we have shared this operating  
25 experience with others who also used these kinds of

1 components because, for those people, they also, you know,  
2 require to go back and verify that this has not been  
3 bothersome to them as well.

4 So this work has been completed. The non-  
5 conformance activities -- sorry, the root-cause assessment  
6 activities are being completed as well.

7 **THE CHAIRMAN:** It says they're going to be  
8 available -- completed by the end of December. That's  
9 what it says ---

10 **MR. EAGLES:** Yes, okay.

11 **THE CHAIRMAN:** --- in the document on page  
12 16 so is that going to be tabled for Day Two or is it  
13 already tabled?

14 **MR. EAGLES:** Rod Eagles, for the record.

15 The non -- or sorry, the root-cause  
16 assessment report completed by NB Power has been forwarded  
17 to CNSC staff already.

18 **THE CHAIRMAN:** But tabled means public or  
19 is it not?

20 **MR. JAMMAL:** Ramzi Jammal, for the record.

21 Mr. Chairman, we will provide you with an  
22 update on that specific analysis of the root cause, but I  
23 will ask Mr. Kirkhope to provide an update.

24 I would like to go from the technical term  
25 to more of a public messaging here is even though there is

1 no conformity or non-compliance with the code itself,  
2 there has been a relative equivalency that CNSC have  
3 reviewed and accepted the compensatory measures that are  
4 in place in order to ensure safety.

5 But I will refer to Mr. Kirkhope with  
6 respect to the root-cause analysis as such, but we would  
7 provide an update by Day 2.

8 Sorry, Mr. Chair, I was -- been corrected;  
9 it's Mr. Colligan.

10 **MR. COLLIGAN:** I'm sorry, could you repeat  
11 the question? I want to make sure I answer it correctly.

12 The root cause analysis, if we go back to  
13 when we originally requested it, was after discovery of  
14 certain non-conformances with the material calibration  
15 standard, as was discussed earlier, and the fact that the  
16 calibration blocks that were used were actually part of an  
17 earlier standard.

18 At the time when some concessions were  
19 requested, we thought it prudent to ask for a root cause  
20 analysis on how come the wrong standard had been used or  
21 an out of date standard had been used and how it could  
22 possibly affect other components that might be affected in  
23 the refurbishment.

24 So that was the original request and it was  
25 made to the licensee, who passed it on to their sub-

1 contractor, AECL in this case.

2 I have not seen, myself, the root cause  
3 analysis yet, but the results of the root cause analysis  
4 implied that the same condition was existing for pressure  
5 tubes, for instance, and other components because they're  
6 of the same block being used for these other components in  
7 verifying it.

8 So we had some additional inspection that  
9 were required for pressure tubes, for ultrasonic testing  
10 and so on, and the extent of condition really showed that  
11 there were a number of other components that were  
12 involved.

13 However, the concessions that were made by  
14 the CNSC, I understand, the type of inspection that was  
15 carried out, in fact, would discover -- would -- not  
16 discover, but highlight the same -- essentially the same  
17 flaws, flaw sizes in all these components.

18 So the root cause analysis that I haven't  
19 seen, I understand, has been submitted. I look forward to  
20 getting a copy of that.

21 But the extent of condition was really the  
22 most important part of it, finding out the extent of where  
23 this could lead to in the future.

24 We found it acceptable, so that's where we  
25 are right now.

1                   **MEMBER MCDILL:** I'm just going to take  
2 attention here. Does this affect Bruce as well in their  
3 refurb?

4                   **MR. COLLIGAN:** I think I'll pass that on to  
5 ---

6                   **THE CHAIRMAN:** Can I jump in here?  
7 You know, listening to you, you're not  
8 calming our angst; in fact, you're compounding it.

9                   Every time you use words like "non-  
10 compliance, doesn't meet standard" without explaining what  
11 is that we are talking, is the standard flawed or is the  
12 manufacturing and equipment flawed, and what is the impact  
13 on safety?

14                   That's really what we care about and nobody  
15 -- this is not only a dialogue between NB Power and staff;  
16 it's the whole public listening to us.

17                   You've got to explain what is the  
18 implication of non-compliance.

19                   I read this page and it scared the hell out  
20 of me, you know. There's about three or four or five  
21 times that non-compliance is being emphasised there and  
22 there's no explanation as to why in view of this non-  
23 compliance everybody agreed it's okay.

24                   So you got to be a little bit more  
25 forthcoming about trying to explain and I really would

1           like a little bit more explanation for Day 2 after the  
2           analysis. Is the standard have to be rewritten or  
3           whatever else the root cause that you're actually finding?

4                           Anybody want to react to that?

5                           **DR. RZENTKOWSKI:** Yes, I would like to  
6           clarify one point.

7                           The non-conformances which were outlined by  
8           our staff all have been accepted by the CNSC. So there's  
9           no safety issue at this point in time.

10                          **MR. EAGLES:** Rod Eagles, for the record.

11                          If I might just try to clarify a picture of  
12           the types of issues that we were identifying here.

13                          During the course of changing of code to  
14           the newer version of the code, dimensional aspects of the  
15           flaw size in translation from English units to metric  
16           units were slightly different in variation.

17                          What we identified is that the standard,  
18           which is a piece of calandria tube which is then used to,  
19           with an ultrasonic probe, measure an artefact that's  
20           purposefully manufactured into the tube, the standard was  
21           slightly different in size to that which is specified in  
22           the new code, largely because of transition from English  
23           to metric units and variance there.

24                          It's certainly not to code because of the  
25           difference in the size that was used. In evaluating the

1 actual response of the ultrasonic testing to the artefact  
2 that was subsequently manufactured into a tube that meets  
3 the code, we found that the response was, in fact,  
4 conservative, that it would actually measure those flaws.

5 It's just that when we, you know, sign off  
6 to say that the calibration was done in accordance with  
7 the proper codes, we could not have said that.

8 So the reason for the request was to --  
9 request for concession was to, in fact, document the fact  
10 that we had an issue, that we did the appropriate testing  
11 to verify that that issue was not of concern, worked with  
12 CNSC staff on this matter and came to the resolution,  
13 which was an acceptance of the concession.

14 And the extent of condition work that we  
15 did in advance of the request for concession -- or sorry,  
16 the granting of the concession by CNSC staff was something  
17 that we had initiated on our own to assure absolutely that  
18 this kind of thing did not occur in other areas.

19 We did find two additional areas after, as  
20 we mentioned, on pressure tubes and on calandria tubes,  
21 very similar kinds of issues and all of the pressure  
22 tubes, in fact, were returned to the manufacturer for re-  
23 inspection because we were at a point in the program where  
24 that was possible to do to satisfy ourselves that we  
25 didn't need to go to a concession on some aspects of that

1 inspection activity. And we returned all of the tubes to  
2 the manufacturer to make sure they were inspected  
3 correctly.

4 And I guess similar on the end fittings,  
5 similar situation to the calandria tubes, there's a  
6 question of how the, how the calibration standard was  
7 measured, and again, found that our undertaking of the  
8 inspection, although it didn't meet the code, was, in  
9 fact, conservative and did not, I guess, require any  
10 significant amount of analysis to determine that it, in  
11 fact, was acceptable as well.

12 So I hope I've been able to clarify that  
13 situation.

14 Thank you.

15 **THE CHAIRMAN:** One last question.

16 Do you have to rewrite the code if the  
17 standard has to be tweaked, explained to put some more  
18 margins in there as a result of all of this?

19 **MR. EAGLES:** No, the code is absolutely  
20 fine. It was a question of incorrect application of  
21 details within the code.

22 **THE CHAIRMAN:** Go ahead.

23 **MS. LOVE-TEDJOUTOMO:** Lisa Love, for the  
24 record.

25 I just wanted to make it extremely clear

1 that on page 31 of CMD 11-H12 under the second bullet that  
2 there are no impediments to safe operation.

3 CNSC staff has reviewed concessions  
4 requested by NB Power on calandria tubes, pressure tubes  
5 and end fittings, and we have accepted all of the  
6 concession requests with respect to the deficiencies that  
7 were found.

8 For Day 2, however, once we get our hands  
9 on that root cause analysis report, I think -- I think  
10 we've seen a summary but not full details. We could  
11 certainly provide an update with regard to that because it  
12 does impact future activities for other nuclear power  
13 plants.

14 So it's important to note very clearly and  
15 understand what went wrong, but there are no impediments  
16 with respect to these components for NB Power.

17 **THE CHAIRMAN:** Okay, thank you.

18 Dr. McDill?

19 **MEMBER MCDILL:** Thank you.

20 I think the word "conservative" was what I  
21 was seeking because you were fine and staff was fine, but  
22 the public sees that piece of paper.

23 So my next question is similar. Talk to me  
24 about engineering change being generally in compliance.

25 **MS. LOVE-TEDJOUTOMO:** Can you just point to

1 the page number?

2 **MEMBER McDILL:** It's the CSA Standard, and  
3 it was in staff's document referring to engineering change  
4 being generally in compliance with the standard.

5 I can find it. I didn't write it down  
6 because I -- my questions were all on CSA.

7 I'll rephrase the question.

8 **MR. HICKMAN:** Just to be of assistance, I  
9 think you'll find that it's on page 28 ---

10 **MEMBER McDILL:** Thank you.

11 **MR. HICKMAN:** --- of H12, Section 3.5.2.6,  
12 second paragraph.

13 **MEMBER McDILL:** Yes, and it's got a green  
14 sticky on it.

15 So with the -- as we go forward, where will  
16 engineering change control be positioned with respect to  
17 the standards, the new standard and the old standard?

18 **MR. COLLIGAN:** Lawrence Colligan, for the  
19 record.

20 We are presently in the process of mapping  
21 the correspondence of the N286-05 Standard with New  
22 Brunswick Power's documentation.

23 We've started that just recently; we're  
24 presently doing it. And we expect to be able to have a  
25 conclusion within about two to three weeks' time.

1                   So we would be able to tell you whether or  
2 not in -- by Day Two that the documentation from New  
3 Brunswick Power Nuclear meets all the requirements for the  
4 nuclear management system standard.

5                   **MEMBER McDILL:** So it would be very tight  
6 for intervenors to respond to that. You'll bring it on --  
7 well, they won't have any chance at all. You'll bring it  
8 on Day Two.

9                   **MR. COLLIGAN:** We will have that response  
10 and make it available for Day Two, yes.

11                   **MEMBER McDILL:** And, again, the table for  
12 everything else, all the others that are out there will  
13 come forward at Day Two.

14                   If I could ask Point Lepreau NB Power to  
15 tell me what the vertical axes are on page 96, 97, 98 and  
16 101 of your document; 96 of 180, 97, 98 and 101?

17                   It's inferable, but if someone in the  
18 public is reading it, it may be not so clear.

19                   I'm getting it for you. It's H12.1, page  
20 96 -- pages 96, 97, 98 and 101 of 180.

21                   Again, it's inferable, but it's not clear.

22                   **MR. THOMPSON:** For the record, my name is  
23 Paul Thompson, Nuclear Safety and Regulatory Affairs  
24 Manager.

25                   I apologize for the difficulty in reading

1 the sliding scale on page 96. Just at the bottom left-  
2 hand corner, these are the number of outstanding elective  
3 orders.

4 **MEMBER McDILL:** So this is pure number.  
5 This one is ---

6 **MR. THOMPSON:** Yes.

7 **MEMBER McDILL:** --- not a percentage?  
8 Obviously, it can't be if it's 800 percent.

9 **MR. THOMPSON:** No, number of outstanding  
10 orders. And similarly on page 97, those would be the  
11 number of outstanding corrective orders.

12 And on page 98, those would be the number  
13 of outstanding overdue cycle default orders.

14 **MEMBER McDILL:** One-hundred-and-one (101)?  
15 I mean, I understand it's an equipment  
16 reliability index. One of the things that's not clear is  
17 whether 100 in this case would be the maximum, for  
18 example.

19 **MR. THOMPSON:** For the record, Paul  
20 Thompson.

21 Yes. It's a rather complicated formula,  
22 and recognize that, I guess, without the formula it's hard  
23 to interpret. But, yes, 100.

24 **THE CHAIRMAN:** On that chart itself, I  
25 always thought -- do I read it right, the trend of this

1 chart is down? And I thought reliability, anything to do  
2 with reliability, you would want it to go up.

3 Am I misreading this? What is this  
4 equipment reliability index?

5 **MR. PARKER:** Wade Parker, for the record.

6 The equipment reliability index, you are  
7 100 percent right. The higher the percentage, the better  
8 it is.

9 What this reflects is where the status of  
10 our station is and the recovery that is required to get  
11 this in hand prior to restarting the station.

12 What I can tell you is we have tried to use  
13 and tried to maintain this ERI index throughout the period  
14 of the station, and we've struggled with it. As you can  
15 see, some of the PIMs are back -- are building on us and  
16 we need to manage this and get this back under control.

17 Now, having said that, the equipment  
18 reliability index is traditionally an index that's used  
19 for a running station. We tried to use a bit of a  
20 different ERI during refurbishment, and we are currently  
21 developing plans to manage the backlog and to get that ERI  
22 back up to an acceptable number prior to restart.

23 **THE CHAIRMAN:** Again, I think that some  
24 explanation of this because this is scary because I don't  
25 know what kind of equipment that are inside this

1 particular index, but anything that goes down in a trend  
2 like this requires some explanation.

3 And just for staff, do other stations using  
4 this chart for -- you know, there's a couple of charts  
5 here which I actually liked. They are -- I like the data  
6 and at least they tell a story.

7 Do we use them in other NPPs?

8 **DR. RZENTKOWSKI:** Greg Rzentkowski, for the  
9 record.

10 Yes, we use them for the other NPPs as  
11 well.

12 However, now we are in the process of  
13 revising the performance indicators for maintenance, and  
14 this may result in a different way of reporting next year.

