

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public hearing

Audience publique

December 1st, 2011

Le 1 décembre 2011

Delta Brunswick
39 King St.
Saint John, New Brunswick

Delta Brunswick
39, rue King
Saint John (Nouveau-Brunswick)

Commission Members present

Commissaires présents

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

M. Michael Binder
Mme Moyra McDill
M. Ronald Barriault

Secretary:

Secrétaire:

Mr. Marc Leblanc

M. Marc Leblanc

Senior Counsel :

Conseiller principal:

Mr. Jacques Lavoie

M. Jacques Lavoie

(ii)
TABLE OF CONTENTS

	PAGE
Opening remarks	1
11-H19.A Adoption of the Agenda	3
New Brunswick Power Nuclear (NB Power Nuclear): Application to renew the Power Reactor Operating licence for the Point Lepreau Generating Station And request the authorization to Load fuel in the reactor	4
11-H12.1B / 11-H12.1C Oral presentation by NB Power Nuclear	10
11-H12.B / 11-H12.C Oral presentation by CNSC staff	24
11-H12.37 Oral presentation by New Brunswick Department of Public Safety	52
11-H12.38 Oral presentation by Natural Resources Canada on Seismic Events in Canada	59
11-H12.14 / 11-H12.14A Oral Presentation by Ron Mawhinney	91
11-H12.6 / 11-H12.6A Oral Presentation by Council of Canadians Saint John Local Chapter	104
11-H12.7 / 11-H12.7A Oral Presentation by Energy Probe Research Foundation	124

(iii)
TABLE OF CONTENTS

	PAGE
11-H12.12 / 11-H12.12A Oral presentation by the International Brotherhood of Electrical Workers (IBEW), Local 37	136
11-H12.8 Oral presentation by The Canadian Nuclear Workers' Council	143
11-H12.10 / 11-H12.10A / 11-H12.10B Oral presentation by Sierra Club Canada, Atlantic Canada Chapter	145
11-H12.36 Oral presentation by the Wolastoqewiyik Traditional Council of Tobic (WTCT)	191
11-H12.16 Oral presentation by the Sustainable Energy Group, Carleton Chapter	200
11-H12.20 Oral Presentation by Fundy Baykeeper	220
11-H12.25 Oral Presentation by Anne Harding	239
11-H12.31 Oral presentation by Charlene Sheehan	248
11-H12.33 / 11-H12.33A / 11-H12.33B / 11-H12.33C Oral presentation by CCNB Action, Saint John-Fundy Chapter	257

(iv)
TABLE OF CONTENTS

	PAGE
11-H12.2 Written submission from Timothy L. Curry	333
11-H12.3 Written submission from Saint John Energy	336
11-H12.4 Written submission from The Saint John Board of Trade	339
11-H12.5 Written submission from The Centre for Nuclear Energy Research	341
11-H12.9 Written submission from The Environmental Coalition Of Prince Edward Island	344
11-H12.11 Written submission from J.D. Irving Limited	347
11-H13.13 Written submission from Atlantic Nuclear Services Inc.	351
11-H12.15 Written submission from Atlantica Centre for Energy	355
11-H12.17 Written submission from Candu Energy Inc.	356
11-H12.19 Written submission from Ms. Marion Pack	357

(v)
TABLE OF CONTENTS

	PAGE
11-H12.21	360
Written submission from Hon. Craig Leonard, Minister of Energy and Minister responsible for NB Energy Efficiency and Conservation Agency	
11-H12.23	361
Written submission from Ms. Edna Hoddinott	
11-H12.24	363
Written submission from Ms. Elva Waycott	
11-H12.29	363
Written submission from Mr. Gordon Dalzell	
11-H12.30	374
Written submission from Ruth Stewart-Verger	

1 Saint John, New-Brunswick

2

3 --- Upon commencing at 9:07 a.m./

4 L'audience débute à 9h07

5

6 **Opening Remarks**

7

8 **MR. LEBLANC:** Bonjour, Mesdames et
9 messieurs. Bienvenue à l'audience publique de la
10 Commission canadienne de sûreté nucléaire.

11 Mon nom est Marc Leblanc. Je suis le
12 secrétaire de la Commission et j'aimerais aborder certains
13 aspects touchant le déroulement des audiences.

14 The Canadian Nuclear Safety Commission is
15 about to start a public hearing on the applications by NB
16 Power Nuclear for the renewal of the Power Reactor
17 Operating licence for the Point Lepreau Generating Station
18 and for the authorization to load fuel and restart the
19 reactor.

20 During today's business, we have
21 simultaneous translation.

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

25 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 webcast 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 sur
12 le site web de la Commission dès la semaine prochaine.

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

16 As a courtesy to others, please silence
17 your cell phones and other electronic devices.

18 I would like to remind everyone that the
19 Commission is a quasi-judicial administrative tribunal.
20 As such, there are decorum considerations and we ask that
21 everyone contribute to a respectful and orderly
22 proceeding.

23 Mr. President.

24 **THE CHAIRMAN:** Thank you, Marc.

25 And good morning and welcome to the public

1 hearing of the Canadian Nuclear Safety Commission.

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

4 Je souhaite la bienvenue aux gens ici
5 présents, and welcome to all of you joining us through our
6 webcast.

7 First of all, let me share with you how
8 happy we are to be out of Ottawa and enjoying the
9 hospitality of New Brunswick. And I also would like to
10 thank the hotel staff for making our stay very comfortable
11 and helping us set up this hearing venue.

12 So I would like to start by introducing the
13 Members of the Commission that are with us here today. On
14 my right is Dr. Moyra McDill and on my left is Dr. Ronald
15 Barriault.

16 We heard from Marc Leblanc, the Secretary
17 of the Commission, and we also have with us Monsieur
18 Jacques Lavoie, Senior General Counsel to the Commission.

19

20 **11-H19.A**

21 **Adoption of Agenda**

22

23 With this information, I'd like now to call
24 for the adoption of the agenda as described by the
25 Commission Member Document 11-H19.A.

1 Do I have concurrence?

2 For the record, the agenda is adopted.

3 **THE CHAIRMAN:** So let's proceed with NB
4 Power Nuclear applications.

5 Marc?

6

7 **New Brunswick Power Nuclear**

8 **(NB Power Nuclear):**

9 **Application to renew the Power**
10 **Reactor Operating licence for the**
11 **Point Lepreau Generating Station**
12 **And request the authorization to**
13 **Load fuel in the reactor**

14

15 **MR. LEBLANC:** This is Day Two of the
16 public hearing. The first day of the public hearing, or
17 what we refer to as Day One, on this application was held
18 on October 6, 2011 in Ottawa.

19 The Notice of Public Hearing 2011-H-06 was
20 published on July 26, 2011, and revisions were published
21 on August 9 to change the date of the hearing, and on
22 October 13th and October 26th to change the date of the
23 deadline for the public to file interventions.

24 Presentations were made on Day One by the
25 Applicant, NB Power Nuclear, under Commission Member

1 Documents, or CMDs, 11-H1.1, 1A, 12.1 and 12.1A, and by
2 Commission staff under H1 and H12.

3 The public was invited to participate
4 either by oral presentation or written submission.
5 November 14th was the revised deadline set for filing by
6 intervenors. The Commission received 35 requests for
7 intervention.

8 On October 21, 2011, CCNB Action - Saint
9 John-Fundy Chapter filed a letter requesting the
10 adjournment of Day Two hearing until February 2012 to
11 allow additional time for intervenors to review the
12 documentation and finalize their submission.

13 This request was denied and a response was
14 sent to CCNB Action.

15 To provide more time for intervenors to
16 finalize their intervention, the deadline for filing the
17 submissions was extended by the Commission from November 7
18 to November 14.

19 On November 22nd the Commission also
20 received a letter from the Union of New Brunswick Indians
21 requesting the postponement of the Day Two hearing to next
22 year. This request was also denied and a response was
23 sent to the Union on November 25th.

24 November 24th was the deadline for filing
25 of supplementary information. I note that such

1 information has been filed by CNSC staff, NB Power, NB
2 Emergency Management Services, Natural Resources Canada,
3 as well as several intervenors.

4 Participant funding was available to
5 intervenors to prepare for and participate in Hearing Day
6 Two. The Commission received four such requests for
7 funding. The Funding Review Committee, which is totally
8 independent of the Commission, reviewed the applications.
9 Funding was provided to three applicants as per a decision
10 issued on September 30th, 2011.

11 All documents are available at the
12 reception, either on CDs or in a paper format, as well as
13 the Commission Members' biographies.

14 The way it will proceed today is that we
15 will first hear the presentations by NB Power, CNSC staff,
16 NB Emergency Management Services and NRCan.

17 After that, we will go through a first
18 round of questions from Commission Members, and then we're
19 going to hear from intervenors who have requested to make
20 oral presentations. Commission Members will have the
21 opportunity to ask questions after each presentation.

22 The Commission normally allows 10 minutes
23 for oral presentation but this is followed by a question
24 period and this is where we recommend that you highlight
25 the key elements of your presentation during that 10

1 minutes and then allow for time for questioning.

2 The break for lunch will be from 12:45 to
3 1:45, approximately, and there will be a short break in
4 mid-morning and one in mid-afternoon.

5 We anticipate ending today at approximately
6 6 o'clock - 6:30.

7 Tomorrow we will resume at 8:30 with oral
8 presentations and written submissions from intervenors,
9 and a second round of questioning from Commission Members.

10 Mr. President.

11 **THE CHAIRMAN:** Thank you, Marc.

12 I would like to start this hearing with a
13 few introductory remarks.

14 First of all, it goes without saying that
15 the events in Japan where the Japanese people have had to
16 deal with a triple catastrophe -- an earthquake, a
17 tsunami, and a major nuclear disaster -- will have a
18 bearing on this hearing and on the regulation of nuclear
19 activities for years to come.

20 The CNSC has initiated a major initiative
21 linked to the Fukushima events, seeking comments from all
22 interested parties which will be culminated with a public
23 meeting of the Commission in mid-February 2012, for which
24 everybody is welcome to participate.

25 Those who have read the written submission

1 to this hearing will have noticed that the Japanese
2 nuclear incident is often mentioned. In light of the
3 numerous concerns relating to seismicity and emergency
4 preparedness, the Commission has asked representative from
5 the Natural Resources Canada and Emergency Measures New
6 Brunswick to make presentation -- to make some
7 presentation this morning on this subject.

8 As you are aware, we are now in Saint John
9 today and tomorrow to consider the written submissions and
10 oral presentations from a large number of citizens and
11 organizations who wish to express their opinions on the
12 applications by NB Power to reload the fuel and renew the
13 Point Lepreau operating licence.

14 I'd like to clarify a few things prior to
15 getting the hearing underway. I wish to emphasise that
16 the Commission is a quasi-judicial administrative tribunal
17 and that, consequently, it is independent from any
18 political, governmental or private sector influence.

19 In fact, each Commission Member is
20 independent of one another and also independent of CNSC
21 staff.

22 Many interventions to this hearing included
23 recommendations in their recommendations to the Commission
24 in their interventions.

25 CNSC staff also make recommendations to the

1 Commission. It is their job to provide the Commission
2 with science-based analysis, observations and
3 recommendations. But it is the Commission Members who
4 will render a final decision based on all the evidence
5 presented in the context of the hearing process.

6 The Commission Members are appointed by the
7 Governor-in-Council on the basis of their achievement in
8 their respective fields of endeavour, as well as their
9 excellent reputation among their peers.

10 Their mandate is simple; ensure that the
11 use of nuclear is done in a manner that protects the
12 environment as well as the health, safety and security of
13 the workers and the public.

14 Several intervenors have raised important
15 questions on the future of nuclear energy in New
16 Brunswick. I trust that you will understand that the
17 Commission, as an administrative tribunal, will not
18 consider questions that are of political nature, and that
19 it is the New Brunswick provincial government that must
20 address these fundamental energy policy questions.

21 The CNSC has no economic mandate and will
22 not base its decision on the economic impact of the
23 facility.

24 I will repeat it; it is the health, safety
25 and security of the public and the protection of the

1 environment that guides our decision.

2 We are looking forward to a constructive
3 and productive hearing.

4 So I would now like to start the hearing by
5 calling on the presentation from NB Power, as outlined in
6 Commission Member Document H12.1B and H12.1C.

7 I understand that Mr. Blair Kennedy will
8 make the presentation.

9 Please proceed.

10

11 **11-H12.1B / 11-H12.1C**

12 **Oral presentation by**

13 **NB Power Nuclear**

14

15 **MR. KENNEDY:** Good morning, Mr. Chair,
16 Members of the Commission.

17 For the record, my name is Blair Kennedy.
18 I am the Vice-President Nuclear for NB Power Nuclear and
19 the CNO for NB Power.

20 I'm pleased to be here today to support our
21 Day Two hearing with respect to the renewal of the
22 operating licence and the fuel load for the Point Lepreau
23 Generating Station.

24 I would like to take some time at this
25 moment to introduce some of my team members who will be

1 supporting the Day Two hearing.

2 I have with me today Rod Eagles, the Deputy
3 Chief Nuclear Officer and Refurbishment Director to my
4 right; to his right I have Wade Parker, Station Director.
5 Behind me I Have Charles Hickman, Transition Manager; Paul
6 Thompson, Nuclear Safety & Regulatory Affairs Manager;
7 Kathleen Duguay, Public Affairs Manager; Raz Jaitly,
8 Senior Safety Consultant from CANDU Energy.

9 I would like to take this opportunity to,
10 again, to confirm to you the understanding and commitment
11 of our board and executive to the safe and reliable
12 operation of the Point Lepreau Generating Station.

13 NB Power's Board of Directors, the
14 executives, management team and employees are all
15 committed to the -- ensuring the safe and reliable
16 operation of the Point Lepreau Generating Station.

17 We would like to thank all the intervenors
18 for their participating at the hearing here today at the
19 Delta Hotel in Saint John, New Brunswick.

20 At this time I would like to turn the
21 presentation over to Wade Parker, our Station Director for
22 the Point Lepreau Generating Station.

23 **MR. PARKER:** Thank you, Mr. Kennedy.

24 Good morning, Mr. Chair, Members of the
25 Commission. For the record, my name is Wade Parker and I

1 am the Station Director of the Point Lepreau Generating
2 Station.

3 The written supplemental material submitted
4 on October 24, 2011 forms a part of this oral
5 presentation.

6 We are here today to provide the
7 information requested at the Day One hearing on October 6,
8 2011 and answer additional questions that may arise.

9 Today, we will briefly discuss on our
10 outline as presented, information requests from Day One,
11 seismic margin assessment, refurbishment status update,
12 and the conclusion.

13 From information requested from Day One,
14 we're providing updates on a number of the items.

15 Number one, New Brunswick Power Nuclear has
16 submitted the final reports for seismic verification of
17 pipe supports.

18 Number two, the root cause assessment
19 report regarding the calandria tube inspection has been
20 sent to the CNSC staff for review.

21 Number three, our equipment reliability
22 index performance graph was updated to include feedback
23 provided by Commissioner McDill and submitted to the CNSC
24 staff.

25 Number four, the actual dose assigned

1 compared to the dose estimates for the refurb project did
2 not change from our earlier submission on Day One.

3 Number five, an update of work status for
4 the nine individuals who were off work from lost-time
5 accidents was provided. All of the NB Power employees
6 have since returned to work.

7 Number six, our comprehensive fire
8 protection program work and response team protocol
9 milestones are on schedule.

10 Also, New Brunswick Power has noted that
11 the CNSC staff presentation recommends a new licence and
12 licence condition handbook condition. Our understanding
13 is that this protocol does not create any new obligations
14 but rather is a confirmation of the legal requirements in
15 place today.

16 NB Power Nuclear Corporation has no
17 concerns with the condition as proposed based on this
18 understanding.

19 For seismic margin assessment, we have
20 noted that there were questions in the interventions
21 relating to earthquake probability and seismic design for
22 the station.

23 The following information is presented to
24 address these concerns.

25 In summary, Point Lepreau Generating

1 Station is not located in a high seismic hazard region.
2 The additional seismic margin in the design has been
3 assessed using internationally accepted methods and
4 demonstrated to be acceptable.

5 The latest seismic hazard information
6 continues to support this conclusion.

7 The following details are key in this
8 summary. Point Lepreau Generating Station is not located
9 at a subduction tectonic plate boundary as is the case in
10 Japan.

11 Earthquakes were considered in the original
12 design of the station. Based on review of earthquake
13 history a design basis earthquake was selected. The
14 effects of a design basis earthquake on the site are
15 described by the design basis earthquake round response
16 spectra. This specifies a response spectra for horizontal
17 directions, together with a special definition for
18 vertical direction.

19 The design basis earthquake value for
20 structures at the Point Lepreau Generating Station results
21 in a peak round acceleration of 0.2 G in the horizontal
22 direction.

23 For the components, this is also 0.2 G at
24 the higher frequencies and 0.15 G at the intermediate and
25 lower frequencies. This is an earthquake that has a

1 probability of occurrence of one in a thousand years.

2 In preparing for the refurbishment and as
3 part of the overall probabilistic safety assessment, the
4 additional seismic margin built into the design was
5 assessed using internationally accepted approach referred
6 to as a probabilistic safety assessment-based seismic
7 margin assessment.

8 This approach is selected to avoid the
9 debate over the precise probability of a very large, very
10 low probability event.

11 The selection of a peak ground acceleration
12 of 0.3 G for the review level earthquake to demonstrate
13 with high confidence that severe core damage will not
14 occur is consistent with that recommended by the United
15 States Nuclear Regulatory Commission for plants in Central
16 and Eastern United States and Canadian Standards
17 Association Standard in 289.1 Rev 2008.

18 While an earthquake that would result in a
19 peak ground acceleration of 0.3 G at the Point Lepreau
20 Generating Station site is estimated to occur at frequency
21 of about 1 in 10,000 years, the exact frequency is not
22 fundamentally important using this approach, other than it
23 relates to a significantly larger earthquake than used in
24 the original design basis.

25 Similar arguments apply to the case where

1 it has been demonstrated with high confidence that an even
2 larger earthquake, one that would result in a peak ground
3 acceleration of 0.4 will not lead to a large release of
4 fission products from containment.

5 The approach also takes into account the
6 potential of consequential damage that could lead to
7 either fires or breaks that could cause flooding.

8 Where necessary, as supported by
9 international experts and more detailed calculations,
10 specific equipment upgrades were performed.

11 Earlier this year, New Brunswick Power
12 performed a technical assessment using the latest seismic
13 hazard information from Natural Resources Canada. This is
14 the information supporting the 2010 National Building
15 Codes of Canada. The assessment concluded that there
16 remained significant margin to the design basis earthquake
17 and that the review level earthquake and seismic capacity
18 screening criteria chosen for the probabilistic safety
19 assessment based SMA was appropriate.

20 This assessment has been reviewed by
21 Natural Resources Canada. They conclude that the
22 probability of 0.2 peak ground acceleration design basis
23 earthquake is considerably lower than 0.001 event per
24 annum or one in a thousand years and the revised Natural
25 Resources Canada seismic hazard values for the 2010

1 National Building Code of Canada do not provide any basis
2 for modifying the 2002 seismic margin assessment.

3 In summary, Point Lepreau Generating
4 Station is not located in a high seismic hazard region.
5 The additional seismic margin in the design has been
6 assessed using internationally accepted methods and
7 demonstrated to be acceptable. The latest seismic hazard
8 information continues to support their conclusions. Based
9 on the review to date, we can say our safety case remains
10 strong. Point Lepreau Generating Station is well equipped
11 to manage external hazards and severe accidents. We
12 operate the station in a safe and responsible manner.

13 I will now turn the presentation to Mr. Rod
14 Eagles, our Deputy Chief Nuclear Officer and Refurbishment
15 Director.

16 **MR. EAGLES:** Good morning, Mr. Chair, and
17 Members of the Commission. For the record, my name is Rod
18 Eagles, the Deputy Chief Nuclear Officer and Refurbishment
19 Director for the Point Lepreau Generating Station at NB
20 Power Nuclear.

21 This portion of the presentation will be an
22 update to the refurbishment project and activities since
23 our last presentation at the Day One hearing in October.
24 Since that time the project has completed a key milestone
25 on the road to completion of the project work.

1 Before I get to that, I would like to
2 provide you with an update on changes with our project
3 execution contractor. As you may know, the Federal
4 Government completed the sale of AECL's commercial
5 organization to SNC-Lavalin. While the sale encompassed
6 staff in the organization currently working on our
7 project, AECL as a Federal Crown Corporation continues to
8 maintain commercial responsibility for the completion of
9 the refurbishment.

10 As a part of the sale, AECL have
11 subcontracted the remaining refurbishment work to Candu
12 Energy Inc., a wholly owned subsidiary of SNC-Lavalin, to
13 complete this work on AECL's behalf. The transition to
14 execution from AECL to Candu Energy Inc. was completed
15 seamlessly on October the 2nd, 2011.

16 Regardless of this change in execution, NB
17 Power Nuclear's relationship with AECL and their
18 responsibilities for managing the commitments for overall
19 completion of the refurbishment project remain unchanged.

20 In the photograph, you can see workers on
21 the fuel channel platform during the early phases of fuel
22 channel installation. The top three rows and a portion of
23 the fourth row in this photograph are shown as completed.

24 The project team is extremely pleased to
25 have recently completed the installation of all of the 380

1 fuel channels as shown in this photo. The completion of
2 this work allows the project team to remove the large fuel
3 channel platforms from which the majority of re-tubing
4 activity was conducted over the course of the project.
5 Once these platforms are removed, the installation of 760
6 lower feeder pipes will commence; that is, one inlet and
7 one outlet pipe for each of the 380 fuel channels which,
8 when in operation, will carry the heat transport system
9 heavy water coolant to and from the reactor.

10 The upper sections of these feeder pipes
11 were completed in an earlier phase of the project.

12 Also with the completion of the fuel
13 channel installation, NB Power Operations staff are now
14 able to commence transfer of the moderator system heavy
15 water to the calandria vessel and moderator auxiliary
16 systems. This is a key step in the return of plant
17 components and systems to service. When all of the
18 regulatory -- I'm sorry, when all of the feed pipes are
19 installed and the required completion assurances and
20 regulatory approvals are received, the new fuel will be
21 loaded and the Restart Program will continue. The details
22 of the restart activities, plateaus, and approvals were
23 covered in the Day One hearing.

24 As mentioned in the Day One hearing,
25 activities identified in Appendix J of the power reactor

1 operating licence have been constructed and commissioned
2 to the extent possible at this time based on the plant
3 state. As we continue the restart activities, the
4 remaining commissioning and completion assurance
5 activities will be completed at the appropriate plant
6 state.

7 During the Day One hearing, there was
8 discussion of the need for three concessions relating to
9 material testing of the calandria tubes, pressure tubes
10 and end fittings. The CMD submitted by CNSC staff has
11 provided a concise summary of these issues leading to the
12 approval by both our design staff and CNSC staff.

13 To provide additional clarity on the issue,
14 we've brought with us today a calandria tube calibration
15 standard used in the manufacturing testing of these tubes
16 which I have here on my desk and which, at a suitable
17 time, would be happy to have the Commission Members take
18 an observation. And I also have a section of pressure
19 tube for comparison in your interest.

20 This calibration standard is an actual
21 section of calandria tube material with small defects of
22 known size machined into the tube. These defects are
23 measured to validate the calibration of ultrasonic testing
24 equipment used for inspection of the entire lengths of the
25 calandria tubes during their manufacture. As mentioned in

1 the CNSC submission, minor discrepancies in the size of
2 these calibration standard machining defects were
3 identified in the tube manufacturing requiring a non-
4 conformance record to be raised.

5 Earlier in the presentation, Mr. Parker
6 indicated that the formal root cause assessment has been
7 delivered to CNSC staff to follow up on the summary of the
8 root cause assessment recommendations that were provided
9 to CNSC staff prior to the Day One hearing. I can also
10 confirm that the recommendations from this root cause
11 assessment are now complete including a vendor audit of
12 the new Candu Energy Inc. quality organization.

13 NB Power is confident that all of the
14 materials used in this refurbishment will ensure the safe,
15 reliable operation for the station.

16 Since the start of the Point Lepreau
17 Refurbishment Project, our communications have been open
18 and transparent. Information has been made available to
19 the public about station performance, refurbishment
20 outage, and future operations. The materials have been
21 available through the licence renewal hearing in January
22 2011, through CNSC annual report meetings, and through
23 refurbishment updates presented annually at Commission
24 meetings every year since 2007. We are pleased to see
25 that these hearings are being held in our home province of

1 New Brunswick and it is encouraging to see so many
2 interventions -- intervenors taking the opportunity to
3 participate in this hearing process.

4 We continue to provide opportunities for
5 communities, stakeholders, and First Nations to have
6 dialogue regarding the activities being undertaken as part
7 of the project and as well as providing them with updates
8 on our station operations. This standard of communication
9 is important to NB Power as a part of the local community
10 and it was in place prior to the project and will continue
11 long after the project is complete.

12 The opportunity to share our information
13 and listen to the individuals, groups, and First Nations
14 has provided value to all. We recognize that there are
15 various opinions about nuclear power and, as a result, we
16 continue to reach out to interested parties and providing
17 them information as well as tours of the station.

18 Many of those individuals and groups are
19 present today and have submitted interventions at this
20 hearing have had opportunities to visit our station. As
21 always, we are committed to make ourselves open and
22 transparent. This concludes my update to the commission.
23 Thank you and I'll now turn the presentation to Mr. Blair
24 Kennedy, our Vice-President.

25 **MR. KENNEDY:** Thank you, Mr. Eagles. For

1 the record, my name is Blair Kennedy. I am the Vice-
2 President of NB Power Nuclear and the CNO. I would
3 propose that NB Power Nuclear is qualified to operate the
4 Point Lepreau Generating Station, and our team will take
5 all the necessary actions to protect the health and safety
6 of persons, preserve the environment, take measures
7 required to implement international obligations to which
8 Canada has agreed, and maintain our National Security.

9 Over the course of this past year, the
10 Point Lepreau Refurbishment Project has consistently met
11 new schedule milestones for completion of activities.
12 Continuing with the focus of safe quality and timely
13 execution will result in a project team being ready to
14 load fuel in the reactor in March, 2012.

15 Point Lepreau is a base load unit, and it
16 is expected to produce in excess of 30% of the electricity
17 requirements in the Province of New Brunswick over the
18 next 25 to 30 years. The station continues to provide
19 domestically secure energy for New Brunswick. It is also
20 a sound environmental choice in the available energy mix.

21 We respectfully request that the Canadian
22 Nuclear Safety Commission renew the NB Power reactor
23 operating license for a period of five years, grant us the
24 approval to load fuel into our reactor, and grant the
25 authority to a designated CNSC officer to approve,

1 proceeding past each of the CNSC regulatory hold points in
2 our progress towards a return to full power.

3 This concludes our oral presentation at
4 this time. Thank you, again, for the opportunity to come
5 before today. We are now open for questions.

6 **THE CHAIRPERSON:** Thank you very much.
7 I'd like to move now to a presentation of CNSC staff as
8 outlined in CMD H12.B and H12.C, and I understand, Mr.
9 Jammal, you will make the presentation?

10 Go ahead please.

11
12 **11-H12.B / 11-H12.C**

13 **Oral presentation by**

14 **CNSC staff**

15
16 **MR. JAMMAL:** Bonjour Monsieur le président
17 et membre de la commission.

18 Pour l'enregistrement je suis Ram Jammal,
19 premier vice-président et chef de la réglementation des
20 operations.

21 Avec moi aujourd'hui, Monsieur Greg
22 Rzentkowsi, directeur générale de la directions de la
23 réglementation de centrale nucléaire et à côté de lui
24 Madame Lisa Love-Tedjoutomo, directrice par intérim de la
25 division du programme de la réglementation de Point

1 Lepreau et à côté d'elle Monsieur Jeff Ramsay chargé
2 d'affaire principale pour le projet de réfection pour
3 Point Lepreau, or the senior program officer for the
4 refurbishment of Point Lepreau.

5 En outre monsieur le président, on est
6 appuyer par notre personnel ici à Saint-John et à Ottawa.

7 However, before I pass on the presentation
8 to CNSC staff, I would like to inform the Commission that
9 the CNSC is undergoing an integrated regulatory review
10 services under the IAEA, and this is a follow-up mission,
11 to 2009 mission, that was conducted for the CNSC. This
12 follow-up mission encompasses 16 international experts,
13 and they will review the commitments and the
14 implementation of the recommendations provided to the CNSC
15 in 2009.

16 In addition, there is a dedicated team of
17 specialists from around the world who are verifying the
18 CNSC action for the Fukushima and the CNSC Task Report as
19 it relates to the Fukushima incident. Those experts are
20 from Germany, the United Kingdom, the United States of
21 America, Romania and Israel. They are spending two weeks
22 in total in Canada. The experts relating to Fukushima.
23 They will be visiting Point Lepreau to do onsite field
24 verification for the improvement carried out under the
25 Refurbishing Project of Point Lepreau.

1 So, Mr. President. CNSC staff, we will be
2 presenting to you the information regarding the Day Two
3 hearing for the license application of NB Power for the
4 license renewal and authorization for the fuel load of the
5 reactor.

6 Mr. President, I would like to provide you
7 the conclusion that was given by the IRRS team in 2009,
8 where it declared that the CNSC is effective in ensuring
9 the safety and health of Canadians and the environment.

10 Et maintenant je passé la parole à monsieur
11 Rzentkowski.

12 **MR. RZENTKOWSKI:** Thank you very much, Mr.
13 Jammal. Good morning, Mr. President and members of the
14 Commission.

15 CNSC staff presentation will begin with
16 some background to set the context for later discussion on
17 New Brunswick Power's requests for license renewal and
18 approval to load fuel. The background will include a
19 brief history of the Point Lepreau Generating Station,
20 followed by an update on the current status of the
21 Refurbishment Project and an overview of the hearing
22 process.

23 The background will also include a follow-
24 up on findings from the CNSC Task Force Report on
25 Fukushima events and how it relates to Point Lepreau, as

1 well as the latest information on Aboriginal consultation
2 and the Participant Funding Program. To conclude the
3 background, we will summarize CNSC staff conclusions and
4 recommendations from the Day One hearing.

5 In section two of the presentation, we will
6 address New Brunswick Power's request to renew their
7 operating license, a new license format, additional
8 license conditions; and updated regulatory requirements
9 related to this request will be discussed. Program
10 updates will be provided for safety in control areas where
11 there is something new to report from the Day One Hearing.
12 These updates were provided in the CNSC Supplemental CMD
13 11-12B and C.

14 Section Three of the presentation will
15 address New Brunswick Power's request to load fuel and
16 restart the reactor. This includes information on
17 regulatory hold points and the status of the pre-
18 requisites required to load fuel. Most of the information
19 provided in Section Two and Three are in response to
20 questions raised by the Commission members in Day One
21 hearing.

22 In Section Four of the presentation, CNSC
23 staff will give brief responses to key issues submitted in
24 written public interventions.

25 Finally, in Section Five and Six, CNSC

1 staff will re-iterate their conclusions and
2 recommendations on New Brunswick Power's requests for
3 license renewal, and to load fuel and restart Point
4 Lepreau.

5 Point Lepreau Station was constructed from
6 1975 to 1981 and began commercial operation in 1983. The
7 refurbishment of the facility started on March 28, 2008,
8 after New Brunswick Power conducted an integrated safety
9 review as a comprehensive self-assessment to identify the
10 strengths and weaknesses of current operation, inspection
11 and maintenance practises, and to define the scope of the
12 refurbishment project. A detailed condition assessment of
13 plant systems, structures and components also identified
14 necessary and sufficient modifications to address safety
15 issues, aging effects and obsolescence. Safety upgrades
16 were implemented to the extent practicalable to meet
17 modern codes and standards.

18 In the 2010 CNSC staff report on the safety
19 performance of Canadian nuclear power plants, New
20 Brunswick Power's performance was satisfactory in all
21 safety and control areas except for emergency management
22 and fire protection, which was rated below expectations as
23 a result of issues relating to emergency response. A
24 protocol (phonetic) between New Brunswick Power and CNSC
25 staff was put in place, requiring a satisfactory rating

1 before the authorization to remove the reactor from its
2 guaranteed shut down state. A program update on this
3 safety and control area will be provided later in the
4 presentation.

5 The refurbishment project at Point Lepreau
6 is currently on schedule and is expected to be complete by
7 the end of May, 2012 with the return to service in the
8 fall of 2012.

9 Major milestones recently completed include
10 the calandria tube installation in August 2011 and the
11 pressure tube installation in November 2011. The calandria
12 tubes and pressure tubes are key components in the core of
13 the reactor, as shown in this sketch of a cross-section of
14 the reactor provided on the right side of the slide.

15 The reactor is comprised of a horizontal
16 cylinder called a calandria enclosed at each end by end
17 shields which support the horizontal fuel channels that
18 span the calandria.

19 The calandria is filled with heavy water
20 moderator. Each fuel channel consists of an inner
21 pressure tube which contains the fuel bundles and the
22 heavy water primary coolant and is protected by an outer
23 calandria tube. Garter spring spacers maintain a gap
24 between the calandria tubes and the pressure tubes which
25 is filled with a circulating gas to insulate the moderator

1 from the high temperature in the pressure tubes.

2 The sketch shows only two of the total of
3 380 fuel channels for simplicity. Feeder pipe
4 installation is one of the last major milestones remaining
5 in the refurbishment project and is currently scheduled to
6 be completed by the end of May 2012.

7 Public hearings give interested parties and
8 members of the public an opportunity to be held before the
9 Commission. The decision on New Brunswick Power's request
10 for licence renewal, fuel load, and restart of the reactor
11 are to be made through a two-day hearing process.

12 Day One of the hearing took place in Ottawa
13 on October 6, 2011 where New Brunswick Power and CNSC
14 staff presented written and oral submissions to the
15 Commission and responded to questions from the Commission.

16 Today is the start of Day Two of the
17 hearing process which is taking place in the community
18 most affected by these decisions. On hearing Day Two,
19 which usually takes place about 60 days after Day One,
20 registered intervenors have an opportunity to make their
21 views known to the Commission and to respond to any
22 related questions from the Commission Members.

23 Usually 30 days before hearing Day
24 Two, intervenors may file their intervention requests and
25 submissions. This means that intervenors generally have

1 30 days to review the information presented during hearing
2 Day One and submit their request before hearing Day Two.

3 For this hearing, the time was extended by
4 a week to allow intervenors more time to review the Day
5 One material and submit their requests.

6 CNSC staff's main objectives for this Day
7 Two hearing are as follows: provide information on Day One
8 questions from the Commission, respond to public
9 interventions, and provide and respond to questions and
10 information provided in the CNSC staff CMDs.

11 CNSC staff committed in Day One hearing to
12 provide a follow-up on the Fukushima events in relation to
13 Point Lepreau and more specifically on the CNSC task force
14 report issued on September 30th, 2011 and posted for
15 public comments on October 28th, 2011.

16 Based on the review of the Fukushima
17 events, the CNSC task force confirms that Point Lepreau is
18 safe and has a strong design relying on multiple layers of
19 defense. The design ensures that there will be no impact
20 on the public from external events that are regarded as
21 credible.

22 The design also offers protection against
23 more severe external events that are much less likely to
24 occur. It should be noted that the threat of a major
25 earthquake at Point Lepreau site is negligible and that an

1 earthquake followed by a tsunami is a non-credible event.

2 The CNSC task force report also confirmed
3 that the current status of on-site and off-site emergency
4 preparedness and response measures are adequate.

5 New Brunswick Power maintains and operates
6 comprehensive, well-documented emergency plans which are
7 regularly tested through drills and exercises. As
8 previously noted, fire protection response performance
9 issues are being addressed and will be discussed in more
10 detail later in the presentation on the program updates.

11 The CNSC, as an agent of the Government of
12 Canada and as Canada's Nuclear Regulator, recognizes and
13 understands the importance of consulting and building
14 relationships with Canada's aboriginal people.

15 As part of the aboriginal consultation
16 process, CNSC staff sent notification letters on June 13,
17 2011 to aboriginal groups with potential interest in the
18 Point Lepreau and the decisions to be made in these
19 hearings.

20 These letters included details regarding
21 the licence renewal and fuel load and restart request from
22 New Brunswick Power, information on how the public and
23 aboriginal groups can participate in Day One public
24 hearings as well as general information on the participant
25 funding program.

1 CNSC staff followed up with phone calls to
2 ensure the letters were received and offered to answer
3 questions. Following a request to meet from the
4 Passamaquoddy Recognition Group Incorporated, CNSC staff
5 met with Chief Hugh Akagi on August 3rd, 2011 in St.
6 Andrews, New Brunswick.

7 No other request for meetings were received
8 from other aboriginal groups who were sent notifications
9 letters. Based on information to date, this decision is
10 not expected to cause adverse impacts to any potential or
11 established aboriginal or treaty rights.

12 The participant funding program gives the
13 public, aboriginal groups, and other stakeholders the
14 opportunity to request funding from the CNSC to
15 participate in this regulatory process. This allows them
16 to bring related information before the Commission through
17 informed and topic-specific interventions. The CNSC's
18 participant funding program guide provides more details on
19 who is eligible, what specific expenses may be funded, and
20 how the program works. Funding was provided to three
21 applicants for this hearing.

22 CNSC staff conducted regulatory review and
23 inspection activities and concluded that New Brunswick
24 Power is qualified to operate Point Lepreau Station and
25 will make adequate provision for the health and safety of

1 persons, protection of the environment, and maintenance of
2 national security and measures required to implement
3 international obligations to which Canada has agreed.

4 Specific to New Brunswick Power's requests
5 to renew their operating licence and to load fuel and
6 restart the Point Lepreau Station, CNSC conclude that the
7 regulatory frame work and hold points are in place to
8 ensure compliance with all regulatory requirements, and
9 continuous safety improvements have have been implemented
10 through new regulatory requirements imposed in the new
11 licence.

12 In regards to New Brunswick Power's request
13 for licence renewal, CNSC staff recommend that the
14 Commission issue the proposed operating licence with an
15 expiry date of June 30th, 2017, revoke the current
16 licence, and delegate authority for approvals of lower
17 significance issues to CNSC designated officers in the
18 regulatory operation branch.

19 In regards to New Brunswick Power's request
20 to load fuel and restart the reactor, CNSC staff recommend
21 that the Commission grant permission to proceed with fuel
22 load and restart of the reactor and delegate authority for
23 release of regulatory hold points to CNSC Executive Vice
24 President and Chief Regulatory Operations Officer,
25 Regulatory Operations Branch.

1 I will now pass the presentation over to
2 Ms. Lisa Love-Tedjoutomo, who will discuss New Brunswick
3 Power's request for license renewal.

4 **MS. LOVE-TEDJOUTOMO:** Good Morning, Mr.
5 President, and Members of the Commission.

6 For the record, my name is Lisa Love-
7 Tedjoutomo. I am the Acting Director of the Point Lepreau
8 Regulatory Program Division.

9 The proposed operating license follows a
10 new format for an operating license. The new format
11 includes standard license conditions that are aligned with
12 the licensee's programs under the CNSC safety and control
13 areas.

14 References to licensee documents have been
15 removed and replaced with documented policies or programs
16 and industry standards and regulatory documents, as well
17 as tables of numerical limits such as, for example,
18 release limits.

19 In addition, the new format for the license
20 is accompanied by a license conditions handbook, or LCH,
21 which documents CNSC requirements and expectations for
22 each license condition, agreements, administrative
23 processes, deviations approved by the Commission and CNSC
24 staff, and version control of documents referenced in the
25 license.

1 Annual reports are made to the Commission
2 on license amendments, revisions to the LCH and safety
3 performance.

4 CNSC staff recommends to the Commission the
5 addition of three new license conditions to the proposed
6 license since Day One. These new conditions add clarity
7 to the licensing basis requirements with respect to other
8 applicable federal and provincial laws, and enhance a
9 regulatory framework for security through the addition of
10 new security requirements as described in regulatory
11 documents RD-321 and RD-361.

12 The addition of these new license
13 conditions reflects a continuous nature of safety
14 improvements for Canadian nuclear power plants.

15 CNSC staff concludes that NB Power has
16 adequate measures in place to comply with these new
17 license conditions. As such, an implementation plan is
18 not required. The revised license was attached to
19 supplemental CMD 11-H12.C.

20 In the Day One Hearing the Commission
21 requested that a table be provided with the implementation
22 dates for new industry standards and regulatory documents
23 in the license. A listing of the new standards and
24 regulatory documents is shown on the slide with the
25 detailed tables, including implementation dates provided

1 in the Day Two CNSC CMD 11-H12.B.

2 The new industry standards incorporated in
3 the license represent further enhancements to the CNSC
4 regulatory framework and raise the level of safety through
5 improvements to NB Power's programs.

6 NB Power is working to assure compliance
7 with these new standards by the dates required in the
8 license. The implementation plans and dates are
9 acceptable to CNSC staff. The new regulatory documents
10 increase the prescriptiveness of the regulatory framework
11 and, as with the new industry standards, their
12 implementation plans and dates are acceptable to CNSC
13 staff as adequate safety measures are in place to proceed
14 with license renewal and fuel load.

15 On this slide there is a table showing the
16 request for clarification raised by the Commission during
17 the Day One Hearing related to specific safety and control
18 areas. In total there were nine requests or topics for
19 clarification under six safety and control areas. The
20 details of each request will be discussed on the following
21 slides along with the requested clarifications. Further
22 information on program updates can be found in CNSC CMD
23 11-H12B.

24 At the Day One Hearing CNSC staff committed
25 to provide an update on the compliance of NB Power's

1 Nuclear Management Manual with CSA Standard N286-05 on
2 management system requirements for nuclear power plants.
3 CNSC staff was in the process of completing their review
4 of the NB Power Manual at the time. CNSC staff has since
5 completed their review and have concluded that NB Power's
6 Nuclear Management Manual is compliant with the CSA
7 Standard.

8 In the Day One Hearing the Commission
9 requested an update on the deterministic safety analysis
10 of the design modification of the fuel channel annulus
11 spacers implemented during refurbishment. This
12 modification enhances reactor safety under accident
13 conditions and will ensure pressure tube integrity
14 following a hypothetical dual-failure event of a large
15 loss of coolant accident with loss of emergency core
16 coolant injection.

17 CNSC staff have now received and accepted
18 the deterministic analysis and conclude that NB Power
19 maintains an up-to-date deterministic safety analysis.

20 CNSC staff committed in the Day One Hearing
21 to provide an update on the probabilistic safety analysis
22 or PSA reports as required by CNSC Regulatory Standards
23 S294 or PSA for Nuclear Power Plants.

24 The last reports to be received and
25 accepted by CNSC staff included analysis of design

1 upgrades implemented during refurbishment. As required by
2 S294, NB Power submits PSA reports in a step-wise manner
3 through a three-year cycle. An updated version of the PSA
4 reports is due by the end of June 2012.

5 CNSC staff conclude that NB Power meets the
6 requirements of S294 and that there are no outstanding
7 issues that would impede license renewal or fuel load.

8 An update on whether NB Power's engineering
9 chain control process document meets all the requirements
10 for the nuclear management system standard was requested
11 by the Commission in the Day One Hearing.

12 Specifically, CNSC staff had concerns with
13 the scope of the quality assurance program for vendors of
14 design services. NB Power corrected this deficiency by
15 updating its process documentation. The revised
16 documentation was reviewed and accepted by CNSC staff.

17 In the Day One Hearing the Commission
18 requested further information on NB Power's seismic
19 verification of pipe supports and the seismic margin
20 assessment. NB Power completed a re-evaluation of the
21 pipe supports and demonstrated the design meets original
22 site requirements for a design basis earthquake. This
23 assessment was reviewed and accepted by CNSC staff.

24 As a result of these assessments, NB Power
25 made a number of changes and/or improvements during the

1 refurbishment outage. The design and installation of
2 these modifications was reviewed and accepted by CNSC
3 staff.

4 As a result of an intervenor's questions
5 regarding the seismic margin assessment, it was noticed
6 there was a grammatical error in the text of CNSC CMD 11-
7 H12.B presented for this Day Two Hearing. A Supplemental
8 CMD, 11-H12.C, was issued to clarify that the probability
9 quoted in Section 3.4.1 of one in 100,000 years
10 corresponds to the large release frequency probability and
11 not to the return frequency of the 0.4G earthquake.

12 CNSC staff committed in the Day One Hearing
13 to provide an update on NB Power's remaining repair and
14 inspection activities on the concrete ring beam and dome
15 of the reactor building. NB Power's revised schedule
16 indicated that all concrete repairs and remaining
17 inspections would be completed by the end of October 2011.

18 CNSC site staff confirmed by inspection on
19 October 18th, 2011 that the concrete repairs are complete
20 and acceptable.

21 The Commission requested further details in
22 the Day One hearing on the calibration standards used for
23 ultrasonic testing, or UT equipment for retube components,
24 including pressure tubes, calandria tubes and N-fittings.

25 CNSC staff have reviewed the technical and

1 root cause assessments submitted by NB Power, and found
2 them acceptable. CNSC staff agree with the results of the
3 technical assessment, which conclude there is no effect on
4 the integrity of the component since the UT was proven
5 through analysis and tests to be conservative.

6 CNSC staff conclude that the corrective
7 actions taken by NB Power and its contractors should
8 prevent recurrence of a similar problem in the future.

9 In the Day One hearing, CNSC staff
10 committed to provide an update on fire emergency response
11 team drills performed in the fall. These drills are part
12 of the requirements to fulfil the CNSC and NB Power
13 protocol on fire emergency response team improvements.
14 This protocol was required for NB Power to improve their
15 rating in this safety and control area to "satisfactory"
16 from "below expectations" prior to releasing shutdown
17 guarantees on the reactor.

18 CNSC staff have observed several crews
19 perform a live fire drill and drill inside the protective
20 area. Each drill continues to show improvement in fire
21 response.

22 Current status indicates the development of
23 an acceptable fire response capability will be reached and
24 that a "satisfactory" rating in this safety and control
25 area will be achieved prior to the removal of shutdown

1 guarantees.

2 We're compliant with CSA Standard N293-07
3 on fire protection for CANDU nuclear power plants, which
4 includes emergency response. NB Power is implementing
5 compensatory measures to ensure an acceptable level of
6 risk is maintained until permanent solutions are
7 implemented.

8 CNSC staff have reviewed and accepted NB
9 Power's plan for compensatory measures, which must be in
10 place prior to releasing shutdown guarantees. CNSC staff
11 have also reviewed and accepted NB Power's plan to become
12 fully compliant with N293-07 by the end of December 2014.

13 In the Day One hearing, the Commission
14 requested the expected implementation timeline for CNSC
15 regulatory documents RD-321 and RD-361. Both documents
16 went through a detailed consultation process and were
17 approved by the Commission in December 2010.

18 CNSC staff conducted piloted performance
19 tests to verify the new regulatory document requirements.
20 NB Power complies with all requirements.

21 These requirements are being fully
22 implemented as part of this licence renewal process;
23 therefore, the requirements for RD-321 and RD-361 have
24 been added to the proposed licence that was attached to
25 Supplemental CMD 11-H12.C for this Day Two hearing.

1 The remaining operating licences for the
2 other Canadian nuclear power plants will be amended to
3 include these requirements by April 30th, 2012.

4 I would now like to ask Mr. Jeff Ramsay to
5 continue with the presentation concerning NB Power's
6 request to load fuel and restart the reactor.

7 **MR. RAMSAY:** Good morning, Mr. President
8 and Members of the Commission. For the record, my name is
9 Jeff Ramsay, and I am a senior program officer in the
10 Point Lepreau Regulatory Program Division.

11 This slide shows the four regulatory hold
12 points for commissioning of the reactor, as well as an
13 operational regulatory hold point that has been put into
14 place to ensure required fire protection improvements are
15 implemented by the end of December 2014.

16 CNSC staff have aligned each commissioning
17 phase with the appropriate CNSC staff approval that will
18 be sought for each of the established hold points. These
19 hold points will serve as regulatory verification
20 checkpoints to ensure operational readiness of the plant
21 safety systems to support full power and also to satisfy
22 regulatory requirements for staged increases in reactor
23 power.

24 The established commissioning hold points
25 include fuel load, releasing reactor guaranteed shutdown

1 state, operating above .1 percent power and operating
2 above 35 percent power.

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

5 All the regulatory hold points, including
6 their prerequisites for release, are clearly specified in
7 proposed licence condition 16.4. The prerequisites for
8 Phase A, fuel load, are also defined in Appendix J of the
9 current licence.

10 As previously discussed in the program
11 update for emergency management and fire protection,
12 emergency response improvements and compensatory measures
13 for fire protection have been added to the prerequisite
14 requirements for Phase B, removal and shutdown guarantees.

15 Approval to release all regulatory hold
16 points is contingent on NB Power providing confirmation
17 that they have met all established prerequisites. CNSC
18 staff have and will conduct reviews and inspections to
19 verify that the required prerequisites have been met prior
20 to releasing the regulatory hold points.

21 The regulatory hold points are shown on
22 this timeline to give some perspective on when they occur
23 relative to refurbishment and restart activities, return
24 to normal service and the expiry of the new licence. All
25 of the commissioning hold points, Phases A through D, will

1 take place in the period between the completion of retube
2 activities, currently scheduled for May 2012, and the
3 reactor's return to service in the fall of 2012.

4 The operational hold point for fire
5 protection improvements is in December of 2014.

6 Since the requirements for each of the
7 phase hold points all clearly defined both in the licence
8 and the licence condition handbook, and in consideration
9 of the short time frame for the commissioning hold points,
10 CNSC staff are recommending that the Commission delegate
11 authority for release of the regulatory hold points B
12 through D to the CNSC Executive Vice-President and Chief
13 Regulatory Operations Officer of the Regulatory Operations
14 branch.

15 Release of the Phase A hold point for fuel
16 load will be discussed on the next slide.

17 Similarly, as the licence condition
18 handbook also specifies the detailed requirements for the
19 release of the operational hold point for fire protection
20 improvements in 2014, CNSC staff are also recommending the
21 Commission delegate authority for release of this hold
22 point to the Executive Vice-President and Chief Regulatory
23 Operations Officer of the Regulatory Operations Branch as
24 well.

25 Twenty-one (21) prerequisites for the Phase

1 A hold points for fuel load are listed in Appendix J of
2 the current operating licence. The prerequisites are
3 considered complete when NB Power has submitted a
4 completion assurance report which has been reviewed and
5 accepted by CNSC staff.

6 The completion assurance report for each
7 item details the work performed and indicates that all
8 required testing has been successfully completed.

9 Currently, 13 of the 21 prerequisites are
10 complete, with their completion assurance reports
11 submitted. For seven of the remaining eight items,
12 fieldwork is complete, with only the completion assurance
13 report documentation pending for review.

14 The main task left to be completed for the
15 last item is the installation of the feeders, which is
16 scheduled to be complete by the end of May, 2012.

17 For all of the work conducted to date, CNSC
18 staff have reviewed and/or performed inspections to verify
19 regulatory compliance, and any concerns raised have been
20 fully resolved.

21 Since the majority of the work has been
22 completed, and the remaining items are considered of low
23 safety significance to CNSC staff, CNSC staff recommend
24 the Commission delegate authority for the final approvals
25 associated with fuel load, Phase A, where the few

1 remaining prerequisites to again the CNSC Executive Vice-
2 President & Chief Regulatory Operations Officer of the
3 Regulatory Operations Branch.

4 And now I would like to pass the
5 presentation over to Dr. Rzentkowski who will provide some
6 further details for clarification on several topics raised
7 in public interventions for this hearing, as well as
8 presenting CNSC staff's final conclusions and
9 recommendations. Thank you.

10 **MR. RZENTKOWSKI:** Thank you very much,
11 Mr. Ramsey.

12 At this point in the presentation, CNSC
13 staff would like to provide further details for
14 clarification on common topics which were raised in the
15 public intervention for this Day Two Hearing.

16 Regarding the seismic margin assessment,
17 CNSC staff would like to confirm that New Brunswick
18 Power's technical assessment is based upon the best
19 available information, given our current state of
20 knowledge. The methodology used by New Brunswick Power is
21 internationally accepted for evaluation of existing
22 nuclear power plants and is endorsed by Canadian
23 standards.

24 New Brunswick Power's technical assessment
25 was reviewed by CNSC staff and the seismic hazard input

1 reviewed by Natural Resources Canada. It was concluded
2 that the results of the assessments remain valid. In
3 fact, improved ground motion relationships, that will be
4 used in support of the 2015 National Building Code of
5 Canada, are likely to result in even smaller probabilities
6 that will show even greater or more significant margin
7 between the actual seismic hazard and the Point Lepreau
8 design basis.

9 It is important to note here that
10 independent on the actual seismic hazard, the station will
11 be shut down and maintain a safe state, assuming the
12 complete loss of all sources of power and cooling water.

13 With regard to fish mortality, CNSC staff
14 would like to stress that the Point Lepreau cooling water
15 intake is located several hundred metres offshore, at a
16 depth of approximately 18 metres. The intake opening also
17 has a velocity cap that reduces the flow rate of intake
18 water. The location of the intake and the velocity cap
19 serve to minimize both impingement and entrainment of
20 fish. A fish guidance system is also available for the
21 purpose of returning light fish that have entered the
22 forebay. The system has not been used recently because so
23 few fish are being captured by the intake water.

24 With regards to shipment of radioactive
25 material outside of Canada for waste reduction, it is

1 important to realize that CNSC staff encourage licensees
2 to reduce waste volumes. This is a standard practice for
3 all industries and is considered to be best practice based
4 on sustainability and safety.

5 The transport of radioactive nuclear
6 substances is subject to the CNSC's Packaging and
7 Transport of Nuclear Substances Regulations and Transport
8 Canada's Transport of Dangerous Goods Regulations. These
9 Regulations set requirements for the safe transport of
10 radioactive nuclear substances throughout Canada.

11 Regarding lessons learned from accidents,
12 there is an operating experience, or an OPEX program,
13 implemented by nuclear power plants operators and
14 regulators, to share information regarding events that
15 have occurred at other plants and to prevent similar
16 events from happening at their own sites. By
17 participating in this program, organizations willingly
18 share information for the benefit of other groups
19 throughout the world. In this way information from events
20 are reviewed and lessons learned are applied to Canadian
21 reactors, either from the licensees or the regulators'
22 perspective. Improvements recommended via OPEX enhance
23 the safety of nuclear power plants in Canada, and reduce
24 the associated risks to as low as reasonably practicable.

25 With regard to environmental assessment,

1 CNSC staff concluded that an environmental assessment is
2 not required for licence renewal or fuel load. This
3 conclusion reflects the fact that in 2003 an environmental
4 assessment was performed for the addition of more storage
5 capacity to the solid radioactive waste management
6 facility.

7 This environmental assessment also
8 addressed the incremental effect of continued operation of
9 the station and was approved by the Commission.
10 Furthermore, in 2005, CNSC staff reviewed the previously
11 performed environmental assessments to determine if there
12 were gaps that would need to be addressed for
13 refurbishment and continued operation. This review
14 determined ---

15 **THE CHAIRPERSON:** Can you ---

16 **MR. RZENTKOWSKI:** --- the environmental
17 assessment was not ---

18 **THE CHAIRPERSON:** Can you please speed up
19 and finish? Many of those issues will be raised again
20 through the intervention, so can you please conclude?

21 **MR. RZENTKOWSKI:** Okay, I will try to close
22 the presentation.

23 Mr. President and Members of the
24 Commission, we would like to reiterate the following:
25 CNSC staff conducted regulatory review and inspection

1 activities, and concluded that New Brunswick Power is
2 qualified to operate Point Lepreau and to make adequate
3 provisions for the health and safety of persons,
4 protection of the environment and maintenance of national
5 security, and measures required to implement international
6 obligations to which Canada has agreed.

7 Specific to New Brunswick Power's request
8 to renew their operating licence, and to load fuel and re-
9 start the Point Lepreau, CNSC staff conclude that the
10 regulatory framework and hold points are in place to
11 ensure compliance with all regulatory requirements, and
12 continuous safety improvements will be implemented through
13 new regulatory requirements imposed in the new licence.

14 And, finally, in regards to New Brunswick
15 Power's request for licence renewal, CNSC staff recommend
16 that the Commission issue the proposed operating licence
17 with an expiry date of June 30th, 2017; revoke the current
18 licence; and delegate authority for approvals of lower
19 significance issues to CNSC-designated officers in the
20 Regulatory Operations Branch.

21 And in regards to New Brunswick Power's
22 request to load fuel and re-start the reactor, CNSC staff
23 recommend that the Commission grant permission to proceed
24 with fuel load and re-start, and delegate authority for
25 release of regulatory points to CNSC Executive Vice-

1 President & Chief Regulatory Operations Officer,
2 Regulatory Operations Branch.

3 Thank you, Mr. President and Commission
4 Members for your attention. We are now prepared to answer
5 any questions you may have regarding fuel load or license
6 renewal.

7 **THE CHAIRMAN:** Thank you. I would like to
8 turn the floor to Mr. MacGillivray from New Brunswick
9 Department of Public Safety for presentation as outlined
10 in CMD H-12.37. Mr. MacGillivray?

11
12 **11-H12.37**

13 **Oral presentation by**
14 **New Brunswick Department of**
15 **Public Safety**

16
17 **MR. MacGILLIVRAY:** Merci, monsieur le
18 president, membres de la commission, mesdames, messieurs,
19 ladies and gentlemen.

20 For the record, Ernest MacGillivray, Senior
21 Advisor with the Department of Public Safety and
22 representing the Province of New Brunswick.

23 Public Safety is a New Brunswick emergency
24 measures organization. It is the lead agency responsible
25 for emergency management. It's responsible for the off-

1 site emergency program, coordinates preparedness
2 activities and is the primary agency for the management of
3 any incidents with offsite implications. The Offsite
4 Emergency Program is a joint program with New Brunswick
5 Power with shared governance.

6 Our written submission outlines the current
7 state of our capabilities and our readiness for restart.
8 Our submission covers these items in some detail with
9 emphasis on program design, governance and our Improvement
10 Program. It also describes how we intend to address the
11 issues identified in the CNSC Fukushima Task Force Report.

12 At a high level, the program looks like
13 this, has the following elements, and significantly, New
14 Brunswick has committed to improved rigour, transparency
15 and continual improvement in our emergency programs. Our
16 program design conforms to international norms for program
17 management including executive level accountability,
18 performance measures, and has an internal responsibility
19 system. We use CSA Z1600 as a reference standard.

20 New Brunswick has and is making significant
21 investments to build additional capacity and improve
22 competencies to manage any offsite emergency.

23 We have a governance framework that has
24 these three elements. For statutory authorities, our
25 legislation conveys authority on the Minister of Public

1 Safety, establishes the New Brunswick Emergency Measures
2 Organization as the provincial coordinating agency and
3 designates the directory MO as the management authority
4 for any emergencies.

5 There's accountability through various
6 bodies; I'll address these in some additional detail in a
7 moment. And we have defined process for program
8 performance management with both internal and external
9 evaluation.

10 Our framework looks like this. We have a
11 Deputy Minister's level committee comprising all of the
12 line departments with emergency roles. It deals with
13 government's responsibilities for public safety and
14 security, the continuity of government and government
15 operations, and this group was essential to the effective
16 management of floods in 2008 and the 2009 H1N1 pandemic.

17 There is also a mirror ADM level committee,
18 which is a working committee responsible to deliver on the
19 work plan.

20 There is a steering committee which is
21 joint between public safety and NB Power. It includes the
22 program leads, project managers and other technical
23 specialists as required, and it manages all of the program
24 activities.

25 The work of the program is organized into

1 these various functional areas. This framework ensures
2 that the work receives the necessary attention and
3 resources and that expectations are met.

4 We have a continual improvement policy and
5 our process provides a basis for critical assessment and
6 corrective actions. It's also used to identify lessons
7 learned from exercises and actual operations and this
8 ensures that deficiencies are addressed and that we act on
9 any opportunities to make improvements, and I have some
10 specific examples.

11 In preparation for restart, we've reviewed
12 the technical guidance and work with supporting agencies
13 to update our plans and procedures. We've improved our
14 technology, our telecommunications and operating systems,
15 and we've placed all of our operation centres, including
16 municipal ones, on a common platform. And we have some
17 new systems for shared situational awareness and decision
18 support.

19 We have improved and added to our public
20 warning capabilities and, in our written submission, I
21 mentioned three systems; there are, in fact, four. We
22 have a backup. So we have four separate systems for
23 warning the public.

24 We're also working with partners to further
25 refine our evacuee registration and tracking systems so

1 that we can maintain contact and communicate with
2 residents while they're out of their homes.

3 We're in the midst of our training and
4 exercise activities, which will continue through the
5 winter months, with a validation exercise in the spring of
6 2012. We also have public information initiatives planned
7 for the coming months to ensure that residents in the
8 emergency planning zone have all of the information they
9 require.

10 A few words on our Incident Management
11 System. This slide depicts the provincial IMS or Incident
12 Management System which is structured along commonly
13 accepted, functional lines. This functional approach
14 aligns the provincial emergency organization with the
15 tactical level and with federal partners such as Health
16 Canada, Public Safety Canada and National Defence.

17 This is just a screen shot from our
18 operating system. We have a number of tools available to
19 assist us with monitoring and modelling, and we've been
20 given access to the federal tools used by Health Canada,
21 National Defence. There's also a new system which has
22 just been deployed in the last few weeks by the Centre for
23 Security Science called the Multi-Agency Situational
24 Awareness System.

25 Such tools enable collaboration across

1 mandates, jurisdictional boundaries and levels of
2 government and this is a screen shot of the MASAS system.
3 This system is actually a service for shared situational
4 awareness and it integrates information from a variety of
5 official sources into a common view.

6 I'd like to speak briefly to the Fukushima
7 Task Force Report. And we'll provide comment under
8 separate cover, but we support the draft recommendations
9 and we will address them through a supplemental work plan
10 and we intend to cover these specific items.

11 Some of the recommendations are already
12 being addressed through our existing improvement plan; for
13 example, we've conducted a comprehensive risk assessment
14 of a wide area around Lepreau and we've looked at
15 conjoined threats such as a nuclear incident combined with
16 tropical weather.

17 We have developed a number of scenario-
18 specific evacuation plans and we're validating our
19 evacuation planning assumptions which, of course, are 30
20 years old, so we're updating that.

21 We recognize that we need more rigour in
22 our training and we have secured executive support to make
23 training mandatory and participation in exercises
24 mandatory and we're committing to increase the frequency
25 of our exercises such that all components of our emergency

1 organization will be exercised annually.

2 In conclusion, the Nuclear Offsite
3 Emergency Program leverages mature and proven capabilities
4 that can be mobilized quickly to deal with any contingency
5 at the station. We have close and constructive working
6 relationships with the licensee at various levels with
7 shared governance and executive-level accountability for
8 program outcomes. We have considerable practical
9 experience working with NB Power in other areas including
10 continuity of operations, transmission and distribution,
11 restoration operations, dam operations, flow and water-
12 level forecasting and critical infrastructure protection.

13 We're working to improve our operational
14 readiness and we will exercise all aspects of our
15 emergency program in 2012 before restart.

16 In summary, our program is built on the
17 following foundations: a sound legal basis, a robust
18 executive level of governance and accountability
19 framework, an institutional commitment to rigour,
20 transparency and continual improvement, proven competence
21 in managing complex emergencies, a comprehensive training
22 and exercise program, a strong focus on public awareness
23 and education, and a commitment to address new program
24 requirements identified in the Fukushima Task Force Report
25 as well as any other relevant advice the Commission may

1 offer.

2 And I'll be happy to take questions, sir.

3 **THE CHAIRMAN:** Thank you.

4 So before opening the floor for
5 questioning, we have one more presentation and I would
6 like to turn the floor to Dr. John Adams from Natural
7 Resources Canada for a presentation on seismology as
8 outlined in CMD 11-H12.38.

9 Dr Adams, the floor is yours.

10

11 **11-H12.38**

12 **Oral presentation by**

13 **Natural Resources Canada on**

14 **Seismic Events in Canada**

15

16 **DR. ADAMS:** Thank you, Mr. President. My
17 name is Dr. John Adams. I'm a seismologist with Natural
18 Resources Canada.

19 Natural Resources Canada provides the land
20 mass knowledge required to strengthen the safety and
21 security of Canadians and the stewardship of Canada's
22 natural resources and lands. Specifically, we have a lot
23 of the expertise in the federal government on earthquake
24 seismicity and hazards.

25 I just want to start with explaining

1 roughly what an earthquake is and what gets felt, so we
2 have some common understanding. There are places in the
3 earth that get stressed by earthquakes. The rock is
4 basically under pressure, a weakness develops. The rock
5 takes that stress and then it begins to release it as an
6 earthquake. When the earthquake happens, there is a
7 displacement usually deep underground and the waves travel
8 out from the epicentre. Typically, one feels the P-wave
9 first, which is a little bit of a shock. People describe
10 it as, for example, like feeling your furnace doing
11 something and then the stronger S-waves follow.

12 The recommendation if you feel an
13 earthquake is to take cover where you are because often
14 the S-waves will follow after a period of a few seconds.