15 I will ask Steve Cook, who's responsible  
16 for this technical area, to provide more background.

17 **THE CHAIRMAN:** So while we're waiting, also  
18 on Slide -- on page 98, when you talk about preventive  
19 maintenance, again, I think you -- probably you need some  
20 little bit more explanation because you make a statement  
21 as being a recent increase in the number of PMs in the  
22 default, inability to complete this work due to plant  
23 configuration.

24 I don't know what it means; I don't know  
25 what the implications are. This is on page 98.

1                   **MR. THOMPSON:** For the record, Paul  
2 Thompson.

3                   Oh, sorry.

4                   **MR. HARE:** For the record, it's Michael  
5 Hare. I'm the production manager at Lepreau.

6                   Part of the discussion around these PIMs  
7 that can't be completed is system state. Some of the PIMs  
8 that come up are on systems that are in lay-up, so we do  
9 not have a system in its normal configuration.

10                  Preventive maintenance work that needs to  
11 be done comes up on a periodic basis in our work  
12 management system, and those PIMs are deferred because we  
13 can't physically do that work at that time.

14                  The PIMs then get picked back up when the  
15 system is put into -- prior to the system being put into  
16 service, the PIMs would be done.

17                  We do have a process for doing that, and  
18 that's why the numbers are that low. But for systems in  
19 their abnormal configuration, that could be the wording in  
20 the text that would help understand the context of that  
21 graph.

22                  **THE CHAIRMAN:** Yeah. Staff, somebody?

23                  **MR. COOK:** For equipment reliability --  
24 sorry. My name is Steve Cook. I'm with the systems  
25 engineering division.

1           Equipment reliability index is an index  
2           that was, I think, originally developed by EPRI and has  
3           been further developed by Kellogg for use with the CANDU  
4           plants in Canada. And the index itself contains a number  
5           of different indicators related to equipment reliability,  
6           so not just preventive maintenance.

7           It contains things like deferred PMs. It  
8           contains elective and corrective maintenance backlog and  
9           then a host of other indicators related to that equipment.  
10          So COG has developed that index with the form and it is  
11          being used by power plants across Canada.

12                   **THE CHAIRMAN:** So we're going to see it in  
13          the annual report so we can actually compare reliabilities  
14          across MPPs?

15                   And by the way, are they internationally  
16          acceptable indices, I mean do people use them  
17          internationally?

18                   **DR. RZENTKOWSKI:** They're already provided  
19          in the NPP report and EPRI is an international  
20          organization so I presume that power reactors operators  
21          use them worldwide.

22                   **THE CHAIRMAN:** Thank you.

23                   Dr. McDill?

24                   **MEMBER MCDILL:** I can pass it back to Dr.  
25          Barriault for a few more.

1                   **THE CHAIRMAN:** No, I think we're going to  
2 stop for lunch.

3                   **MEMBER McDILL:** Oh that's a good idea.

4                   **THE CHAIRMAN:** So we will reconvene at  
5 1:30. And, by the way, I will now ask Commissioners, do  
6 you have any further questions for the -- on the seismic  
7 for the NRCan people on seismic issues and emergency  
8 planning or do we wait for Day Two?

9                   **MEMBER McDILL:** I'm fine for Day Two.

10                  **MEMBER BARRIAULT:** Day Two is fine.

11                  **THE CHAIRMAN:** Day Two. So you guys are  
12 off the hook.

13                                 Thank you for being here.

14

15                   --- Upon recessing at 12:37 p.m./

16                                 L'audience est suspendue à 12h37

17                   --- Upon resuming at 1:32 p.m./

18                                 L'audience est reprise à 13h32

19

20                  **THE CHAIRMAN:** Okay, good afternoon. We  
21 are back and I understand, Mr. Jammal, you want to make a  
22 statement.

23                  **MR. JAMMAL:** Thank you, Mr. President.

24                                 For the record, it's Ramzi Jammal.

25                                 Mr. President, I was not really satisfied

1 nor pleased with the answers to Dr. McDill with respect to  
2 the pressure tubes calandria testing.

3 Staff, the CNSC do not concede blindly to  
4 requirements. We come to our conclusion based on fact.  
5 So I do not want to leave you, as a Commission Member, nor  
6 the public with the ambiguity, so I have Mr. Frappier here  
7 and Mr. Jameson in order to clarify the issues with  
8 respect to the calandria pressure tubes findings as it  
9 pertains to the code.

10 So for the record I will ask for Mr. Gerry  
11 Frappier to provide with the statement and on the  
12 conclusion why there is no impact on safety with respect  
13 to the findings of the calandria tubes and the pressure  
14 tubes.

15 In addition, Mr. President, for the record  
16 also, during the break we looked into the submission of  
17 the root-cause analysis, it has not been submitted so on  
18 the record we'll be requesting of NB Power to submit the  
19 root-cause analysis no later -- by the end of next week.

20 **MR. EAGLES:** For the record, Rod Eagles.

21 If I might, and we also during the break  
22 evaluated, found the same conclusion, I spoke to CNSC  
23 staff and we will be providing that next week.

24 **THE CHAIRMAN:** So it'll be available for  
25 Day Two?

1                   **MR. JAMMAL:** Correct.

2                   **THE CHAIRMAN:** And just as a piece of  
3 advice, you know, pictures and diagrams for laymen, to  
4 explain some of those complexities would be really useful  
5 for all of us to try to understand.

6                   Mr. Frappier?

7                   **MR. FRAPPIER:** Thank you. For the record,  
8 my name is Gerry Frappier; I'm the Director General of  
9 Assessment and Analysis here at CNSC.

10                   So I think there was a bit of confusion  
11 introduced this morning and I'm hoping to clarify that.

12                   Now, with respect to standards, and  
13 especially with regards to calandria tubes, pressure  
14 tubes, some of the very core part of the reactor, these  
15 standards are very, very exacting. And part of the role  
16 of the standard is to ensure that everybody has a red  
17 flag, if you like, that's raised if there's something even  
18 a little bit off.

19                   But every one of those non-conformances, if  
20 you like, has to then go through a dispositioning process  
21 that's done with engineering experts based on analysis to  
22 determine if there's any safety impact or not.

23                   So for each one of the ones that are  
24 referenced -- and there was not that many -- first off we  
25 would require New Brunswick Power to do a detailed

1 technical assessment and evaluation of whatever non-  
2 conformance there was.

3 We would then put together -- and did put  
4 together -- a team of experts that would include non-  
5 destructive testing experts, fracture mechanics people,  
6 material strength people; whatever the expertise required  
7 to do an evaluation of that discrepancy.

8 And that team of experts would then review  
9 the analysis done by New Brunswick Power, do their own  
10 analysis to determine what the safety impact might be.

11 We also, in this particular case, put  
12 together a team that went to the pressure tube  
13 manufacturers to get a better understanding of the  
14 manufacturing process and the various systems that were in  
15 place to ensure no safety impact.

16 I just want to give you a bit of an example  
17 of what we're talking about, if you like.

18 So one of the ones that was mentioned was  
19 the ultrasonic inspection for calandria tubes and  
20 necessity for a calibration block.

21 So to confirm the inspection tools'  
22 capabilities a calibration block is used with a machine  
23 notch in it and the tool must detect that machine notch.  
24 So that's sort of what the test is doing.

25 In the case of the calandria tube

1 calibration block, the CSA Standard requires a notch of  
2 .75 millimetres. But when we did a check on the  
3 calibration block it was determined that it was .76  
4 millimetres. So there's a very, very small additional  
5 length.

6 So the CNSC review team determined that  
7 this very small increase in the notch length would not  
8 impact the ability of New Brunswick Power to detect any  
9 unacceptable manufacturer flaws, therefore, there was no  
10 safety impact. The ultrasonic inspection would still be  
11 valid and would be fully conforming.

12 So CNSC also at the time required an  
13 evaluation by New Brunswick Power to confirm whether or  
14 not similar issues could have occurred in other inspection  
15 programs and move into the root cause.

16 So this is standard engineering approach,  
17 if you like; a standard approach to ensure safety.

18 So I just want to be clear that the few  
19 non-conformances that were mentioned and that we mentioned  
20 in the report to the Commission, they were all fully  
21 assessed by a team of experts and determined to have no  
22 impact on safety whatsoever.

23 Thank you.

24 **THE CHAIRMAN:** Thank you.

25 Dr. McDill?

1                   **MEMBER MCDILL:** Thanks.

2                   I think it might be good for Day Two just  
3 to bring one of the calibration blocks or have a picture  
4 of it so the public can see it.

5                   I have a pretty good idea of what it is and  
6 I'm pleased to have some dimensions now; that's helpful,  
7 presumably the .76 millimetres was previously in some kind  
8 of Imperial unit, judging by the conversation that  
9 occurred earlier.

10                  Maybe something to help the public  
11 understand what it is.

12                  **THE CHAIRMAN:** And presumably AECL would  
13 explain how did it happen that they were using the wrong  
14 testing equipment, right?

15                  **MR. FRAPPIER:** We can bring all that  
16 information for Day Two.

17                  **THE CHAIRMAN:** Mr. Jammal?

18                  **MR. JAMMAL:** Thank you, Mr. President.

19                  For the record, Ramzi Jammal.

20                  Dr. McDill, you asked a question, did it  
21 impact Bruce Power; we applied the same investigation and  
22 verification to Bruce Power fittings as they were put for  
23 refurbishment because it was the same manufacturer.

24                  **MEMBER MCDILL:** So it did affect them but  
25 there's no ---

1           **MR. JAMMAL:** No impact to safety.

2           **MEMBER McDILL:** --- no impact to safety.

3           **MR. JAMMAL:** And no changes in our  
4 recommendation with respect to the safety to Bruce Power.

5           **MEMBER McDILL:** Thank you very much, Mr.  
6 Chair.

7           **THE CHAIRMAN:** Okay, you're still on -- oh,  
8 Dr. Barriault, go ahead.

9           **MEMBER BARRIAULT:** Thank you, Mr. Chairman.  
10 Just a few brief questions. You have an  
11 employee assistant program, if I understand you correctly,  
12 I guess it's called Employee and Family Assistant Program  
13 and my question to NB Power is who manages the program and  
14 how do you assure confidentiality of information?

15           **MR. KENNEDY:** It's managed through our head  
16 office and the confidentiality is dealt with because it's  
17 -- they usually deal independently from any staff or any  
18 line function at Point Lepreau. It comes corporately.

19           **MEMBER BARRIAULT:** So it would be farmed  
20 out to a third party, so to speak?

21           **MR. KENNEDY:** If need be, if the assessment  
22 is such it could go to the third party.

23           **MEMBER BARRIAULT:** Thank you.

24           Next question is, you had a few incidents  
25 during the shutdown and you had an individual who had an

1 exposure of 11.9 millisievert, and that was the  
2 outstanding person I guess. The average was 1.5  
3 millisievert for 90 percent of the employees.

4 What I'm wondering is that in the other 10  
5 employees were there any outliers also like the first one  
6 at 11.9 millisievert exposure?

7 **MR. HICKMAN:** Could you just supply the  
8 page number, please?

9 **MEMBER BARRIAULT:** I'm sorry?

10 **MR. HICKMAN:** Do you have the page number?

11 **MEMBER BARRIAULT:** Yes, it's in Document  
12 11-H11.1 and the page number is 10 of 22, health and  
13 safety, and it's the third paragraph down, and it starts  
14 off with "Individual and collective doses are being well  
15 managed".

16 Now, I realize that they're not excessively  
17 high doses, but having said that really is I'd be  
18 interested in seeing what the range is for those other 10  
19 percent.

20 **MR. HICKMAN:** Charles Hickman, for the  
21 record.

22 I do not have the spread of the individual  
23 doses with me. I know the 11.9 -- I don't have the spread  
24 with me, sir. I'll have to bring that back for you for  
25 Day Two.

1                   **THE CHAIRMAN:** Okay. I think we have  
2 somebody from our staff that can answer that question.

3                   **MR. McMANUS:** John McManus, for the record,  
4 RP specialist.

5                   In 2010 there were only 2 workers that had  
6 exposures between 10 and 15 millisieverts. We can go  
7 between 5 and 10 millisieverts there was 48 workers, and  
8 between 0 and 5 millisieverts would be 1,081.

9                   **MEMBER BARRIAULT:** Okay. Yeah, but I think  
10 in this case, probably a little graph would have helped  
11 just to have a look at it. It'd be worth 1,000 words I  
12 guess.

13                   During refurbishment, any design changes to  
14 the reactor at all?

15                   **MR. EAGLES:** Rod Eagles, for the record.

16                   Yes, there were a number of design changes  
17 on the reactor, specifically some of those have been  
18 mentioned in the CNSC staff's submission where it was  
19 listed in more detail around feeder pipes, for instance.

20                   The grade of steel used in the feeder pipes  
21 was changed to improve resistance to flow accelerated  
22 corrosion and also some thicknesses on the feeder pipes  
23 were changed to, again, give a greater allowance for flow  
24 assisted corrosion.

25                   **MEMBER BARRIAULT:** That was the cracking

1           problem?

2                           **MR. EAGLES:** Both flow erosion and  
3           cracking. The new material has a higher strength than the  
4           previous material. Very close, very similar materials,  
5           but slightly different alloy.

6                           **MEMBER BARRIAULT:** So my next question was  
7           that with regards to these materials, have they been  
8           tested before as to their -- in comparison to the old  
9           system, or ---

10                          **MR. EAGLES:** I believe that Point Lepreau  
11           was the first reactor to use the A105 grade C material --  
12           sorry, A106 grade C material for feeders, and -- which was  
13           previously A106 grade B material. Very similar in design,  
14           very similar characteristics, only slightly higher  
15           strength.

16                           These were evaluated by AECL prior to  
17           making the conclusion that this was an appropriate design  
18           change. And there were a number of minor design changes  
19           as well to the fuel channel. And I don't have the full  
20           detail of those with me today, but all of those design  
21           details improved performance of the fuel channel against  
22           some of the degradation issues that we saw early in the  
23           first life that prevented some of the fuel channels from  
24           perhaps not reaching their full design expected life for  
25           them.

1                   **MEMBER BARRIAULT:** Thank you.