15 Now, the movement on that fault plane
16 causes the vibrations. The fault plane itself is deep
17 underground and the key thing is that the larger the area
18 on which there is slip or rupture of that fault plane, the
19 larger the magnitude of the earthquake.

20 I want to establish the sizes of these
21 magnitude 9 earthquakes in Japan. They are very, very
22 much larger than we expect. I think we talk rather glibly
23 about the difference between a magnitude 6 and a magnitude
24 7 earthquake, but I think this diagram puts it more into
25 context.

1 The Japan earthquake was really very large
2 indeed. It was one of the five largest in the last 100
3 years. If you look at the square to the left, that's the
4 size of the magnitude 7 Haiti earthquake by comparison,
5 which killed so many people in Haiti nearly two years ago.

6 In the bottom left, there's a tiny dot,
7 which is almost invisible, which is the effective size of
8 a magnitude 6.2 earthquake, which is the sort of size that
9 we should be concerned about with the Lepreau plant.

10 The other side -- is the magnitude. So
11 that fault area, as magnitude increases, the strength of
12 ground shaking duration and the area impacted increases.
13 The ground shaking goes up by a factor of 10 for every
14 magnitude unit. And you see there the magnitude 4, then
15 5, then 6. Although we show it vertically, the most
16 damaging vibration is actually the sideways motion from an
17 earthquake.

18 So the ground shaking is going up by a
19 factor of 10 for every magnitude unit, but the energy
20 released goes up by a factor of 32 times. That means that
21 that magnitude 6 shown there actually has about 1,000
22 times more energy than magnitude 4.

23 In addition, as the magnitude increases,
24 the duration of shaking increases and often it's the
25 duration which is as damaging as the side-to-side motion

1 itself.

2 So going through on earthquake magnitude,
3 the earthquake magnitude depends on the size of the
4 reactive fault surface as we just saw. Large subduction-
5 related earthquakes, such as the one in Japan, can exceed
6 magnitude 8 and, indeed, almost all earthquakes larger
7 than magnitude 8 occur on plate boundaries.

8 At the other end of the scale, earthquakes
9 below magnitude 2.5 may not be felt and can only be
10 detected by nearby seismographs.

11 For magnitude 4 and larger, the ground
12 vibrations can be felt over large areas, so these are the
13 earthquakes we consider are felt. If you're near the
14 epicentre, magnitude 5 is about the minimum magnitude to
15 make light objects fall, and a magnitude 5 and a half can
16 cause some damage to masonry buildings. Typically, the
17 most vulnerable buildings are brick buildings built around
18 the late 1800s and early 1900s.

19 In Eastern Canada, the largest events were
20 about magnitude 7, the 1663 Charlevoix earthquake.
21 Charlevoix is just northeast of Quebec City, and the
22 magnitude of that is estimated only from historical
23 records, which are very poor.

24 But the 1929 magnitude 7.2 Grand Banks
25 earthquake was well recorded instrumentally, and it

1 occurred south of Newfoundland and east of Nova Scotia.
2 And at 7.2, that's the largest earthquake we've had in
3 Eastern Canada.

4 Almost all of the earthquakes that we know
5 about are weaker than magnitude 5, which is below the
6 threshold that might cause damage to engineered
7 facilities.

8 Now, major earthquakes are related to
9 movements on plate boundaries. The surface of the earth
10 is divided up into these plate boundaries shown here in
11 colour and the lines between them are where relative
12 motion takes place. You can see that North America sits
13 on a plate. It has a plate boundary on the west side of
14 Canada, basically offshore of Vancouver Island, and here
15 on the East Coast, we are pretty much in the middle of
16 that plate.

17 This matters because when you look at
18 earthquakes around the world, and we look here at smallish
19 earthquakes, magnitude 6 earthquakes, a lot of them happen
20 along those plate boundaries. A few do not and you'll see
21 one in northern Quebec there, which was the magnitude 6.2
22 Ungava earthquake in 1989.

23 However, if we move to the largest
24 earthquakes, and these are magnitude larger than 7.7,
25 these all happened on plate boundaries, and it would be

1 very rare that they would not.

2 To look at the tectonic context of Canada's
3 West Coast, and really we are doing this as a point of
4 contrast with the East Coast of Canada, we have a plate
5 boundary where the Pacific plate is spreading away from
6 the Juan de Fuca plate, and the Juan de Fuca plate is
7 being pushed under North America, specifically under
8 Vancouver Island. Along that interface, we believe that
9 magnitude 9 earthquakes, very similar to the one that
10 happened in March in Japan, happen about every 600 years.
11 And the last one of those happened in 1700 AD. So we
12 certainly have the potential for magnitude 9 earthquakes,
13 like the Tohoku earthquake in Western Canada.

14 However, the situation is different in
15 Eastern Canada. I want to show you just briefly that we
16 have the seismograph network across Canada that monitors
17 earthquakes that happen every day. We particularly have a
18 Dense Network in Eastern Canada, and so we know pretty
19 much all earthquakes that would be felt from the
20 monitoring of this network. You'll see there that there
21 are three stations in New Brunswick.

22 So we use the monitoring to build up the
23 Canadian National Earthquake Catalogue. It's the
24 authoritative inventory of earthquake location, magnitude,
25 and depth of the earthquakes in Canada. It's based on

1 written historical counts and instrumental records. I
2 showed you the instruments that record those earthquakes
3 across Canada. The other side of it is written historical
4 accounts like these, which are compiled. This one happens
5 to be the earthquake history of New Brunswick done by
6 Professor Ken Burke at the University of New Brunswick.

7 Our Natural Resources Seismograph Network
8 can detect all earthquakes larger than magnitude 3
9 anywhere across Canada and, in some populated areas, the
10 Denson network allows us to detect earthquakes as small as
11 magnitude 1. NRCAN currently locates about 5,000
12 earthquakes a year across Canada. Between 50 and 100 of
13 those are felt by someone. So you can see there's a lot
14 more activity there than the earthquakes that are felt.
15 But most importantly, if an earthquake can be felt, we can
16 record and measure it.

17 This is a record of some of the larger
18 magnitude 6 earthquakes and smaller ones across Canada.
19 You'll see the two earthquakes I talked about in Eastern
20 Canada, the large red dots; 1663 was the magnitude 7 in
21 Charlevoix, and 1929 was the offshore earthquake.

22 There have been other earthquakes in
23 Charlevoix, notably a magnitude 6.2 in 1925. And you'll
24 see a smattering of small magnitude 5 earthquakes in
25 south-eastern Canada.

1 On the West Coast, which is the environment
2 most similar to Japan, the activity level is much higher,
3 and we've had earthquakes in 1700 AD, that big cascade,
4 the one I talked about, and a magnitude 8 in 1949.

5 But for the purposes here, the contrast is
6 that we have a plate boundary and larger earthquakes on
7 Western Canada and lower levels and smaller earthquakes in
8 Eastern Canada.

9 So let's talk about those earthquakes in
10 Eastern Canada. Earthquakes that can be felt in Eastern
11 Canada are relatively rare. They occur mainly in well-
12 defined zones characterized by many tens of small
13 earthquakes, mostly smaller than magnitude three
14 earthquakes annually.

15 Most earthquakes that have caused any
16 damage have occurred in known seismically active zones.
17 Most earthquakes occur at depths between 5 and 25
18 kilometres and represent reactivation of old faults deep
19 in the crust.

20 Only one historical earthquake in Eastern
21 Canada is known to have caused the surface faults, that's
22 the Ungava one in Northern Quebec in 1989.

23 Faults mapped at the surface are not
24 necessarily seismically active. The land mass of Canada
25 has been broken by faults over its long tectonic history

1 over several billion years and it's not necessary that you
2 have a fault that it will be seismically active.

3 And then the Canadian National Earthquake
4 Catalogue and our knowledge are the basis for the seismic
5 hazard maps that we construct for the National Building
6 Code.

7 Let's look at this earthquake distribution
8 in Eastern Canada. This shows some of the -- this is by
9 no means all the earthquakes but it's a representative
10 sample of the interesting ones.

11 We see a cluster in Western Quebec, another
12 one in Charlevoix and another one in the Lower St.
13 Lawrence and these are regions that have recurring
14 activity and we can expect to have future large
15 earthquakes.

16 The rest, including the Appalachians in New
17 Brunswick have lower levels of activity at lower rates.

18 And we'll come back to talk about those in
19 details but since I had I this map of Eastern Canada up I
20 want to then move to how we use this in creating seismic
21 hazard.

22 Basically, the seismic hazard maps are
23 constructed from the knowledge of the history of the
24 earthquakes that have happened, of the extrapolated
25 statistical probability of future earthquakes and the

1 shaking those earthquakes will cause.

2 That analysis leads to seismic hazard maps
3 used in the Building Code. There have been maps created
4 for the building code since 1953, there are many
5 generations of them and this is the most generation, the
6 2010 map.

7 The strength of shaking represents how
8 strong it is likely that shaking will happen at a fixed
9 probability which is basically one in 2,500 years for the
10 National Building Code and you can see the areas around
11 Ottawa, Montreal and that hot spot in Charlevoix are
12 relatively hot and the other areas are relatively low.

13 With regard to New Brunswick, there is a
14 pocket of activity around Passamaquoddy Bay which is that
15 orangey area near the Maine border.

16 If we look at the map of earthquakes
17 recorded in this region the map at the left is the history
18 of earthquakes, magnitude five or larger, the numbers that
19 are used are moment magnitudes which are a little
20 different from the ones in Ken Burke's report.

21 Unfortunately we use several different scales and they --
22 effectively it's the same size of earthquake but the
23 numbers come out different.

24 An analogy someone said is you could have a
25 two-inch nail or a 50 millimetre nail but they're still

1 the same nail.

2 So in Ken Burke's report the two
3 earthquakes that are shown there are near the Maine
4 border, 1904 and 1869. Ken Burke's report the
5 interpretation was Nuttli magnitude 6.0. We have them as
6 moment magnitude 5.7 and 5.5.

7 In addition, Dr. Burke has said that there
8 is reasonably strong evidence that the 1869 earthquake
9 actually occurred in Central New Brunswick, some distance
10 north of Fredericton.

11 For the analysis that we did up to now and
12 possibly from here forward we would still consider it to
13 be located in Passamaquoddy Bay for the purposes of Point
14 Lepreau assessment because that's a conservative
15 assessment.

16 It may be that we are 80 percent sure that
17 the earthquake happened north of Fredericton but there is
18 a small chance in fact it did not and the historical
19 analysis is a little difficult to come down definitively
20 on.

21 If we look at the bottom right there, there
22 is a map showing the small earthquakes that have happened
23 over the last 25 years.

24 And it shows a scattering of activity
25 across New Brunswick and we think that in fact that just

1 represents the year-by-year assessment of small
2 earthquakes that happened. There is a chance, which is
3 quite small, that a large earthquake could happen at any
4 of those places or indeed places that do not have small
5 earthquakes.

6 I would just like to return to the map at
7 the left and point out two earthquakes in Northern New
8 Brunswick in 1982. These were the Miramichi earthquakes
9 that happened in January 1982, it's almost exactly 30
10 years ago and that was the beginning of my career in
11 seismology, was working with those.

12 So my conclusions; large earthquakes of
13 magnitude eight plus, in other words, earthquakes like
14 that -- the one that happened in Japan this year are
15 expected near plate boundaries, such as subduction zones.

16 Eastern Canada is an intraplate environment
17 well away from plate boundaries.

18 Generally low-level of earthquake in
19 Eastern Canada but some well defined zones are recognized
20 as being more active, such as the one in Charlevoix.

21 Historically, most eastern Canadian
22 earthquakes occur in these well defined zones but have
23 produced only minor damage.

24 The region around the Bay of Fundy is one
25 of low to moderate seismicity. Historical observations

1 and more recent continuous records of earthquake activity
2 are used to develop the seismic hazard maps that define
3 the seismic provisions of the National Building Code.

4 Thank you.

5 **THE CHAIRMAN:** Thank you very much.

6 I think it's time for us to break for about
7 15 minutes. I have 10:54, add 15 minutes to that, that's
8 when we'll come back.

9 Thank you.

10
11 --- Upon recessing at 10:54 a.m.

12 --- Upon resuming at 11:15 a.m.

13
14 **MR. LEBLANC:** We are ready to proceed;
15 please take your seats.

16 I have also been informed that there was a
17 glitch, the unavailability of the link to the webcast for
18 the first half hour of the morning from Ottawa. Our
19 people are working with the vendor to make available the
20 first 30 minutes that were missed on the website so that
21 people can go and see what happened the first 30 minutes,
22 and now we're live.

23 So I just wanted to mention that for the
24 people who are viewing or people who were wondering why
25 they could not view the first 30 minutes this morning.

1 Thank you.

2 **THE CHAIRMAN:** Okay, I'd like to start the
3 question period with our New Brunswick Member, Dr.
4 Barriault.

5 **MEMBER BARRIAULT:** Merci, monsieur le
6 président. Thank you.

7 I guess my first question is to NRCan if I
8 may. On your Slide 15 you show that the Passamaquoddy Bay
9 area is -- Passamaquoddy -- is a hot zone; is that
10 correct?

11 **MR. EAGLES:** That's correct. That's based
12 on the occurrence of the 1904 earthquake which was 5.7 and
13 that 1869 earthquake, plus a whole lot of smaller
14 earthquakes that have happened over the last 100 years.

15 **MEMBER BARRIAULT:** So what would be the
16 expectation of a stronger earthquake in this area?

17 **MR. EAGLES:** I have the expectations for a
18 larger area for New Brunswick, not just Passamaquoddy Bay
19 and it's the order -- of a magnitude six about every 200
20 to 1,000 years, in a fairly large area, not just in
21 Passamaquoddy Bay.

22 **MEMBER BARRIAULT:** If it's considered to be
23 under the North America plate, which is stable I guess,
24 does this mean that it could be stronger than six?

25 **MR. EAGLES:** When we do the seismic hazard

1 modeling for the National Building Code which is aimed at
2 2,500 years, there's a relatively high probability
3 compared to what's used in nuclear plants.

4 We allowed the possibility of earthquakes
5 as large as 7 or 7.5.

6 **MEMBER BARRIAULT:** That's correct.

7 The whole of New Brunswick actually started
8 in the North American plate. If it's stable how do we
9 explain the recurrent of small earthquakes?

10 **MR. EAGLES:** So we know at plates
11 boundaries the earthquakes are happening because the
12 plates are rubbing against each other.

13 In an intraplate environment and New
14 Brunswick is in the middle of the North American plate,
15 it's the stresses that are applied at the edges of the
16 plates that are transmitted across the whole of the plate.

17 We are effectively squeezing the whole of
18 North America between California and the middle of the
19 Atlantic. That squeezing is reconciled on old, weak
20 structures such as faults and those faults move very
21 slightly. We know that most of the strain rates are not
22 nearly as high as they are at the plate boundaries, but
23 they are enough to, over a long period of time, build up
24 strain for moderate sized earthquakes; many small ones and
25 moderate ones. But we also know that we can't build up

1 Japan-sized earthquakes with any sort of frequency within
2 the middle of the plate. The strain just doesn't build up
3 for long enough.

4 **MEMBER BARRIAULT:** Is there a difference
5 between vertical forces and horizontal forces in these
6 plates?

7 **MR. EAGLES:** Dominantly, the forces are
8 horizontal; however there are vertical loads and movements
9 that are put on Canada because of the loading of the ice.
10 The ice melted about 12,000 years ago and the land which
11 was pushed down by the weight of the ice is bouncing up.

12 So we do see some vertical stresses that we
13 think they are actually influencing the earthquakes around
14 Charlotte, for example. But we think the dominant forces,
15 actually, the horizontal plate tectonic stress.

16 **MEMBER BARRIAULT:** Thank you. Thank you, Mr.
17 Chairman.

18 Next question is to EMO with regards to the
19 alarm system that you have; the question is, you have
20 different methods of communication with the people in the
21 area; is there a system of communication that's auditory,
22 for example, a siren or alarms? I'm thinking if somebody
23 is camping on the bay at a kilometre from the plant; is
24 there a system to notify them that there is a problem?

25 **MR. KENNEDY:** This is a question, sir, that

1 comes up frequently so I try to answer it this way; we
2 would rather not alarm people. We would rather deliver
3 them a message and so for those people who live in the 20-
4 kilometre zone, they have the opportunity to tell us how
5 they would like to be contacted and I think we can manage
6 up to about 6 different methods.

7 They are mostly telephone based; cell
8 phones, text messaging, a phone at home, a phone at the
9 office, a fax machine or by email so most people are
10 likely to have, probably, a home phone and a cell phone.

11 We've looked at the issue of alerting
12 people in the outdoors with sirens and things of that
13 nature and we are uncomfortable with that because when the
14 siren goes off -- particularly if it's a transient person
15 who is not familiar with the emergency program and how the
16 alerting happens and what it means -- we're just going to
17 alarm people; we're not going to give them advice on the
18 nature of the threat or what they should do.

19 So we have been, for more than a decade,
20 using technologies that deliver messages instead of just
21 alarms.

22 **MEMBER BARRIAULT:** Are you linked in to the
23 Coast Guard radio system that if you have something that
24 is going on that you can notify the fishermen in the area
25 on their boats -- on their fishing boats -- in the

1 immediate area?

2 **MR. KENNEDY:** Part of our procedure is to
3 notify the Air Traffic Control Centre in Moncton ---

4 **MEMBER BARRIAULT:** Okay.

5 **MR. KENNEDY:** --- who put out appropriate
6 advice to pilots and Fundy Traffic which is the control
7 centre for traffic in the Bay of Fundy so they're notified
8 very early on in the process and they in turn notify their
9 folks.

10 **MEMBER BARRIAULT:** Thank you. Thank you for
11 that.

12 Next question ---

13 **THE CHAIRMAN:** Can I ---

14 **MEMBER BARRIAULT:** Yes.

15 **THE CHAIRMAN:** --- can I just jump on this?
16 A quick -- for first responders, have you looked at a
17 satellite phones?

18 **MR. KENNEDY:** We do have satellite services,
19 a backup in our operations centres; it is not something
20 that we have deployed to the field. First responders, for
21 the most part, are being dispatched through radio systems.

22 We do have one initiative right now in the
23 Lepreau area to build a new radio tower and to build in
24 some additional radio repeaters so that the various
25 responders in the area will be able to inter-operate

1 better than they can today with some connectivity back to
2 a central dispatch in St. John.

3 So that is typically how we reach the
4 responders with the exception of the warden service which
5 work with us. They have paging; paging runs on different
6 infrastructure. They have radios and paging so we have
7 two methods of contacting them when they're not
8 necessarily sitting at home.

9 **THE CHAIRMAN:** I am also surprised by your
10 reply to the sirens. If you follow what happened in
11 Pickering; in Ontario, of course, sirens have been a long-
12 standing requirement. Why do you think it may be
13 applicable in Ontario and not here?

14 **MR. KENNEDY:** Well, in fairness to my
15 Ontario colleagues, they have a much larger population to
16 service. In our case, you know, the cost associated with
17 knocking on doors, sensitizing people to how the system
18 works, inviting them to provide us with contact
19 information and just operating that system --the costs are
20 relatively minor in the order of \$20,000 a year.

21 But in Ontario, you have more than ten
22 times the population to deal with so it probably is a
23 larger problem and I know they've looked at different
24 methodologies there including devices in the homes.

25 Our own history is we had devices in the

1 homes, but after a while people got bored with them. They
2 were irritating. They had alarms and things that went off
3 when the power failed -- or what have you -- and so people
4 unplug them and put them in a drawer.

5 So we have gone back to making phone calls,
6 sending responders into the area knocking on doors and
7 making sure that we actually connect with people and
8 deliver an appropriate message; that's where we have
9 settled on.

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

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

12 Next question to CNSC; in your presentation
13 on page 18, you refer to fire protection -- and that's
14 okay you don't have to go -- and you state 2014 as the
15 date when Point Lepreau Nuclear could meet the standards
16 of the CSA. This is a 7-year period to meet the standards
17 and, you know, would in that time there could be a change
18 to a different standard so what is the reason for the
19 holdup, I guess, is what I'm asking really and then we'll
20 ask the same thing to NB Power?

21 **MR. RZENTKOWSKI:** Yes, the question refers
22 to an updated standard on fire protection. The standard
23 was recently updated and in fact, to be in compliance, the
24 licence -- has to perform a very detailed analysis
25 followed by detailed engineering to decide on the best

1 design options to meet at least the intent of the
2 standard.

3 So at this point in time, New Brunswick
4 Power is at the point of putting compensatory measures in
5 place to make sure that they will meet the intent of the
6 standard and those compensatory measures will be in place
7 before the removal of GSS.

8 In terms of meeting -- all requirements of
9 the standard, this will be completed later; before the end
10 of 2014.

11 **MEMBER BARRIAULT:** So if I understand
12 correctly, they are going to meet the standards before
13 refuelling?

14 **MR. RZENTKOWSKI:** Yes, they are going to
15 meet the intent of the standard before the refueling by
16 putting the compensatory measures in place. And for those
17 compensatory measures, we have a protocol issued between
18 the CNSC and New Brunswick Power to make sure that our
19 position is very clearly understood and to make sure that
20 it will be done on time.

21 **MEMBER BARRIAULT:** Can I ask for NB power to
22 comment on why you can't meet the standards before 2014?

23 **MR. KENNEDY:** Yes, I would have the station
24 director, Wade Parker, address that question.

25 **MR. PARKER:** For the record, Wade Parker.

1 Meeting these new standards -- in our
2 current licence we're meeting the '95 standard of the same
3 code. That is ramping to the '07 code in our new licence
4 that is coming.

5 Now, having said that, does that mean that
6 just in one day, we're going to meet that standard? No.

7 If we look back over the last five years,
8 we have been ramping the station up to meeting that code.
9 For example, without getting into a lot of detail, we have
10 spent some \$54 million on the station in upgrades to get
11 the station to exactly where it needs to be. And prior to
12 being fully compliant, by the end of 2014, we have on
13 record spending another \$45 million to bring things up to
14 the new required standards.

15 So it does take time that we're not just
16 waiting until we need to be held compliant, but we have
17 been ramping that up over the last number of years.

18 **MEMBER BARRIAULT:** So it's really an
19 involved process is what you're telling me really and it
20 takes time to engineer these systems in place; is that
21 correct?

22 **MR. PARKER:** For the record, Wade Parker.
23 Yes, that is correct.

24 **MEMBER BARRIAULT:** Thank you.

25 My question's been on ---

1 **THE CHAIRMAN:** This is going to come over
2 and over again. I think I'm going to pass on to Dr.
3 McDill.

4 **MEMBER McDILL:** Just a quick follow-up
5 staff; when is the next standard -- when does the next
6 standard come out?

7 **MR. RZENTKOWSKI:** I will ask Mr. Grant
8 Cherkas to provide a very precise answer to your question.

9 **MR. CHERKAS:** For the record, my name is
10 Grant Cherkas. I'm the fire protection specialist with
11 CNSC staff.

12 The next standard is -- has completed the
13 majority of its revision cycle and is scheduled to be
14 probably finalized this coming -- the end of 2012 and is
15 anticipated to be the -- be designated a 2012 version.

16 **MEMBER McDILL:** So maybe I could go back to
17 Lepreau.

18 With the new one coming out in 2012 and you
19 won't be compliant with the previous one until 2014, are
20 you starting to ramp up to the new one as well, or when
21 will that come into your planning?

22 **MR. PARKER:** For the record, Wade Parker.

23 We do have people sitting on those CSA
24 committees. We are part of that process. That doesn't
25 just happen without engagement of staff.

1 When will we be compliant to that? It
2 depends on what the findings are of that standard when it
3 does come out. So we will be taking that -- we will be
4 reviewing that and looking at that based on where we are
5 going.

6 As I stated before, it is a question of
7 what is the code that we are being -- that is linked to
8 our licence and what we are complying to and then we do
9 ramp up beyond that.

10 **MEMBER McDILL:** Thank you.

11 My next question relates ---

12 **THE CHAIRMAN:** Yes, I think we're getting
13 some message. Is there something -- you wanted to add
14 something?

15 **MR. JAMMAL:** For the record, I'm Ramzi
16 Jammal. I'll pass that on to Mr. Cherkas.

17 Dr. McDill, your question is, how much
18 change is going to be between the current code and 2012,
19 so I'll pass on to Mr. Cherkas, who was involved in that,
20 in development of the code.

21 **MR. CHERKAS:** For the record, my name is
22 Grant Cherkas.

23 The 2012 version is anticipated to only
24 provide improvements in the text and have very small
25 changes in actual technical requirement, so we do not

1 anticipate there be a lengthy process to become compliant
2 with the 2012 version when it becomes a part of the
3 operating licence.

4 **MEMBER McDILL:** And when would it become
5 part of the operating licence?

6 **MR. CHERKAS:** For the record, my name is
7 Grant Cherkas.

8 We would anticipate proposing it for the
9 next revision to the licence. I believe that's a 2017
10 date.

11 **THE CHAIRMAN:** Can somebody translate all
12 this into -- so what does it mean to the existing safety
13 margin in fire protection? Is there an issue, is there a
14 risk on fire right now in the station?

15 **MR. CHERKAS:** For the record, my name is
16 Grant Cherkas.

17 Currently, the facility is in the process
18 of finalizing the implementation of a series of
19 modifications as part of the refurbishment process and
20 improving their fire protection program in general.

21 Prior to removing GSS, CNSC staff have
22 established very clear and detailed hold points which will
23 ensure that the intent of the new standard is met, and
24 that provides the assurance to both the Commission and the
25 public that the level of safety at the facility will be

1 adequate prior to removal of GSS.

2 In the long term, as we've discussed, up
3 until the end of 2014 compensatory measures will be
4 replaced by the implementation of design modifications and
5 improvements in the operating procedures.

6 **THE CHAIRMAN:** Thank you.

7 Dr. McDill.

8 **MEMBER McDILL:** Thank you, Mr. Chair.

9 My second question -- actually, it's a
10 series of questions -- relate to the ultrasonic testing in
11 the calibration block and standards with respect to that.

12 I wonder, for the benefit of the
13 intervenors who are here and those who are listening if I
14 could ask NB Power to briefly discuss the history of the
15 calibration standard where this problem came from, the
16 manner in which the difference was detected, the
17 resolution of the issue, in particular with respect to any
18 change in ownership issues that have been ongoing, and
19 then I have two questions for staff.

20 **MR. KENNEDY:** For the record, it's Blair
21 Kennedy, Vice-President, Nuclear, NB Power.

22 With respect to this question, I'd turn it
23 over to the refurbishment director, Rod Eagles, to answer
24 your questions.

25 **MR. EAGLES:** For the record, Rod Eagles.

1 I will attempt to answer all the questions,
2 but please, if I miss one of the points, please redirect
3 me.

4 The issue of the calibration standard that
5 was detected came up as a result of the fabrication of new
6 calandria tubes for the Point Lepreau generating station
7 after our decision to remove those tubes from the reactor.

8 And in producing the new calandria tubes,
9 the calibration standard that previously had been used in
10 accordance with a previous version of the code did not
11 accurately get updated to the calibration standard
12 requirements that were written in the new code.

13 This had been identified by engineering
14 staff and, unfortunately, did not correctly through
15 engineering change get addressed with the vendor in a
16 timely fashion and so discovered in review of paperwork
17 and quality documentation subsequent to the production of
18 those tubes.

19 Having identified that there was a small
20 deviation to the standard, we insisted that our contractor
21 raise non-conformance and, of course, they were very
22 compliant with that, trying to understand how that
23 occurred. And we undertook to evaluate the significance
24 of the non-compliance to -- or the deviation to the
25 current standard.

1 I have with me today the standard which
2 was, in fact, used initially in evaluation of these tubes
3 and in that there are very -- two very small marks which
4 highlight very small areas of which the ultrasonic testing
5 is to look at in order to demonstrate that the ultrasonic
6 inspection tooling can identify the defects that had been
7 purposely machined into that surface.

8 **MEMBER McDILL:** Can you rotate it so that
9 the camera sees it and so the intervenors can then see it
10 because I can almost see it up here. There we go.

11 **MR. EAGLES:** The camera that's viewing me
12 now? Oh, here it is.

13 And so there are two very small circles on
14 the surface of the tube which have highlighted both the
15 longitudinal and the circumferential machined indication
16 into the surface of that tube.

17 The differences in the size of those
18 machined indications which were used to demonstrate the
19 sensitivity of the ultrasonic equipment, the differences
20 with the new standard were very small. And so in order to
21 understand the impact on the inspection that was conducted
22 on our tubes, we reviewed the data of inspection
23 calibration standard here and against the new standard,
24 which was manufactured to comply with all of the
25 dimensional tolerances in that standard for the artifacts.

1 The result of that comparison between
2 response to these defects and the response to defects that
3 were compliant to the standard was essentially within the
4 tolerance of the sensitivity of the instrumentation, and
5 so absolutely no impact to the quality of the tubes that
6 were being manufactured, although, as we've mentioned
7 previously, as the standard was not met entirely, it was
8 necessary for us to go through the process required under
9 standard to identify that deviation and to seek a
10 concession from CNSC staff, which they have approved.

11 **MEMBER MCDILL:** And with respect to any
12 change in ownership and delay in delivering reports and so
13 on?

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

15 There was no impact on this issue in
16 respect to the ownership of AECL. In fact, the root cause
17 assessment that we had completed was done some time before
18 the Day One hearing and I, unfortunately, was mistaken
19 during the Day One hearing. I thought we had provided it,
20 but we did -- in fact, have provided a summary of the
21 recommendations.

22 Since that time, we've completed all of the
23 recommendations that were contained within that root cause
24 assessment on this issue, which included ensuring that the
25 rest of the industry was aware of the challenges and to

1 staff, I think I just heard the answer to the question.
2 This information has been sent to the CANDU owners' group
3 and any further refurb -- refurbishments, we'll be aware
4 of it?

5 **MR. EAGLES:** Yes.

6 **MEMBER McDILL:** Thank you.

7 And staff has no concerns that a flaw of
8 the required size has been missed in any of the testing
9 that's gone forward, of flaws of required detectable size?

10 **MR. RZENTKOWSKI:** The calibration data has
11 been provided to us by New Brunswick Power and has been
12 assessed by our technical staff and found to be
13 acceptable.

14 Because the sensitivity of the
15 instrumentation, it's of course somewhat affected by the
16 noise which you obtain by in-situ measurements, and we
17 consider this discrepancy to be really within the noise
18 level, the calibrating error is -- you wouldn't pick up in
19 in-situ measurements, regardless.

20 But I will ask Mr. Blair Carroll, who is
21 our technical specialist, to assess the data. He is in
22 the head office in Ottawa, and is connected via
23 teleconferencing.

24 **THE CHAIRPERSON:** Ottawa, can you hear us?
25 Blair? Anybody? Okay, we have technology challenges.

1 **MR. RZENTKOWSKI:** Yes.

2 **THE CHAIRPERSON:** Go ahead?

3 **MR. CARROLL:** Can you hear?

4 **THE CHAIRPERSON:** Is that you, Blair?

5 **MR. CARROLL:** Bear with me, hold on.

6 **THE CHAIRPERSON:** Go ahead.

7 **MR. CARROLL:** Sorry, apparently all the
8 microphones aren't working here.

9 For the record, my name is Blair Carroll.
10 I'm a Specialist with the Operational Engineering
11 Assessment Division at the CNSC.

12 We did an evaluation of the data that was
13 provided to us for the calibration specimen comparison
14 and, essentially, if we looked at repeat measurements of
15 any notch of the sizes that were typical in the specimen
16 and compared that to -- or, sorry -- did an evaluation of
17 repeat measurements using the same probe and the same
18 notch, we could see approximately a 5 percent variation in
19 the signal amplitudes that would be received from this
20 calibration specimen notches.

21 If we compared the old standard to the new
22 standard with the slightly different notch sizes, the
23 differences in notch measurements were less than 2
24 percent. So easily the calibration specimen differences
25 had really no impact on the final inspection results.

1 **MEMBER McDILL:** Thank you, Mr. Chair.

2 **THE CHAIRPERSON:** Just to finish, so what
3 does it all mean on safety risks? Once you put all those,
4 you know, tubes and everything else back in where they
5 belong, does it impact on the safety risk?

6 Go ahead, CNSC.

7 **MR. CARROLL:** For the record, Blair
8 Carroll.

9 No, it will have no impact on the safety of
10 the reactor. The calandria tubes that have been installed
11 would meet the same inspection requirements as if they had
12 been inspected fully with the compliance standard.

13 **THE CHAIRPERSON:** Okay, thank you.

14 We have got lots more questions, but I
15 think from here on it's the intervenors we want to hear
16 from.

17 So I would like to start the intervenor
18 session. I'd just like to remind everybody we have
19 allocated 10 minutes for each oral presentation.