2                   CNSC, are all these changes approved?

3                   **DR. RZENTKOWSKI:** In this particular  
4 situation we approved the scope of the refurbishment  
5 project.

6                   We looked at all of the repairs and  
7 replacements of the components which are forming the  
8 design basis or the process and safety system components,  
9 and we also looked at all safety improvements which were  
10 considered for enhancing the safety in the case of severe  
11 accidents.

12                   I have the list of all complementary design  
13 features which were implemented as a part of the  
14 refurbishment, and also those features which were  
15 specifically installed for mitigation of severe accidents.  
16 So prevention and mitigation were two main objectives.

17                   **MEMBER BARRIAULT:** Thank you.

18                   Can somebody tell me what an ISR is,  
19 integrated safety review? Just describe it if you  
20 wouldn't mind.

21                   **DR. RZENTKOWSKI:** I can give it a try. Dr.  
22 Rzentkowski, for the record.

23                   An ISR is a process very similar to  
24 periodic safety reviews. It's a very comprehensive and  
25 systematic assessment of the safety of the plant. We use

1 so called 12 safety factors to assess the plant's safety.  
2 And those safety factors can be very easily mapped against  
3 CNSC's safety and control areas.

4 So it's a very similar concept, however,  
5 safety factors were introduced in IAEA documents versus  
6 CNSC safety and control areas. It's something what we  
7 uniquely use here in Canada, but the mapping is very  
8 close.

9 So for each set of safety factors an  
10 assessment has to be performed. For example, one of the  
11 safety factors is condition of systems structures and  
12 components. The licensee has to assess the condition of  
13 every single system and component at the plant and decide  
14 if further repairs or replacement are necessary.

15 Also, the condition of the systems has to  
16 be compared against the modern standards to see if there  
17 are any improvements that could be feasible; improvements  
18 to the design basis and then beyond the design basis  
19 accidents. This is only one example.

20 So with 12 safety factors which are being  
21 assessed, and it's a very systematic process which takes  
22 approximately 2 years to complete at the cost of close to  
23 \$20 million it's not a simple process.

24 **MEMBER BARRIAULT:** No, it isn't. Thank  
25 you.

1                   Next, I'm looking at the fitness for duty  
2 program which you have at NB Power Lepreau. Very good  
3 program by the way.

4                   But one question that comes to my mind is  
5 in fitness for duty the employees can be referred by  
6 supervisors, by managers, et cetera. What criteria do  
7 they use in order to refer somebody compulsory to the  
8 program?

9                   I know that if somebody's sick and if they  
10 want to go, or if they get injured, whatever. But if  
11 you've got a performance problem and you've got an  
12 employee that you think might be a hazard to the plant,  
13 what do you do with him or her?

14                   **MR. THOMPSON:** For the record, Paul  
15 Thompson, Nuclear Safety and Regulatory Affairs Manager.

16                   There's a number of elements to your  
17 question here. First thing, there are -- this is a  
18 documented process, there is guidance that is provided to  
19 the supervisors that specifically look at issues such as  
20 fatigue, as well as other wellness areas.

21                   In addition to that, there is an overall  
22 continuous behaviour and observation program which  
23 potentially could identify abhorrent behaviour. And these  
24 change in abhorrent behaviour are very important for us to  
25 understand, become -- to assess it, to understand whether

1 or not there are safety -- potential safety implications  
2 as well.

3 And this is something that the -- is  
4 drilled and trained into with our supervisory team because  
5 it's very clear an understanding that it's very important  
6 to -- above and beyond all of the programs that are put in  
7 place such as our hours of work which should in fact give  
8 multi barriers to individuals, you still have to keep the  
9 eye on individuals to make sure that they're fit for duty.

10 We also stress to our workers the  
11 importance of self-reporting, such that if they come into  
12 work and they don't feel that they themselves are fully  
13 capable of performing all of their necessary functions  
14 that they are encouraged to identify that to their  
15 supervisors so that they could be assigned other  
16 appropriate work or sent to the health unit.

17 So it's something that is -- it's talked  
18 about, reinforced with both workers and supervision, to  
19 ensure that people are in fact fit for duty.

20 **MEMBER BARRIAULT:** Do you have a substance  
21 abuse program also?

22 **MR. THOMPSON:** We have. That's part of the  
23 overall program that we do have and, of course, as you  
24 know, they're very -- numerous drivers that can lead to  
25 employee distractions or concerns; anywhere from issues at

1 home to substance abuse, et cetera.

2 And the important thing that we try first,  
3 of course, is to get the necessary support to the  
4 individual so that that individual is returned to a better  
5 place in their lives.

6 **MEMBER BARRIAULT:** Okay. And is it based  
7 on rehabilitation or based on dismissal?

8 **MR. THOMPSON:** It's based on  
9 rehabilitation, which is obviously our first approach with  
10 an individual, to provide him the assistance that he  
11 needs, and then it goes from there.

12 **MEMBER BARRIAULT:** Thank you.

13 Thank you, Mr. Chairman. I'll come back  
14 after.

15 **THE CHAIRMAN:** Dr. McDill?

16 **MEMBER McDILL:** Thank you. Next question  
17 relates to page 65 of H12 on aboriginal consultation.

18 "At the time of writing," -- this is on --  
19 just above 4.2.3:

20 "At the time of writing, a second  
21 meeting had not been scheduled and  
22 staff had not received any further  
23 information."

24 Has anything changed there, or has there  
25 still not been ---

1                   **MS. LOVE-TEDJOUTOMO:** Lisa Love, for the  
2 record.

3                   That is correct. And I can confirm that we  
4 decided that we would not conduct a second meeting and  
5 that we did have a meeting in August with Mr. Akagi and we  
6 felt that that meeting was sufficient.

7                   And if you'll just wait a minute, I'll look  
8 for my notes and I'll give you a little bit of background,  
9 if you like.

10                  **MR. JAMMAL:** Mr. Chair, for the record,  
11 Ramzi Jammal.

12                  As Lisa is looking for her notes, can we  
13 ask NB Power to ---

14                  **MEMBER McDILL:** Certainly.

15                  **MR. JAMMAL:** Thank you.

16                  **MR. SIGMUND:** Charles Sigmund, for the  
17 record.

18                  We had actually just very recently met with  
19 the Passamaquoddy through our Public Affairs. Kathleen  
20 Duguay has been working to get hold of Chief Akagi. We've  
21 had some correspondence with him, and we actually met with  
22 him last week. We spent the best part of three or four  
23 hours talking with Chief Akagi and some of his  
24 representatives.

25                  Coming out of that meeting, we've offered

1 to facilitate a visit for he and some of his members to  
2 come to site to basically revisit some of the areas which  
3 they believe they've got some historical interests in, so  
4 it was a very productive meeting.

5 From our point of view, it was an  
6 opportunity to share some information about both the  
7 licensing process that we're in, it was an opportunity to  
8 talk about the project itself. We recounted some of the  
9 past environmental assessment work that has gone on in  
10 association with the site over the many years that we've  
11 been there.

12 He had some questions for us, and we've, as  
13 I say, offered to (a) have them come to site, and (b)  
14 committed to additional meetings with them. So it was a  
15 very productive and, I think, useful meeting; an  
16 opportunity to develop some relationships with the  
17 Passamaquoddy.

18 **MS. LOVE-TEDJOUTOMO:** Lisa Love, for the  
19 record.

20 So at the time of writing, we had planned  
21 perhaps to have a second meeting.

22 There was a meeting on August 3<sup>rd</sup> with the  
23 Passamaquoddy Recognition Group, and at that meeting they  
24 were able to bring to our attention their views and  
25 concerns.

1                   It was felt that -- and communicated to the  
2 Passamaquoddy Recognition Group that it might be more  
3 appropriate for them to bring those concerns to the Day  
4 Two hearing.

5                   And for a more fulsome answer, I'd like to  
6 just pass that back to Kim Mann, I believe. Is she here?  
7 Yes, she is. Yeah.

8                   **THE CHAIRMAN:** Go ahead, please.

9                   **MS. MANN:** Kimberly Mann, for the record.

10                  As Ms. Love said, we did -- staff did meet  
11 with the Chief of the Passamaquoddy Recognition Group on  
12 August 3<sup>rd</sup>. There had been a request for a second  
13 meeting, but based on the previous correspondence we had  
14 sent to the Passamaquoddy Recognition Group, we had asked  
15 for their concerns about the decision at hand and if the  
16 project was going to impact any of their asserted  
17 aboriginal or treaty rights.

18                  They did raise some concerns about the  
19 project, and -- but they have not given us any information  
20 to date as to any adverse impacts this decision could have  
21 on any asserted rights.

22                  So what we've done is we've encouraged them  
23 to attend the Day Two hearings to tell them -- to tell you  
24 in person what their concerns may be, and they've also  
25 applied -- we encourage them also to apply for the

1 participant funding program, which we know they have done.

2 **MEMBER McDILL:** So they have followed up  
3 through the participant funding in that respect.

4 **MS. MANN:** Yes, they have.

5 **MEMBER McDILL:** And then on page -- I'll go  
6 back a little bit. Page 50. Maybe I could ask both staff  
7 and NB Power to discuss the partial flume response and  
8 what's happening now. The Phase I numbers are dropping  
9 off.

10 **MR. HICKMAN:** Charles Hickman, for the  
11 record.

12 The partial flume is -- just to make sure  
13 we understand what we're talking about; this is a system  
14 that is in place at our waste management facility, solid  
15 radioactive waste management facility. It collects  
16 surface runoff, so rainwater that falls in and around the  
17 licensed area or the controlled area.

18 Water is collected. It's funnelled through  
19 a -- basically a designed control structure where we are  
20 able to calculate flows and volumes of water that have  
21 fallen.

22 We sample it on a regular basis and as the  
23 figures in the pour indicate, we did, after a while, start  
24 seeing some elevated numbers of tritium; still  
25 significantly below any action levels or any levels of

1 concern. And it's also worth noting that the ultimate  
2 discharge point where this water ends up is in the Bay of  
3 Fundy. It does not go close to any public water sources  
4 or any public wells, or private wells.

5 We saw the numbers increasing. We did some  
6 studies to try to understand where the tritium might have  
7 been coming from. Like I say, this is surface water.

8 The investigation we did identified that in  
9 the early days of operation, we had a system where we  
10 would take some of the filters from the station systems,  
11 filters that were used in the -- basically, in the  
12 (inaudible) transport system and the moderated system.

13 We would dry them to a degree and then we  
14 would take them out and put them in a storage facility.

15 We didn't dry them as much as we might have  
16 in the early days, and the tritium does off-gas quite  
17 effectively, so it was inside of the waste container, then  
18 placed in the waste storage structures.

19 The tritium, we believe, off-gassed and,  
20 over a period of time, would have been able to basically  
21 migrate through the concrete structures and then with the  
22 rainwater would have washed into the surface water and  
23 been picked up in the partial flume.

24 Once we completed the investigation, we  
25 then increased our drying of the filters before they go

1 out to the waste facility, and of the other wastes that we  
2 take out to the waste facility as well, so basically  
3 everything is now much dryer than the early days.

4 And I think what you're seeing in the  
5 numbers coming down is the results of that corrective  
6 action that have been put in place and we are now seeing  
7 the numbers right back down to near background, still well  
8 below any levels of concern.

9 **MEMBER McDILL:** Do staff have anything to  
10 add?

11 **MR. JAMMAL:** I call on Mr. Mike Rinker to  
12 answer the question.

13 **MR. RINKER:** Mike Rinker. I'm the Director  
14 of the Environmental Risk Assessment Division.

15 Staff has been working with Department of  
16 Fisheries and Oceans Canada. DFO, in this particular case  
17 in the Bay of Fundy, is looking at the release of nuclear  
18 substances from the nuclear facility, which is a bit of an  
19 aberration; it's normally Environment Canada. But in this  
20 case, DFO is taking the lead role.

21 The only radionuclide that is measurable in  
22 the environment is tritium. There's no other constituents  
23 that are causing -- posing any concern or, indeed,  
24 detected.

25 There was an increase which is not really

1 unexpected during refurbishment; when you're opening up  
2 the reactor, there's a potential for water to be released  
3 -- tritiated water. However, the values are very low.

4 Groundwater, surface water are all in the  
5 10 to 20 becquerel per litre range, 25 becquerels per  
6 litre range. So even though there was an increase, the  
7 increase is still at a very low level.

8 **MEMBER McDILL:** Thank you. Just a follow-  
9 up to that.

10 Is New Brunswick considering any changes to  
11 the drinking water limit as is being bounced around in  
12 Ontario?

13 **MR. HICKMAN:** Charles Hickman, for the  
14 record.

15 We're very much aware and are following the  
16 discussions that are taking place in Ontario, and at this  
17 moment the Province of New Brunswick has not indicated to  
18 us, at least, any intention to revisit the drinking water  
19 standards.

20 As I'm sure you're aware, they're set by --  
21 they're Canadian drinking water standards, and as far as  
22 we understand, the science would support the existing  
23 number and keep it where it is.

24 **MEMBER McDILL:** Thank you.

25 **THE CHAIRMAN:** Just before we leave this

1 chart, I may have missed it, but what is Phase I, Phase  
2 II, Phase III? What's the difference? And Phase III is  
3 the last study of 2008. Am I reading this right?

4 **MR. HICKMAN:** Charles Hickman, for the  
5 record.

6 Yes, you are reading it correctly. Phase I  
7 is the -- I'll have to bring up one of my old slides one  
8 day.

9 The waste facility has a number of  
10 segregated areas. Phase I is for our low and intermediate  
11 waste. It went into operation at the same the plant did,  
12 back in 1982-83. So it was constructed as part of the  
13 original station construction.

14 Phase II, and there's a series of -- series  
15 concrete vaults, all above ground. Phase II is an area  
16 that went into operation in the early '90s when we started  
17 taking used fuel following an environmental assessment, so  
18 we took used fuel, designed and built canisters out of the  
19 waste management facility.

20 So we have Phase II where we take our used  
21 fuel to once it's been in the spent fuel storage bay for  
22 six to seven years.

23 Phase III, we came to the Commission back  
24 in 2000 requesting approval to modify the waste facility  
25 to build Phase III. We went through the environmental

1 assessment process. And the Phase III is for those new  
2 structures built in 2007 to house the waste generated  
3 during the refurbishment project. So the reactor  
4 components, calandria tubes, pressure tubes, feeders that  
5 were generated during the refurbishment are located in the  
6 Phase III area.

7 Each one has its own separate monitoring  
8 locations and systems, and they are all part of that same  
9 general area.

10 **THE CHAIRMAN:** Thank you.

11 Dr. McDill?

12 **MEMBER MCDILL:** Actually, I'd like to go to  
13 the Licence Handbook, I guess page -- not I guess. It is  
14 page 96 of 150. Ninety-six (96).

15 A lot of what's going forward is going to  
16 depend on the Licence Condition Handbook.

17 The bottom there of that page, it says:

18 "It's anticipated that the compliance  
19 with RD-321 and RD-361 will become  
20 licence condition requirements in the  
21 near future."

22 Can someone give me a time line for that?

23 **DR. RZENTKOWSKI:** The Licence Conditions  
24 Handbook is structured that one can find the compliance  
25 verification criteria there, which are very hard

1 requirements, and recommendations of guidance. So those  
2 two particular documents are in the recommendation  
3 section.

4 The path forward is now to engage the  
5 industry into a dialogue to establish the implementation  
6 path, not only the schedule, but also implementation  
7 elements for those documents.

8 When we have an agreement on how to  
9 proceed, we'll amend the licence and we'll also provide  
10 adequate wording in the Licence Condition Handbook.

11 In terms of specific timelines, it's very  
12 difficult for me to say because we really have to evaluate  
13 those documents and the impact on the licensees before  
14 deciding on the schedule for implementation.

15 **MEMBER McDILL:** Hazard a guess?

16 **DR. RZENTKOWSKI:** Yes, I can probably guess  
17 right now, but what about Day Two?

18 **MEMBER McDILL:** I'll accept a guess on Day  
19 Two. Thank you.

20 **DR. RZENTKOWSKI:** Okay, thank you very  
21 much.

22 **MEMBER McDILL:** Page 138 of 180, so that  
23 again will be -- that must be 11. Sorry, 12.1, concerning  
24 action levels, 138 of 180, Section 7.3 under performance.  
25 Its' H12.1.

1                   The Chairman, Mr. Binder, has just referred  
2 to the four incidents. I'm more concerned with the  
3 visitors.

4                   Two others concerned the -- exceeding the  
5 dose administrated, one due to an unmonitored neutron dose  
6 and to two visitors.

7                   **MR. HICKMAN:** Charles Hickman, for the  
8 record.

9                   The incidents with the visitors, there's no  
10 health or safety implications. What occurred was we had  
11 during the early parts of the outage some people came down  
12 from Ontario. They were actually nuclear energy workers  
13 in Ontario, and when they came to site we had the option  
14 of putting them on dose records and having them badged.  
15 We chose not to, so we brought them into site as visitors.

16                   As such, they are assigned certain dose  
17 limits. They were in the station. They did a walk  
18 through the reactor building as part of the work on site.  
19 They were supporting the project, and afterwards we  
20 realized that they had been in areas where there were  
21 still neutrons and we had not anticipated that when we had  
22 set the dose limits.

23                   As a result, they had received some neutron  
24 dose that had not been anticipated and had not been  
25 calculated into their dose limit.

1           As a result, we did have a base exceedence  
2 of the administrative dose limit with no either health or  
3 safety implications. It was a choice that we made not to  
4 have them fully badged up, and it's a change that we have  
5 made, is that in those circumstances they would normally  
6 be -- they will now be added as nuclear energy workers  
7 with the appropriate administrative dose limits.

8           **MEMBER McDILL:** Staff want to add anything?

9           Will the records of these individuals be  
10 permanently changed?

11          **MR. JAMMAL:** Ramzi Jammal, for the record.

12          I will ask Madame Purvis to provide you  
13 with that RP question.

14          **MS. PURVIS:** I'll just kick off the  
15 response and then ask Mr. John McManus, who is the  
16 specialist on the file, with regard to the particulars of  
17 this incident.

18          So in this case, as per Mr. Hickman's  
19 response, this wasn't a planned dose and, therefore, it  
20 was considered to be an exceedence of the action level.  
21 There were -- the dose was actually very, very small and,  
22 of course, there were no health effects associated with  
23 that.

24          With respect to the question regarding the  
25 dose records, I will probably defer that question to Mr.

1 Hickman to respond. But Mr. McManus?

2 **Mr. McMANUS:** Yeah, John McManus, for the  
3 record.

4 With respect to this, I wouldn't even call  
5 it an incident per se. The administrative limits, they're  
6 basically set over a set period of time. In this case,  
7 there was no, for example, unplanned event which resulted  
8 in an unexpected dose.

9 In this case, Point Lepreau assigned an  
10 administrative level of .05 millisieverts to the  
11 individual over the course of a couple of days. The  
12 individual, as it turns out, due to an under-estimation in  
13 the neutron fields, received a .1 millisievert dose, so it  
14 was a very, very slight exceedence and it would be, you  
15 know, 10 percent of a dose limit for a member of the  
16 public.

17 So it was a very minor administrative  
18 deficiency. There was no risk to the worker or the  
19 person.

20 **MR. JAMMAL:** Ramzi Jammal, for the record.

21 Dr. McDill, the answer to the question has  
22 the dose record of this person changed, we'll provide you  
23 with that information for Day Two.

24 If it's required verification on the  
25 National Dose Registry, we will look into it to make sure

1 that the dose reflected or, as my colleagues mentioned, is  
2 was it so insignificant it did not require a dose change  
3 record, but we'll confirm. I'll provide you with an  
4 answer for Day Two.

5 **MR. HICKMAN:** Mr. Charles Hickman, for the  
6 record.

7 The dose record is the dose record. We'd  
8 have picked up the neutron dose before we had submitted  
9 the final dose in the National Dose Records, so the dose  
10 records would be correct. They wouldn't have had to be  
11 changed.

12 **MEMBER MCDILL:** Thank you.

13 Just a little bit back from that, on page  
14 123 on effluent releases. The moderator was drained in  
15 2008 and it was a very large step function in effluent  
16 releases.

17 I'm on page 123 of 180; 6.2.

18 Why did -- I think that's the moderator  
19 because of the year is 2008. Why was there such an  
20 increase?

21 I realize, again, the dose is not all that  
22 high but compared to the other years.

23 **MR. HICKMAN:** Charles Hickman, for the  
24 record.

25 Yes, you're correct. In 2008 when we

1 drained down the moderator there was an increase in the  
2 tritium releases for the liquid effluent stream and that  
3 does count for the Delta like in 2008.

4 Typically, that -- our tritium releases  
5 are, as the graphic shows, significantly less than that  
6 and that was an anomaly for us reflecting the outage  
7 activities.

8 It should be noted that when we planned the  
9 outage, there was lots of discussion about the actual --  
10 how to handle the moderator. We made the conscious choice  
11 to drain the moderator down, rinse the vessel, and in that  
12 way reduce the amount of tritium left in the systems which  
13 allowed us to work for the rest of the outage in much  
14 lower tritium levels; from an ALARA point of view, it was  
15 significantly beneficial for the workers doing the actual  
16 outage.

17 **MEMBER McDILL:** I think I just saw staff  
18 come up the back there.

19 **MR. RINKER:** Not to provide new information  
20 -- it's Mike Rinker, for the record -- but we are aware of  
21 what you're referring to, and I'd just like the comment  
22 that despite these releases the discharges are well below  
23 their respective regulatory limits, and increases in the  
24 environment are not posing a risk to neither humans or to  
25 biota.

1                   **MEMBER MCDILL:** Thank you.

2                   Back to page -- I'm realizing I'm going  
3 backwards -- 23, same document, 180 -- wait a minute,  
4 maybe it's 23. I think it's the other one.

5                   Actually, I'll find the page and I'll pass  
6 it back to Dr. Barriault for a minute.

7                   **MEMBER BARRIAULT:** Thank you.

8                   On Document 11-H12 on page 49, it's your  
9 well-testing program -- it's Item 3.9.2.4.3, page 49.

10                   You describe your well water monitoring  
11 system and then you go on to describe new boreholes, and I  
12 guess I'm wondering the difference between the wells and  
13 boreholes because one you check twice a year and the other  
14 one three times a year.

15                   So maybe you can clarify, what is the  
16 difference between the two systems?

17                   **MR. HICKMAN:** Charles Hickman, for the  
18 record.

19                   I'm not a geologist and I suspect that  
20 somebody has some technical definitions between boreholes  
21 and wells.

22                   The wells are potentially used -- I think  
23 the technical terminology water-supplied. Boreholes are  
24 different diameter and they're set up a little bit  
25 differently. I don't have the technical details.

1                   The key message here for us is it allows us  
2                   to collect groundwater, sample groundwater on a regular  
3                   basis.

4                   With regards to the new boreholes that were  
5                   drilled, we had a whole series of boreholes -- groundwater  
6                   sampling points, if I can put it that way, around the  
7                   facility. When we expanded the waste management facility  
8                   as I described earlier for Phase III, we expanded the  
9                   waste storage facilities that took us outside of the  
10                  footprint of divisional well system, so we put new wells  
11                  in, boreholes in, around Phase III of the waste management  
12                  facility.

13                  So that was a commitment as part of the  
14                  follow-up program coming out of the environmental  
15                  assessment, was to expand the groundwater monitoring  
16                  program. Those new monitoring points were that expansion.

17                  **MEMBER BARRIAULT:** So they're actually  
18                  wells also I guess is what I'm hearing?

19                  **MR. HICKMAN:** There is a technical  
20                  difference. I'm not sure exactly what it is but,  
21                  basically, they are. Holes go in the well -- in the  
22                  ground that you can draw water out of and they go down  
23                  typically different depths.

24                  None of these locations mentioned here are  
25                  used for drinking water; none of them are used for

1 drinking.

2 **MEMBER BARRIAULT:** That's what I was  
3 wondering really, is that wells traditionally will take  
4 the water from a certain level.

5 You can -- okay. And I was wondering if  
6 boreholes were more general in the sense that it could  
7 come from a variety of levels as opposed to a specific  
8 level but I'm not sure, that's why I was asking the  
9 question.

10 **MR. HICKMAN:** Charles Hickman, for the  
11 record.

12 The monitoring that we have does collect  
13 from different levels. We have, in some instances, what  
14 are called "nests" where we have sampling at near-surface  
15 and then at deeper elevations.

16 I would have -- I can pull out -- I've got  
17 a report with me if you'd like further information but,  
18 basically, it's a groundwater monitoring point and,  
19 actually, if you'd like that information I do have the  
20 report with me; I can dig that out.

21 **MEMBER BARRIAULT:** Thank you.

22 **THE CHAIRMAN:** Staff, you want to help on  
23 this?

24 **MR. RINKER:** Mike Rinker, for the record.  
25 I'm not sure I can help very much other

1 than to say that boreholes and wells are often used  
2 interchangeably, so they may -- if they're -- they could  
3 be a well or a borehole that is used for groundwater  
4 monitoring purposes.

5 And if there's -- looking at multiple  
6 layers at one location, it's a nest. But it's one  
7 borehole with multiple sampling points at different  
8 elevations.

9 **MEMBER BARRIAULT:** Thank you.

10 **THE CHAIRMAN:** Since we are on the same  
11 page, I've been dying to ask this question.

12 Why -- I know that NB Power are using DEL  
13 and everybody else is using DRL. What's the right,  
14 acceptable lingo and can we get -- it's bad enough to  
15 understand the bloody unit, so who is right on this?

16 Let me ask staff. Anybody knows? Is DRL  
17 the common lingo or is it DEL?

18 **MR. JAMMAL:** Ramzi Jammal, for the record.

19 I'll pass it on to our colleagues just for  
20 more precision.

21 The answer is; the end point is the same.  
22 DEL and DRLs are based on the same 1 millisievert dose for  
23 the calculations.

24 We will be unifying the DRL and DEL to be  
25 DRLs. What we're using SI units and also ---

1                   **THE CHAIRMAN:** Internationally, is it  
2 internationally ---

3                   **MR. JAMMAL:** Well, the DRL is Canadian-  
4 specific, based on the international safety standard of 1  
5 millisievert.

6                   **THE CHAIRMAN:** I think somebody's coming in  
7 who actually knows the answer.

8                   **MR. JAMMAL:** I'd like to hear it if there's  
9 any changes to the answer.

10                  **MR. HICKMAN:** I'll try not to get you in  
11 trouble.

12                                 This is Charles Hickman, for the record.

13                                 The reason that NB Power uses DRLs, Derived  
14 Release Limits, is because our program is based on the CSA  
15 Standard CSA N288.1, which was initially produced in 1987,  
16 it was reaffirmed until 2008, and the title is "Guidelines  
17 for Calculating Derived Release Limits for Radioactive  
18 Material and Airborne and Liquid Effluence for the Normal  
19 Operation of Nuclear Facilities."

20                                 So in our problematic documentation, we use  
21 DRLs because that's in the title of the CSA Standard.

22                   **THE CHAIRMAN:** I just want to make sure  
23 I've got it right. So is it DRL?

24                   **MR. HICKMAN:** NB Power uses DRL because  
25 that's in the CSA Standard.

1                   **THE CHAIRMAN:** So you're going to change?  
2                   Am I confusing here? Am I confused?  
3                   Is it D-E-L or D-R-L?

4                   **MR. HICKMAN:** Sorry, when you go over the  
5                   new standard, it will be DRL's.

6                   **THE CHAIRMAN:** Okay. Thank you. That's  
7                   all I wanted to hear. Thank you.

8                   Somebody -- go ahead, please?

9                   **MR. AVADHANULA:** My name is Rao Avadhanula  
10                  from the Department of Compliance and Laboratories  
11                  Division.