20 Just to remind you, we actually read your
21 written material and the appendices and all the material
22 that goes with it, so you don't have to repeat those
23 things that we already read. In fact, you may enhance
24 them and add some more information right now in your oral
25 presentation, but please try to stick to the 10 minutes.

1 So the first oral presentation is by
2 Mr. Mawhinney, as outlined in CMD-H12.14 and 12.14A.

3 Sir, the floor is yours.
4

5 **11-H12.14 / 11-H12.14A**

6 **Oral Presentation by**

7 **Ron Mawhinney**
8

9 **MR. MAWHINNEY:** Good morning, Mr. President
10 and Members of the Commission.

11 For the record, my name is Ron Mawhinney
12 and I am a life resident of coastal southwestern New
13 Brunswick and a close neighbour to Point Lepreau
14 generating station.

15 Over the past 40 years, I have been heavily
16 involved in the commercial fishing industry in the Bay of
17 Fundy adjacent to Point Lepreau station site as owner of a
18 lobster buying and exporting company, and a regional
19 industry representative on different fisheries advisory
20 boards in the area.

21 Since initial construction started up in
22 May 1975 to the present, our whole fishing industry has
23 watched the station's operation with great interest.
24 After all, the commercial fishery has been the sole
25 economic provider in these coastal communities since

1 around 1883 when the first regulated fishery began, so we
2 should be interested about the station's safe and reliable
3 operations.

4 I will say that initial reaction back in
5 1975 was not so great, but today, 36 years later, through
6 exceptional safety, environmental and operating programs,
7 the Point Lepreau generating station is now regarded as
8 the friendly giant in our community. This trust and
9 respect from the community has been well earned by the
10 entire management and staff of Point Lepreau generating
11 station.

12 Today I appear before this Commission to
13 talk on the following topics: Topic 1, Surrounding
14 coastal and bay environment; Number 2, Cooperation and
15 area security; Number 3, Community liaison and support.

16 Before speaking on these topics, for the
17 record at this time I would like to express my full
18 support for the Point Lepreau generating station's
19 operating licence renewal and fuel loading applications
20 now before you.

21 Topic 1, Surrounding coastal and bay
22 environment.

23 The Point Lepreau generating station sits
24 adjacent to probably the most productive fishing grounds
25 in the Bay of Fundy. This coastline has many pristine

1 areas of secluded coves and beaches.

2 For generations, the fishing industry has
3 been successfully sustainable through regulated seasons,
4 strict conservation measures, and a good environmental
5 awareness. As an industry we are always concerned about
6 the water quality in the Bay of Fundy.

7 In the closest harbour to Point Lepreau
8 generating station, one kilometre approximately, yearly
9 two to three million pounds of live lobster caged in
10 floating cells wait live shipment to markets worldwide.

11 Over the last 10 years, in particular,
12 through catch harvest traceability programs from the
13 Department of Fisheries and the Canadian Food Inspection
14 Agency, these worldwide consumers more increasingly
15 request health inspection tests for levels of blood
16 protein, ammonia or mercury in our products in the area it
17 is harvested. So, yes, water quality in the Bay of Fundy
18 is of utmost importance to our industry.

19 During the last 25 years, stock level and
20 catch rates for Bay of Fundy lobster adjacent to Point
21 Lepreau has steadily increased. As I speak, we're now in
22 the middle weeks of our fall open season in this district,
23 with excellent reports on numbers of egg-bearing females
24 and juvenile animals, a good sign for the future that a
25 well-kept bay is producing.

1 I must say, at this time, through constant
2 observations on land, shoreline and bay, that Point
3 Lepreau generating station has been a highly responsible
4 steward of these areas, with the right training and
5 environmental programs to help in maintaining the quality
6 of our bay for future generations.

7 Number 2, Cooperation in area security.

8 Ever since 9/11, security in the area
9 surrounding the station has drawn much more local
10 attention. This same level attention is felt just as much
11 by the fishing fleet on the bay.

12 Having good cooperation between our
13 industry and the station security department has alerted
14 our vessels in the area equipped with the latest in
15 electronic marine technology to become the extra eyes and
16 ears for added security in the area.

17 This measure has been steadily built on by
18 day-long meet and greet sessions at local docks between
19 vessel captains, their crew, and the station security
20 personnel. The fishers themselves are proud to volunteer
21 their awareness and be contributing to the station and
22 their community.

23 Fishers in some regards are like watchful
24 grandmothers. If it's out of place on the bay, moves for
25 no reason on the bay, it doesn't go unnoticed -- the extra

1 eyes and ears we're talking about.

2 Lastly, community liaison and support;
3 unbeknown to much of the public, the station, fishing
4 industry in the community have worked closely through the
5 years and in particular during the latest refurbishment
6 period on many project with benefits to both sides.

7 During the present ongoing refurbishment
8 large generation components had to be moved offsite to
9 journey by water overseas to be rebuilt by subcontractor
10 plants. It was during these movements that the fishing
11 industry, local fishers and the community stepped forward
12 to share their knowledge and critical information on tidal
13 movements, safe routing and weather conditions that could
14 affect these operations.

15 At this time I would draw your attention to
16 the picture on the screen showing one of these large
17 moves, with a blue fishing vessel standing by to help with
18 any navigational assistance. This same local fishing
19 vessel was used in the days before the move to carefully
20 mark dangerous reefs and spiked ledges so the large barge
21 could be brought in safely to the beachhead for off-
22 loading at the height of the tide -- great cooperation and
23 great teamwork between the station and the local fishing
24 industry.

25 On the station side before these movements

1 timely preparing was taking place to advise all fishers on
2 the bay of exact routing and time schedules to ensure zero
3 damage to any fixed gear in the water or to vessels.

4 On one particularly large move the
5 scheduling was delayed by a few days to allow the fishing
6 fleet safe removal of their gear at the end of the spring
7 lobster season, on both sides. This showed exceptional
8 cooperation and working together to get the job done in
9 the safest way possible.

10 Through the station's public affairs
11 department, including the station's top management, a well
12 structured community liaison committee, representing all
13 people in the surrounding communities, has been in place
14 for years. Local fire departments, citizens groups,
15 school districts, RCMP, area wardens, the commercial
16 fishery and key community leaders are involved.

17 The sharing of information is great and the
18 station has always shown us to be upfront with timely
19 reporting of all happenings at the Point Lepreau
20 generating station site. We are pleased as a community to
21 be part of the station's everyday life and I am sure they
22 are just as pleased to be part of our community.

23 To you -- thank you, to you, Mr. President
24 and your Commission, for the exceptional role you play in
25 keeping Canada's nuclear industry safe and allowing

1 someone from the commercial fishing industry to make this
2 presentation. Again, thank you.

3 **THE CHAIRMAN:** Thank you.

4 Dr. Barriault?

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

6 Just a few quick questions. Thank you for
7 your presentation.

8 Are you satisfied with the, I guess, alert
9 system in the event of an emergency at the plant?

10 Obviously you monitor with the marine
11 radios on your boats and your ships. Are you comfortable
12 with the system that they have?

13 **MR. MAWHINNEY:** For the record, my name is
14 Ron Mawhinney.

15 Yes, I'm quite close to it and I know Fundy
16 traffic does a great job, but with the electronic
17 equipment available today in the boats out there, and also
18 the interaction, especially during the last five, ten
19 years -- five to 10 years that the station has had with
20 the local fishing industry. I'm completely satisfied.

21 **MEMBER BARRIAULT:** Thank you.

22 To NB Power, do you do fish sampling,
23 monitoring -- from an environmental point of view -- as to
24 any contaminants in the lobster's, for example, or
25 shellfish or whatever?

1 **MR. KENNEDY:** Yes, for the record, it's
2 Blair Kennedy.

3 I would propose that Charles Hickman
4 address that question for the Commission.

5 **MR. HICKMAN:** For the record, my name is
6 Charles Hickman.

7 We do and have done since 1976 or
8 thereabouts a regular and extensive environmental
9 monitoring program in and around the station. We focus on
10 radiological contaminants. We don't check for non-
11 radiological contaminants.

12 As the intervenor indicated, the industry
13 itself does some monitoring for non-radiological
14 contaminants but we have a very extensive and well
15 publicized program that's been in place since prior to the
16 station went into operation. It has never identified any
17 issues with regards to contamination in the fish species,
18 or indeed to any land based species around the station.

19 **MEMBER BARRIAULT:** Thank you.

20 CNSC staff, are you involved in the
21 monitoring also?

22 **MR. RZENTKOWSKI:** I would like Mike Rinker,
23 the Director of Engineering Risk Assessment Division to
24 respond to that question.

25 **MR. RINKER:** Mike Rinker, for the record.

1 We are involved in monitoring. We -- there
2 is an environmental monitoring program that is provided
3 that we review. We audit that program; we've done
4 inspections to make sure they're implementing that program
5 appropriately.

6 And forward looking, there is development
7 of CSA standards for environmental monitoring, effluent
8 monitoring -- these are published -- and environmental
9 risk assessment. So there are three standards that would
10 work together that in general would be -- would result in
11 five years of environmental monitoring, five years of
12 effluent monitoring, followed by an environmental risk
13 assessment and the result of that risk assessment would
14 then inform and we would update environmental monitoring
15 programs.

16 The implementation of those standards is
17 going to be over the next couple of years and for all of
18 the Class I facilities uranium mines and mills. So we are
19 very much involved and we will be pursuing Point Lepreau
20 in the adoption of these standards.

21 **MEMBER BARRIAULT:** Thank you.

22 Thank you, Mr. Chairman.

23 **THE CHAIRMAN:** Can I piggyback on this?
24 You mentioned that the lobster hole is subject now to
25 monitoring by CFIA. So as -- did CFIA do a test of the

1 lobster that came out from this area in this region and
2 what was their conclusion?

3 **MR. MAWHINNEY:** For the record, my name is
4 Ron Mawhinney.

5 Usually what happens in the industry -- we
6 have two different types of overseas shippers. Myself I'm
7 a transshipper, which means I ship to a larger company,
8 because there's only about three places on the east coast
9 of North America where lobsters go out to overseas, so
10 those large shippers are usually responsible for the test
11 through their plant licences and in turn CFIA would deal
12 with them.

13 But, I mean, on the local level we do blood
14 probidene weekly and there's private labs in Nova Scotia,
15 the University of Prince Edward Island, that do mercury
16 tests and also ammonia tests.

17 **THE CHAIRMAN:** So to your knowledge none of
18 these lobsters have ever been rejected on some sort of --
19 what fascinates me about your story is that after 30 --
20 you're going to hear a lot of intervention arguing that
21 the plant is damaging the environment, impact the water
22 quality, yet you're coming here and just telling us that
23 the lobster catch is increasing. How do you explain that?

24 **MR. MAWHINNEY:** For the record, my name is
25 Ron Mawhinney.

1 I think there is a lot of other things that
2 impact probably the increase of the lobster stock in the
3 Bay of Fundy, which is part of the Maine -- Gulf of Maine
4 stock -- okay, overall biomass.

5 And, I mean, years ago we had the collapse
6 of the Northern cod, which was one of the main predators
7 of juvenile lobsters. So until that returns -- I mean,
8 lobsters has steadily grown. We're in the middle of our
9 season right now -- fall season -- which ends on January
10 15th, 2012, and the catches are record that have never
11 been seen before. It just steadily -- for the last 25
12 years -- actually, 1983 was the last down spike in the
13 lobster industry in this district.

14 So there's a lot of other contributing
15 things, and then -- being around the industry for well
16 over 40 years -- the harbours in the bay are kept much
17 better today than they were 35 years ago. And there's
18 best management practices in place with environmental
19 plans in each and every harbour along the bay, thanks to
20 the initiation of the federal government, and the bay is
21 probably in better shape today. That does help things.

22 **THE CHAIRMAN:** Thank you.

23 Dr. McDill?

24 **MEMBER McDILL:** One question. NB Power
25 said in its first presentation that the impingement and

1 entrainment devices were currently offline, at least in
2 part. And will they be restored when the station goes
3 back?

4 **MR. KENNEDY:** I believe that was to CNSC
5 staff.

6 **MEMBER McDILL:** Sorry.

7 **MR. RZENTKOWSKI:** Yes, for clarity, this
8 was in our presentation to provide an update on
9 environmental assessment and fish mortality.

10 I will ask Mike Rinker to respond to this
11 question again.

12 **MR. RINKER:** Mike Rinker, for the record.

13 I guess the point is that because the
14 reactor's not operating, the use of cooling water's not
15 required, so there is -- so the mitigation measures are
16 constructed and they're in place, and they would be used
17 as soon as there's intake water and release of thermal
18 water.

19 **MEMBER McDILL:** Thank you, that was my --
20 I'll go back -- that was my question, that they are
21 expected to go back online and be fully in force.

22 **MR. HICKMAN:** Excuse me, for the record,
23 just if I may interrupt.

24 For clarity, the point was made in CNSC
25 presentation that the start was with regards to the fish

1 return and bypass facilities.

2 The design of our cooling water system and
3 our intake system does allow for -- the design allows for
4 a fish return system which would take any impinged fish
5 from the traveling screens and return them back to the
6 bay.

7 We have never had to use that system.
8 We've never had enough issues with fish impingement; it
9 just is not an issue for the station. The design of our
10 cooling water intake system is such it has not been an
11 issue. We have never had to use that system, so it would
12 not be put in use when we go back online.

13 **MEMBER McDILL:** And staff is in agreement
14 that that portion does not have to go back online?

15 **MR. RINKER:** Mike Rinker, for the record.

16 Rather than give you a yes or no answer,
17 the fish impingement and entrainment mitigation measures
18 that are in place include a live fish return system that
19 hasn't been required in the past, which is correct.

20 They're also based on having an intake
21 water -- water system that is very far offshore, many
22 hundreds of metres offshore, with a certain cap that would
23 certainly reduce the type of impingement and entrainment
24 fish losses that we have seen at other power plants. We
25 would, you know, hope the other power plants could move

1 towards a system like this for the new facilities, it's a
2 very good system.

3 Nevertheless, some monitoring would need to
4 be required to reconfirm the effectiveness of that as a
5 mitigation measure, and perhaps if an effect was observed
6 at that time, we could re-address that question of whether
7 the fish return system would be required or not.

8 **MEMBER McDILL:** Thank you, Mr. Chair.

9 **THE CHAIRPERSON:** Okay, thank you very
10 much. Thank you very much.

11 I'd like to move on to the next submission
12 by the St. John Local Chapter of the Council of Canadians,
13 as outlined in CMD H12.6 and 12.6A.

14 And I understand that Dr. Tippett will make
15 this presentation. Please proceed.

16

17 **11-H12.6 / 11-H12.6A**

18 **Oral Presentation by**

19 **Council of Canadians**

20 **Saint John Local Chapter**

21

22 **DR. TIPPETT:** Thank you.

23 My name is Paula Tippett and I'm speaking
24 on behalf of the Council of Canadians, Saint John Chapter.

25 The Saint John Chapter of the Council of

1 Canadians, Canada's largest citizens' organization, is
2 opposed to the re-licensing, re-fuelling and restarting of
3 the Point Lepreau Nuclear Generating Station.

4 The Bay of Fundy area ecosystem, our home,
5 is recognized by UNESCO with two biosphere reserves. It's
6 vital to the entire Atlantic Coast ecosystem and our food
7 supply.

8 Devastation of the Japanese Pacific Ocean
9 fishery by the Fukushima nuclear accidents highlights the
10 threat to the Atlantic Coast fishery posed by operating
11 the Point Lepreau Nuclear Generating Station.

12 The Council of Canadians is concerned about
13 the unsolved problem of nuclear waste. Operating nuclear
14 reactors produce highly radioactive nuclear waste. This
15 nuclear waste must be kept cool in constantly circulating
16 water to prevent fires and explosions like those at
17 Fukushima, Japan.

18 Radioactive contamination of our air, land
19 and water is an unacceptable risk.

20 The Council of Canadians is concerned about
21 climate change and energy security. To stop climate
22 change and provide energy security, we support
23 conservation, efficiency and our own sources of renewable
24 energy, sun, wood, wind and water.

25 Operating the nuclear plant is unnecessary

1 and incompatible with our current flexible energy system.

2 This is a map of the UNESCO Fundy Biosphere
3 Reserve. It extends from St. Martins to Sackville along
4 the Bay of Fundy coast.

5 The second Fundy Biosphere Reserve is at
6 Southwest Nova Biosphere Reserve, which is on the opposite
7 side of the Bay, and the Joggins Fossil World Heritage
8 Site is also on the opposite side of the Bay.

9 The Stonehammer Geopark is the first UNESCO
10 geopark in North America, and it extends from Lepreau
11 Falls to St. Martins and includes Saint John. It's a
12 billion years of geological history.

13 In our footnotes, we mentioned the problem
14 of hydrofracking that our Chapter was concerned about.
15 We've been studying it because of its effect on climate
16 change and on our water resources.

17 And we happened to notice a marked increase
18 in earthquakes, even where earthquakes are unusual, has
19 been found in areas with oil and gas development,
20 especially where hydrofracking occurs; usually many small
21 earthquakes, but some are in the range of 4.7 to 5.8
22 especially where injection wells are used.

23 The New Brunswick government has leased a
24 large swath of the province north of the Point Lepreau
25 Nuclear Generating Station to oil and gas companies for

1 hydrofracking for shale gas.

2 We feel the earthquake assumptions for both
3 the Point Lepreau Nuclear Generating Station and the
4 nuclear waste storage facilities need to be re-assessed in
5 light of this new threat.

6 We're not experts on earthquakes, but we
7 have someone here tonight at 7:00 o'clock at the Hampton
8 High School, Dr. Anthony Ingraffea. He's a Dwight C. Baum
9 Professor of Engineering and a Weiss Presidential Teaching
10 Fellow at Cornell University. He participated in research
11 and development for the oil and gas industry for 25 years,
12 specializing in hydraulic fracture simulation and pipeline
13 safety.

14 If you would like more information on
15 hydrofracking to determine the threat it poses to the
16 Point Lepreau Nuclear Generating Station, we would like to
17 invite you to his presentation tonight.

18 This is the map of New Brunswick, and it
19 shows those turquoise-coloured swaths of leases -- oil and
20 gas leases -- and the nuclear plant is down below that.

21 Thank you.

22 **THE CHAIRPERSON:** Dr. Barriault?

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

24 I guess my first question is to NB Power.

25 And the actual licences, are they for

1 hydrofracking or are they -- and maybe you can't answer
2 this -- are they for exploration?

3 And how close are they to the plant is my
4 next question?

5 **MR. KENNEDY:** Yes, for the record, it's
6 Blair Kennedy.

7 I would pass the question to Mr. Eagles,
8 he's been looking into it for us.

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

10 It is our understanding -- and we see the
11 map which our intervenor has shown there, and we've looked
12 at that information as well, it's available through the
13 Government of New Brunswick website.

14 And it's our understanding that
15 permission's been given at this point for exploration and
16 seismic evaluation of the subsurface conditions which may,
17 in fact, lead to further development of oil and gas
18 through, you know, shale gas recovery.

19 We're not aware at this time that they have
20 approved any hydrofracking. The information that we have
21 is that there would be a process for oil and gas
22 exploration to go through with the provincial government,
23 so we're aware of that and we'll be keeping our focus on
24 how that proceeds but, at this point in time, we have no
25 concern.

1 With respect to how close to our facility,
2 I believe the closest area which has been identified under
3 that lease is near Quispamsis, my home town, which is
4 about 70 kilometres from the station.

5 **MEMBER BARRIAULT:** Thank you.

6 My next question really is with regards to
7 the waste products that were sent to Oak Ridge, Tennessee.

8 Would you care to comment on that?

9 **MR. KENNEDY:** It's Blair Kennedy, for the
10 record.

11 There was -- there has been no major low-
12 level waste sent to Tennessee as of this date. We have
13 plans, looking at the opportunity to reduce and recycle,
14 just as was mentioned from a point of view of low-level
15 waste at the site. It's part of our environmental
16 requirements of ISL 14000.

17 **MEMBER BARRIAULT:** Thank you.

18 **THE CHAIRMAN:** Sorry, did I understand,
19 you're saying there is no shipment? I mean there are many
20 interventions here that mention specifically the shipment
21 to Oakridge.

22 **MR. KENNEDY:** Yes, for the record, it's
23 Blair Kennedy.

24 There was a proposed shipment but the
25 shipment has not gone yet and it's -- we're looking at an

1 opportunity when would be the proper time, from a point of
2 the weather -- the conditions that would exist to allow
3 that shipment to go.

4 **THE CHAIRMAN:** Okay. Staff, can somebody
5 clear this waste shipment to the States and start -- and
6 explain, a) how is it done, b) what's the regulatory
7 oversight, c) what's the risk?

8 **MR. RZENTKOWSKI:** On the phone we have
9 connected Mr. Ron Stenson who is the Technical Specialist
10 in Transport Licensing and Strategic Support Division.

11 Sorry, Phil (inaudible) who can provide the
12 answer to that question.

13 **THE CHAIRMAN:** Okay, go ahead.

14 **MR. STENSON:** can you hear me?

15 **THE CHAIRMAN:** Yes.

16 **MR. STENSON:** For the record, it's Ron
17 Stenson, I'm with the Commissioning Division. Transport
18 questions can be answered in detail by somebody else but
19 it's -- the concept of waste reduction and recycle is
20 something that we encourage and as one of the ways to do
21 that Point Lepreau has been looking at shipping some of
22 their very low-level wastes that are currently stored in
23 their concrete containers at their waste management areas
24 for a dedicated burn at a facility in the United States.

25 And the process that they've adopted and

1 that we don't -- we don't have any issues with is that
2 they would transfer ownership of the waste to a transport
3 company which would then take it to the States.

4 The company in the States would clean their
5 incinerator of all previous waste, do a dedicated burn,
6 leaving only the waste -- only the ash from the burn.
7 That ash would then be compacted into a very, very much-
8 reduced volume and so then the inventory would come back
9 as a much much-reduced volume for storage back at Point
10 Lepreau, who would retake possession and put it back into
11 the containers.

12 So it provides for a much safer management
13 process and it gives them much more room going into the
14 future.

15 It's -- the risks are small to negligible,
16 we have the technology to safeguard these things. The
17 containers and the shipping has been reviewed and is
18 within our requirements. And so they don't -- staff has
19 no issues with the process.

20 **THE CHAIRMAN:** What about the regulatory --
21 I assume that the U.S. -- on the U.S. side there's a
22 regulatory oversight and on our side there's a regulatory
23 oversight; what is it?

24 **MR. STENSON:** There's permits -- Ron
25 Stenson, for the record.

1 There's permits required for transferring
2 materials over the border and it would be up to the
3 transport company to assure that they have them and Point
4 Lepreau has assured us that they've been through this as
5 part of their contracting with the intervening company.

6 So it's -- it is always under regulatory
7 oversight. There are manifests and there's -- it's
8 constantly monitored and so that we have an accounting of
9 how much is there, how much comes back and -- so that
10 there's nothing lost in the translation as well.

11 **THE CHAIRMAN:** Just so I'm absolutely
12 clear, does it require a U.S. nuclear regulator approval?

13 **MR. STENSON:** I can't say 100 percent that
14 they would but it would make sense that they would.

15 Those processes would have to be covered
16 off through the contracting with New Brunswick Hydro.
17 Perhaps they can tell us better what their contract is
18 with their transport company.

19 **THE CHAIRMAN:** Mr. Jammal, NB Power.

20 **MR. JAMMAL:** For the record, it's Ramzi
21 Jammal.

22 There are a couple things I want to clarify
23 and put in context here, Mr. President.

24 Number one is the regulatory oversight is
25 continuous. What Mr. Stenson is going on the detail with

1 respect to responsibility of the consignor and the
2 shipment and so on and so forth.

3 At all time the requirements for the
4 shipment will have to meet the regulatory requirements in
5 Canada and in the U.S. So, the U.S. will not accept any
6 transport of the shipments that are not compliant with
7 their requirements.

8 So there is a regulatory oversight on the
9 U.S. side at every level. And when I speak of every
10 level, it's from the packaging to the transport itself to
11 the processing -- if there's such a thing called
12 processing -- but the treatment of the waste, compaction,
13 and repackaging as being transferred back to Canada, if
14 that is the case.

15 So I want to make it very clear, it's not
16 the current practice -- it's not happening right now with
17 respect to NB Power but this will be the regulatory
18 requirements in accordance with the IAEA TSR 1
19 requirements on both sides of the border and the packaging
20 is done according to all approved processes and
21 verification processes.

22 **THE CHAIRMAN:** NB Power?

23 **MR. KENNEDY:** Yes. For the record, it's
24 Blair Kennedy.

25 I would propose that Charles Hickman

1 provide the due diligence that has been done with respect
2 to this event -- this proposed event.

3 **MR. HICKMAN:** Charles Hickman, for the
4 record.

5 Just to reemphasise, we're talking about
6 our very low-level waste here, so we're not talking about
7 high-level waste at all.

8 The low-level waste, in order to be
9 shipped, goes through our subcontractor who has a licence
10 with the Canadian Nuclear Safety Commission, part of that
11 licence allows them to move material across the border to
12 the U.S.

13 In the U.S. the contractor has a licence to
14 receive it -- the waste -- so they have an import licence
15 from the NRC and they then subsequently have an export
16 licence again from the NRC, allowing them to export the
17 waste back into Canada.

18 When it comes back into Canada we'll be
19 putting it back into our existing waste facilities in
20 accordance with our existing waste licence.

21 The kind of material we're talking about
22 here is in the form of gloves, disposable coveralls,
23 cleaning materials that would be used as part of day-to-
24 day maintenance and cleaning of the facility.

25 As Mr. Jammal has indicated, all the

1 activities are covered by regulations. So the actual
2 transportation -- or regulations that cover the
3 transportation -- the packaging is covered by regulations.

4 We have done the due diligence to make sure
5 that the companies involved will meet those regulations.
6 We have had people go down to the sites in Tennessee where
7 this activity would take place; they've done inspections
8 of the facility and Prebuntly (phonetic, 12:16:13) is an
9 immaculate facility so we are very comfortable that we
10 have a contractor who is well qualified, has all the
11 relative requirements and the experience to do this job
12 safely and reliably.

13 **THE CHAIRMAN:** Thank you.

14 Dr. McDill?

15 **MEMBER MCDILL:** Thank you.

16 Perhaps I could ask Dr. Adams while he's
17 here, and our staff, to make a stab at the potential
18 seismic issues with hydrofracking.

19 Start with Dr. Adams, perhaps.

20 **DR. ADAMS:** Dr. John Adams, Natural
21 Resources Canada, for the record.

22 NRCan is involved in this file and -- but
23 considers the potential for earthquakes induced by
24 hydraulic fracturing in areas of mild seismic activity as
25 quite low.

1 We did look specifically at the issue for
2 New Brunswick. Basically the further away from Point
3 Lepreau the fracking is occurring, the smaller the shaking
4 from any induced event, should it happen.

5 We've done some calculations and provided
6 them to the CNSC, indicating that the 0.20 G DBE at Point
7 Lepreau could be generated by a magnitude 6.0 earthquake
8 at about 18 kilometres or a magnitude 7.0 earthquake at
9 about 36 kilometres epicentral distance. In each case the
10 earthquake would happen at about 15 kilometres deep, and
11 those are according to the ground motion prediction
12 equations used in the National Building Code of Canada.

13 We understand that the current fracking is
14 likely to be further away from that and our conclusion is
15 that unless the hydrofracking activity is closer than
16 those distances and the hydrofracking activity induces
17 significant seismicity and by that we mean low-levels of
18 seismicity may be magnitude 1 or 2 but quite a lot of
19 them.

20 And experts in that field, which I
21 personally am not, consider that larger magnitude
22 earthquakes, i.e. the ones of magnitude 6 or 7 that would
23 actually be a cause of concern for the plant at their
24 distances, if those are not likely to be induced, there
25 should not be any cause for concern.

1 **MEMBER McDILL:** Before we go to staff, can
2 you comment on England's decision with respect to closing
3 its hydro vacuum project with seismicity issues?

4 Dr. Adams?

5 **DR. ADAM:** So are ---

6 **MEMBER McDILL:** Yes, Dr. Adams, sorry, then
7 I'll move to ---

8 **DR. ADAMS:** I heard "staff".

9 **MEMBER McDILL:** No, I said before going to
10 staff.

11 **DR. ADAMS:** Okay, sorry.

12 **MEMBER McDILL:** Sorry.

13 **DR. ADAMS:** I won't comment on the outcome
14 of that, but my sense from speaking to people on this is
15 that the seismicity induced by hydrofracking is a
16 controllable process; that is should be possible to do
17 hydrofracking without inducing significant earthquakes.

18 I would like to also clarify that there
19 really are two sorts of earthquakes involved. There are
20 induced earthquakes, which are earthquakes caused by the
21 hydrofracking process, the actual cracking of the ground,
22 and those tend to be very tiny.

23 And then there is a different class of
24 triggered earthquakes which represent the sort of tectonic
25 earthquakes that we monitor all the time but which could

1 be triggered by the activity.

2 And there are various activities in the
3 hydrofracking process which may or may not lead to those
4 sorts of triggered activity.

5 **THE CHAIRPERSON:** Can I just -- I assume
6 that if there were permits for undertaking hydrofracking
7 was awarded and we had any -- we, I mean, CNSC staff --
8 would have any concern about its proximity, presumably the
9 two governments will agree that there will be a zone
10 beyond which such licenses will not be given?

11 I think we have had this kind of discussion
12 in Quebec near Gentilly-2. Some of you may remember this
13 discussion, so I wonder if staff has an opinion about
14 that?

15 **MR. RZENTKOWSKI:** Hydrofracking is a
16 relatively new technology to explore gas, and we are in
17 the process of evaluating the impact on the siting of
18 Point Lepreau plant.

19 We do believe that the impact will be
20 relatively minor, as Professor John Adams described.
21 Nevertheless, some studies had been initiated and I will
22 ask Andrei Blahoianu, the Director of Engineering
23 Assessment Division, to describe the current status.

24 **MR. BLAHOIANU:** Andrei Blahoianu, for the
25 record.

1 So as Dr. Adams mentioned, as long as
2 you don't expect anything to the site to occur as
3 long as the design PGA, which is 0.2 G for the plant,
4 is challenged. Definitely the level of the -- the
5 magnitude of the earthquake that were under
6 discussion here fall below this.

7 So based on the attenuation relations
8 provided by NRCAN we could say that you will not have
9 an earthquake reaching 0.2 G at site for a magnitude
10 six at a 18-kilometre epicentre distance or should be
11 an earthquake magnitude seven at 36 kilometres far
12 from this.

13 And in both cases, the depth, the
14 hypocentre is assumed like 15 kilometres.

15 **THE CHAIRPERSON:** Dr. McDill?

16 **MEMBER McDILL:** Will staff be interacting
17 with the provincial government with respect to this over
18 the next while?

19 **MR. RZENTKOWSKI:** Yes, definitely, we have
20 to take it into account and further discussion will be
21 ongoing on the subject because as I mentioned, it is
22 relatively new technology so we just started looking into
23 it.

24 **MEMBER McDILL:** And NB Power will make the
25 same..?

1 **MR. KENNEDY:** Yes. For the record, it's
2 Blair Kennedy.

3 We share the same shareholder, yes, we will
4 be monitoring this very closely. Thank you.

5 **MEMBER MCDILL:** Dr. Tippett, is your group
6 following the developments of the Commission with respect
7 to the Fukushima Report and the differences, for example,
8 in reactor types, the differences in fuel types, the
9 differences in fuel storage, the differences in the
10 existence of hydrogen burners and not hydrogen burners?

11 **DR. TIPPETT:** No, we haven't been. We
12 don't have those documents.

13 **MEMBER MCDILL:** So staff, can you make sure
14 the Council of Canadians of Saint John Local Chapter is
15 kept on that list?

16 **MR. RZENTKOWSKI:** Definitely, we can send a
17 copy of the report, but I would like to use this
18 opportunity and say in public that the report has been
19 posted on our external website on October 28th.

20 And, as a matter of fact, on December 15th,
21 we will also publish for public comments an action plan
22 which will be developed in response to the recommendations
23 which are summarized in the report.

24 **MEMBER MCDILL:** Thank you.

25 **THE CHAIRPERSON:** Go ahead.

1 **MEMBER BARRIAULT:** Just one brief question,
2 Mr. Chairman.

3 With regards to the burning of waste
4 materials, is there a concentration of radioactivity per
5 cubic meter, for example, in these materials? Maybe CNSC
6 staff or NB Power?

7 **MR. KENNEDY:** Yes, for the record, it's
8 Blair Kennedy.

9 Again, I would have Charles Hickman address
10 that question.

11 **MR. HICKMAN:** Charles Hickman, for the
12 record.