12                  As Mr. Jammal mentioned, the result is the  
13                  same but ---

14                  **THE CHAIRMAN:** I understand they're the  
15                  same.

16                  **MR. AVADHANULA:** --- at NB Power, when they  
17                  calibrate it and submit it, the DELR document, that was  
18                  very old. They are based on '97 CSA Standard and since  
19                  then they have not reviewed or updated, but whereas other  
20                  nuclear power plants and CNSC asked them to use DRL  
21                  consistently and other MPPs they have calculated it and  
22                  called it DRLs.

23                  Except in the case of New Brunswick and I'm  
24                  not sure for Gentilly, all the other reactors use DRL and  
25                  I understand NB Power has already presented their

1 implementation of renewal of DRL document in 2012.

2 I think by that time CSNC will ask them to  
3 use only DRL.

4 **THE CHAIRMAN:** Okay, thank you.

5 I think that for -- since you are  
6 modernizing your plant you should modernize your lingo.

7 Thank you.

8 Dr. McDill.

9 **MEMBER McDILL:** He was on.

10 **THE CHAIRMAN:** Okay, Dr. Barriault, sorry.

11 **MEMBER BARRIAULT:** Thank you.

12 On your water cooling -- on your seawater  
13 cooling side of the plant on your intake, do you have any  
14 fish impingement problems at all; any shellfish or other  
15 fish? And if you do, how do you deal with it?

16 **MR. HICKMAN:** Charles Hickman, for the  
17 record.

18 We're actually in a very fortunate location  
19 in Point Lepreau. Our location from the fish's point of  
20 view is excellent. If I can go back a little bit in time  
21 just bring everybody up to speed.

22 When the plant was designed, the design of  
23 the cooling water system included a number of different  
24 options. At that time, there was consideration of having  
25 a surface-water intake which would have almost certainly

1 led to a different discussion today.

2 We chose to have a submerged intake. The  
3 design of the intake was designed with the active input  
4 from what at the time was known as the Environmental  
5 Protection Service, effectively now Environment Canada,  
6 and they were representing fisheries interests.

7 The design involved what is called a  
8 velocity cap design. It's in approximately 60 metres --  
9 sorry, 60 feet of water, and the design of the velocity  
10 cap -- I'll try and describe it visually. It's like a --  
11 almost like two mushrooms, one on top of the other.

12 There's a -- supposed to be 12- to 14-foot  
13 diameter pipe that comes up out of the seabed and there's  
14 effectively a lip and then above that there's about a 2-  
15 metre high gap and then there's another cap over the top.

16 What this means is that there's no way for  
17 things, such as lobster, to crawl along the bottom getting  
18 into the seawater system; they are unable to climb over  
19 the lip.

20 The velocity-cap design ensures there's  
21 only relatively low, horizontal flow of water into the  
22 cooling water system which the fish are able to detect and  
23 they can actually swim out of that system.

24 The design was quoted by Environment Canada  
25 up until -- mind you very recently -- as being state-of-

1 the-art design. The velocity cap is supposed to be the  
2 best design you can get.

3 As a result of that, we have had no issues  
4 with fish impingement or entrainment in our cooling water  
5 system. In fact, we have had a situation where some  
6 species will actually swim into the cooling water system,  
7 turn around, and swim back out again.

8 So we have had no issues with fisheries,  
9 impingements or entrainments at the cooling water system.

10 **MEMBER BARRIAULT:** Do you have any problems  
11 with shellfish and mussels and ---

12 **MR. HICKMAN:** The actual design of the  
13 cooling water system -- sorry, Charles Hickman, for the  
14 record.

15 The design cooling water system had two  
16 components that come to our favour here. The design  
17 incorporated an estimated one foot of -- a one-foot growth  
18 mussels and so on around the cooling water intake line so  
19 it allowed for a certain amount of growth.

20 In addition, the actual system is sized for  
21 two-unit operation and we're only using one unit. So we  
22 do get some growth, but not to the extent it has any  
23 impact on operations and does not cause us any problems on  
24 the screens.

25 **MEMBER BARRIAULT:** Okay, thank you.

1 Now, it's Dr. McDill. Thanks.

2 **THE CHAIRMAN:** Go ahead, please.

3 **MEMBER McDILL:** I'm getting down to the end  
4 of the list here.

5 Page 23 of H-11.1 -- no, H-11 -- Section  
6 3.7.2 on dose control. Excuse me.

7 How was the -- this is at the top of the  
8 page -- you have maximum individual effective dose now as  
9 8.2 millisieverts and then you refer to the collective  
10 dose and the increase in the collective dose estimate with  
11 the replacement of the calandria tubes.

12 Will we have an update for Day Two? First  
13 of all, could you just sort of run me through that  
14 increase, and then will we have an update for Day Two as  
15 to where we stand?

16 **MR. HICKMAN:** Charles Hickman, for the  
17 record.

18 Yes, we will have an update for Day Two.

19 When we started the outage, we had looked  
20 at the major scopes of work that were anticipated as part  
21 of the refurbishment activities.

22 The major scopes of work at that time we  
23 recognized as being effectively the re-tubing activities  
24 and dose estimates were generated for those re-tubing  
25 activities. The dose estimates were based on a nuclear

1 physics model showing what the fields were at different  
2 parts of the reactor at different stages during the  
3 outage.

4 Based on those estimates or those  
5 calculations at the time, we had the initial estimate of  
6 8.3 -- sorry, 7.3 sieverts for the collective dose for the  
7 re-tubing aspects of the outage, and we estimated for the  
8 refurbishment aspect -- so the non-reactor activities --  
9 an additional 1 sievert dose which gave us the total of  
10 8.3 sieverts collective dose as an initial estimate going  
11 into the outage.

12 As you're well aware, during the outage  
13 we've had a number of challenges. The duration has  
14 increased. We've had some tooling issues and, in  
15 addition, as we've gone through the outage we've realized  
16 that the initial estimate did not take into account some  
17 of the maintenance activities for equipment on the face.

18 And another fact is one of those lines  
19 which led us to increase the estimated collective dose for  
20 the outage in its entirety to be 12.7 sieverts.

21 So that's where we are today. We are under  
22 that. We have asked for an update with regards to what  
23 that collective dose estimate is for the outage.

24 **MEMBER MCDILL:** And the "p-" before the  
25 sievert is?

1           **MR. HICKMAN:** That is person sieverts.

2           **MEMBER McDILL:** Person sieverts, thank you.  
3           Does staff have anything to add to that?

4           **MR. McMANUS:** John McManus, for the record.  
5           Just that generally we -- we're in  
6           agreement with NB Power that the first estimate -- upward  
7           estimate was due to basically an underestimation of effort  
8           and unique challenges resulting in longer, basically,  
9           exposure times.

10                   And the second estimate, of course, was  
11           with the decision to replace the calandria tubes  
12           previously installed. That repeat activity required an  
13           upward dose adjustment of 1.4 person sieverts.

14                   The only thing to add to that is as of  
15           August 2011, the current project dose is 11.4 person  
16           sieverts and it's been communicated to us as of August  
17           that NB Power was still on track to meet the 12.7.

18                   Currently, 50 percent is the fuel channel  
19           install. That work is coming in under estimate.

20           **MEMBER McDILL:** Thank you and ---

21           **THE CHAIRMAN:** Are you finished?

22           **MEMBER McDILL:** Yes.

23           **THE CHAIRMAN:** Still on this page -- while  
24           we're on this page, can you talk a little bit about the  
25           alpha program and -- because in H12, you do mention that

1 the CNSC will be reviewing your alpha program, and what  
2 I'm more surprised to see is that it's going to be  
3 approved prior to the end of 2012.

4 So I'm trying to understand what is it that  
5 needs to be approved? I thought you already had an alpha  
6 program from way back and particularly after the Bruce  
7 incident.

8 So somebody fill me in on the alpha  
9 program.

10 **MR. HICKMAN:** Charles Hickman, for the  
11 record.

12 I can talk about what we're doing and where  
13 we've come from and, as you indicate, we've been in front  
14 of the Commission and explained that we had a very good  
15 history coming into the outage. Our fuel management -- so  
16 effective fuel management put us in a very good situation,  
17 but we had a relatively low risk to start with.

18 We took measures coming into the outage to  
19 upgrade our Alpha capabilities and we did have some  
20 incidents early on in the outage, but they were managed  
21 very carefully.

22 Following the events elsewhere, we did do  
23 sampling of people involved in both the outage and,  
24 subsequently, an additional set of people who had not only  
25 potential long-term, low-level exposure and we've done

1 bioassays for both of those groups of people and we have  
2 not identified any significance of related issues.

3 So we're very comfortable that we've got a  
4 good program in place, but we also recognize there are  
5 always opportunities to improve.

6 So we have engaged an industry expert who  
7 has reviewed and is making some suggested upgrades to our  
8 training programs, to some of our instrumentation programs  
9 and to, essentially, our basic training program for green  
10 qualified staff to basically increase our awareness.

11 So although we have done the right things  
12 coming into the outage, we recognize there is an  
13 opportunity to make further improvements. We're taking  
14 those opportunities and that work is ongoing at the  
15 moment.

16 **THE CHAIRMAN:** So did you detect an  
17 increase in alpha presence during the refurbishment? I  
18 mean, I was somewhat surprised. I'm trying to determine  
19 whether because of the Bruce incident you discovered  
20 something new in your operation or was it normal  
21 detection, kind of? There was nothing different and new  
22 incremental because of the refurbishment work.

23 **MR. HICKMAN:** Charles Hickman, for the  
24 record.

25 As I indicated, we had upgraded our

1 monitoring capability for Alpha before the outage started,  
2 so in preparation for the outage.

3 While we were dismantling part of the  
4 reactor system from the heat transport system and before  
5 the Bruce incident, we did have alarms in the reactor  
6 vault. We had the protective equipment in place and the  
7 people in field took the appropriate actions, so  
8 respiratory protection was put in place.

9 And so we had effectively -- I think we did  
10 actually have four people with a very minor uptake, but we  
11 did not have any significant issues with the larger  
12 population in the reactor at the time.

13 So yes, we identified the presence of  
14 Alpha, we addressed it, we did significant clean-up  
15 following identification of the Alpha contamination. We  
16 did provide that information to our industry peers and we  
17 continue to share and work with both industry and your  
18 staff to explain effectively what the story was and what  
19 the issues were.

20 And it's been addressed, I believe, in at  
21 least a couple of CMDs previously, and we can certainly go  
22 into more detail if you'd be interested.

23 **THE CHAIRMAN:** Staff, do you want to add  
24 anything?

25 **MR. McMANUS:** Yes. John McManus, for the

1 record.

2 I'll just break my answer down into three  
3 components.

4 First, prior to refurbishment: CNSC staff  
5 is satisfied that NB Power proactively went out and saw  
6 the impacts and did identify the potential for Alpha  
7 hazards, and this was planned. They did recognize the  
8 potential for Alpha hazards to exist and they did acquire  
9 certain instrumentation to ensure that it was detected.

10 During -- now, the second part would be  
11 during refurbishment: They did have Alpha air monitoring  
12 instruments with alarming capabilities, and this did  
13 function, which did lead to the identification of  
14 instrumentation indicating that four workers did have  
15 Alpha uptakes. However, the Alpha uptakes were quite low.  
16 The maximum assigned dose due to Alpha would be 1.5  
17 millisieverts, below any action level that would require  
18 reporting. Nonetheless, NB Power did report this to the  
19 CNSC staff.

20 Secondly -- sorry, thirdly, I'm just going  
21 forward. The issues with respect to the programmatic  
22 improvements, this is based on the event at Bruce Power in  
23 which it was identified that a worker involved with  
24 operations had received Alpha uptakes, so the intent from  
25 CNSC staff is to make sure that NB Power does two things:

1 (a) use industry best practices in upgrading their RP  
2 program and to ensure that the lessons learned during  
3 refurbishment are also addressed.

4 So there's no concern with Alpha hazard  
5 uptakes; it's just our expectation that their program be  
6 upgraded to use (inaudible) and meet industry best  
7 practices.

8 **THE CHAIRMAN:** Thank you for a great  
9 answer. I understand it now.

10 **MEMBER McDILL:** Now, on page 54 of 180,  
11 H12.1, this is with respect to the action item that's  
12 being tracked to redo the safety analysis for the loss of  
13 coolant.

14 Will there be any ability to update that by  
15 Day Two, where we stand on that?

16 **DR. RZENTKOWSKI:** Greg Rzentkowski, for the  
17 record.

18 Yes, there will be an opportunity to add to  
19 that information provided in the CMD.

20 Next month, we will have a major meeting  
21 with the licensees to review the progress made on this  
22 particular safety issue and we will report on the progress  
23 in Day Two CMD.

24 **MEMBER McDILL:** And Lepreau is comfortable  
25 with that answer?

1                   **MR. KENNEDY:** Yes.

2                   **MEMBER McDILL:** And my last question, I  
3 think, is with respect to fire on page 89 of the same  
4 document, H12.1.

5                   Is staff satisfied that despite the -- I  
6 mean, I realize these are 17 small fires over a period of  
7 five years, typically related to hot work such as welding  
8 and maybe some electrical shorts, but are the compensatory  
9 techniques in place sufficient given this series of  
10 events?

11                   **MR. CHERKAS:** For the record, my name is  
12 Grant Cherkas, the fire protection specialist on CNSC  
13 staff.

14                   Yes, CNSC staff believe that there's  
15 adequate provisions in place and including compensatory  
16 measures and emergency response to address these small,  
17 minor incidents.

18                   **MEMBER McDILL:** A new code wouldn't have  
19 prevented any of these things from happening, so it's  
20 mostly in the response that this -- that the compensatory  
21 techniques come into play. Is that correct?

22                   **MR. CHERKAS:** Maybe I can try and clarify.

23                   It's unlikely that the code would affect  
24 the occurrence of the incidents. The response and the  
25 response capability on site is adequate for these

1 incidents by a substantial margin.

2 The compensatory measures that are  
3 discussed in staff's documents refer to pragmatic measures  
4 that are being put in place to reduce risk where there are  
5 some gaps identified in some program elements, so if we  
6 have a weakness somewhere, CNSC staff are insisting that  
7 NB Power implement a compensatory measure in the short  
8 term to cover that weakness while corrective actions are  
9 implemented to find a final fix.

10 **MEMBER McDILL:** Let me try that question  
11 another way.

12 There is nothing that happened here that  
13 was against the new code. Welding when you're not  
14 supposed to weld, something like that.

15 **MR. JAMMAL:** To answer your question --  
16 Ramzi Jammal, for the record.

17 That's exactly -- I consulted with our site  
18 supervisor on what examples could have happened and the  
19 types of welds, to give you an example what happened, for  
20 example, welders' behaviour and actions that was taken.

21 **MR. PARKER:** For the record, Wade Parker.

22 If I could just add a bit to this. Each  
23 one of these 17 fires, we look at them very specifically  
24 at the site to see what could be done differently.

25 As was suggested, these are lower-level

1 issues, like a piece of nylon rope was used when a piece  
2 of chain or cable should have been used to support  
3 something, those types of levels. So each one of these  
4 goes through our corrective action program if it's in the  
5 station side; it goes through a little bit of a different  
6 process if it's on the project side, but each one of these  
7 is looked at very specifically to see how things could be  
8 done differently to improve and learn from the very  
9 specific incidents at hand.

10 **MEMBER McDILL:** Thank you, Mr. Chair.

11 **THE CHAIRMAN:** I think maybe it's a good  
12 time now to talk -- I'm still confused about what the fire  
13 emergency part of the safety area that you rated below  
14 expectation.

15 Can you, in layman language, explain what  
16 is the concern, what have they done, when are they going  
17 to do -- complete this, and what's the safety  
18 implications?

19 **MR. CHERKAS:** For the record, my name is  
20 Grant Cherkas with CNSC staff.

21 CNSC staff evaluated a number of drills  
22 over the course of approximately once per year since 2004  
23 and noted that the response times for the teams to  
24 intervene and some of the techniques used were not as  
25 efficient as we were expecting.

1                   To give you a good example, average  
2                   response time for an intervention when one could actually  
3                   put water on the fire was around 21, 22 minutes and we  
4                   were expecting 15 minutes as per the standard.

5                   **THE CHAIRMAN:** As per the new standard.

6                   **MR. CHERKAS:** As per the new standard,  
7                   which incorporated CNSC staff's expectations.

8                   The older standard, the 1995 edition, was  
9                   not as explicit. The new standard is now explicit and  
10                  exact. But the ---

11                  **THE CHAIRMAN:** But there were -- as far as  
12                  -- that's what I'm going to ask you. They were compliant  
13                  with the old standard. Is that correct?

14                  **MR. CHERKAS:** No, they were not fully  
15                  compliant with the old standard, that there were some  
16                  issues in terms of the effectiveness of the collective  
17                  team to intervene utilizing the equipment they had, but  
18                  this gets into an expert judgment because of the way the  
19                  standard was worded.

20                  **THE CHAIRMAN:** Okay, go ahead.

21                  **MR. CHERKAS:** So staff's concerns are, of  
22                  course, that if you're unable to intervene quickly, or  
23                  quickly enough, then you may be in a situation where  
24                  larger than expected damage could occur.

25                  We also -- because fire grows in time, we

1 are always driving licensees to intervene sooner, quicker  
2 into the incident.

3 What we've asked NB Power to do is to  
4 implement a series of corrective actions, which will take  
5 some time. That includes altering their response  
6 protocols and improving the team proficiency and  
7 efficiency, including bringing their response times down  
8 under the 15-minute mark.

9 That's a long-term solution. In the short  
10 term, a series of compensatory measures are put in place  
11 and I'd like to stress here that the concept of  
12 implementing compensatory measures in the short term are  
13 specifically addressed in the standard.

14 It's something the standard requires. And  
15 they're designed to reduce the risk in the short term  
16 while a long-term corrective action, such as training, is  
17 ongoing. That includes pre-staging equipment in the field  
18 and also looking at different techniques to cut down on  
19 the response time.

20 CNSC staff just completed a number of  
21 evaluations on the site. We've looked at two out of the  
22 six fire teams. Their response times are now in the order  
23 of 10 minutes, so we're seeing a dramatic reduction,  
24 dramatic improvements now in the capability to intervene  
25 in a timely manner.



1 solutions. A component of this is being able to bring  
2 together all of these changes to the program in a well-  
3 documented program that takes some time to perform and get  
4 document in to CNSC staff.

5 There's also a series of modifications  
6 which are ongoing at the station and some analysis that NB  
7 Power is performing to improve the physical installation  
8 at the facility. And we are anticipating that will take  
9 until the end of December 2014.

10 **THE CHAIRMAN:** NB Power, you would like to  
11 comment?

12 **MR. PARKER:** For the record, Wade Parker.

13 Just, again, speaking on the two different  
14 pieces, if I could.

15 The longer-term solution for our fire  
16 protection program, if I could give just a bit of history  
17 on this. Throughout the licence period, we at NB Power  
18 have spent over \$50 million in modifications to the  
19 station in support of meeting the specific requirements  
20 for the program. To be fully compliant by end of 2014, we  
21 believe we will be spending another \$50 million to make  
22 sure we meet those requirements.

23 So there has been a significant amount of  
24 work done to become compliant, but we are not there yet,  
25 and we understand that.



1 standard in this area. That's unacceptable us, plain and  
2 simply a fact. When we were together before the  
3 Commission the last time, we spoke about a protocol to get  
4 the ERT performance back to where it needs to be.

5 First of all, I'd like to thank the staff  
6 for pointing this out to us. You know, we have a number  
7 of means of oversight at our station, internal, external,  
8 but it was good for us to understand. Disappointing, but  
9 it's good for us to know that.

10 As we said in the opening presentation,  
11 safety is our biggest concern, so we need to ensure that  
12 we can support that and back that up.

13 This finding was found. We have taken some  
14 significant action. The protocol, as we said when we met  
15 last time, that was words that we said we were going to  
16 do.

17 I believe what you have heard and --  
18 through Mr. Jammal and what my understanding is from  
19 totally independent sources that we are on track of  
20 meeting our commitments under that protocol and getting  
21 that response team performance back to where we need to  
22 have it.

23 Mr. Cherkas, as indicated, has just come  
24 from the station even this morning, and seeing that is not  
25 a small piece of moving this forward.

1                   So the ERT performance, we are working on  
2                   that. We have four more crews to get through and to  
3                   validate what we said we were going to deliver is actually  
4                   what we are delivering to get the performance back to  
5                   where it needs to be.

6                   So I believe the protocol, we are fully  
7                   implementing that. We are very close to having that  
8                   complete, to get this below expectation back to  
9                   satisfactory, which was our commitment, and also for  
10                  meeting the commitments for end of 2014 in the Licence  
11                  Condition Handbook. We are fully prepared with bodies and  
12                  finances to support that as well.

13                  **THE CHAIRMAN:** Staff, hypothetically, in  
14                  Day Two if the four teams if they're going to be evaluated  
15                  pass, are they now on your satisfactory list?

16                  **MR. JAMMAL:** Ramzi Jammal, for the record.

17                  Before I pass it on to Mr. Cherkas, I'd  
18                  just like to clarify a couple of things, is the  
19                  compensatory measures, myself and Mr. Thomas made a  
20                  commitment that there will be -- a list will be  
21                  established before Day One as we speak, and that's why I  
22                  gave the briefing today with respect to the list of  
23                  compensatory measures that will be put in place. Agreed  
24                  upon by both organizations to the satisfaction of CNSC  
25                  staff and will proceed with the implementation for meeting

1 the intent of the code and for compliance with the code.

2 So the -- to answer your question is the  
3 work has already started. Compensatory measures have been  
4 agreed and accepted by CNSC staff to NB Power until such  
5 time that they are in full compliance.

6 I'll ask Mr. Cherkas if he has anything  
7 else to add since he was on site.

8 **MR. CHERKAS:** Grant Cherkas, for the  
9 record.

10 The compensatory measures that are being  
11 implemented work in conjunction with the improvements to  
12 the ERT, so they augment each other. And we're satisfied  
13 with the plans that NB Power has -- have, and we expect to  
14 see them implemented and will be monitoring their  
15 implementation over the next coming months.

16 **THE CHAIRMAN:** Okay, thank you.

17 Dr. Barriault?

18 **MEMBER BARRIAULT:** No, except for security,  
19 Mr. Chairman. That's all.

20 That was my last questions about fire.

21 Thank you.

22 **THE CHAIRMAN:** Okay. My turn, I guess. I  
23 got lots of questions.

24 First of all -- actually, we're lucky to  
25 have Mr. Thomas here. Maybe he can clue us in on the New

1 Brunswick government announced plan moving of forward  
2 there. I'm looking at your page 41 of 180 about the  
3 reintegration or the new structure of NB Power that will  
4 require a new licence amendment, I guess.

5 Is anything new that you can share with us?

6 **MR. THOMAS:** There's some discussions about  
7 -- we've received a mandate earlier in the year to be run  
8 as efficiently as possibly and to run like a commercial  
9 enterprise, and a lot of recommendations are being  
10 reviewed from the Energy Commission that was put together  
11 right after the government took power.

12 And you know, we all seem to agree that  
13 reintegration is a way to run this company more  
14 efficiently, and -- but the response to the Energy  
15 Commission report has not been officially released yet.  
16 So we expect our shareholder to respond to it in a very  
17 near future.

18 **THE CHAIRMAN:** Thank you.

19 On page 51 of 180, it just struck me that  
20 we're now moving -- that you're planning -- this is NB  
21 Power proposing to go to 24 planned outage schedule.

22 Can somebody tell me what's behind that,  
23 instead of an annual planned outage? And is staff  
24 concerned with that?

25 **MR. PARKER:** For the record, Wade Parker.

1                   Just very simplistically and from a high  
2 level, it's an efficiency issue.

3                   A number of years ago, we made the decision  
4 to go to a 24-month outage. We have aligned the station  
5 to support that. We have aligned all our preventative  
6 maintenance action plans so that they can -- it is  
7 acceptable for a 24-month outage cycle.

8                   Coming out of refurbishment, we will be  
9 putting staffing in to support that position and be moving  
10 forward with that.

11                   **THE CHAIRMAN:** Staff?

12                   I guess, you know, we have some experience  
13 elsewhere that when you skimp on annual outage, you skimp  
14 on possible repairs.

15                   So we're a bit, we're a bit -- kind of  
16 concerned, so somebody deal with that concern.

17                   **DR. P. THOMPSON:** Paul Thompson, for the  
18 record, please.

19                   Moving to the longer outage cycle is also  
20 consistent with what the other top performing plants are  
21 doing. And it also allows for more planning to be done  
22 between outages, and it can allow for some increased  
23 maintenance to be done as well.

24                   So it does not imply that you're doing less  
25 maintenance, but your maintenance can be better planned

1 and aligned and conducted efficiently. In addition, the  
2 PSA included the consideration that we would be going to a  
3 24-month outage cycle.

4 Thank you.

5 **DR. RZENTKOWSKI:** From the regulatory  
6 standpoint, we evaluated this proposal and there is no  
7 concern, especially for a new plant like Point Lepreau  
8 will be restarting after refurbishment.

9 We believe that there's no compromise to  
10 safety and we can monitor this by simply monitoring the  
11 performance indicators, the maintenance performance  
12 indicators. That would be the first indication that the  
13 safety of the plant is being maintained at the level  
14 expected.

15 And besides, we already approved similar  
16 request, for example, from OPG. OPG recently moved to 36-  
17 month long cycles.

18 **THE CHAIRMAN:** So how long is an outage,  
19 typically?

20 **DR. RZENTKOWSKI:** Currently, for the annual  
21 -- for the annual outage, it could be up to 60 days.

22 **THE CHAIRMAN:** So there's no time kind of a  
23 limit. So if they're required -- look, I do a simple  
24 math. If you did a month once a year and now you're doing  
25 a month every two years, you reduce the maintenance time.



1 outages over the time period in which you're shut down,  
2 you actually can do more maintenance.

3 The outage duration actually does vary  
4 outage to outage, depending upon what the particular long-  
5 term maintenance plan is and what equipment is coming out.

6 And so you can actually have less frequent  
7 but some longer outages and get more work done within  
8 those outage -- with outage windows, particularly when  
9 you're looking at electrical work and bust work, taking  
10 things down. So there is advantage to less frequent  
11 outages, and it's a matter of aligning your inspection  
12 frequencies to these now better well-defined outage  
13 windows.

14 We were moving towards an 18-month outage,  
15 anyways, prior to refurbishment until we started to have  
16 the issues, as you know, with -- the challenges with the  
17 feeders, and that forced us back to a 12-month outage  
18 cycle.

19 A 12-month outage cycle is an extremely  
20 difficult thing to maintain because there's a lot of  
21 preparatory work that's required to get ready for an  
22 outage, to have it properly planned and executed and  
23 basically, you're planning your next outage while you're  
24 still having your current one. And it really is not a  
25 sustainable one and it's not one that really is conducive

1 to proper long-term maintenance.

2 **THE CHAIRMAN:** Do you need an approval at  
3 the end of every outage to get back online?

4 **DR. P. THOMPSON:** What we have in the  
5 condition is if we have identified certain safety-related  
6 modifications, we need to verify that those modifications  
7 were, in fact, completed.

8 **THE CHAIRMAN:** Okay. Mr. Jammal?

9 **MR. JAMMAL:** Thank you, Mr. President.  
10 Ramzi Jammal, for the record.

11 In addition to the discussion that did take  
12 place, at no time I would like to leave the impression to  
13 the Commission that it's written in stone. It's based --  
14 what I'm trying to say here, if there is any safety  
15 elements, we will force them to go for an outage in order  
16 to make sure that the safety is not compromised.