13 Yes, the low level waste it does have low
14 levels radioactivity, that's why it's in storage as low
15 level waste.

16 The concentrations vary somewhat between
17 individual boxes of waste, and through the process of
18 volume reduction, the intent is to effectively eliminate
19 the non-active materials so that the active material is
20 sent back to us. The actual concentrations vary from,
21 like I say, from shipment to shipment, from box to box,
22 but it's all in the low level category.

23 And, indeed, the shipment will go to the
24 U.S. It doesn't even count as a radioactive shipment, the
25 levels of activity are so low.

1 **MEMBER BARRIAULT:** So it always stays at a
2 low level of activity?

3 **MR. HICKMAN:** Yes, very low levels.

4 **MEMBER BARRIAULT:** Thank you, yes.

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

6 I'll start with the statement; if
7 colleagues in Ottawa would like to add again, they are
8 free to add.

9 However, regardless of the activity, the
10 packaging of the material as it comes back to Canada must
11 meet the requirements.

12 As mentioned by NB Power, the levels are so
13 low that it's hardly detectable. Regardless, depending on
14 the activity, the packaging must meet the requirements in
15 order to ensure that safety is maintained at all times.
16 In that case, low level activity, it's hardly detectable.
17 Regardless, it still has to be packaged in accordance with
18 the transport requirements.

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

20 **THE CHAIRPERSON:** Okay. I think we need to
21 move on. Thank you very much.

22 Okay, a quick follow-up.

23 **MEMBER MCDILL:** It's going to be a long day,
24 Mr. Chairman.

25 Would it be possible to -- I think the term

1 was used before -- devolumize this low level waste in some
2 other way locally?

3 **MR. KENNEDY:** It's Blair Kennedy, for the
4 record.

5 We have no local means to do that at this
6 particular time and, Charles, could you comment on that?

7 **MR. HICKMAN:** Charles Hickman, for the
8 record.

9 The only other method that's available to
10 us is to actually build a sorting facility where you would
11 manually take each box, open it up, manually sort and
12 check and frisk every single item and then segregate based
13 on activity.

14 One of the reasons that it is perhaps less
15 effective to do that is that if there's been some loose
16 contamination in a box on one item, by the time it's been
17 in storage for a while the contamination may have spread
18 to the entire box. So you may not actually get a
19 significant amount of volume reduction in that method.

20 The incineration gives us the best volume
21 reduction. It's a factor of approximately 100:1 and it is
22 in a very controlled, very well-regulated process.

23 **MEMBER MCDILL:** Thank you, Mr. Chair.

24 **THE CHAIRPERSON:** Thank you.

25 I'd like to move on to the next submission,

1 which is an oral presentation by the Energy Probe Research
2 Foundation as outlined in CMD H12.7 and 12.7A. I
3 understand that Mr. Spence will make this presentation.

4 Please go ahead.

5
6 **11-H12.7 / 11-H12.7A**

7 **Oral Presentation by**

8 **Energy Probe Research Foundation**

9
10 **MR. SPENCE:** Thank you. Hello everyone,
11 Members of the Commission. For the record, my name is
12 David Spence. I am a consultant with Borealis Energy
13 Research Association, and I'll be presenting this
14 intervention on behalf of Energy Probe Research
15 Foundation.

16 The topic today I'll be discussing is
17 radiation hormesis. I'd like to give a bit of a
18 background on Energy Probe Research Foundation and move
19 into the topic of intervention, with some definition and
20 some evidence and applications for this hearing today and
21 present some conclusions and recommendations for everyone.

22 You'd like to know that Energy Probe was
23 founded in 1970 and has become one of Atlantic Canada's
24 leading environmental and public policy research
25 institutes.

1 It is committed to protecting consumer
2 rights and public wellbeing through resource conservation,
3 economic efficiency and effective regulations.

4 It's a -- I just want to interestingly note
5 as well that Energy Probe on the presentation today, it
6 initially was against and felt that all levels of
7 radiation were dangerous and now, obviously, this has been
8 a shift in their view based on, you know, analyzing the
9 evidence that I'll be presenting today. I just wanted to
10 present that to everyone.

11 However, their stance still is on the
12 economic basis of nuclear reactors that they are still
13 economically inefficient. I just wanted to make a note of
14 that.

15 For those that are unaware with hormesis as
16 a concept, it's defined as a beneficial biological
17 response to a toxin or stressor. It's seen in a wide
18 variety of fields. It's a dose response phenomenon
19 typically resulting in benefits at low doses. And
20 radiation hormesis is a specific type of hormesis where
21 ionizing radiation is that source of stress.

22 Dr. Edward Calabrese is an expert in this
23 area from the University of Amherst in Massachusetts and
24 has defined graphically this type of response in either a
25 U-shaped or inverted U-shaped graph which, as I will

1 discuss further, is different than the traditional linear
2 threshold model, which assumes, as I'd mentioned, that
3 risk is lineally proportionally to the dose received.

4 So this is a graphic demonstration of the
5 hormesis model. It does have a threshold value where at
6 low doses positive benefits have been observed. And
7 unlike the other hormesis model, as I mentioned, it
8 assumes that all levels of radiation are dangerous and
9 that it is proportionate to the dose received and, in
10 fact, is the basis used for Canadian regulations as well
11 as ALARA practices.

12 In the Canadian -- we feel that analyzing
13 the hormesis model is very important because in the
14 nuclear industry, nuclear energy workers and the public
15 are exposed to low levels of radiation on a daily basis.
16 And, in fact, the highest annual dose encountered for
17 nuclear energy workers between 2001 and 2007 did not
18 exceed formula secrets for any of the locations in Canada
19 and, in fact, the Point Lepreau generating station is one
20 of the lower annual effective doses.

21 So we wanted to analyze and look at the
22 cancer mortality rates to analyze the risk associated with
23 low level radiation and came across a substantial amount
24 of evidence which some of it's discussed in my report on
25 the CNSC website.

1 Just to highlight a few of the results,
2 yourselves, the Canadian Nuclear Safety Commission,
3 released several reports in the past few years analyzing
4 cancer mortality rates of nuclear energy workers across
5 Canada and concluded that, in fact, there have been no
6 increased deaths or risks due to exposure to low level
7 radiation.

8 And in fact, in a study analyzing cancer
9 mortalities in the region of Port Hope, nuclear energy
10 workers have actually been shown to have lower cancer
11 mortality and lower incidence than that in the general
12 population. And this has also been noted for -- in the
13 2011 report as well where there was a statement that
14 nuclear energy workers actually have a lower cancer
15 mortality rate compared to the average Canadian mortality
16 database.

17 We also -- we've analyzed other studies.
18 Obviously the tragic event of the bombing in Nagasaki.
19 The University of Nagasaki School of Medicine has been
20 ongoingly(sic) analyzing the health of individuals exposed
21 to low levels since 1968 in order to be able to identify
22 risks at low levels of radiation and have actually found
23 that survivors away from the blast site that have been
24 receiving low doses in the area of 31 to 40 Centigrades
25 have actually shown significant longer life expectancy

1 than those that have not been exposed to this.

2 And not only this, but the Department of
3 Energy in the United States, in an effort with John
4 Hopkins University, has also been very involved with
5 analyzing the cancer mortality rates to shipyard workers,
6 for example, analyzing over 70,000 shipyard workers across
7 different shipyards across the United States and have also
8 noticed that life expectancy -- or the cancer mortality
9 rate was not increased and was, in fact -- the life
10 expectancy was higher compared to the general population.

11 And it's a trend that we've come across in
12 many studies. We find this very interesting because the
13 implications that may be involved with this model.

14 Obviously, our position today is not to
15 tell you, you know, why, but basically to highlight these
16 findings and urge you to look at this matter further.

17 We realize that safety is of the utmost
18 concern; however, the evidence that we've come across is
19 showing a possible hormesis effect and which discounts the
20 application of the linear no threshold model. And this
21 has potential to provide, obviously, good opportunities
22 and good benefits to the nuclear industry in Canada, not
23 only financially but in terms of its reputation and social
24 implications with this matter.

25 So as I had mentioned before, we are here

1 evidence, but in terms of applying it to the nuclear
2 industry, obviously we're looking for more specifics
3 applicable to this industry.

4 But yeah, there are several studies in
5 Canada and abroad, major studies in this matter that could
6 be used as a reference point, but no conclusion as yet.

7 Well, the conclusion, obviously, on the
8 evidence is that, you know, there are positive effects,
9 but it's the -- it's more the mechanism that's trying to
10 be understood because, you know, it's so specific to age
11 and gender and ethnicity, and there are so many factors to
12 be considered that it's really just -- it's taking the
13 results and trying to explain them at this point and I
14 was, you know, hoping to get the CNSC involved with that
15 as well.

16 **MEMBER BARRIAULT:** Thank you.

17 Is CNSC aware of any major studies going
18 on?

19 **MR. RZENTKOWSKI:** Yes. In our
20 understanding, epidemiological studies are supporting the
21 use of -- LNT model. I'd ask Rachel Lane, who's our
22 specialist presently in Ottawa office, to respond to this
23 question directly.

24 Rachel?

25 **MS. LANE:** ...the record. Hello. I am the

1 CNSC's epidemiologist.

2 Yes, there have been major studies
3 undertaken on looking at the LNT. The atomic bomb
4 survivor study is actually what the LNT model is based on,
5 and 120,000 atomic bomb survivors have been studied since
6 1950 to current day, and this is, of course, the basis of
7 the LNT where we see a linear dose response relationship.

8 That's the basis of our regulatory program
9 and the base of our dose limits and our ALARA principle.

10 The linear dose response relationship is
11 not only seen in the atomic bomb survivor studies, but it
12 is also seen in studies of nuclear energy workers,
13 patients associated with medical treatment from radiation,
14 the Chernobyl accident and so on. So this is a very well
15 studied -- oh, and also with radon.

16 The -- one of the studies mentioned by the
17 intervenor was about the Port Hope workers. They are part
18 of the Eldorado cohort of workers, of uranium miners and
19 uranium workers.

20 In that study that has been published in
21 2010 by Lane et al. shows a very clear dose response
22 relationship between radon exposure and lung cancer risk,
23 so this is not something new. This is something that is
24 based on very sound, objective scientific information.

25 **MEMBER BARRIAULT:** I'm sorry. I think you

1 missed my question.

2 I was wondering if there's any studies -- I
3 realize that the LNT is the standard, but is there any
4 studies going on hormesis which says minor exposure to
5 radiation is beneficial as opposed to harmful in the
6 linear model?

7 **MR. BUNDY:** Kevin Bundy for the Radiation
8 Health Science Division, if I could maybe add a comment on
9 that.

10 There are a number of studies ongoing with
11 hormesis and I would take Mr. Spence's advice very
12 seriously. We have been looking at hormesis studies for a
13 long time and we continue to do so, and there are a number
14 of laboratory studies that are going on both in Canada and
15 internationally looking at the effects of low levels of
16 radiation and the positive results on what results are
17 occurring on those.

18 This is in addition to epidemiological
19 studies.

20 The radio-biology type experiments so far
21 really have showed a mixed bag of results that,
22 unfortunately, we can't say are consistent enough to apply
23 to radiation protection, but -- purposes, but again, we
24 still continue to monitor the situation.

25 **THE CHAIRMAN:** Mr. Jammal, just a comment

1 here.

2 Presumably, this is -- this would be a
3 revolution in thinking if they -- if hormesis becomes
4 proven because the whole regulatory scheme is built on the
5 linear model, so the question to CNSC is that are we
6 interested in actually pursuing -- is there anybody else
7 in the regulatory affairs that are actually pursuing this?

8 **MR. JAMMAL:** For the record, it's Ramzi
9 Jammal, and as Mr. Kevin Bundy mentioned, there are
10 studies taking place with respect to the hormesis
11 evaluation. But I would like to bring it back to our
12 regulatory perspective.

13 There's the radiation protection aspect and
14 then there is the reaction or health effects to radiation.
15 So, to date, we're using the LNT in radiation protection
16 as a protective for the workers and as radiation
17 protection regulatory requirements. Studies, yes they did
18 take place with respect to the hormesis. As a matter of
19 fact, we welcome the work that has been done by the
20 intervenor in order to show that the radiation protection
21 levels applied in Canada by the CNSC based on the
22 international requirements are way within safe limits of
23 any exposure to radiation.

24 Now we go back to your question, Dr.
25 Barriault, with respect to is there studies being done?

1 The answer is yes, there have been a lot of follow-ups
2 with respect to workers, even to patients exposed to
3 diagnostic levels, and measure the cell reaction with
4 respect to the response to the radiation.

5 Some preliminary results -- actual, results
6 peer reviewed, have shown that there is a mechanism of
7 enhanced immune system due to low level radiation
8 exposures, hence, increased beneficial to the person.
9 However, the regulatory community is not ready yet to
10 adopt this until the studies are complete and there is
11 much more confirmation.

12 But the point here to make is our
13 regulatory limits are way within the safe levels for any
14 exposure to radiation.

15 **MEMBER BARRIAULT:** Thank you. Thank you,
16 Mr. Chair.

17 **THE CHAIRMAN:** Dr. McDill?

18 Thank you very much.

19 **MR. SPENCE:** Thank you.

20 **THE CHAIRMAN:** I am told that it's time to
21 break for lunch, even though we're having so much fun we
22 wanted to continue, right?

23 But I guess we will break for lunch and
24 I've 12:42. We're coming back when? In one hour, so
25 1:42.

1 Thank you.

2 --- Upon recessing at 12:42 p.m.

3 --- Upon resuming at 1:48 p.m.

4 **THE CHAIRMAN:** Okay. We are back.

5 **MR. LEBLANC:** I just wanted to mention that
6 following Dr. Tippet's presentation this morning where she
7 talked about the fracking, the geofracking and the
8 hydrofracking, that there's a meeting tonight at 7:00.
9 She mentioned it.

10 She also invited the Commission to attend,
11 and the Commission would like to report that they will be
12 in attendance. Not the Commission Members, but the CNSC
13 staff will be in attendance this evening and will report
14 back to the Commission.

15 Thank you.

16 **THE CHAIRMAN:** Okay. Let's move on to the
17 next submission, which is an oral presentation by the
18 Local 37 of the International Brotherhood of Electrical
19 Workers, IBEW, as outlined in CMD H-12.12 and 12.12A. And
20 I understand that Mr. Wright and Mr. Bourque, it says
21 here, but I see only one of you, so will be making this
22 presentation.

23 So over to you.

24 **MR. BOURQUE:** Unfortunately, I -- for the
25 record, my name is Romeo Bourque and, unfortunately, Mr.

1 Wright could not be here today. Fortunate for his wife
2 because he's taking care of a newborn on her behalf.

3 **THE CHAIRMAN:** Shows good judgment.

4 **MR. BOURQUE:** Absolutely, absolutely. He's
5 a brother.

6
7 **11-H12.12 / 11-H12.12A**

8 **Oral presentation by the**
9 **International Brotherhood of**
10 **Electrical Workers (IBEW),**
11 **Local 37**

12
13 **MR. BOURQUE:** Mr. Chair and Members of the
14 commission, for the record, my name is Romeo Bourque and
15 I'm the Vice-President of IBEW Local 27 representing our
16 brothers and sisters working at the plant.

17 I have been working at Point Lepreau for
18 the last 35 years. I appreciate the opportunity to talk
19 to you today.

20 Approximately 92 percent of Point Lepreau
21 generating station staff are members of IBEW Local 37.
22 These workers have been involved in all aspects of the
23 refurbishment, with a number of them seconded to and
24 working directly with CANDU Energy Incorporated.

25 This gives us a wide-ranging perspective on

1 all aspects of the refurbishment project and the station's
2 readiness for future operation.

3 These members are also the people who
4 operate the station and are responsible for being at the
5 forefront of safety. They live with their families in the
6 communities close to Point Lepreau, so IBEW members have
7 every reason to be as informed and proactive about making
8 sure Point Lepreau runs as effectively and safely as
9 possible.

10 I am also pleased to report that
11 conventional and radiological safety is incorporated into
12 all areas of planning and is repeatedly emphasized doing
13 the plan of the day, work group meetings and pre-job
14 briefings.

15 As Local 37 has stated in previous
16 submissions to the Commission, there has been a high level
17 of radiation protection training provided to the station
18 staff, with the majority trained to the advanced yellow
19 and green level of radiation protection.

20 The radiation control and health physics
21 department staff are readily available and accessible to
22 contractors and employees to provide advice and assistance
23 on radiation protection practices and the symmetry so that
24 work can be completed safely, in accordance with ALARA
25 principles.

1 Protection assistance work with
2 supervisors, contractors and employees to ensure proper
3 safety practices are followed. Monthly safety statistics
4 are provided to the union and we are kept apprised of any
5 emerging safety concerns.

6 Since the tragic events that occurred in
7 Fukushima, the public has been understandably concerned in
8 seeking assurances that the appropriate safeguards are in
9 place within the nuclear industry in Canada. Fortunately,
10 there has been considerable time and effort invested by
11 the Commission and NB Power Nuclear into understanding
12 Fukushima so that history does not repeat itself.

13 There have been a number of programs that
14 have been implemented to assure safe operation to the
15 public, such as enhanced standby generation, continued
16 work on the severe accident management guidelines and
17 improvements to the fire protection program.

18 In addition, NB Power Nuclear is creating a
19 full-time emergency response team to act as a first
20 response to fire, chemical, radiological or medical
21 emergencies.

22 This emergency response team will be
23 comprised of IBEW members. And I can think of no better
24 way to protect the station and the public, than putting
25 safety in the hands of IBEW members, people that are

1 vested in the plant.

2 One of the founding principles of the IBEW
3 was safety and, as an organization, we remain strongly
4 committed to the safety of our members and the safety of
5 the public.

6 As we approach the end of refurbishment of
7 the Point Lepreau Generating Station and prepare the
8 reactor for fuel, the public can trust that IBEW members
9 have the highest level of training, experience, and
10 expertise to ensure that the reload of fuel is successful
11 and that the station will be restarted and operated in a
12 safe manner.

13 We conclude by restating Local 37's support
14 of NB Power and their request for re-licensing of the
15 Point Lepreau Generating Station for the five-year term
16 and request to reload fuel.

17 I'd like to thank you for the opportunity
18 to come before you today. We are ready to answer any
19 questions that you may have.

20 **THE CHAIRMAN:** Thank you.

21 Dr. Barriault?

22 **MEMBER BARRIAULT:** Yes, my first question
23 deals with the occupational health and safety program.
24 Are there any conflicts between the union, for example,
25 and the occupational health and safety program with

1 regards to work limitations or whatnot?

2 **MR. BOURQUE:** We have -- you know, we have
3 a good relationship with management, we have a joint
4 health and safety committee, we have labour management
5 committees.

6 I believe your question may be related into
7 the hours of work. We have a document that controls those
8 hours of work.

9 I don't believe I should be the person
10 answering that because I think that should be a question
11 that should be directed to NB Power management staff. But
12 at the same time, I can assure you that we have been
13 consulted at all times on development of these -- these
14 programs.

15 **MEMBER BARRIAULT:** Can we ask NB Power to
16 comment?

17 **MR. PARKER:** For the record, Wade Parker.
18 We would -- what's the best way to say
19 this?

20 **MEMBER BARRIAULT:** In English.

21 **MR. PARKER:** We would not be able to do
22 what we do without the full support of IBEW 37.

23 The interaction that we have, we work
24 together to make most things happen, you know, talk about
25 the hours of work policy. These policies, we don't just

1 pull these out of the sky, we work with our stakeholders
2 and that certainly involves IBEW to get their interaction,
3 get their engagement and the buy-in for these very
4 critical policies and processes at the station.

5 At the end of the day -- we talk about this
6 periodically, there is not a conflict between the values
7 of IBEW 37 and the values that we have at the station from
8 the leadership and management perspective.

9 **MEMBER BARRIAULT:** That's important.

10 Thank you.

11 Thank you, Mr. Chair.

12 **THE CHAIRMAN:** Can you give me a short
13 version -- I'm intrigued with this yellow/green -- I
14 assume there's a red there somewhere; what precisely those
15 signify and who decides who goes through them? Is it a
16 management program or is it a joint?

17 **MR. BOURQUE:** Well, again, that may be
18 something that may be better answered by the management
19 people, but I could tell you that it's the different level
20 of protection. You have people that are qualified to go
21 into the reactor as self-protection; they're able to be
22 able to understand what radiation is and the ability to
23 monitor themselves.

24 And then at the high-level, which is the
25 green level, the qualification means that that person may

1 be has to be there as a protective assistance with people
2 that may have lesser skills on radiation protection.

3 **THE CHAIRMAN:** NB Power, is that a formal
4 kind of a training where they kind of -- going from one
5 stage to another?

6 **MR. PARKER:** Wade Parker, for the record.
7 What is being spoken about is our different
8 layers or different levels of classification within our
9 radiation protection training.

10 And I want to be clear on that, that is
11 training; that is a certification, that is a proven skill,
12 that's not just sitting at a desk and reading information.

13 The highest level of protection we have is
14 green badge, that means that you can take care of
15 yourself, as well as others.

16 Yellow badge is really an entry level where
17 you are -- you can take care of yourself. You have to go
18 through certain expectations and field verification to get
19 to that green level so that you can take care of others.

20 So it's simply a means of flagging so that
21 you know what your level of protection is. We wear a
22 dosimetry at the station and it's very clearly identified
23 on your badge, your radiological protection badge, as to
24 your level of qualification.

25 There are levels below that, blue, orange

1 badge, we have very bright pink badges for those that are
2 non-nuclear energy workers. So it's just a means of
3 tracking within our RPT.

4 **THE CHAIRMAN:** Thank you.

5 Anything else?

6 Okay, let's move on to the next submission
7 which is an oral presentation by the Canadian Nuclear
8 Workers' Council as outlined in CMD 12.8.

9 And I understand that, Mr. Bourque, you
10 will make this presentation also.

11
12 **11-H12.8**

13 **Oral presentation by**

14 **The Canadian Nuclear**

15 **Workers' Council**

16
17 **MR. BOURQUE:** For the record, Mr. Chair and
18 Members of the Commission, my name is Romeo Bourque; I am,
19 again, Vice-President of Local IBEW Local 37, representing
20 the unionized NB Power employees at Point Lepreau. We
21 also are part of the Canadian Nuclear Workers' Council.

22 I am here today to speak on behalf of the
23 Council, a national organization representing over 31,000
24 unionized employees within the nuclear industry throughout
25 Canada.

1 I believe Louise Levert has had
2 communication with President Dave Shier concerning his
3 absence to this proceedings. He sends his regrets and,
4 due to a difficult family matter, he will not be attending
5 today. He has, however, requested that I speak on the
6 organization's behalf.

7 I will be very brief and, although you
8 already have received his submission, I would like to
9 repeat his group's conclusion as submitted, and I quote:

10 "There are therefore a number of very
11 strong health, social and economic
12 reasons for Point Lepreau re-
13 licensing. If there was any
14 unresolved health and safety
15 operational related matters of concern
16 to our member unions which would
17 preclude re-licensing, it would be
18 imperative that we bring it to their
19 attention. We are not aware of any
20 such concerns. We therefore fully
21 support the re-licensing of the Point
22 Lepreau station for a five-year term
23 and support the request to reload
24 fuel. Submitted by Dave Shier,
25 President of Canadian Nuclear Workers'

1 Council."

2 **THE CHAIRMAN:** Thank you.

3 Dr. Barriault? Dr. McDill?

4 Thank you very much.

5 **MR. BOURQUE:** You're welcome.

6 **THE CHAIRMAN:** So I'd like to move to the
7 next submission, which is an oral presentation by --
8 somebody like to teach me how to pronounce it --
9 Wolastoqewiyik, Tradition Council of Tobic, as outlined in
10 CMD H12.36

11 Okay, we'll get back to this. So I'd like
12 to move to the next submission which is an oral
13 presentation by the Atlantic Chapter of Sierra Club Canada
14 as outlined in CMD 12.10, 12.10A and 12.10B.

15 And I understand that Mr. Larry Lack and
16 Ms. Lee Ann Ward will make the presentation.

17 Please proceed.

18

19 **11-H12.10 / 11-H12.10A / 11-H12.10B**

20 **Oral presentation by**

21 **Sierra Club Canada,**

22 **Atlantic Canada Chapter**

23

24 **MR. LACK:** I'm going to make the
25 presentation on behalf of Sierra Atlantic, and thank you

1 for the opportunity to do so.

2 As in the written intervention that you
3 have, our focus today will be on the CNSC itself.

4 Unlike some of the rather orchestrated
5 cheerleading that you have heard or will hear today there
6 is, in reality, among people who really have familiarized
7 themselves with the CNSC and its processes, there's quite
8 a bit of mistrust, uneasiness and scepticism about all
9 kinds of levels of government, including New Brunswick
10 Power which people here have many reasons and to be
11 skeptical about and about the CNSC itself, particularly
12 among people who have read thoroughly some of your
13 reports. The Fukushima report is one I will touch on
14 briefly. We were looking forward to that, the one in
15 October, there is nothing in the report to focus on the
16 damage that was caused at Fukushima by the earthquake
17 itself.

18 It all tends to focus on the subsequent
19 damage that resulted from the tsunami, the 41-minute
20 interval. There was quite a bit of damage before that
21 happened caused by the earthquake itself and it was
22 inadequately treated in the report, we felt, or barely
23 treated at all, and it was all blamed on the tsunami,
24 virtually everything was.

25 There's nothing on the second cause,

1 really, which is -- you might call it an organizational
2 problem, I guess or there is -- the Japanese regulator, I
3 don't know the name of it -- was considered and has been
4 judged subsequently to be much too close to the
5 proponents, to the operator's, Tepco and other operators
6 of nuclear plants in Japan.

7 The resulting investigations in Japan have
8 shown that that was a secondary cause, it was quite
9 important for why in terms of not being prepared and not
10 dealing with the results of the damage that was caused by
11 the earthquake and the subsequent tsunami.

12 The closeness or collegial, some people I
13 guess it's a nasty way to put it but call it an incestuous
14 relationship is not really what I want to say but the over
15 collegial relationship, the over closeness of the
16 regulator with the proponent -- with the operators was
17 part of that.

18 There's also doesn't seem to be any
19 recommendation, at least so far, and I hear there is
20 another one coming up, for any kind of physical changes,
21 any kind of actual material changes; there have been
22 probability studies, there have been paper reviews but
23 nothing to strengthen the actual physical reactor at
24 Lepreau or other Canadians reactors against possible
25 external events like earthquakes.

1 And we hope that that will change and there
2 will be recommendations for actual physical strengthening
3 of the plant, particularly this one and the one at
4 Gentilly-2, which are more seismically active areas.

5 Then going to the Day One record for this
6 hearing, there is nothing in the Day One record to look at
7 the problem which every industrial plant is faced with.
8 And that's the problem of potential for operator error or
9 human error causing accidents.

10 It is not as though this plant is somehow
11 immune from the possibility of irrational behaviour or
12 just mistakes or even problems of conceivably things like
13 mental illness, which has affected this plant in the past
14 when a worker put heavy water in the drinking fountains;
15 and yet these kinds of human error, problems can be
16 certainly just as serious as outside external events like
17 earthquakes and they cause many industrial accidents. We
18 don't see CNSC addressing that in a proactive way.

19 We also feel that there's no effort to
20 track or look at AECL's record of incompetence and
21 neglect. When there was an effort to do -- I think it's
22 called a -- there's an attempt to get at why the calandria
23 tubes were all removed, installed and then taken out. Why
24 was this done? It was done because AECL and NB -- neither
25 NB Power nor AECL caught that error.

1 A similar problem occurred in Korea, we
2 understand and they caught right away. So there seem to
3 problems with both the work ethic and the oversight from
4 AECL. That's what the root cause analysis, that you were
5 looking for, really has to do with carelessness; and the
6 whole problem of AECL's recent track record over the last
7 10 years, inability to develop the new prototype reactor,
8 the failure of them to develop the maple reactors, Chalk
9 river which have been abandoned -- these things really
10 should be looked at. The questionable competence of AECL
11 needs to be looked at by CNSC if we are going to have
12 confidence in CNSC as a regulator that's really protecting
13 us here in this region.

14 There's really nothing like a firewall that
15 we see to separate you folks at CNSC from the proponents
16 and the final -- the rush to judgment that we feel has
17 happened, we've noticed that several of the staff who
18 reported or spoke on Day One and, again reinforced very
19 much today, are talking about final recommendations.

20 Now we know that the Commission, as in most
21 situations like this, will rest very heavily on
22 recommendations from staff. And we had people saying on
23 Day One that were no bars, nothing to prevent the
24 proponent's proposal to refuel and restart from going
25 ahead.

1 It was said, you should do it, go ahead
2 with it and this was before really the staff had had any
3 chance to review the intervenors' material, much of which
4 is still in the process of being presented today.

5 So we have what was called today by one of
6 the staff people, Mr. Rzentkowski, Dr. Rzentkowski, final
7 recommendations. We had a battery of people from the
8 staff who came very, very supportive of everything NB
9 Power had to say; and yet it seems like this is putting
10 the cart before the horse.

11 Shouldn't you see everyone's material, not
12 just NB Power's. NB Power has had hours and hours with
13 you Day Onr in Ottawa. We asked that hearings be held
14 here rather than in Ottawa. Several were held there, it
15 was just you and NB Power. We're limited to 10-minute
16 presentations and we feel very much as though we're at a
17 systemic or systematic disadvantage because of the way
18 there's so much more time given -- as a good part of
19 today's hearing was taken up NB Power again even though
20 you've heard from them for many many hours in the past.

21 So there was also our request, a mutual
22 request from many people, that was brought to you by CCNB
23 action to delay it -- to delay this until we had more time
24 to prepare our interventions.

25 We were never told about the possibility of

1 a full environmental assessment. We were never asked
2 about that, intervenors were not made aware of it. And
3 yet, we read in your own materials that about 25
4 environmental assessments are performed every year by CNSA
5 or under CNSA's jurisdiction, and we really feel this
6 should have been done. We heard Mr. Rzentkowski again, I
7 believe it was him saying that this was already taken care
8 of in a environmental assessment that was done of the
9 additional fuel storage capacity 2004. Well that wasn't
10 focused on this problem. There's been the additional kind
11 of -- I think -- we feel really an affliction that this
12 was just - this refurbishment is just a routine
13 maintenance outage because the company itself proclaims
14 that it's virtually like a new plant. We really feel
15 we're getting, I guess in the provinacular, the short end
16 of the stick on this.

17 We want you to restore confidence, and we
18 feel you have an opportunity to do that in government, and
19 particularly in your part of government, by giving us the
20 gold plated standard of regulation by according us an
21 environmental assessment which would be independent of the
22 -- both the proponent and of the regulator and where
23 intervenors would have a chance to participate as full
24 parties where we would have a chance to answer, ask
25 questions of the proponent, ask questions of other

1 intervenors and have our material be given the really full
2 consideration that we feel it's not getting in this
3 hearing.

4 We don't understand the need to rush to
5 judgement. The plant is scheduled to be turned on
6 sometime in late 2012, to our understanding. There is
7 plenty of time for you to do an environmental assessment.
8 There doesn't seem to be any reason given for your haste
9 in trying to come to a decision.

10 Now we heard on the radio today, you're
11 expecting to reach a decision by mid-January, six weeks
12 from now -- something like that. We really are asking
13 you, and this is the central core of our intervention,
14 that you delay any decision on this until there has been a
15 full scale environmental assessment with an environmental
16 impact statement, with an opportunity for the staff to
17 really consider our interventions and will feel -- then if
18 that can happen then at least we've gotten the full level
19 of regulation and consideration that you can accord to us
20 under the law. And that we really hope you will consider,
21 according to us, because right now we feel seriously
22 disadvantaged by the way things have happened and as
23 though the process has been very unfair to intervenors
24 who've done a great deal to try to enhance the record and
25 would like to see this done under the larger and more

1 permissive rules, more exhaustive rules, of a full-dress
2 environmental assessment.

3 We really hope you'll consider that.

4 Thank you for this opportunity to make a
5 presentation.

6 **(APPLAUSE/APPLAUDISSEMENTS)**

7 **THE CHAIRMAN:** Thank you.

8 Dr. Barriault?

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

10 I guess my first question, really, would be
11 to CNSC staff to explain the review process, if you don't
12 mind.

13 **UNIDENTIFIED:** (Inaudible - off mic)

14 **MEMBER BARRIAULT:** I'm sorry, yes, I just
15 asked them, yes, to explain the review process. I'm
16 sorry.

17 **THE CHAIRMAN:** To whom are you addressing
18 it?

19 **MEMBER BARRIAULT:** To CNSC staff.

20 **UNIDENTIFIED:** To whom are you -- okay.

21 **THE CHAIRMAN:** Go ahead, CNSC.