17 However, due to the enhancement, the  
18 obligations of post-refurbishment that the ongoing  
19 monitoring then from safety significance, the 24-month  
20 outage -- planned outage, due to its planning, it's not  
21 going to impact the safety.

22 And I do not want to leave the perception  
23 that because it's 24 months then the oversight with  
24 respect to safety will be diminished. If there is a need  
25 for an outage, we will order them to go down.

1                   **THE CHAIRMAN:** Okay, thank you.

2                   I got a couple of other, maybe, quick,  
3 easier.

4                   We've seen a couple of times about the  
5 loading of the fuel; it's Phase A, Phase B, Phase C, Phase  
6 D. Nobody venture yet a date beside any one of those  
7 phases, I thought.

8                   Can somebody focus -- we're not going to  
9 hold you -- those are just forecasts and we know the kind  
10 of things, so end of Phase A, when will -- what are your  
11 anticipated completion date?

12                   Because I tried to relate this to Day Two,  
13 so Phase A, completion of Phase A, when will that happen?

14                   **MR. EAGLES:** Rod Eagles, for the record.

15                   As was outlined in our presentation, the  
16 completion time that we've communicated publicly and that  
17 was set in the schedule that was established last year is  
18 May 2012, and that would be for the completion of the AECL  
19 portion of the work, which includes the loading of fuel,  
20 so that would be the Phase A.

21                   As Gaëtan had mentioned when we talked  
22 about timing of the Day One-Day Two hearings, there was a  
23 potential that perhaps some of that schedule could come  
24 ahead a little bit and, if that was the case, there was  
25 certainly interest on our part to be sure that we had gone

1 through this process and that we had had the decision, you  
2 know, in a timely fashion not to interrupt the flow of, of  
3 course, that work.

4 So on paper today, we're consistent with  
5 our message that we will finish the loading of fuel by  
6 May, the end of May, and that we'll continue to put the  
7 reactor back in service by the end of -- well, by the fall  
8 of 2012, but likely September.

9 The issue for us is the potential to, you  
10 know, perhaps be a bit earlier than that. I won't say  
11 significantly, but perhaps a bit earlier than that.

12 **THE CHAIRMAN:** I understand that some of  
13 them are not in your control; it's under staff control.

14 **MR. EAGLES:** Right.

15 **THE CHAIRMAN:** So focus on removal of DSS.  
16 When -- knowing all the things that are in front of  
17 everybody, what's your focus to date?

18 **MR. JAMMAL:** Ramzi Jammal, for the record.

19 The forecast for the date is as long as it  
20 meets our safety requirements, it can come off GSS.  
21 That's the first starting ---

22 **THE CHAIRMAN:** I didn't hear a date there.

23 **MR. JAMMAL:** From our perspective, I mean,  
24 according to the plan of the licensee, they're aiming for  
25 early summer or mid-summer with respect to the removal of

1 GSS.

2 **THE CHAIRMAN:** And Phase C?

3 **MR. EAGLES:** Rod Eagles, for the record.

4 With Phase C, the differential in time  
5 between the Phase C and Phase D is very close to the end  
6 of the outage, within the last month of the actual outage  
7 occurring, so ---

8 **THE CHAIRMAN:** Somewhere before September.

9 **MR. EAGLES:** According to our plan, before  
10 September, certainly.

11 **THE CHAIRMAN:** Okay, thank you.

12 On your page 61 of 180, actually, the graph  
13 -- and again, I'm always fascinated by slides with graphs.  
14 There's something called CAP Health Index. This is on  
15 page 62 of 180.

16 So really, what is this health index of CAP  
17 and, again, same question, is everybody using this kind of  
18 -- is that an internationally accepted practice?

19 **MR. PARKER:** If I could, Wade Parker, for  
20 the record.

21 CAP Health Index is -- stands for  
22 Corrective Action Program. It's a roll-up of a number of  
23 inputs, condition evaluations, corrective actions,  
24 timeliness, backlogs, self-assessments. Timeliness,  
25 again, is a big component of this. It's a roll-up of a

1 number of indicators into one index.

2 For the record, the corrective action  
3 program at Point Lepreau has been a significant focus for  
4 us over the last year and a half, and you can see from the  
5 index it's higher than it's ever been at the station and  
6 it's moving along very progressively, if you would.

7 Important to the station, where we are in  
8 the restart and what we are trying to do. It's a  
9 significant tool for improvement in the station. So it's  
10 just a very high level indicator.

11 **THE CHAIRMAN:** So it's -- it looks like  
12 it's a bit volatile between January and April. You  
13 believe that the trend for improvement is going up?

14 **MR. PARKER:** That's correct.

15 **THE CHAIRMAN:** And is that something that,  
16 again, is good practice that can be applied and used by  
17 other NPPs?

18 **MR. JAMMAL:** Ramzi Jammal, for the record.  
19 I'll pass on the microphone to Mr.  
20 Colligan, but the answer is yes.

21 **MR. COLLIGAN:** Laurence Colligan, for the  
22 record.

23 The CNSC staff do not use the CAP Health  
24 Index, per se. What we do have is -- if you remember some  
25 time ago, we had a directive, an outstanding directive of

1       2007 which was issued because of accumulating increasing  
2       corrective actions. Since that time -- this was just  
3       before Point Lepreau went into refurbishment, so we didn't  
4       really follow up very much on the operational corrective  
5       action backlog during refurbishment.

6                 That being said, we're coming out of  
7       refurbishment now and we've basically went back in the  
8       third week of September to do an assessment, again, of the  
9       corrective action backlog.

10                The directive was basically issued because  
11       of a growing number of overdue corrective actions.

12                When we went back this -- a couple of weeks  
13       ago, we found that there was a significant improvement in  
14       the reduction of corrective actions, an excellent  
15       improvement in condition evaluations, and improvement as  
16       well as in self-assessments, which is somewhat related to  
17       corrective actions. So we're not there yet.

18                The directive cannot be removed right now,  
19       but the good part is that Point Lepreau has set in place  
20       processes and people. They've basically set up a new  
21       program to deal with the corrective action backlog, and it  
22       seems to be working.

23                We don't know exactly how fast this is  
24       going to go, but we intend to give an update to the  
25       Commission at Day Two on the progress made on these

1 corrective action backlogs.

2 **MR. THOMPSON:** Paul Thompson, for the  
3 record.

4 I'd just like to talk a little bit about  
5 that indicia because you've expressed a lot of interest in  
6 it. A couple of points.

7 We are members of an overall corrective  
8 action operations group that meets periodically where we  
9 review best practices and what's going on in the industry.  
10 Clearly, having metrics to measure how effective your key  
11 programs are is absolutely essential. We've generated  
12 this health index based on a lot of review of what similar  
13 people are doing.

14 So the basic inputs into this rolling  
15 indicator are common with what most of the industry is  
16 using. We all roll up the indicator slightly different  
17 into some kind of an overall index at the top of the  
18 house.

19 The other thing that's -- I think I'd like  
20 to mention with this is this does break down. This is the  
21 overall one for the station, but as part of our overall  
22 business planning and operational planning and assessments  
23 of performance, these are broken down right into all the  
24 various department levels.

25 So we're all measuring how well we're doing

1 on our component to the corrective action program, which  
2 allows this to be driven right down to the individual  
3 workgroups so we can measure how well each individual  
4 workgroup is doing and when it's dropping below  
5 expectations to identify what measures we're going to do  
6 to rectify them.

7 And so this is driven down into the --  
8 right down into the bowels of the various workgroups with  
9 their corrective action plans to improve the overall  
10 index, which is part of why we've been able to get good  
11 traction on this.

12 **THE CHAIRMAN:** I'm 100 percent with you. I  
13 like metrics also. That's the only way you can actually  
14 get a measurable index. And I think that our staff should  
15 adopt anything; it's good enough for you guys, should be  
16 good enough for us to monitor you guys. So I think that  
17 it is something we should take under advisement.

18 Dr. McDill?

19 **MEMBER MCDILL:** Okay, just a follow-up, a  
20 plea for the people of New Brunswick.

21 Some of your vertical axes are pure numbers  
22 and some of them are percentages, and 70 out of 100 is,  
23 you know, it's a decent grade. Take credit for it, tell  
24 them what it is so it looks good for you.

25 **MR. THOMPSON:** Paul Thompson, for the

1 record.

2 We appreciate your feedback on this report.  
3 It's part of our continuous improvement. I'll pass that  
4 along to our people, both (a), the good suggestions of  
5 including these metrics and (b), the suggestions to even  
6 do a better job on the indices.

7 Thank you.

8 **THE CHAIRMAN:** I'm moving on to H12, and on  
9 page 22 of H12.

10 You know there's been a lot of -- post  
11 Fukushima, a lot of interest in hydrogen and prevention of  
12 explosion. And my question here is, your effectiveness on  
13 the passive auto-catalytic recombiner. What I want to  
14 know is how you test this stuff? I mean, how do you know  
15 it works?

16 Do you ever test it? You actually bring it  
17 ---

18 **MR. THOMPSON:** For the record, my name is  
19 Paul Thompson. I'm the Nuclear Safety and Regulatory  
20 Affairs Manager for Point Lepreau.

21 These devices were the end product of a  
22 large amount of testing that has been done over many, many  
23 years in the laboratories, initially at Whiteshell; now  
24 has been moved to the Chalk River Lab.

25 So we've done a lot of experiments coming

1 up with the concepts and then, as this moved in to the  
2 development phase, various testings of the performance of  
3 the catalyst itself.

4 In addition, there have been various  
5 activities to look at potential delays and, as they call,  
6 inhibitors under the conditions that these would be plates  
7 exposed to -- under normal operations to ensure that that  
8 which will be exposed under reactor conditions. We then  
9 also brought those back to the labs to test.

10 In terms of the units that are installed  
11 and in terms of ensuring that they remain effective, what  
12 there is, is these units -- and there was a picture, I  
13 believe, in one of the CNSC's presentation -- it's a big  
14 stainless steel box, it looks kind of like a barbeque.

15 Those have individual removable catalytic  
16 plates and the plates are basically like a square.

17 These can be removed, they are -- and new  
18 plates put in. The old plates are put into a tester. I  
19 will describe it as similar to a toaster and that can  
20 verify that they in fact do activate and activate at the  
21 proper place. So the individual plates are tested and  
22 verified and then reused again on a rotating basis.

23 So that is how the original design of these  
24 units were in fact qualified, if I could say that, and we  
25 ensure that the ongoing operation that they always remain

1 effective.

2 **THE CHAIRMAN:** Thank you.

3 I see somebody from CNSC that wants to add  
4 something. No, okay.

5 Thank you.

6 On the same page, I'm still on page 22,  
7 they're talking about safe operating envelope, and it  
8 seems to me that that would be something -- an important  
9 concept and it says here NB expects the completion of the  
10 SOA project -- SOE project -- for the remaining system by  
11 September 2012. Done? Is it?

12 **MR. THOMPSON:** For the record, it's Paul  
13 Thompson, Point Lepreau.

14 **THE CHAIRMAN:** Sorry, I mean this is a  
15 safety operating envelope here? I'm trying to understand  
16 what is it you're missing here now in terms of operating  
17 safety.

18 **MR. THOMPSON:** Thank you. For the record,  
19 my name is Paul Thompson, Point Lepreau Generating  
20 Station.

21 NB Power has always had a safe operating  
22 envelope. The use of this term is very specific. There  
23 is now a CSA Standard that has been issued and it outlines  
24 a more rigorous program to go and document the basis and  
25 ensure that all the i's and all the t's are crossed.

1                   But we have always since we started up in  
2                   operation, had a thoroughly identified operating -- set of  
3                   operating ranges to ensure that the plant has operated  
4                   within the safe operating envelopment.

5                   **THE CHAIRMAN:**   Would have been nice to say  
6                   that because this sounded like, you know, you're in a  
7                   project to actually define?

8                   **MR. THOMPSON:**   So this -- so what -- and  
9                   what this is is to more rigorously document the basis for  
10                  that and so that it now meets a recently defined standard  
11                  that we all -- that we all will comply to.

12                  So it's a matter now of going back and  
13                  improving that documentation associated with it.

14                  **THE CHAIRMAN:**   So it's a standard, it's not  
15                  really new, it's just the documentation of that standard?

16                  **MR. THOMPSON:**   The standard itself is  
17                  relatively new.  It came out in, I believe, 2010, but we  
18                  were working towards what was being done in the standard  
19                  anyways and now it's just a matter of completing our  
20                  documentation.

21                  It's been done for the special safety  
22                  systems and we're rolling it out to the other systems  
23                  important to safety.

24                  **THE CHAIRMAN:**   Okay.

25                  My next question is ---

1                   **DR. RZENTKOWSKI:** I would like to add to  
2 this response.

3                   **THE CHAIRMAN:** Go ahead.

4                   **DR. RZENTKOWSKI:** Because I really believe  
5 that this document is more important from the regulatory  
6 standpoint than from the operation.

7                   And the reason is that currently in the  
8 licence the document referenced, which refers to  
9 operation, is operating policies and principles which is a  
10 very high-level document which doesn't really provide  
11 numerical values for limiting the safe operating envelope  
12 at the site.

13                   So once the safe operating envelope is  
14 developed, we will have technical limits and conditions  
15 which will be clearly referenced in the licence.

16                   This will establish the matrix we are  
17 talking about, or the safe envelope, which we will control  
18 through our licensing process. That's a big difference.

19                   **THE CHAIRMAN:** Okay. Thank you.

20                   I'm on Slide 24, and I must tell you on  
21 Table 1 can somebody in layman language explain to me what  
22 does this table mean in safety sense?

23                   Page 24.

24                   **DR. RZENTKOWSKI:** I can give a try.

25                   Let's start from Table 1 which provides the

1 results of Level 1 PSA. Level 1 PSA is a probabilistic  
2 safety assessment conducted only to the point of core melt  
3 or core damage.

4 So the outcome of this probabilistic safety  
5 assessment establishes the probability of a core damage.

6 Let's say the target it's 1 in 100,000  
7 years. So this is to demonstrate that this target can be  
8 met and, if not, what kind of safety improvements can we  
9 put in place to meet this established target?

10 The second value here in the table is the  
11 severe core damage frequency during shutdown -- oh, sorry,  
12 that's all. I will now move to Table 2, sorry.

13 Table 2 is Level 2 PSA which provide the  
14 results for large release frequency during full power  
15 operation or other operational stages.

16 So that means that the probabilistic safety  
17 assessment is extended to assess the containment behaviour  
18 under accident conditions and releases under accident  
19 conditions and, in this particular case, the safety  
20 target, it's one in one million years.

21 Again, we assess the value of this  
22 particular safety goal and also assess any design changes  
23 which could be eventually put in place to meet this  
24 established target.

25 And in the case of Point Lepreau, there was

1 a huge benefit manifested through the implementation of  
2 safety upgrades during the refurbishment activities  
3 because both safety goals were improved by more than an  
4 order of magnitude.

5 I'm not sure if this was a simple  
6 explanation, but I tried.

7 **THE CHAIRMAN:** Okay, you know when you guys  
8 put something like this, it would be nice to have some --  
9 little bit more text, for a couple of reasons.

10 First of all -- okay, let's take the  
11 example of Table 2, Level 2, large release and then  
12 internal events, internal floods, internal fire.

13 So is it a cumulative kind of a thing that  
14 we have the map in terms of the total probability of an  
15 event happening per year kind of a notion?

16 **DR. RZENTKOWSKI:** That's correct. It's a  
17 cumulative thing. However, it's very important to  
18 understand what are the initial assumptions because  
19 sometimes internal fires are considered in this analysis,  
20 sometimes not.

21 So this way you can assess the impact, for  
22 example, of specific external hazards which should be  
23 considered in the analysis by sequentially including them  
24 into analysis.

25 You can start, for example, from seismic



1 more data or more research results, indicating that those  
2 numbers could be improved and this will change the end  
3 result as well.

4 But we had the specialist from PSA, so I  
5 will ask him to provide ---

6 **THE CHAIRMAN:** Wait a second, I think NB  
7 Power want to add something.

8 **MR. THOMAS:** Gaëtan Thomas, for the record.  
9 What I would like to -- appreciate, I know  
10 we're getting in very difficult explanation here, but what  
11 this tells us, and doesn't tell it in layman's words, but  
12 it does tell that this is a good story for the improvement  
13 we've done at Lepreau with the refurbishment.

14 And if it could be explained a little  
15 clearer, it would be self-explaining but it's not always;  
16 but it is a good story.

17 **MR. THOMPSON:** Thank you. For the record,  
18 Paul Thompson.

19 A couple points. CNSC Standard 294  
20 requires an update every three years and this way, it just  
21 ensures that the PSA is always kept up to date and so what  
22 this is reflecting is the fact that we're coming up to and  
23 in the process of that particular update.

24 With regards to incorporation or  
25 refurbishment changes, at one level, the refurbishment

1 changes are in the original PSA results which are in Table  
2 1 and 2, but I will -- in some instances, the details of  
3 some specific designs weren't known so the level of detail  
4 in the PSA could only be done, if you wish, at a modular  
5 level and not with the rest of the details that is  
6 normally done.

7 So in this particular revision that's  
8 coming up, the rest of those details of the specific  
9 design now are in there so most of the aspects of the  
10 refurbishment changes are already in the original PSA  
11 results which are in this table. There's an extra degree  
12 of fidelity that is going to be incorporated into this  
13 particular revision of the PSA which is just part of the  
14 every three year rolling update.

15 And I certainly do support the statements  
16 that Mr. Thomas made. What this says is that this is a  
17 very good new story. It clearly identifies that we, at  
18 Point Lepreau, have looked at beyond design-basis events  
19 and severe accidents that were in line with international  
20 practice in terms of both the assessments of these events  
21 and what the goals are.

22 **THE CHAIRMAN:** Well, we have the CNSC  
23 staff; tell me how good a story is it?

24 **UNIDENTIFIED SPEAKER:** (inaudible), for the  
25 record.

1           I fully agree that we missed the point here  
2           to make a clear explanation of the two tables and we may  
3           do so for Day Two.

4           As has been said, these tables they reflect  
5           the plant back in April 2008 and recently we received the  
6           update PSA for internal events and this one, it's under  
7           our review. So this is what I want to say if you need ---

8           **MS. SIMIC:** Hi, Sanja Simic, for the  
9           record.

10           I would just like to support what Mr. Paul  
11           Thompson said. First of all, I'd like to kind of provide  
12           a simple explanation behind the concept of safety goals.

13           So safety goals are developed in order to  
14           essentially ensure that the sum of all event frequencies  
15           that can lead to, for instance, large release is very low,  
16           and the large release is defined in terms of the amount of  
17           Caesium-137 that would be eventually released into the  
18           environment. And prior to Fukushima and all this buzz  
19           about severe accidents, Point Lepreau, as part of  
20           refurbishment looked to beyond design-basis accidents and  
21           severe accidents and implemented a series of complimentary  
22           design features in order to meet the large release limit  
23           -- large release safety goal and be, basically, in line  
24           with international requirements.

25           **THE CHAIRMAN:** Mr. Jammal?

1                   **MR. JAMMAL:** Thank you, Mr. Chair. It's  
2 Ramzi Jammal, for the record.

3                   Just to conclude, overall the statements is  
4 the -- this is showing it's not just safe; it's extremely  
5 safe. In addition to -- fully granted we need to give --  
6 provide an explanation; however, on multiple occasions,  
7 Mr. President, as you recall, a lot of the special  
8 interest groups who requested of us to provide them with  
9 the analysis with respect to PSA and that's why you will  
10 see some of the technical, cumulative values being  
11 presented into the CMD to allow the interested individual  
12 to look at the PSAs with respect to the safety case and it  
13 was mentioned it's a requirement under our regime that  
14 this will be updated on every single basis, hence the  
15 changes in the values.

16                   **THE CHAIRMAN:** Okay, thank you.

17                   I have another table which I find difficult  
18 to understand and that's on the same document, page 41.  
19 So could you, please -- top of the page, it talks about  
20 collective dose; it's the continuation of the previous  
21 page. So just what are you trying to -- it's collective  
22 dose on both side, and it's one routine operation outages  
23 and refurbishment, internal dose, external dose. I'm  
24 trying to understand the breakdown here. Is the routine  
25 does include internal or the internal doesn't include the

1 routine? What are we measuring here, please?

2 **MR. McMANUS:** John McManus, for the record.  
3 I'll try.

4 It's actually a pretty good breakdown of  
5 dose-supporting data.

6 **THE CHAIRMAN:** Well, then I'm slow; please  
7 explain to me.

8 **MR. McMANUS:** Okay, I'll start with the --  
9 first, the collective dose which looks at routine and  
10 outages. The routine is doses that would be received by  
11 staff during normal operational periods and the next  
12 column "outages" is, of course, outage dose. And it would  
13 show that generally, by and large, most of the dose at an  
14 MPP occurs due to outage activities so that we can use  
15 this in so, for example, planning our oversight  
16 activities.

17 The next two columns, "internal dose" and  
18 "external dose," that is the difference between basically  
19 the internal dose is tritium dose and the external dose is  
20 primarily due to Gamma emitters such as cobalt and some  
21 neutron dose. These two columns do not make a distinction  
22 between outage and operation; it's just internal versus  
23 external.

24 **THE CHAIRMAN:** But -- sorry, but are they  
25 -- were they measured during the outage and refurbishment?

1 I'm trying to relate are those internal and external doses  
2 the same on -- it's measured the same population; right,  
3 on the same workers?

4 **MR. McMANUS:** That's correct; if you look  
5 at routine and operation, those summations would be the  
6 same as the summation of internal and external dose.

7 **THE CHAIRMAN:** Okay.

8 **MR. McMANUS:** So it's the same population  
9 that's cited. It's just a different breakdown of exposure  
10 data.

11 **THE CHAIRMAN:** And then the collective is  
12 the sum total of them.

13 **MR. McMANUS:** John McManus -- oh, I'm  
14 sorry; John McManus, for the record.

15 That's correct.

16 **THE CHAIRMAN:** Okay.

17 Again, I -- it's -- when you read it, kind  
18 of a thing, you've got to have some explanation that goes  
19 with it. It takes me awhile to absorb.

20 You guys can jump in any time. Help me  
21 along here.

22 I'm coming -- almost coming to the end.  
23 Just bear with me for one minute here.

24 First of all, decommissioning; we always  
25 have to ask about decommissioning. Are the

1 decommissioning funds, as you well know, they're not going  
2 to come up from future generations. The funds -- just  
3 please assure us that the funds are there now and,  
4 therefore, we will not saddle future generations with the  
5 decommissioning. Is that true?

6 And I understand that the amount -- the  
7 quantum has increased from 347 to 499.5. Can somebody  
8 confirm that, please?

9 **MR. KENNEDY:** For the record, it's Blair  
10 Kennedy.

11 Yes, we have the funds. They're in place  
12 and they're being put aside and the amount is adjusted  
13 each year to determine the correct amount as we move  
14 forward.

15 **MR. JAMMAL:** Ramzi Jammal, for the record.

16 Confirm the fact that the funds do exist  
17 and the funds are not in the possession of the CNSC, nor  
18 in the budget of the CNSC. This is a fund that is  
19 dedicated specifically for decommissioning; that will  
20 ensure that the funds are not touched and they are  
21 increased according to the technical reviews of the  
22 decommissioning and it's always updated on a five-year  
23 basis. It's a licence condition and we come before the  
24 Commission for updates periodically.

25 **THE CHAIRMAN:** Okay, anything else? No.

1 Are you still waiting for me?

2 In one -- in your organizational chart, Mr.  
3 Thomas, you're showing an outside advisory committee. Can  
4 somebody tell me who they are and really what do they  
5 actually provide you with and, you know, how effective  
6 it's been?

7 **MR. THOMAS:** We've hired from -- Gaëtan  
8 Thomas, for the record.

9 We hired an external firm from day one on  
10 the refurbishment project, Hatch Acres-Sargent & Lundy,  
11 and they've been reporting directly to the Nuclear  
12 Oversight Committee of the Board and they've been giving  
13 basically independent reporting -- obviously, sharing it  
14 with the site team, observing, you know, results,  
15 findings, auditing even AECL operation and our operation,  
16 engineering, design, the procedure process. And it's a  
17 way to basically ensure that when Mr. Eagles and Mr.  
18 Parker come to the nuclear oversight committee that there  
19 is a complete independent view for the nuclear oversight  
20 committee of the Board.

21 So that's basically how it functions.  
22 They've been there since day one. That was set up by my  
23 predecessor, Mr. David Hay.

24 **THE CHAIRMAN:** So they've been effective?

25 **MR. THOMAS:** Yes, they've been ---

1                   **THE CHAIRMAN:** You got some pretty good  
2 advice?

3                   **MR. THOMAS:** Yes, they've given some  
4 advice. What it -- you know, in many, many cases we do  
5 have a very, very committed team. You know, I always  
6 believe tell it as it is, and they are -- you know, they  
7 are very up front. And there's not been basically many  
8 disagreements, so -- but it does prevent the potential of  
9 people wanting to diminish the importance of a problem.

10                   So this keeps everybody honest and, you  
11 know, in many cases, there's a lot of common findings and  
12 a lot of findings were pointed by our own team. So it  
13 hasn't been a big issue at all, you know.

14                   The reports are pretty direct and they are  
15 seen by the nuclear oversight committee of the Board at  
16 least on a quarterly basis for the duration of the  
17 project, but since about six months because we're getting  
18 ready to restart, there's more activities.

19                   Now we meet with the nuclear oversight  
20 committee on a monthly basis, so it's much more frequent  
21 now to ensure that everybody is on target and nobody  
22 misses anything.

23                   **THE CHAIRMAN:** Okay. Thank you.

24                   That's all for me. Dr. McDill? Okay.

25                   Any last remarks that NB Power would like

1 to make, and staff?

2 Go ahead, please?

3 **M. THOMAS:** Comme vous avez plus le  
4 constater, monsieur le président et membres de la  
5 Commission, notre équipe a clairement démontré que nous  
6 avons suivi toutes les étapes nécessaires pour s'assurer  
7 que notre centrale redémarre d'une façon méthodique tout  
8 en assurant que la qualité et la sûreté nucléaire ne  
9 seront pas compromise.

10 In spite of all the challenges and all the  
11 adversities we face, and we've faced many so far, at no  
12 time my team will go without going into deep, deep  
13 consideration for safety and quality.

14 Our Board of Directors, our shareholder and  
15 the whole Executive has always provided the support to our  
16 team to make sure that this is a successful restart.

17 We do believe that this reactor will be  
18 rebuilt like new and, in many cases, better than new like  
19 Mr. Eagles pointed out. Better than new because the  
20 materials and the design change will make sure that it  
21 could last even longer.

22 So this is so important to us, like I  
23 mentioned earlier, and I thank you and the Members of the  
24 Commission for your time and your patience.

25 Merci beaucoup.

1                   **THE CHAIRMAN:** Thank you.

2                   Now this concludes the public portion of  
3 the hearing and we will move now to a closed session to  
4 deal with some of the security issues, so I ask the  
5 representatives from NB Power that are dealing with  
6 security to join us in the back room here.

7                   **THE REGISTRY OFFICER:** This hearing to be  
8 continued with Day Two on December 1<sup>st</sup> and 2<sup>nd</sup> at the Delta  
9 Brunswick in Saint John, New Brunswick.

10                   The public is invited to participate either  
11 by oral presentation or written submission on Hearing Day  
12 Two. Persons who wish to intervene on that day must file  
13 submissions by November 7<sup>th</sup>, 2011.

14                   The hearing is now adjourned until December  
15 1<sup>st</sup>, 2011.

16                   --- Upon adjourning at 3:34 p.m./

17                   L'audience est ajourné à 15h34

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