22 **MR. RINKER:** Mike Rinker. I'm the Director
23 of the Environmental Risk Assessment Division with the
24 CNSC.

25 So I'd like to approach this question in

1 two ways. You asked what review process was undertaken.

2 So for this particular project, it's true
3 that the *Canadian Environmental Assessment Act* was not
4 triggered, and it triggers for very specific legal
5 reasons. There was an environmental assessment done for
6 the original construction and operation of the facility
7 and then another one when there was a new project in the
8 waste facilities.

9 But I want to emphasize that it doesn't
10 mean that there wasn't an environmental risk assessment
11 done. There was one done under the *Nuclear Safety and*
12 *Control Act*.

13 There was -- for every power reactor, an
14 environmental risk assessment was done during the
15 transition from the old Act to the *Nuclear Safety and*
16 *Control Act*. And the *Nuclear Safety and Control Act* takes
17 into account protection of the environment.

18 So there was one done in 2003 for the waste
19 facility that also included, in its consideration,
20 continued operations into the future of the power plant.
21 There was also one done in 2007. And then with the
22 implementation of the new CSA standards for environmental
23 risk assessment, there will be a phase-in period, gap
24 analysis and so on. But we expect that to be done every
25 five years so that we continuing look at the environmental

1 risk of this facility.

2 In addition, under -- as a safety and
3 control area, environmental risk is very important. It's
4 -- there's environmental monitoring programs that are
5 assessed and audited.

6 We work together with the DFO Bedford
7 Institute, who's been studying, for the last 25 years,
8 risks of environmental releases and have been reporting on
9 that. So these are all forming the basis of whether we
10 are of the opinion to the Commission that the facility is
11 providing adequate measures for the protection of the
12 environment.

13 So we've done that, and that was -- excuse
14 me -- in part the basis of our recommendation.

15 **MEMBER BARRIAULT:** Thank you.

16 Next question, really, is -- there was some
17 mention of the robustness of the nuclear reactors in terms
18 of seismic activity. To what level of seismic activity
19 are these reactors built?

20 And I guess CNSC staff.

21 **MR. RZENTKOWSKI:** I will ask Mr. Andrei
22 Blahoianu to respond to that question.

23 **(SHORT PAUSE/COURTE PAUSE)**

24 **MR. BLAHOIANU:** For the record, my name is
25 Andrei Blahoianu.

1 So the plant was designed for something
2 between 0.15 and 0.20 G PGA. This was very well presented
3 in the morning by the New Brunswick Power. And as part of
4 the refurbishment, it was done also -- seismic assessment
5 -- margin assessment, specifically so-called PSA-based
6 SMA.

7 The PSA-based SMA is methodology -- it's an
8 international methodology originated by USNRC in NUREG-
9 1407, and with very clear rule established as guidance how
10 the evaluation of existing plants has to be done.

11 So methodology -- I want to start with this
12 methodology. It's an accepted methodology. More than
13 this, in 2008, the CSA -- the national standard CSA N289.1
14 endorsed this methodology. So from these points of view,
15 has -- it meets the requirements.

16 The level of -- we talk about assessed
17 against what kind of earthquake. It's very important to
18 know that the methodology itself, PSA-based SMA, what it
19 does, establishes a so-called review-level earthquake.

20 The review-level earthquake is not a stage
21 which is based on probability. The intent of this is to
22 pick something to choose an earthquake which is much more
23 challenging, than design basis one. The reason for this
24 is to identify those components of the plant which are
25 maybe weak in terms of beyond design basis, and to

1 identify what safety margins are there.

2 Guidance regarding the way that review-
3 level earthquake is chosen is also provided in 1407, the
4 American guide, which has followed the reason that NB
5 Power used -- followed this guide, another standard which
6 is now in place -- is because at the time they started
7 doing this it was no standard, Canadian standard, in
8 place. So they followed these rules from NUREG.

9 And what it say, it says that -- this NUREG
10 says that you have to -- the review-level earthquake for
11 the eastern North America should be 0.3G, an earthquake
12 which is anchored of 0.3G. And for what is west of the
13 Rocky Mountains, it has to be 0.5G.

14
15 What Point Lepreau did, did exactly this.
16 So the level of the review-level earthquake which was
17 chosen is 0.3G.

18 More than this, it happens that -- and the
19 new information provided by NRCAN in their -- in the NBC,
20 National Building Code 2010 edition, which is using 95
21 relations of Dr. Atkinson, in terms of attenuation, it
22 shows that this 0.3G, which is chosen, as I said, as a
23 review-level earthquake, coincides also with one in 10,000
24 years probability of exceedance.

25 The methodology itself, when it was

1 applied, identified other components which are weak or
2 should be enhanced. The outcome of the PSA-based
3 methodology is a statement like the plant exceeds the
4 review-level earthquake. That means it's more than the
5 high confidence of low-probability of failure; or it's
6 above the review-level earthquake; that means above 0.3G,
7 or the high confidence of low-probability of failure is a
8 number, and this number, it's a ratio which show, you when
9 applied to 0.3G, it shows you how it is.

10 The result of the methodology by the end,
11 which was done, showed that components important to safety
12 -- so all of them exceed 0.3G. More than this ---

13 **THE CHAIRMAN:** Look, please wind it up. We
14 don't want another presentation from CNSC now. We're
15 dealing with the intervention itself.

16 What I'd like to know the answer to the
17 bottom line -- forget about -- the issue was whether, in
18 the Fukushima report, we'd taken enough consideration
19 about earthquakes. I thought that was the essence of the
20 intervention. And so I'd like you to answer that, and
21 then I'd like the intervenor -- did you take the
22 opportunity to feed in into the public consultation of the
23 Fukushima report that's now going in.

24 I hope you submitted to CNSC your views on
25 the Fukushima task force report that's now in public

1 consultation.

2 So why don't you start us off?

3 **MR. RZENTKOWSKI:** Yes. Let me respond to
4 those questions one by one.

5 The objective of the Fukushima report was
6 to reassess the initial lessons learned from Fukushima
7 accidents. And those initial lessons learned indicated
8 that, following the seismic events, the reactor was shut
9 down safely and safety systems operated efficiently to
10 provide sufficient cooling to the reactor core.

11 Nevertheless, we decided to focus on the
12 more severe accidents because this was the indication from
13 the lessons learned, that if you have a combination of
14 very extreme events, no matter what the source, you may
15 eventually face the situation where there is loss of
16 offsite power, followed by loss of on-site power and loss
17 of all heat sinks.

18 So effectively, we subjected the CANDU
19 plants to very strong stress which is equivalent to
20 absence of all safety systems at the site and we
21 demonstrated that CANDU reactors are safe, even under
22 those extremely severe conditions.

23 **THE CHAIRMAN:** Did Sierra Club submit an
24 intervention or submission to the Fukushima task force
25 that's now in the public domain?

1 **MR. RZENTKOWSKI:** No. To my knowledge, we
2 haven't received any comments on the report.

3 **MR. LACK:** To my knowledge, we were never
4 invited to publicly comment on that report. Perhaps it's
5 open to us to comment now in advance of the December 18th
6 report, but the report was -- there were never, to my
7 knowledge, any -- no notice was given that CNSC wanted to
8 hear from the public about this. They took it unto
9 themselves, partially as a result of IEIA suggestion that
10 they produce a report, but as far as I know, neither
11 Sierra nor any other intervenor was asked to comment or
12 contribute in any way. I could be wrong, but that's my
13 understanding.

14 **THE CHAIRMAN:** Can you clarify that?

15 **DR. RZENTKOWSKI:** The report was posted on
16 our external website with a message, inviting public
17 comments. But that's correct, we didn't issue letters to
18 any groups which could be eventually interested in
19 providing comments on that report.

20 **MR. LACK:** But just to clarify what I mean,
21 the report came out before anyone was invited to comment
22 on it. After the report was -- this particular report was
23 finalized, of course I suppose it was possible for anyone
24 to comment on it, but no one was -- to my knowledge, Dr.
25 Rzentkowski, was invited to participate or comment during

1 the preparation of the report. It was all done internally
2 in CNSC.

3 **THE CHAIRMAN:** I think there's a
4 misunderstanding here. Mr. Jammal, please?

5 **MR. JAMMAL:** Thank you, Mr. President. For
6 the record, it's Ramzi Jammal.

7 Here, there are a couple of things. Let me
8 start from the beginning of the structure.

9 We issued the directive or the order to the
10 utilities in Canada under the 12-2 in order to address the
11 short-term lessons learned from Fukushima and long-term
12 aspects.

13 The CNSC established a task force group in
14 order to evaluate multiple things. One of them is the
15 response of the directive or -- what we call the Order 12-
16 2 and the lessons learned from Fukushima. The task force
17 has completed its report and it was put out on the website
18 and pushed to everyone who is subscribed to the CNSC
19 website and the information was sent out that the report
20 is available.

21 In addition to it, if you look at the
22 management response, we established multiple avenues for
23 the public to give an input. In the current period of the
24 public input, is everybody to comment on the Fukushima
25 report. Staff were going to take into consideration all

1 the comments that were received and properly
2 dispositioned, and put it together in what we call a
3 Commission Member Document, a CMD, which is the current
4 process.

5 And then we will post the comments that we
6 received, in addition to include the action plan proposed
7 by staff to go before the Commission, and the intervenors
8 will have time to comment on the full comments and that
9 will go before the Commission in mid-February in a public
10 meeting. Then, I presume, I will have to seek advice from
11 Mr. Marc Leblanc the Secretary or a recall from my
12 colleague from Secretariat, where the public will be given
13 another opportunity to submit a written intervention.

14 **MR. LACK:** Could I ask, what is the
15 deadline for comments on the initially issued report on
16 Fukushima? Is there a deadline?

17 **DR. RZENTKOWSKI:** Yes, there's a deadline,
18 and the deadline is the end of November.

19 **MR. LACK:** The deadline was the end of
20 November for commenting on that report? I'm not sure that
21 that was made clear to intervenors.

22 **THE CHAIRMAN:** At any rate, if I understand
23 the process, you will have another kick at the can once
24 the public hearing that's going to happen in February, I
25 believe. You will be invited. So I think the message

1 here is that the CNSC website is the place that I think
2 everybody can subscribe to, and you get the information
3 automatically sent to you -- to you guys.

4 **MR. LACK:** Any comments, Dr. Rzentkowski?

5 **DR. RZENTKOWSKI:** We received only
6 comments from the industry up to this point in time.
7 However, I would like to put on the record that the next
8 day after we issued the report, I provided a copy to
9 Professor Duguay, who is present in this room.

10 **MR. LACK:** I'll look forward to the
11 opportunity to comment and I think other intervenors will,
12 too, but this was not a very transparent process, in my
13 personal opinion.

14 **THE CHAIRMAN:** The process is not over, so
15 it's -- you're still in the middle of the process and no
16 action has been taken, no sanctions, so we're now, like
17 everybody else in the world, trying to figure out what
18 needs to be done post-Fukushima.

19 Dr. Barriault?

20 **MEMBER BARRIAULT:** My next question,
21 really, is that -- I guess it was on the question of
22 fitness for duty, if I understand correctly. You were
23 wondering if the employees are fit for duty, monitoring
24 the reactors; is that correct?

25 **MR. LACK:** No, sir, that's not what I'm

1 asking. I believe the operators are eminently fit for
2 duty. I'm talking about the possibility of human error,
3 which even the most fit for duty person can be involved in
4 a -- in sometimes a single human error, or a cascading
5 event of human errors, or human errors that compound an
6 external event.

7 None of these things are taken into account
8 as things for which you need to prepare.

9 Human error is essentially left out of,
10 from what I can tell, of CNSC consideration, and there
11 doesn't seem to be the kind of duplication or specific
12 attention to that problem, because it can affect the most
13 well-oiled and prepared team. They can still make
14 mistakes or get in trouble and cause problems that way.

15 **MEMBER BARRIAULT:** So does N.B. Power want
16 to comment on this?

17 **MR. PARKER:** Thank you. Wade Parker, for
18 the record.

19 There are a number of barriers that we put
20 in place to address the whole question of human error, and
21 it's more than just individual barriers. We have a whole
22 list of human-performance, error-prevention tools that we
23 use, like strict compliance to procedures, peer checks for
24 very specific critical tasks, safety checks, and
25 additional layers of checks. Our training drives that

1 home for -- you know, specifically for our licensed staff
2 in the control room.

3 As you are well aware, we have simulators
4 that mock up the entire interaction of events and how we
5 address those by following those procedures and that level
6 of things.

7 On top of that, we have what we call an
8 observation and coaching program at our station. To date,
9 we have nearly 7,000 observations where the supervision is
10 out there in the field, you know, verifying by the
11 supervision by the station leadership that what we demand
12 in our processes and our policies we are actually seeing
13 in the field, to make sure that it's not just words on a
14 page. And these are just a number of things that come to
15 my mind as I'm sitting here.

16 But there are a number of layers that are
17 part of our process to prevent these exact things from
18 happening, these human-performance, human error-type
19 issues, to do everything that we can to prevent the exact
20 concern on the table.

21 **MR. LACK:** If I may just respond to that,
22 Mr. Parker? I don't doubt that you have these in place,
23 but I don't see them being evaluated or I don't see
24 regulation from the CNSC side. Although this was not
25 during a time when the reactor was operating, certainly

1 the very expensive and time-consuming decision to continue
2 to install the Calandria tubes, when it was known that
3 they were defective, indicates that there was human error
4 on the part of your contractors, AECL, and that you guys
5 didn't catch it, and then you made a mistake that cost I
6 don't know how many hundreds of millions of taxpayer
7 dollars.

8 So maybe if you -- I don't doubt that you
9 have many good systems in place, but perhaps they need
10 oversight from the CNSC, and I don't see that happening.

11 And I know that the same kind of thing
12 happened in Korea. They caught it right away, and people
13 say there's a big lesson to be learned here about the
14 question of human error. I think it just gets very
15 inadequate attention, not necessarily from just you, but
16 also perhaps from the CNSC.

17 **THE CHAIRMAN:** Okay, staff, can you talk
18 about -- first of all, is it true that in Korea it was
19 detected immediately? If memory serves right, Korea also
20 had to go through some pretty extensive -- they were
21 complaining about those errors also themselves, and it
22 took them a long time to reconcile. In fact, once Korea -
23 - please correct me if I'm wrong -- once Korea found out
24 what the problem was, then it was transported into N.B.
25 Power. Is that -- did I get it right?

1 **DR. RZENTKOWSKI:** That's generally correct.
2 The Korean project benefitted significantly from the
3 experience gained here at Point Lepreau, and this is the
4 main reason why the project was completed on time in
5 Korea; simply because Point Lepreau was leading the way,
6 generating experience for the entire nuclear industry, not
7 only here in Canada, but internationally as well.

8 **MR. LACK:** That's just like saying they
9 learned to be ---

10 **THE CHAIRMAN:** Excuse me -- excuse me.
11 Let's keep it in order here. Mr. Jammal?

12 **MR. JAMMAL:** Thank you, Mr. President.
13 It's Ramzi Jammal, for the record here.

14 I think everybody's focusing on errors
15 here. Experience is gained with respect to the
16 activities, but, I do not want to leave the Commission, or
17 the public, or anybody, with the fact that if even errors
18 do happen, there are multiple testing. And that is the
19 reason the errors were found, and whatever the methodology
20 what was being used was found through what we call a cold
21 commissioning. That means there is always testing with
22 respect to what's been installed through a very rigorous
23 process, according to codes, before any progress is being
24 made and that's why these testing do exist in place to
25 ensure the defence in depth before any work is being

1 completed.

2 **THE CHAIRMAN:** Okay, I think we've got to
3 move on. Dr. Barriault, we interrupted you.

4 Dr. McDill?

5 **MEMBER BARRIAULT:** No, that's fine, Mr.
6 Chairman.

7 Thank you.

8 **MR. RZENTKOWSKI:** Could I put something on
9 the record? Because I outlined to state that human errors
10 are being modeled as a part of the probabilistic safety
11 assessment and we have a regulatory requirement on the
12 conduct of probabilistic safety assessments by each
13 licensee.

14 **THE CHAIRMAN:** Dr. McDill?

15 **MEMBER MCDILL:** Thank you.

16 One thing that I think is clear is this
17 intervenor feels detached from the process and -- detached
18 from the process and is not familiar with everything that
19 has happened and therefore is frustrated.

20 **MR LACK:** I'm frustrated but I ---

21 **THE CHAIRMAN:** Excuse me; let the
22 Commissioner ask the question.

23 **MEMBER MCDILL:** No it's okay, no, no, it's
24 all right.

25 So maybe we can just address some very

1 specific questions that he has raised.

2 NB Power has never included the public in
3 Point Lepreau emergency drills or exercises and none have
4 occurred at night.

5 So let's try that one.

6 **MR. KENNEDY:** For the record, it's Blair
7 Kennedy.

8 I would refer that to Charles Hickman
9 because he's been involved in those issues directly.

10 **MR. HICKMAN:** For the record, Charles
11 Hickman.

12 We have a program of emergency drills that
13 have been ongoing for many years. The offsite activities,
14 as part of those drills, is planned and executed with the
15 involvement of the provincial emergency measures
16 organization; they take responsibility of activities
17 outside the fence line.

18 So with due respect I think I'm going to
19 pass that to the province to talk to the involvement of
20 the public and the drills in the past.

21 **MEMBER McDILL:** So we'll hop over to the...

22 **MR. MacGILLIVRAY:** For the record, Ernie
23 MacGillivray.

24 It is a good question; I'll try to pick it
25 apart a little bit.

1 We haven't done drills at night, with good
2 reasons for that; there's safety reasons. So we don't
3 want to be moving around -- well, we don't want to put
4 people at risk when we're undertaking training and
5 exercises.

6 So we would consider doing some kind of
7 controlled exercise at night if there was some training
8 value to be extracted from it but certainly moving members
9 of the public around at night would be of questionable
10 value.

11 In terms of not involving the public with
12 exercises, we do involve the public with exercises. We
13 haven't done mass evacuation exercises very often.

14 My memory goes back about 20 years, I've
15 been involved in six or seven exercises; we've only done,
16 to my recollection, an exercise where we evacuated numbers
17 of people and I think they were mostly people who actually
18 work at Lepreau as opposed to the public at large.

19 We did involve members of the public, if
20 you will, in exercises on that occasion and we evacuated
21 people through a decontamination process and into a
22 reception centre environment.

23 We haven't done any exercises of that
24 nature for the period that the plant is being shut down,
25 in fact, the last exercise was in 2006.

1 So it is -- these are legitimate questions
2 and we want to have a more robust exercise program and we
3 intend, as I've said in both our written and oral
4 presentation, to exercise all components.

5 We are looking at doing an evacuation and
6 decontamination and reception centre exercise in the
7 summer and we'll certainly consider involving the
8 community in that exercise, to the extent that there's
9 interest.

10 **MEMBER McDILL:** What is the purpose of an
11 exercise? I mean it has multi purposes so what's the
12 first one, what's the second one? Where does training of
13 the workers to prevent human error come in, at what level
14 does that come in?

15 Because certainly part of an exercise has
16 to be that people learn what they're supposed to do and
17 how to react in difficult situations.

18 I'll address that to the province.

19 **MR. MacGILLIVRAY:** We exercise at different
20 levels. So there's a tactical piece which is about
21 getting the word out to people and getting people who
22 might be at risk out of harms way in a safe manner.

23 So that's principally done by the police,
24 assisted by the Warden Service, assisted by staff from the
25 plant, staff from the station.

1 So that part of the exercise is the one
2 that would most directly involve the public. It's asking
3 people to leave an area, go through a process, eventually
4 end up at a reception centre where they would receive a
5 number of services.

6 There are other dimensions to exercising,
7 particularly the collation of information about the event,
8 the actual or potential consequences and then there's a
9 decision making process to decide what actions are
10 appropriate.

11 So that's a more technical dimension that
12 involves technical specialists, health physicists,
13 radiation monitoring and so forth. That has to be
14 exercised.

15 The whole process of collation of
16 information for all of the moving parts, providing advice
17 to government that has to be exercised.

18 So there's a number of functions in our
19 incident management system. I think the one that's
20 probably most relevant to the public though is how do I
21 find out if there's something bad happening and what am I
22 supposed to do, and that's the area where most of our
23 focus will be with our exercising in 2012.

24 **MEMBER McDILL:** Is there literature
25 available on the value of something like a night exercise

1 or an exercise at an usual time, twilight, when visibility
2 is down? Is there -- maybe I can address that to -- maybe
3 staff knows.

4 **MR. RZENTKOWSKI:** Let me direct this
5 question to Mr. Luc Sigouin who is the Director of
6 Emergency Management Response Division.

7 **MR. SIGOUIN:** Luc Sigouin, for the record.
8 So in answer to your question, very
9 briefly, I'm not aware of any information regarding the
10 value of exercising at different periods of the day.

11 I do know that the exercises or drills
12 within the stations are done at a variety of times and
13 maybe Point Lepreau, NB Power staff would comment on that
14 but it's not -- it's not uncommon for station staff to do
15 drills on all shifts at all hours of the day.

16 **MEMBER McDILL:** So I'll turn it then over
17 to NB Power.

18 How do you know that all the lights will go
19 on at night; how do you know that all of the things that
20 are supposed to happen at night happen if you test during
21 the day?

22 **MR. KENNEDY:** Yes, for the record, it's
23 Blair Kennedy.

24 I'll turn that back to Charles Hickman.
25 There's drills that are done within the

1 plant at various times to exercise on the other side of
2 the fence.

3 **MR. HICKMAN:** Charles Hickman, for the
4 record.

5 To your question as to how do we know
6 what's working and what's not working; we have a whole
7 series of regular basic preventative maintenance tests
8 that we do to ensure that there is different components of
9 the emergency plan operational.

10 So the operation staff might do a check
11 that the radio system is working on any particular shift.
12 They have contingency desks and radios in the main control
13 room.

14 We would have tests where we would check
15 different parts of the lighting system, alarm system and
16 so on.

17 So those tests are an ongoing part of day-
18 to-day life at the operating station where we do check
19 individual components of the system are operational in the
20 different scenarios.

21 Does that answer your question?

22 **MEMBER McDILL:** And how do you communicate
23 to the people who live around the plant that you have
24 tested all of those things?

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

1 record.

2 Those tests and those drills become part of
3 our -- such as our annual reporting, if you can put it
4 that way, from the point of view that we do those tests,
5 we report as part of our S99 reportability requirements.
6 Many of the drills that we do -- a number of drills that
7 we do and that gets rolled up into the safety and control
8 area that the staff comment on as part of their annual
9 report.

10 We don't communicate directly with the
11 community that we have tested a particular component on a
12 particular shift. It's more of a roll-up as part of the
13 annual report from staff.

14 Now, we do work with provincial EMO and we
15 have a well integrated connection between our onsite and
16 offsite activities which the wardens are part of and the
17 wardens are part of the community, so there is a
18 communication channel back through the wardens so that
19 they are aware of what the emergency planning activities
20 are and some of the larger drills may or may not be aware
21 of them. In addition, from a purely tactical point of
22 view, the response team is often supposed by the fire
23 department. The fire department is very much part of our
24 response strategy, both for the on-site and potentially
25 for offsite issues.

1 So there's a good communication through the
2 local fire department and their involvement in our
3 response strategies.

4 **THE CHAIRMAN:** Can I jump on this one?

5 If memory serves right, you -- in your
6 Fukushima task force, you observed or you found or you
7 concluded that the emergency planning could benefit with
8 some little bit more rigour or some improvement.

9 I don't want to put words in your mouth,
10 but you found that there's some deficiencies and you
11 presumably recommended something be done.

12 My question is, is there a regulatory
13 requirement to hold drills with the public at all three
14 levels of government, local, provincial? Are there such
15 requirement and is there any prescribed way or suggested
16 way of how you're doing it; would you get involved?

17 I'm struck that I know in Ontario -- and,
18 again, I'm comparing in Ontario -- there's not too many
19 provinces, there's only three. But Ontario taking a
20 different approach, they are, I think, doing drills a lot
21 more aggressively with the community and more frequently.

22 And I just don't know, is it left to the
23 local -- provincial government, local government? What
24 should be done here?

25 **MR. RZENTKOWSKI:** Yes, it is left to

1 provincial governments to decide on the frequency of those
2 exercises because the CNSC regulates only on-site
3 activities.

4 So if we look at on-site plans ---

5 **THE CHAIRMAN:** Like being within the 22 --
6 the 2 kilometres or the 20 kilometres?

7 **MR. RZENTKOWSKI:** On-site being inside the
8 fence.

9 **THE CHAIRMAN:** Inside the fence. Okay.

10 **MR. RZENTKOWSKI:** Yes. And outside of the
11 fence is the responsibility of provincial authorities.

12 This is the main finding of the report,
13 that if you look inside the fence, the plans are there.
14 They are well tested and they seem to be very effective.

15 The same applies to outside of the fence
16 but, unfortunately, the roles and responsibilities in
17 harmonizing those plans -- on-site and offsite are not
18 really clearly defined, and because of that there's really
19 no seamless transition from on-site emergency to offsite
20 emergency.

21 This is definitely the focus of our future
22 improvement activities, and we have to decide what would
23 be the best mechanism to address those issues.

24 **THE CHAIRMAN:** And I must say for the
25 public safety of New Brunswick, when I looked at your

1 organizational charts, if they intended to simplify the
2 things, I'm not sure you're there.

3 Some of them are really complicated, and I
4 just wonder whether there's room for -- to put some
5 clarity as to who -- particularly in the nuclear business,
6 when you need to make quick decisions, as we learned from
7 Japan again, who in your organization is the authority to
8 actually say "evacuate", you know, do something dramatic?

9 Is it clear who has this authority?

10 **MR. BOURQUE:** I think there are two
11 questions there, if you'll permit me.

12 The first question, the one you asked about
13 who's in charge, there's no doubt, and I spoke to that,
14 the Minister has authority under the *Emergency Measures*
15 *Act* to do, and I'm quoting:

16 "Anything necessary for the health and
17 safety of the population and the
18 protection of the environment."

19 So he has all of the statutory authority
20 you could invest in a single person.

21 The Act also makes the New Brunswick
22 Emergency Measures Organization the coordinating agency
23 for emergencies in the province, whether it's for a
24 declared emergency or an undeclared emergency.

25 When a declaration is made, as would

1 probably be made for a radiological incident where we
2 envision evacuation, the Director EMO has all of the
3 authority needed to manage operations for the province.

4 The plans reflect this as well, so there's
5 a strong legal basis for those authorities and, in fact,
6 under our process, whoever's on duty, whoever gets the
7 call 7/24/365, the EMO officer on duty can actually make
8 that call, put the plan into effect and order an
9 evacuation.

10 So we don't need a committee, if you will,
11 to make these kinds of decisions if the evidence is clear
12 that urgent protective actions are warranted.

13 The question about the incident management
14 system itself and its complexity, that's a functional
15 diagram that's consistent with how emergencies at the
16 tactical and operational level are managed in Canada and
17 the U.S., and probably around the world. It's based on
18 ICS.

19 I think it's important for everyone to
20 understand that we don't just have one emergency
21 organization for a nuclear contingency should it happen
22 some day. We leverage all of the capabilities that the
23 province has, community level, provincial level, federal
24 partners, into a single synchronized intervening
25 organization, and we do this regularly. We may not be

1 exercising with the public in the Lepreau area regularly,
2 but we get exercised regularly.

3 We have a flood season every year. We had
4 three events in December 2010. We had a spring flood in
5 2010. We had the pandemic in 2009. We had a major flood
6 in 2008.

7 So we have lots of experience in managing
8 large complex events where people have to be evacuated,
9 looked after and so on.

10 But I do take the point that there probably
11 needs to be more visibility on that and because a lot of
12 time has elapsed since the last exercise down in the
13 peninsula that we need to engage the public better, and we
14 intend to do so.

15 **THE CHAIRMAN:** Dr. McDill?

16 **MEMBER McDILL:** Thank you.

17 My next question is for staff and, in
18 particular, I think Mr. Jammal would be appropriate.

19 The intervenor is concerned about a close
20 relationship between the proponents and staff, and I think
21 perhaps it would be appropriate for staff to address that,
22 perhaps to talk about how the Commission is funded, where
23 cost recovery fees go and that sort of thing.

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

25 There are a couple of things that I would

1 like to make very, very clear. There is no one above the
2 law with respect to compliance activity because if we
3 exist, for one reason, it is to serve the public through
4 our regulatory oversight.

5 So, hence, the allegations of closeness of
6 staff and/or serving code of applicant, we don't do such
7 things because we have the ethics, if not -- all of our
8 staff is accredited professionals. They follow ethics
9 with respect to the Government of Canada code of conduct,
10 with respect to the ethics of our professional
11 associations, and every other aspect with respect to the
12 safety of Canadians and the environment.

13 So, we reject applications, we issue orders
14 when it is the time to issue orders, and we suspend the
15 operations when it's time to suspend the operations.

16 With respect to the independence of the
17 CNSC and the function of the staff, I mentioned in the
18 beginning that we underwent -- the CNSC underwent a review
19 by international experts and to mention the good practices
20 which --they are envy -- of our good practice with respect
21 to our independence for the cost recovery; and
22 independence with respect to the separation of staff from
23 the Commission where we provide the Commission our
24 recommendations.

25 And they assessed our assessment process.

1 They assessed our review. They assessed our regulatory
2 oversight. They've assessed our conduct of inspections.
3 They've assessed our independence of on-site staff.

4 All those assessments were taking place by
5 independent, international, expert for regulatory bodies
6 and, as a matter of fact, they did commend us on the
7 independence of staff, the capacity of our own cost
8 recovery without any influence from Parliament or any
9 government, and the proposed recommendation to the
10 Commission. They are based on our Act, which is the most
11 modern Act, and our Regulations.

12 That's where the staff stands with respect
13 to our independence, with respect to the allegations for
14 the licensees.

15 I'm pretty sure that any member of the
16 public will request under ATIP, and they will see the
17 exchange of letters and, as a matter of fact, Professor
18 Duguay, who always refers to the letters by Mr. Shobold to
19 Pickering rejecting their submissions on multiple issues,
20 and those are an indication that we have a place the
21 independence and the rigour in the review.

22 **MEMBER McDILL:** Just in the last, you know,
23 four or five weeks, how many orders have been issued
24 typically against small regulators? But I think it's
25 helpful for the community to know that there are orders

1 issued.

2 I know you can't give me an exact number
3 off the top of your head, but I see them in my email
4 almost daily, so maybe that would be helpful.

5 **MR. JAMMAL:** As a matter of fact, one of
6 the intervenor has made the -- I took very seriously the
7 intervenor's comments with respect to Fukushima and I
8 happen to be on the website of the CSNC thanks to the
9 technology here.

10 I will count -- within the last few weeks,
11 probably around five orders were issued to operators for
12 nuclear substances. That means they were not following
13 safe practices in accordance to our Act and regulations.

14 And from October 28th, the Commission has
15 issued the release with respect to the Fukushima report,
16 calling on the public to provide comments by December 1st,
17 which is the deadline, with respect to the input.

18 And in addition to it, we've issued an
19 order for two universities, the latest one is to Memorial
20 University, where they had to clean up their actions in
21 order to address the requirements for the -- in accordance
22 with regulations and the Act.

23 **MEMBER MCDILL:** And one more question. In
24 terms of the removal and reinstallation of calandria tubes
25 and the like, I trust that in terms of safety if you had

1 left them in, it would have been very unsafe. Is that
2 correct?

3 **MR. KENNEDY:** Yes. For the record, it's
4 Blair Kennedy.

5 But the Refurbishment Director, Rod Eagles,
6 will take that question.

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

8 I do think it's important to address the
9 question that you've asked, you know, very clearly. In
10 evaluating the leak tightness of calandria tubes that were
11 being installed in 2010, we identified a number of those
12 tubes which were not making the leak tightness criteria
13 that had been addressed in the technical specification.
14 And after evaluating extensively the cause for the failure
15 to make that leak tightness, we determined that, more
16 broadly, the reason for the failure to make that leak
17 tightness was affecting also those that had made the leak
18 tightness standard.

19 In our decision to re-evaluate whether or
20 not it was appropriate to keep those calandria tubes in
21 place, we came to conclude that it was not necessarily a
22 safety hazard in itself, that those tubes that were
23 meeting the leak tightness criteria at that time, the
24 issue was that over the life of the station could we
25 guarantee that those tubes would provide adequate

1 operational service to maintain the reliability of the
2 station.

3 Should they have been left in and caused
4 some minor leakage through the course of operation,
5 detection systems within the plant fully confined within
6 the systems that are intended to detect those kinds of
7 leaks would have identified that, would have contained any
8 leakage from those calandria tube roll joints and the
9 plant could have safely been shut down.

10 The issue, of course, that we were
11 addressing was the long-term viability of this station,
12 and so in that consequence and in that context we'd say it
13 was not a safety issue in itself but it would have led to
14 an unreliable station over the longer term.

15 **MEMBER MCDILL:** That's it for now, Mr.
16 Chair, thank you.

17 **THE CHAIRMAN:** Thank you.

18 Dr. Barriault?

19 **MEMBER BARRIAULT:** No, thank you.

20 **THE CHAIRMAN:** I just have one last
21 question, and it is in your H12-10B when you have those
22 questions on page 8 of 9. You pose the question about the
23 diesel backup generators -- all the generators.

24 I'd like some clarity about assuming a
25 doomsday scenario. I always asks the doomsday scenario.

1 There is no power; how long is the backup diesel
2 available?

3 And let's assume, you know, the worst case
4 scenario; there's an earthquake, there's a tsunami -- I
5 know people are going to understand -- whatever you want
6 to call it. What I'm trying to understand is how much
7 fuel, backup fuel, diesel, and how vulnerable are they?

8 **MR. KENNEDY:** Yes, I'll have the Station
9 Director take that to outline just what happens in that
10 scenario and the follow-through for the Commission.

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

12 If we want to talk about diesels at our
13 station, we have to just fill in a little bit of
14 background.

15 We have two totally different sets of
16 diesel generators at our station. We have two independent
17 diesels that supply what we call Class III power. That's
18 for our cooling systems to make sure that the reactors are
19 cooled at all times.

20 During our refurbishment, we added a third
21 diesel to that set of two diesels to ensure reliability so
22 at all times we will have diesels available on that level.

23 Now, we have another set of diesels at our
24 station that are seismically qualified. Again, it's a
25 pair of diesels. The diesels are seismically qualified.

1 All the equipment that they use to support the cooling of
2 the heat sinks and monitoring, fully seismically
3 qualified.

4 Now, the requirements for fuel is a minimum
5 five days of fuel for the sets of diesels available at the
6 site. So that's five days for each set of diesels. So --
7 and that's a minimum. We would never be less than that.
8 We could be and we typically are above that, but that's
9 what's in our licence to ensure minimum compliance.

10 Now, on the availability of those diesels,
11 just a high-level answer is, is that where the station is
12 located for flooding and tsunami and that sort of
13 scenarios that are possible, the information shows that
14 there's no issues that would impact flooding of those
15 diesels to make them unavailable based on any of those
16 conditions.

17 **THE CHAIRMAN:** One of the things from
18 Fukushima that one learns is that also to rely on offsite
19 assistance should all this defence and depth fails. Have
20 you any provision for offsite assistance?

21 **MR. THOMPSON:** For the record, my name is
22 Paul Thompson. I'm the Manager of Nuclear Safety and
23 Regulatory Affairs at the Point Lepreau Generating
24 Station.

25 I think there's a couple of points I'd like

1 to make in answer to your question, Dr. Binder. The first
2 is, during refurbishment we also added additional
3 provisions for the scenario that would -- the very low
4 probability scenario associated with the complete station
5 blackout.

6 So this would be those very unlikely
7 situations, regardless of how you got into it, where those
8 -- the main site power is unavailable, the first set of
9 diesels that Mr. Parker referred to is unavailable, and
10 even the emergency generators are unavailable.

11 In those instances, we installed additional
12 provisions to provide the necessary mitigation to prevent
13 the propagation of the severe accident and to deal with
14 the containment performance, and that was a calandria
15 vault makeup line and an emergency containment filtered
16 vent system. And they do not require external powers from
17 these generators, so they're self sufficient.

18 So recognizing a potential in our safety
19 studies to provide an additional defence and depth for the
20 scenario of station blackouts, these provisions were, in
21 fact, added.

22 Now, in addition, as part of the review and
23 lessons learned from Fukushima, we're looking at saying --
24 even strengthening that defence even more and looking at
25 certain provisions for bringing in portable generators.

1 Now, while again we don't need to do that
2 in order to demonstrate that we meet the safety goals, it
3 was just deemed to be a prudent thing to do to provide
4 additional defence and depth for that.

5 So we're looking at -- and this has already
6 been mentioned in our reply to the CNSC staff on Fukushima
7 -- looking at further provisions for providing connection
8 for portable generators as well as additional connections,
9 fire/water connections into systems to provide inventory
10 makeup.

11 **THE CHAIRMAN:** Thank you.

12 Anybody else -- anything else -- want last
13 words?

14 **MR. LACK:** Yes, Dr. Binder, if I could,
15 just two quick things.

16 We did hear about all kinds of questions
17 having to deal with drills, but the -- an accident is by
18 definition a surprise, and we didn't deal with the
19 question of surprise drills. All the drills that do
20 happen -- and I recognize there are some and maybe
21 there'll be more -- are announced in advance today, but
22 the ones that really simulate the circumstances of an
23 accident need to be surprise drills that nobody knows
24 about ahead of time except the couple of people who decide
25 to run them. I just hope that they will be considered.

1 My only other comment is that when I was
2 asked to come up, I was asked to come up along with Lee
3 Ann Ward and I want to recognize publicly she's my co-
4 intervenor and has worked with me throughout this on this
5 and has been a tremendous part of our intervention and I
6 want to thank Lee Ann very much.

7 And I want to thank you for your attention
8 today.

9 **THE CHAIRMAN:** Before you leave, I think
10 you're going to get an answer on your first point ---

11 **MR. LACK:** Okay.

12 **THE CHAIRMAN:** --- from Public Safety here.

13 **MR. LACK:** All right. Thank you then.

14 **MR. MACGILLIVRAY:** I just want to say on
15 the record I agree with Mr. Lack. Sorry, for the record,
16 Ernest MacGillivray.

17 We did, in fact, do a no-notice drill. It
18 was awhile ago. It was one of my exercises. It was
19 actually the most successful exercise we've ever had which
20 came as a bit of a surprise so there is value in doing
21 those kinds of events.

22 Where I would draw the line is we don't
23 want to do things that put people at risk unnecessarily,
24 but we'll take every opportunity to stress test our
25 emergency system in ways like that and see how it

1 performs. So it is a good idea and we would do it again.

2 **MR. LACK:** Thank you, Mr. MacGillivray.

3 Thank you, Mr. Chairman, and Commissioners. I appreciate
4 your attention.

5 **THE CHAIRMAN:** Thank you very much.

6 We are going to hear now from -- hold on,
7 let me see, we are going to hear now from Grand Chief
8 LaPorte, I understand, from the ---

9 **MR. LaPORTE:** Wolastoqewiyik.

10 **THE CHAIRMAN:** --- Wolastoqewiyik -- you'll
11 have to teach me how to say it.

12 **MR. LaPORTE:** I'll teach you my language.

13 **THE CHAIRMAN:** Okay.

14 **MR. LaPORTE:** Come to our school.

15 **THE CHAIRMAN:** We'll try to find some time
16 to do that.

17 So this is -- you're representing the
18 Traditional Council of Tobic and the presentation is
19 outlined in CMD 11-H12.36 and you are -- sorry, and Mr.
20 Dan Ennis is with you. So welcome and the floor is yours.

21

22 **11-H12.36**

23 **Oral presentation by the**

24 **Wolastoqewiyik Traditional**

25 **Council of Tobic (WTCT)**

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MR. ENNIS: First, I'd like to introduce our Grand Chief, our (native word), Harry LaPorte. I'm just a (native word). He asked me to do the speaking today which I'm going to do. You already have our submission. You've read through it. I'm going to ask you some questions, and you'll have some answers for me? Just kidding. Wow, that was a tough one.

When we finish, I'd like to ask if we could open up the question to the floor, not just to the panel; just think about it.

First, I would like to welcome everybody here to our hometown, so to speak. In 1610, when our people met Champlain here, this was known as (native word) and now it's known as Saint John. It used to be the Wolastoq River out there; now it's the Saint John River. That's all our people.

We'd also like to welcome you to (native word), our homeland; homeland of the Wolastogewiyik, our people.

The Maliseet name, that comes from you all. It's European, derived as a means of covering up the crime of genocide against our people.

We are here representing and speaking on behalf of the ancestors, the Beothuk, the (native word),

1 the Kennebec, the (native word), and all of the other
2 nations that are no longer with us as a result of coming
3 into contact with transplanted Europeans.

4 We are here speaking on behalf of the
5 seventh generation and our sacred earth mother.

6 Contrary to different opinions expressed by
7 different Canadian government officials, the United
8 Nations Declaration on the Rights of Indigenous People is
9 -- is binding upon Canada as a signatory for this
10 important international agreement.

11 We are here to remind you that we are still
12 here; our people are still here and that this is still our
13 homeland and that our people never signed away nor gave
14 away or any way gave up our birthright to the (native
15 word), our homeland.

16 We are here to remind you that we still
17 hold legal title to our homeland. The question is how did
18 our homeland become this political illusion that has come
19 to be known as Canada; a question we all have to consider
20 someday.

21 Our elders teach us that when we sit in
22 council, as we're doing here today -- when we sit in
23 council for the welfare of the people, we sit in council
24 for the seventh generation; that's our way.

25 This present generation is responsible for

1 and accountable to the ancestors for the seventh
2 generation and to our sacred earth mother.

3 Our homeland encompasses all of the
4 Wolastoq River Valley from its headwaters somewhere in the
5 State of Maine all the way to the mouth here in Saint
6 John. That is our homeland. It has been our homeland for
7 some 20 million years.

8 And what we want -- what our people want,
9 we want justice for our people. We want our land back and
10 we want that ugly and deadly monstrosity to be removed
11 from our homeland as soon as possible.

12 That's it. Any questions anyone?

13 **THE CHAIRMAN:** You'll get some questions.

14 **MR. ENNIS:** Oh, good.

15 **THE CHAIRMAN:** You'll get some questions.

16 So first, Dr. Barriault?

17 Dr. McDill?

18 **MEMBER McDILL:** I have an appreciation for
19 your comments. I thank you very much for coming.

20 I think all of us have a duty to the
21 generations before and the generations after, myself
22 included, and I think the Members of the Panel also and
23 the staff. Thank you.

24 **THE CHAIRMAN:** I -- again, I'd like to
25 thank you for coming and we are not -- many of the issues

1 that you are raising are not really within our ability to
2 deal with.

3 We are basically a very narrow kind of
4 regulator. We're trying to decide about the licensing
5 application in front of us.

6 Nevertheless, we do acknowledge the
7 responsibility of the duty to consult. We take that very,
8 very seriously and we believe that we always try to make
9 sure that we comply with this duty to consult. So, my first
10 question will be to our staff as to what have we done with
11 respect to that and then I'll turn it to NB Power.

12 So over to staff please.

13 **MR. RZENTKOWSKI:** Thank you. I will ask
14 Clare Cattrysse to summarize our consultation activity we
15 conducted prior to this re-licensing hearing.

16 **MS. CATTRYSSSE:** For the record, this is
17 Clare Cattrysse from the Canadian Nuclear Safety
18 Commission. We do have a section in CMD section 4.2 from
19 October that does lay out the aboriginal consultation
20 efforts taken.

21 When the Crown -- in this case, we have a
22 decision for an application for the restart and the refuel
23 on an existing site -- it is a decision -- so we have
24 taken into consideration the need for consultation. We
25 discussed with our staff, Aboriginal Affairs, New

1 Brunswick Power and identified a number of groups that
2 might have potential or established rights and an interest
3 in the area. They were sent notification letters
4 explaining what the licensing activity at hand was and we
5 did this as early as possible, as soon as the project was
6 announced, which is our typical process.

7 We encouraged groups to participate in the
8 hearing process and to phone, and we also did follow-up
9 phone calls to establish if there were interests that we
10 were not aware of.

11 We also rely on the Proponent to play a big
12 role in terms of their information programs, and I would
13 defer to them a little later to explain some of the
14 activities that they've undertaken.

15 We also -- it is not part of the duty to
16 consult, but we do have a brand-new participant funding
17 program that the CNSC has that was launched this year
18 which was made available for stakeholders and Aboriginal
19 groups who were directly mailed information about this
20 program upon its announcement to consider if they needed
21 any funds to help support them in their interventions.

22 And we also made ourselves available for
23 meetings if there were questions and issues, and our staff
24 were also available to answer questions.

25 And I probably think at this point in time

1 when we defer over the Proponent would like to explain
2 further.

3 **MR. KENNEDY:** Yes, for the record, it's
4 Blair Kennedy.

5 From New Brunswick Power point of view,
6 there are a number of initiatives that we are doing from a
7 corporate point of view.

8 We've created a First Nations Affairs
9 Department to liaison and work with building rapport with
10 the First Nations throughout the province. There's been
11 activities -- meetings going on with the Aboriginal
12 Affairs Secretariat in New Brunswick.

13 We have initiatives along with other
14 divisions within NB Power, where we're looking at means of
15 employment for First Nations people that will -- that can
16 provide, you know, the necessary skills that we require in
17 various locations. We work very closely with them.

18 We have done a number of -- in the area of
19 our hydro -- with where we're looking at initiatives along
20 the St. John River. We make efforts to include them in
21 any opportunity there may be existing.

22 More specifically, with respect to Point
23 Lepreau, we have held a number of meetings -- liaison
24 meetings -- and for more detail with respect to the duty
25 to consult and the due diligence we do.

1 was incorporated in the extensive environmental assessment
2 that was done. And at this time we're not aware of any
3 new impacts associated with the decisions in front of us
4 today with regards to impacts on the environment.

5 So from the point of view of our
6 engagements, we continue to be heavily engaged and
7 committed both of our corporate involvement, and at the
8 site level with First Nations groups, and we're certainly
9 willing to continue that and intend to continue that,
10 going forward.

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

12 Grand Chief, Mr. Ennis, anything you want
13 to add?

14 **MR. ENNIS:** I'm curious in this Hickman guy
15 providing me with some of this information he said he's
16 been dealing with us Indians. I've never met the guy, and
17 I'm an Indian.

18 **(LAUGHTER/RIRES)**

19 **MR. ENNIS:** Hey, what are you gonna do,
20 man?

21 Maybe his problem is he's been dealing with
22 that one Indian -- Union of New Brunswick Indians.

23 **THE CHAIRMAN:** You want to clarify this, NB
24 Power?

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

1 record.

2 We've met with many different groups over
3 the years. Yes, last week it was the Union of New
4 Brunswick Indians. The weeks before that is with
5 Passamaquoddy. Previously and through the corporate side
6 of life we've met with the Tobique Band as their Chief.

7 We've met with a number of other chiefs
8 over the years, both on specific issues in those areas and
9 more specifically in relation to Point Lepreau and the
10 projects that was being proposed at that time through the
11 environmental assessments.

12 So, I certainly don't claim to have any
13 firsthand knowledge of all the First Nations
14 representatives in the province, but I'm certainly willing
15 to make that acquaintance and to follow up with that.

16 **THE CHAIRMAN:** Okay. Thank you very much.
17 I mean, now you know who he is, you can go and talk to
18 him.

19 **MR. ENNIS:** I'll give it a shot.

20 **THE CHAIRMAN:** All right. Thanks a lot.

21 We'll do one more before the break. So the
22 next submission is an oral presentation by the Sustainable
23 Energy Group, Carleton Chapter, as outlined in CMD 12.16.

24 And I understand that Mr. Sam Arnold will
25 make the presentation. Please proceed, sir.

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11-H12.16

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Oral presentation by the

4

Sustainable Energy Group,

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Carleton Chapter

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MR. ARNOLD: My name is Sam Arnold, and I'm

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speaking on behalf of the Sustainable Energy Group,

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Carleton Chapter.

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Due to the limited time, as you pointed out

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earlier, I will speak out about -- speak only about the

11

highlights of the written intervention that we gave or

12

submitted earlier, and I will make a request followed by

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the two questions that are in the full intervention.

14

In our written intervention we gave three

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reasons why we believe Point Lepreau should not be re-

16

licensed to operate and should instead be commissioned.

17

They are as follows:

18

One, we argue for a rational risk-

19

assessment in relation to the need for Point Lepreau.

20

Experience with nuclear power has now given us the basis

21

on which to project the likely incidents of plant

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failures.

23

Of the 450 nuclear power generation

24

facilities that have been constructed worldwide, three

25

have catastrophically failed, Three Mile Island,

1 Chernobyl, and Fukushima. The likelihood of a nuclear
2 plant failure is, therefore, about three in 450, or one in
3 150.

4 One failure in 150 multiplied by the
5 magnitude of the consequences is, by any rational
6 assessment, an unacceptable risk.

7 We understand that each nuclear power plant
8 in Canada is required to carry a token liability insurance
9 of \$75 million. Beyond that, governments -- or rather,
10 the taxpayers -- are on the hook for the cost of plant
11 failure catastrophe.

12 The full cost of Fukushima to Japan may
13 well exceed the trillion-dollar mark. It is highly
14 irresponsible for the Government of New Brunswick, and
15 Canada, to be exposed to an unknown level of liability on
16 this scale.

17 The risk must be compared with Lepreau's
18 benefit. Over the past two years, NB Power has met its
19 electricity requirements without Lepreau operating, even
20 showing a profit. NB Power can continue to continue
21 importing power at a lower cost than it will incur by
22 operating the plant.

23 The cost of imported power from Quebec and
24 Maine now is around five cents per kilowatt-hour, less
25 than half the cost of running Point Lepreau, which almost

1 cost 11 cents prior to the current shutdown.

2 There is no economic case for the continued
3 operation of Lepreau that can offset the risk it poses to
4 health, environment and the fiscal security of New
5 Brunswick.

6 Two, NASA scientists have recently
7 calculated the emergence of super-solar storms with
8 unprecedented levels of magnetic energy in 2012 or 2013,
9 right after Point Lepreau is scheduled to return to
10 service.

11 There is a risk that solar flares could
12 knock out the electrical grid for a prolonged period of --
13 in affected regions. This could be a catastrophic event
14 for a number of reasons, but the potential for nuclear
15 plant failure is the worst.

16 It is possible that a situation similar to
17 Fukushima could occur at Lepreau if electric power is lost
18 for a considerable period of time and the backup
19 generators fail or run out of reserve fuel. If the grid
20 goes down, oil refineries and the infrastructure of fuel
21 distribution will also be disabled. If the backup
22 generators cannot be refuelled, nuclear power cooling
23 systems will fail and nuclear meltdown will be the result.

24 This is a real risk to -- not one worth
25 taking, especially since Lepreau offers no economic

1 benefit to New Brunswick.

2 Three. There are safe, clean, and
3 affordable alternatives to nuclear power.

4 It has become urgent that both nuclear and
5 fossil fuel power plants be replaced as soon as possible.
6 This can be achieved by (a) developing locally generated,
7 decentralized and distributed renewable energy; (b) by
8 reducing electricity use through energy efficiency; and
9 (c) by eliminating wasteful use.

10 That is what the Sustainable Energy Group
11 argued for in our submission to the provincial
12 government's Energy Policy Commission early this year
13 concerning the future of NB Power.

14 Renewable energy technologies are the wave
15 of the future. They can replace Lepreau and create many
16 new jobs in the process.

17 The request from the Sustainable Energy
18 Group is that a complex screening environmental assessment
19 be conducted as part of the responsibility that the
20 Canadian Nuclear Safety Commission has with respect to NB
21 Power's re-licensing application for Point Lepreau.

22 We feel that a comprehensive environmental
23 assessment should have been done together with the
24 licensing hearings. The reasons are as follows.

25 One, the unfolding Fukushima disaster

1 proves that taking any cost-cutting measures with nuclear
2 power is highly irresponsible and will result in extreme
3 liability in the event of a nuclear meltdown.

4 The 20-kilometre radius evacuation zone for
5 Lepreau has been shown to be inadequate and we feel the
6 City of Saint John should certainly be included in the
7 evacuation zone.

8 Two, climate change and the increasing risk
9 of severe weather conditions in the coming decades is a
10 major threat for damage and nuclear crisis at Lepreau,
11 including flooding by the way.

12 Three, there is an increasing probability
13 of significant earthquake if the New Brunswick government
14 goes ahead with shale gas mining in the future.

15 A 5.8 magnitude earthquake occurred this
16 past summer near a nuclear plant in North Anna, Virginia,
17 that is considered to have been caused by the hydraulic
18 fracturing of shale gas about 10 miles away. If this
19 industry goes into operation in N.B., it will increase the
20 likelihood of earthquakes occurring near the Point Lepreau
21 Nuclear Generating Plant as well.

22 Four, an extended power and grid failure
23 may result in the inability to keep the reactor and the
24 spent fuel safely cooled at Point Lepreau.

25 Finally, most people accept the three-

1 strike rule used in baseball to be fair. Nuclear power,
2 which has been proven to be very risk -- at high risk in
3 causing environmental disaster, is in no position to be
4 allowed to be any more than three major accidents.

5 To date, there have been three catastrophic
6 nuclear accidents in the world, along with several other
7 serious accidents. Three Mile Island was clear strike one
8 and it caused the United States to suspend building
9 nuclear reactors to this day. Chernobyl was a much bigger
10 strike two. And Fukushima rates as a final strike three.

11 The following countries have accepted
12 reality and are now phasing out nuclear power generation:
13 Germany, Switzerland, Sweden, Italy, Denmark, Spain, and
14 Belgium, and a number of other countries are considering
15 doing the same, including Japan.

16 Now it is time for Japan(sic) to join those
17 countries and become a leader in responsible and
18 appropriate electricity generation. The time is right to
19 decommission Point Lepreau.

20 To conclude, I have two questions for which
21 we request answers.

22 One, what contingency plans are presently
23 in place should there be a major electrical power
24 interruption lasting weeks or months at any and all of the
25 nuclear power plants in Canada?

1 Two, what are the yearly premiums for the
2 \$75 million liability coverage at Point Lepreau, and who
3 are the insurers?

4 Thank you.

5 **THE CHAIRPERSON:** Thank you.

6 Dr. Barriault?

7 **MEMBER BARRIAULT:** Thank you, Mr. Chairman.
8 I'll start with the last question first, I guess.

9 On page 3 of the intervention, the
10 intervenor asks if there's contingency plans in place for
11 long power interruption at nuclear plants, and can we ask
12 the CNSC staff to respond to this? So I understand, a
13 long-term interruption would be how long, roughly, weeks?

14 **MR. ARNOLD:** Months.

15 **MEMBER BARRIAULT:** Months.

16 **MR. RZENTKOWSKI:** Yes, this problem has
17 been assessed in the Fukushima task force report and it
18 has been demonstrated that in the case of prolonged loss
19 of power, the reactor will shut down safely, it will be
20 maintained in a safe state, pretty much indefinitely.

21 So there's definitely no safety concern.
22 Of course, there will be no production of power so this
23 may have an impact on other human activities in the region
24 affected, but definitely there's no safety concern related
25 to a prolonged loss of power.

1 **MEMBER BARRIAULT:** Thank you.

2 I guess the next question is to NB Power.
3 What effect does the solar flares or magnetic flares have
4 on the operation of nuclear power plants, if any?

5 **MR. PARKER:** For the record, Wade Parker.

6 As I mentioned earlier when I spoke about
7 our various diesel sets that we have, our standby
8 generators and our emergency power generators, we have
9 adequate fuel supplies for at least five days. Any flares
10 that we have had seen up to date, nothing of that nature.

11 So then the question you might want to ask
12 is about fuel supplies. We are confident that within a
13 five-day period we can get fuel to the station without an
14 issue.

15 **MEMBER BARRIAULT:** Does that answer your
16 question?

17 **MR. ARNOLD:** No, because I said it could be
18 extended and if it took the grid down, what then, because
19 well, I don't think that the oil refinery could operate
20 without electricity either.

21 **MR. THOMPSON:** For the record, Paul
22 Thompson. I'm the Manager of Nuclear Safety & Regulatory
23 Affairs at Point Lepreau.

24 I think it is worthwhile to mention that
25 the Province of New Brunswick has a critical

1 infrastructure program. It involves a number of key
2 sectors such as the energy sector which is -- to which
3 power generation falls into -- food, health, and
4 transportation.

5 And they meet on a regularly scheduled
6 basis and identify challenges and solutions to various
7 critical situations that could potentially arise, such
8 that to ensure that the necessary provision for these
9 facilities are made available, and obviously if they are
10 not available in the local area they will be brought in.

11 And so that is part of what we actually
12 work with cooperatively as the various industries with the
13 Department of Public Safety.

14 **MEMBER BARRIAULT:** Thank you.

15 And I guess your third question was on the
16 issue of nuclear liability. Can we ask CNSC staff to
17 comment on this?

18 **MR. RZENTKOWSKI:** This question was
19 actually related to the estimation of risk, which was also
20 presented in the intervention. And if you don't mind, I
21 would like to comment for a short moment on the assessment
22 of risk.

23 Risk is a product of likelihood and
24 consequences, and the likelihood was estimated here as 1
25 in 150, but in my opinion, I'm sorry to say that but this

1 calculation is not correct because we have approximately
2 450 reactors operating worldwide with an average operation
3 time exceeding 30 years. So that means we have
4 approximately 15,000 years of operation of power reactors.

5 And now if we divide this by 3, because we
6 had so many accidents to date, we have 5,000 operating
7 years of reactors per 1 accident, so it differs quite
8 significantly from the number which is given in the
9 intervention.

10 And I would like also to mention that in
11 Canada currently we have over 1,000 years of reactor
12 operation and we didn't have any accidents whatsoever. So
13 statistics is a very dangerous thing and has to be used
14 correctly.

15 And coming back to your question on nuclear
16 reliability assurance, I would like to direct this
17 question to Clare Cattrysse again.

18 Thank you.

19 **MS. CATTRYSSSE:** Clare Cattrysse, for the
20 record.

21 I'm probably not adding much here because I
22 think, Mr. Arnold, you do know about the *Nuclear Liability*
23 *Act* and, in this case, the Point Lepreau station is
24 designated as a nuclear installation under this Act. And
25 the operator is required to have nuclear liability

1 insurance up to -- and it goes up to \$75 million and the
2 insurance is provided by the Nuclear Insurance Association
3 of Canada, known as NIAC.

4 So that's really all I can say and we don't
5 really have -- are not privy to the amount of the premiums
6 that the operator is paying. That's all.

7 **MEMBER BARRIAULT:** Thank You. Thank you,
8 Chair.

9 **THE CHAIRPERSON:** Dr. McDill?

10 **MEMBER McDILL:** I am going to ask Point
11 Lepreau to do a series of hypotheticals.

12 The grid goes down, the reactor shuts down,
13 goes into safe shutdown mode; it can stay cool for quite a
14 while on its own.

15 So you do -- if you need to bring in water
16 for the fuel cooling or you need to bring in fuel, can it
17 come in through the Bay of Fundy? Can it -- what are the
18 alternatives so that the community has some sense of what
19 the backups are?

20 **MR. THOMPSON:** For the record, my name is
21 Paul Thompson from NB Power.

22 Yes, there's a variety of methods in which
23 necessary commodities could be brought into the station by
24 road, of course, which is the main one; by water or by air
25 and even by road, if necessary.

1 If, for example, in a natural event, for
2 example, part of what the emergency preparedness would be
3 doing is looking at bringing the necessary equipment to
4 clear roads, assess health of bridges, put up temporary
5 bridges as necessary.

6 The emergency measures organization has a
7 military liaison officer located at their facility in
8 Fredericton which allows us to tap into that as a
9 potential resource if we need to.

10 So there are lots of ways in which we can
11 ensure from the logistics side that necessary equipment or
12 supports or materials are brought into site.

13 **MEMBER McDILL:** How do you share these
14 potential backup plans with the community that is
15 expressing its concern?

16 **MR. THOMPSON:** Again, for the records, Paul
17 Thompson.

18 I think one of the -- one of the very
19 interesting things that we've had as we've gone through
20 dialogue with a number of intervenors is a need to even
21 get out even more information out into the public. And I
22 think that we've seen that we can do -- in the spirit of
23 continuous improvement and even better job, trying to put
24 some of that information out and available.

25 One of the observations that we make is

1 that the closer you live to a nuclear plant, generally,
2 the better informed that they are and the less concerns
3 that they generally have. Nonetheless, still there's
4 people that have legitimate concerns and want information
5 that don't live close to the plant and they are harder to
6 get at; and that's one of the things that we certainly
7 take very seriously.

8 I think we've learned a lot from every time
9 we engage the public in these kinds of hearings --
10 additional information that we could potentially make
11 available to us.

12 So I know we've certainly had the
13 discussions with our public affairs people about getting
14 additional information such as this out and Fukushima
15 certainly highlighted that.

16 **THE CHAIRMAN:** Still, on the supply of
17 water.

18 You never mentioned -- you know, as a last
19 resort in a real severe accident, what about sea water?
20 Do you have the provision to be able to pump, very close
21 by, a source of a huge amount of water? Is that part of
22 the defence in depth as almost a last resort? Is that
23 built in right now?

24 **MR. THOMPSON:** Again, for the record, it's
25 Paul Thompson.

1 A very good question, Dr. Binder. The
2 short answer is yes. That was -- I referred to earlier an
3 example of the calandria vault makeup line that has a
4 connection that is external to the reactor building to
5 which has the various adaptors for fire system
6 connections.

7 So that means that we could either connect
8 it through -- to provide the necessary flow from the fire
9 system, through the fire hydrants, through an external
10 truck or through a temporary pump that is, in fact, taking
11 water directly out of the Bay of Fundy. And that is in
12 place now.

13 **THE CHAIRMAN:** Thank you.

14 Dr. McDill?

15 **MEMBER MCDILL:** I wanted to ask staff to
16 talk a little bit about the documentation that has come to
17 them in this area, emergency preparedness and planning.

18 **MR. RZENTKOWSKI:** I would direct this
19 question to Luc Sigouin.

20 **MR. SIGOUIN:** Dr. McDill, could I ask you
21 to clarify the question, please? Thank you.

22 **MEMBER MCDILL:** In the preparation of the
23 material for the various hearings, Day One and Day Two,
24 what has staff seen with respect to emergency preparedness
25 and emergency plans for Lepreau? What documents have you

1 reviewed?

2 **MR. SIGOUIN:** For the safety and control
3 area, emergency preparedness, emergency management for our
4 controllers, two aspects on the fire aspects and then
5 another on emergency preparedness.

6 Documentation that was reviewed by staff
7 was a review of the existing plans, program documentation,
8 review of performance during exercises during the
9 licensing period, and any inspection results.

10 And that is synthesized into what you saw
11 in the CMD.

12 **MEMBER MCDILL:** And you are confident that
13 all documentation was complete and that there were no gaps
14 -- other than the fire that we know about -- that exist?

15 **MR. SIGOUIN:** Luc Sigouin, for the record.

16 New Brunswick Power may want to add to this
17 afterwards.

18 New Brunswick Power had -- going into the
19 refurb -- had an acceptable emergency preparedness
20 program. And they are in the process now of forming some
21 enhancements to it, converting to an incident command
22 system, making some changes to their structure and how
23 their plans are laid out.

24 They are in the process of developing that
25 revised documentation and have prepared a plan for the

1 implementation of the improvements to their emergency
2 plan, their emergency program.

3 There's an action item open with the CNSC
4 so that there is a good understanding between New
5 Brunswick Power and CNSC on how this will be managed going
6 forward.

7 And we have reviewed the plan and we are
8 planning to do the documentation review and inspections to
9 confirm the adequacy of the improvements that they are
10 making.

11 **MEMBER MCDILL:** Thank you.

12 I'll go back to Lepreau if they want to top
13 that up?

14 **MR. KENNEDY:** Yes, for the record, Blair
15 Kennedy.

16 I would have Charles Hickman, the point man
17 on this, to ensure that we are in an emergency
18 preparedness nature and respond properly.

19 **MR. HICKMAN:** Charles Hickman, for the
20 record.

21 If I may, I'll touch on a couple of areas
22 which I think would be of relevance to the question.

23 With regards to severe accidents, which I
24 think is where some of the intervenors mutual concerns
25 came from, we have recently completed -- just finalizing I

1 suppose -- the final implementation of what we describe as
2 the Severe Accident Management Guidelines.

3 So these are a series of guidelines that
4 did not exist previously. They are guidance documents for
5 use by, primarily, our operations staff, which would give
6 them additional tools from the point of view of procedures
7 and guidance into how they would respond to a severe
8 accident.

9 The Severe Accident Management Guidelines
10 were actually spawned out of the project has been ongoing
11 within the CANDU owners' group and actually is an
12 international exercise for several years now, and we have
13 just finished, completed, a little over 20 table-top
14 exercises where it demonstrated the capability of our
15 operations and planning staff to use those guidance
16 documents in the event of a simulated severe accident.

17 CNSC staff have been to the site and have
18 witnessed some of the table-top exercises that have been
19 run through our simulator, and that, I'm sure, will turn
20 into part their annual report going forward.

21 So with regards to the severe accident
22 management guidelines, we have a significantly enhanced
23 capability to respond to severe incidents, severe
24 accidents.

25 With regards to the overall emergency

1 planning procedures, tools and organization onsite, the
2 station has always had, in accordance with CNSC guidance
3 documents, an emergency management plan, emergency
4 management organization, a response organization. And as
5 alluded to earlier, it is closely linked with the
6 provincial offsite emergency response plans to ensure that
7 we have a comprehensive capability to respond to both
8 onsite and offsite issues.

9 During the refurbishment outage, we had
10 looked at our organizational structure with regards to the
11 model used to support the emergency response organization
12 onsite, and we have adopted what's referred to as the
13 incident command system as the model to use for organizing
14 for and responding to an emergency. This is a scalable
15 approach to managing emergencies. Actually, it's the same
16 one that the CNSC recently adopted, and is, as the
17 province indicated earlier, it's aligned with the
18 instrument management system.

19 So the organization charts that
20 Mr. MacGillivray placed earlier are essentially the same
21 types of organizations that N.B. Power has internally.

22 So we have as part of that upgrade, if you
23 like, or that improvement to our emergency plan, we have
24 trained, and are in the process of training, additional
25 members of the organization, and the better defined roles

1 that come with adopting the model.

2 So we have improved the definition of the
3 roles. And people are now going through table-top
4 exercises to demonstrate the capabilities.

5 Throughout this we have maintained a
6 response capability and an emergency management
7 organization onsite, and again, as indicated previously,
8 we will be exercising that capability in conjunction with
9 the province in the spring.

10 **MEMBER McDILL:** Thank you, Mr. Chair.

11 Thank you.

12 **THE CHAIRMAN:** Any other questions? Okay,
13 thank you very much.

14 You want to say a final word?

15 **MR. ARNOLD:** My final word is Fukushima was
16 strike three.

17 Thank you.

18 **THE CHAIRMAN:** Thank you.

19 I think it's a good time for us to break
20 for 15 minutes. So we will reconvene -- I have 3:47. I
21 don't want to do the math -- 4:02.

22

23 --- Upon recessing at 3:47 p.m.

24 --- Upon resuming at 4:09 p.m.

25

1 **MR. LEBLANC:** Thank you.

2 Just after we ended with Mr. Ennis'
3 presentation, you will recall that he had asked if some
4 questions could be asked, and one such question did not
5 come to our attention until we were finished with the
6 element, and I'll just paraphrase what the question was.
7 It was really about given that there's a lot of other
8 technologies than nuclear, particularly those available
9 from Mother Earth, whether we would consider, or why isn't
10 it being considered to use thermal energy or other energy
11 rather than nuclear?

12 As the President indicated earlier in his
13 opening remarks, the CNSC does not look at energy policy
14 questions. We just ensure that nuclear, if it is used in
15 part of the energy policy, is used in a safe manner.

16 So in that context, that question could not
17 be addressed by the Canadian Nuclear Safety Commission,
18 but one that we're putting on the record so that
19 government officials, should they wish, could address in
20 due time.

21 Thank you.

22 **THE CHAIRMAN:** Thank you, Marc.

23 Let's move on to the next submission, which
24 is an oral presentation by Fundy Baykeeper, as outlined in
25 CMD-H12.2, and I understand, Mr. Abbott, you will make the

1 presentation? Please proceed.

2
3 **11-H12.20**

4 **Oral Presentation by**

5 **Fundy Baykeeper**

6
7 **MR. ABBOTT:** Okay, thank you, Mr.
8 President, and Commissioners.

9 My name is Matthew Abbott, and I am the
10 Fundy Baykeeper with CCNB Action. We're the marine
11 project of CCNB Action, and we work on the Bay of Fundy to
12 identify threats to the bay and address these threats, and
13 we maintain an on-the-water watchdog presence in a small
14 patrol boat. So that's just a bit about our organization.

15 To give context to my comments, I'd just
16 like to point out that in a 2010 Fisheries & Oceans Canada
17 report on status and trends of marine ecosystems, we
18 learned that the Bay of Fundy is under extreme stress, and
19 this stress is causing the food chain to deteriorate. And
20 this is especially -- it especially notes deterioration at
21 the zooplankton level, so the very small organisms that
22 are often in the top of the water column that form the
23 base of the food chain.

24 And so when we're speaking specifically
25 about Point Lepreau and sort of on the Bay of Fundy, I

1 think it's very important that we take note of that.

2 Given this, it becomes perhaps more
3 critical than in the past to address all potential sources
4 of further stress on this food chain.

5 For this reason, we think it's critical to
6 consider the impact of entrainment or the water -- the
7 potential effects on the organisms in the water being
8 drawn into the plant from intake and the effects of this
9 on the marine ecosystem.

10 And with respect to CNSC staff who
11 responded to my written submission earlier today, I don't
12 feel that the comments made this morning fully address our
13 concerns. In our submission, we requested regular
14 sampling of intake water to determine what marine
15 organisms are being brought into the system, and from what
16 I heard earlier, the focus was on larger organisms,
17 organisms that can sort of resist and swim against even a
18 low flow of water.

19 And we're particularly concerned about the
20 many small organisms I mentioned earlier, including eggs,
21 fish larvae, zooplankton, and phytoplankton, that wouldn't
22 be immediately obvious and that wouldn't necessarily be
23 able to get themselves out of the intake system.

24 And so given the stress already facing the
25 Fundy ecosystem, we think it's critical to fully

1 understand the impact on the organisms being drawn into
2 the plant, and so I sort of -- I reassert the call we made
3 in our submission, especially in light of the comments
4 from CNSC staff that regular sampling be carried out of
5 the water being taken into the plant and that it be
6 assessed especially for the small organisms.

7 And this is, as I mentioned earlier,
8 especially pertinent now because we know that the Fundy
9 system is under extreme stress and so every potential
10 source of impact needs to be assessed fully.

11 And I'll make one other brief comment about
12 another issue just to sort of hear comment from staff and
13 potentially from NB Power on this.

14 As many of you may or may not be aware,
15 there's a salmon aquaculture site just off the discharge
16 pipe from the station, and I'd be curious to know what
17 assessment of those food fish are being done to ensure
18 that there is no contamination, especially in relation to
19 the running of a nuclear plant.

20 So those are just brief comments that I
21 think add to my submission. In the interest of not re-
22 reading my submission, I'll leave it to that.

23 **THE CHAIRMAN:** Okay. Thank you very much.

24 Want to start, Dr. McDill?

25 **MEMBER McDILL:** Thank you.

1 Have you made the request for monitoring of
2 the source from, let's say, municipal water supplies,
3 other places that are making -- taking water from the Bay,
4 and are they providing it to you?

5 **MR. ABBOTT:** At this moment I haven't sort
6 of made -- I don't have a request on all of those sources,
7 but it is an abiding concern and so when the opportunity
8 for this assessment came up, we made it in the context of
9 Point Lepreau, but we also are interested in that in terms
10 of other power generation facilities and as well as other
11 municipal sources and others.

12 So sort of in light, especially, of the
13 findings of the 2010 report, that is something we will be
14 following up on sort of across the board, though I don't
15 have any results to report to you in terms of other
16 sources.

17 **MEMBER MCDILL:** Mathematically speaking,
18 how would you make use of this information if you had it
19 to assess how much is being consumed or damaged or
20 rejected or given back or whatever?

21 **MR. ABBOTT:** Well, I mean, I would leave it
22 to sort of marine biologists to set the exact sampling
23 size and such that we would need, but we -- an appropriate
24 sampling size would be determined and at an appropriate
25 frequency that I think given the sort of quantity of

1 intake from the facility we would be able to assess the
2 potential scale of what's being drawn in.

3 And I recognize that one of the challenges
4 we have in trying to address some of the serious problems
5 that the Bay is facing is that we don't -- you know, we
6 don't have an exact number on sort of organisms that are
7 in the Bay and that sort of thing and we can't
8 necessarily, but it would give us a sense of what's being
9 drawn in and then it would help us sort of assess any
10 potential impacts and, from there, if there's any
11 possibility of mitigation measures, they could be
12 undertaken.

13 But I think the critical first step is to
14 get a sense of what's going through the system.

15 **MEMBER MCDILL:** Staff, does DFO do anything
16 like this?

17 **MR. RZENTKOWSKI:** I will ask Mike Rinker to
18 respond to that question.

19 **MR. RINKER:** Mike Rinker, for the record.

20 In general, yes, DFO does this sort of
21 work. They've done analysis and assessments of designs
22 for monitoring programs for other facilities in the Bay of
23 Fundy.

24 We've -- we're in contact with other
25 regulators as per usual for every plant, and DFO focused

1 more on the release of nuclear substances and -- however,
2 they have committed to work with the CNSC on the review of
3 designs for monitoring for both impingement and
4 entrainment now, should the Commission decide to relicense
5 the facility.

6 **MEMBER McDILL:** Right down to the level of
7 zoo plankton and phytoplankton?

8 **MR. RINKER:** Absolutely, yes.

9 In -- I guess maybe just for clarification,
10 if I could, impingement is when larger fish get impinged
11 up against the screens and die, and entrainment is for the
12 smaller things that can pass through the screens, whether
13 they be eggs or smaller types of fish and so on.

14 So there's two different types of effects,
15 and both would be -- both can potentially pose a risk and
16 both would be required for monitoring.

17 **MEMBER McDILL:** Do we monitor this kind of
18 thing at any of the other nuclear facilities?

19 **MR. RINKER:** Mike Rinker, for the record.

20 Yes, we do, so -- and we have worked with
21 Department of Fisheries and Oceans on those monitoring
22 plans for other nuclear facilities.

23 This monitoring has been done at Point
24 Lepreau. The mitigation measures are fairly robust and so
25 the monitoring was discontinued, but we certainly think

1 that fish populations evolve. Numbers and abundances
2 change over time, so to reconfirm the effectiveness, we
3 certainly support the request by this intervenor,
4 something that would be implemented through the design of
5 an appropriate large environmental monitoring program.

6 **MEMBER McDILL:** If I can, New Brunswick
7 Power, when was the mitigation -- or sorry, when was the
8 collection of this stopped?

9 **MR. KENNEDY:** For the record, it's Blair
10 Kennedy. I'll direct that question to Charles Hickman.

11 **MR. HICKMAN:** Charles Hickman, for the
12 record.

13 I'll just recap for a moment. The initial
14 studies that were done with regards to entrainment and
15 impingement which looked at the -- both the densities, the
16 number of fish and the types of species that would be
17 found in and around the Point Lepreau peninsula, they were
18 done between approximately 1976 and 1980s. So those were
19 the initial baseline studies that looked at, as I
20 indicate, population and species diversity in the area.

21 In the design process, the design took that
22 information into account in terms of the design of the
23 intake structures, the flows through the system, and then
24 subsequently, in the mid '80s is when Environment Canada
25 decided to develop its guidance with regards to the design

1 of cooling water systems and steam -- well, basically
2 power plants.

3 So the designers at that time actually used
4 Point Lepreau as a best practice and state of the art
5 practice in design at the time, and that reflected two
6 quite different scenarios.

7 When you're on a lake or river system
8 versus basically an open-based situation, you're in a very
9 different biological situation. So in Ontario they're on
10 lake systems and the concern there is that you have
11 effectively a static population and a static species mix,
12 and so any impacts you have are essentially become a
13 cumulative impact.

14 When you have the Bay of Fundy, which
15 flushes and changes, the water exchange is extremely high.
16 When you look at that from population impact from Point
17 Lepreau, it was deemed at the time to be an insignificant
18 impact, largely because of the population structure, the
19 diversity and the way the Bay of Fundy itself works.

20 In 1989, there was consideration of another
21 power plant being -- sorry. In 1985, there was
22 consideration of a Lepreau 2 being built. Those studies
23 were revisited. DFO was very much involved, along with
24 Environment Canada and the AECEB at the time and concluded
25 at that time that it was still a suitable site for power

1 plants, at that time for a second power plant.

2 We did additional studies in 1989,
3 published in 1990-91, which looked at more recent data
4 that was collected at Point Lepreau. We had people out
5 with basically fisheries gear collecting both zoo
6 plankton, phytoplankton as well as larger fish species.
7 That data was collected for a number of seasons.

8 The data -- the preliminary results from
9 the data indicated that population densities were so low
10 it did not warrant continuing the studies for additional
11 years, so at that time the studies were ceased because
12 there was no value in continuing them because the impacts
13 were so small based on the very low population numbers
14 they were getting.

15 So since 1990, we haven't done any
16 additional specific extensive studies. We have had,
17 periodically, checks on the cooling water forebay to check
18 for seals and larger mammals, and that was also deemed by
19 DFO at the time to be a non-issue.

20 And so basically, we have done no detailed
21 studies since 1989 when it was deemed that there was no
22 significant impact.

23 That information was all reviewed in the
24 2003 environmental assessment that came before the
25 Commission in 2003 where we did consider the future

1 impacts of the effects of continued operation of the
2 station on all the fisheries issues in the Bay of Fundy,
3 both zoo plankton, phytoplankton as well as the larger
4 fish populations.

5 So we haven't done any fieldwork since
6 1989, but the data has been updated and reviewed as
7 recently as 2000 with the environmental assessment.

8 With regards to work that is ongoing with
9 the Bedford Institute of Oceanography and DFO, they are
10 still actively involved in the Bay of Fundy. They have
11 primarily been looking at thermal impacts. The thermal
12 impacts are directly related to the effect on zooplankton
13 and phytoplankton as well as larger fish species.

14 So that work has been ongoing. DFO,
15 through the Bedford Institute, have had an active program
16 since the early 80's, looking at potential impacts from
17 the station, and their studies to date have indicated no
18 significant impacts. And those, like I said, are
19 published peer-review studies they've put out for many
20 years.

21 **MEMBER McDILL:** Thank you.

22 Does the intervenor have access to those
23 studies? Have you seen those studies?

24 **MR. ABBOTT:** I've seen a number of studies.
25 I'm not sure if -- I've been following, sort of, some of

1 the research coming out of DFO, but I may not have some of
2 the specific ones that was referenced.

3 **MEMBER MCDILL:** Thanks, Mr. Chair.

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

5 **MEMBER BARRIAULT:** Just one brief question.

6 If I understand correctly, you mention that there's a
7 salmon aquaculture on the exhaust -- or discharge side of
8 the cooling.

9 Is it close to the system, or is it quite a
10 distance away?

11 **MR. ABBOTT:** As I understand it, it's quite
12 close to the system.

13 **MEMBER BARRIAULT:** To NB Power; has any
14 sampling been done to those fish really -- if there's any
15 problems? Are they growing faster than usual?

16 **THE CHAIRMAN:** Go ahead.

17 **MR. HICKMAN:** Charles Hickman, for the
18 record.

19 Yes, the aquaculture facility has been in
20 place on the east side of the peninsula now for several
21 years. When they were looking to establish that facility,
22 it is technically very close to our exclusion zone, so we
23 did meet with the developer at the time. They have to go
24 through a provincial licensing process to get that project
25 facility in place.

1 So we met with the developer, we had
2 several discussions about our presence, their presence,
3 potential interactions. We did at that time, and we have
4 since then, continued to sample a number of fish from the
5 aquaculture facility on an annual basis, as part of our
6 operational environmental radiation monitoring program,
7 the results of which are published every year, shared with
8 staff and available to the public.

9 To date there's been no issues at all with
10 any of the salmon in that aquaculture facility, so we have
11 a good working relationship with that operator.

12 **MEMBER BARRIAULT:** And any conclusion at
13 all from a difference in temperature?

14 Because obviously I would imagine the
15 temperature is warmed at the discharge side.

16 **MR. HICKMAN:** Charles Hickman for the
17 record.

18 The design of the cooling water system
19 leads to a difference in the surface temperature of
20 approximately three degrees, as a maximum temperature
21 difference between the intake and the discharge sides of
22 the facility.

23 The aquaculture facility is several hundred
24 meters away from the actual discharge ports. So I -- this
25 is an opinion -- I doubt you could measure the temperature

1 difference actually at the aquaculture facility.

2 **MEMBER BARRIAULT:** That's fine, thank you
3 very much.

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

5 I've just got one question. You started by
6 saying that there is a stress. First of all, I'd like to
7 know, how do you know there's a stress?

8 This morning we heard about the lobster
9 fishery setting records. It sounded like a healthy
10 environment.

11 And the second question is what else goes
12 into the Bay of Fundy, besides nuclear power plants? Is
13 there anything else, I mean, municipalities, farm runoffs,
14 the sewage system is all looked after?

15 The Bay of Fundy is a world-renowned kind
16 of a piece of real-estate. I assume a lot of people would
17 have sampled some of the water and tried to understand
18 what's in it.

19 **MR. ABBOTT:** Yeah, excellent question.

20 So there are -- I mean, this stress has
21 been identified in a 2010 DFO report on status and trends
22 of marine ecosystems around Canada.

23 And in relation to high-lobster landings,
24 I mean, this is a changing ecosystem and this is an
25 ecosystem with several indications of impact, and the best

1 sense we have right now is that those fairly significant
2 increases in lobster are due to a loss of predation,
3 primarily likely from the loss of cod, which often prey on
4 them especially as juveniles.

5 So abundance of lobster doesn't necessarily
6 mean the system is doing the -- the system at large isn't
7 necessarily doing great, because we're seeing changes in
8 the system and a lot of those changes are the result of
9 losses higher up the food chain.

10 And this DFO report does specifically
11 mention concerns with the food chain at the zooplankton
12 levels, so at the base of the chain level.

13 So that's how I know there's stress. And
14 there are another -- a number of other discharges into the
15 bay through river systems, through various industries,
16 through agriculture, through sewage.

17 There's still several areas with problems
18 with sewage treatment, some of them like St. John being in
19 the process of being fixed, you know, other areas that
20 still have quite a ways to go.

21 And so we certainly recognize that there's
22 a number of challenges on the bay and a number of sources
23 of pollution. And we certainly were -- our gaze isn't
24 only directed at Point Lepreau, per se, but it also
25 applies to Point Lepreau.

1 **THE CHAIRMAN:** Okay. Staff, you wanted to
2 add something?

3 **MR. RZENTKOWSKI:** Thank you very much.
4 Yes, I would like to add to the responses provided by both
5 CNSC staff and the industry.

6 Recently -- that is, in May 2010 -- a new
7 industry standard has been issued, entitled Environmental
8 Monitoring Program at Class 1 Nuclear Facilities and
9 Uranium Mines and Mills.

10 We performed a gap analysis between the
11 requirements in the standard and the concerns raised in
12 the interventions, and we concluded that once this
13 standard is fully implemented, those concerns would be
14 also fully addressed.

15 Currently, we are working with the industry
16 on implementation plans for this particular standard, and
17 we would like to recommend to the Commission that this new
18 standard will be implemented in the license condition
19 handbook as a recommendation and guidance first.

20 Once we establish the implementation plan,
21 we will amend the license to include this in the license
22 condition.

23 **THE CHAIRMAN:** And does this new standard
24 include monitoring requirements?

25 **MR. RZENTKOWSKI:** That precisely is for

1 monitoring programs requirements, yes.

2 **THE CHAIRMAN:** And how fast can it be
3 implemented?

4 **MR. RZENTKOWSKI:** The implementation plans
5 are being discussed with the industry. As a matter of
6 fact, we already decided on a workshop which will be held
7 in January.

8 The current indication is that the industry
9 could put all monitoring programs in place and be in
10 compliance with this standard by the end of 2013.

11 **THE CHAIRMAN:** Okay. Any follow-up?
12 Anything -- do you want to say a last word here?

13 **MR. ABBOTT:** I just have one ---

14 **THE CHAIRMAN:** Oh, sorry. We'll let you
15 sit.

16 **MR. JAMMAL:** There are a couple of things
17 though.

18 Staff has taken Day One and Day Two, and we
19 take the intervention seriously to the point that we've
20 amended the license condition handbook, as Dr. Rzentkowski
21 mentioned, with the implementation of the new CSA
22 standard.

23 However, we should not forget the fact that
24 environmental monitoring is ongoing, so we're not stopping
25 anything. This is an added enhancement in the

1 environmental monitoring program, in accordance with the
2 CSA 288.4 -- now I'm mixing the numbers here --- Section
3 10 of the LCH, that everybody has.

4 So the environmental monitoring is ongoing.
5 That's an improvement with respect to the future. And we
6 have -- as part of the implementation plan the licensee
7 will have to conduct a gap analysis and put the
8 implementation plan in place and we'll be monitoring
9 accordingly.

10 **THE CHAIRMAN:** Okay, Mr. Abbott.

11 **MR. ABBOTT:** Just one quick follow-up
12 question. I appreciate the answers so far.

13 I'm just curious whether there's actual
14 sampling occurring in the fore-bay around, sort of,
15 zooplankton community and stuff.

16 I know there's checks for mammals and
17 larger species, but is there sampling also for the smaller
18 organisms?

19 **MR. HICKMAN:** Charles Hickman, for the
20 record.

21 No, at the moment there is not. And
22 perhaps I can give some context as to why that decision is
23 where it is.

24 As staff have indicated, there's a series
25 of standards that have basically been promulgated through

1 the CSA program. Even without those CSA standards -- and
2 CSA standards is a suite of three that are really key to
3 this discussion.

4 One is the ecological risk assessment or
5 environmental risk assessment standard, one is with
6 regards to environmental monitoring, and one is with
7 regard to effluent monitoring.

8 Point Lepreau, NB Power -- we have already
9 put together, and have done, an ecological risk
10 assessment. We did that back in 2005. That has been
11 shared with staff at that time.

12 In addition, the risk assessment is used to
13 inform and guide the monitoring program. And so the risk
14 assessment we did in 2005 essentially confirmed the
15 monitoring program that we had in place was targeting
16 those issues that needed to be monitored. The operational
17 environmental radiation monitoring program that is in
18 place today covers that entire suite of issues as
19 identified at the time.

20 So the monitoring program that we have in
21 place today is consistent with the ecological risk
22 assessment in the CSA approach to defining what should be
23 covered in the -- both the effluent monitoring and the
24 environmental monitoring.

25 **THE CHAIRPERSON:** Okay.

1 **MR. BOURQUE:** I have no further comments.
2 Thank you.

3 **THE CHAIRPERSON:** Thank you.
4 Thank you very much.

5 We will move now to the next submission
6 which is an oral presentation by Ms. Anne Harding as
7 outlined in CMD H12.25.

8 Ms. Harding, the presentation is yours.

9

10 **11-H12.25**

11 **Oral Presentation by**

12 **Anne Harding**

13

14 **MS. HARDING:** Good afternoon, Mr. President
15 and Members of the Commission.

16 My name is Anne Harding and I have an
17 interest in the licence renewal. I have been a resident
18 of the immediate community of Point Lepreau Nuclear
19 Generating Station since 1968.

20 My family history in this area goes back to
21 the early 1800s. In fact, the reactor's structure is
22 built on my grandfather's homestead. The plant is located
23 less than 2 kilometres from my back door, and after 32
24 years in the education system I retired in 2005 from -- as
25 a position of school principal from the Fundy Shores

1 School; a kindergarten to grade 8 school, which is located
2 in Dipper Harbour, New Brunswick.

3 My presentation will focus on the role the
4 Point Lepreau Nuclear Generating Station as it pertains to
5 the following four points.

6 Number one, the enrichment of the science
7 program at Fundy Shores School.

8 Number two, the plant staff's sharing of
9 expertise and raising environmental awareness with the
10 students and the staff of Fundy Shores School.

11 Number three, the exchange of information
12 between the community relations liaison committee and the
13 community.

14 And, number 4, the provision of information
15 to the community by way of information sessions.

16 The first point I would like to discuss is
17 the enrichment of the science program at Fundy Shores
18 School. Although I am now retired, I still keep very
19 close contact with the school.

20 The staff at Point Lepreau is always
21 willing to assist in this curriculum as demonstrated by
22 their active involvement in the science club, which I
23 continue to volunteer and run.

24 During Point Lepreau staff's visits to the
25 school, they give lectures, notes and demonstrations to

1 enhance the students' awareness of the topic of
2 discussion.

3 They have encouraged the students to do
4 their best in any project that the students undertake for
5 science. The visual presence has allowed the students to
6 witness men and women actively engaged in the scientific
7 process.

8 Periodically, they have loaned the school
9 science equipment such as tripods, distilling equipment
10 and density apparatuses to enhance the science program.
11 For many years now, the Point Lepreau staff has offered
12 awards for academic excellence to the middle school
13 students.

14 Recently, they have added an award to
15 promote the science program even further by offering a
16 year-end reward to the grade 8 student who shows the most
17 promise in pursuing a scientific career.

18 The second point I'd like to discuss is the
19 plant's sharing of expertise and raising of environmental
20 awareness among the staff and the students of Fundy Shores
21 School. For several years, the generating station staff
22 have sponsored an Earth Day event at the school which
23 includes every student and every school staff member. In
24 the past, it has included contests in which the students
25 were assigned to multi-aged teams from kindergarten to

1 grade 8 and were given a project to work on.

2 In 2011, this past spring, Point Lepreau's
3 staff joined with the school staff and students for a
4 community clean-up and during this day the Point provided
5 garbage bags, gloves and other necessary materials to make
6 this a very successful operation.

7 According to the teachers, it was the most
8 rewarding Earth Day event held. Its impact on the
9 students was significant in that they realized just how
10 much damage littering can do to the environment.

11 In conjunction with the school, Point
12 Lepreau continues to be involved in the annual marigold
13 planting in the community.

14 The third point I will discuss is the
15 exchange of information between the community relations
16 liaison committee and the members of the community.

17 The purpose of these committee meetings is
18 to disseminate to the community accurate and pertinent
19 information regarding Point Lepreau Nuclear Generating
20 Station. Such information is presented in an orderly and
21 coherent manner with opportunities for questions and
22 feedback.

23 The staff at Point Lepreau are
24 knowledgeable, open and frank in the discussion of any
25 issue, giving full disclosure to the matter as it concerns

1 the community. Their willingness to take the time and
2 effort to explain the issues demonstrates to the community
3 -- sorry, the committee that they are fully aware of the
4 situations and desire that the community understands the
5 implications fully.

6 The liaison committee meets once a quarter
7 with special meetings being called if the need arises.
8 The committee has recently addressed topics such as the
9 refurbishment project, waste storage, emergency planning
10 and response teams, and community concerns.

11 Persons from the community are able to
12 contact committee members with any questions or concerns
13 they might have. These questions and concerns can then be
14 addressed at the next committee meeting. It is a general
15 belief of the members of the committee that the nuclear
16 generating station is a vital part of our community.

17 I am no longer an active member of this
18 committee, yet I continue to receive accurate and timely
19 information through the school representative on any
20 matter that is addressed at these meetings.

21 The fourth point I will discuss is the
22 information that is provided to the community at large
23 through the information sessions. Point Lepreau Nuclear
24 Generating Station has held information meetings in the
25 local fire halls in the community.

1 These sessions include visual presentations
2 in the form of large posters and videos. The staff is
3 well represented and professionally discusses the
4 information with the public. The data is presented in a
5 clear, informative manner which is easily understood by
6 the local population. The staff always appreciates
7 feedback and questions to clarify any point that is
8 raised.

9 For the aforementioned reasons, I opine
10 that the New Brunswick Nuclear Power operating licence for
11 the Point Lepreau Nuclear Generating Station should be
12 renewed.

13 As a retired educator and a member of the
14 community, I suggest it is beneficial to the school, the
15 environment, and the community that the plant continues to
16 operate.

17 Thank you.

18 **THE CHAIRPERSON:** Thank you.

19 Dr. Barriault?

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

21 I would like to ask the intervenor here on
22 the question of the information sessions. How often are
23 these held; are they on a regular basis or recurrent?

24 **MS. HARDING:** The information sessions are
25 usually held on a needs -- as an occasion arises, but they

1 are well publicised in both the newspaper and locally.

2 **MEMBER BARRIAULT:** I guess the next
3 question really is that the community relations liaison
4 committee, can you give us an example, really, of some of
5 the -- of committee concerns that were addressed by NB
6 Power?

7 **MS. HARDING:** There have been several --
8 I'm trying to -- I'm racking my brains right now trying to
9 think what they would be -- but the refurbishment project
10 certainly has been a concern to the community at large,
11 and the staff fully explains that.

12 Oftentimes the rates that the power
13 commission charges are brought up too and that's addressed
14 fairly and openly and why we are paying the rates that we
15 are paying in New Brunswick.

16 **MEMBER BARRIAULT:** To NB Power, do you have
17 liaison with all the schools in the area or just this
18 school?

19 **MR. KENNEDY:** Yes, I'll ask Kathleen
20 Duguay, the public affairs manager, to field that
21 question.

22 **MS. DUGUAY:** Kathleen Duguay, for the
23 record.

24 We have -- having the Fundy Shores School
25 in our community, we certainly have a closer relationship

1 with the local community that is located there. However,
2 we have been in contact with several schools in the
3 province and offering information or presentations. We
4 also have received request from other schools in the
5 province to provide different types of information.

6 So, again, we have an open and transparent
7 process and we certainly welcome any invitation to schools
8 for any activities.

9 We also have a lot of members of our team
10 at Point Lepreau that lives in different communities, so
11 they have children in those schools where they participate
12 as parents to provide information to the school, so it's
13 basically all around the province.

14 Thank you.

15 **MEMBER BARRIAULT:** Do you have science
16 fairs for some of the schools or joint projects in science
17 at the plant?

18 **MS. DUGUAY:** Kathleen Duguay, for the
19 record.

20 We do participate to science fairs that are
21 held at schools. Again, we have had activities at the
22 station when we bring the students to the station as part
23 of career day and so on, but we're actively involved in
24 career fairs at schools through our employees at the
25 station and throughout the province.

1 **MEMBER BARRIAULT:** Thank you.

2 **MS. DUGUAY:** Thank you.

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

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

5 **MEMBER MCDILL:** I was just going to ask,
6 how many schools were directly visited as opposed to by
7 parents, for example? All of us who are parents know we
8 go to schools. But do you have any idea of directly how
9 many?

10 **MS. DUGUAY:** I don't have that information
11 with me but I can certainly provide that later.

12 **MEMBER MCDILL:** Maybe you can -- you know,
13 five, 10, 15, 20; can you ballpark it; between 50 and 100,
14 25 and 50?

15 **MS. DUGUAY:** I would say it would be 30 or
16 so, because it's not only people that work at the station
17 it's people that work throughout NB Power as a company,
18 and we're located all throughout the province. So we
19 participate in school activities through different means.

20 **MEMBER MCDILL:** Thank you, Mr. Chair.

21 **THE CHAIRMAN:** Anything else?

22 I've got one question. I guess you've been
23 living there for a long, long time. You heard this
24 morning a lot of people who have lots of concern with
25 nuclear power station. How come you don't share those

1 concerns?

2 **MS. DUGUAY:** I have no reason to. When I
3 was in university I was in contact with a gentleman who
4 became a doctor of nuclear science at, I think it was
5 Chalk River at the time, and we were friends, and he
6 assured me back then ---

7 **THE CHAIRMAN:** So you had an inside story?

8 **MS. DUGUAY:** I had the inside story back
9 then, and I have lived two kilometres from the station,
10 the school is located less than two kilometres from the
11 station, and I was more concerned about an oil truck
12 upsetting in front of the school than I was at Point
13 Lepreau when I was the principal at that school.

14 **THE CHAIRMAN:** So in these community
15 relations in the liaison community are there any people
16 who actually disagree? Are there any kind of debates that
17 occur with the presentation from the power station?

18 **MS. DUGUAY:** Definitely. We sometimes have
19 long discussions. But what I appreciate about it is the
20 frankness and the openness of the staff to answer those
21 questions and to come to an understanding.

22 It may not be -- you may have to agree to
23 disagree but we do have an understanding when we leave, a
24 clear viewpoint.

25 **THE CHAIRMAN:** Okay. Thank you, very much.

1 I'd like now to move to the next submission
2 which is an oral presentation by Ms. Charleen Sheehan as
3 outlined in CMD H12.31.

4 Ms. Sheehan, the floor is yours.

5
6 **11-H12.31**

7 **Oral presentation by**

8 **Charlene Sheehan**

9
10 **MS. SHEEHAN:** Mr. President and
11 Commissioners, my name is Charlene Sheehan. I'm an
12 employee at Point Lepreau.

13 I would like to talk about my experiences
14 during my career at Point Lepreau and more specifically in
15 the relation to safety and our people.

16 I began working at Point Lepreau in 1981 as
17 a cleaner and our first task was to clean the reactor and
18 the station to get ready for start-up -- for our first
19 initial start-up.

20 In 1986 I was hired by NB Power, and in
21 1987 I was a successful applicant as an administrative
22 assistant where I've been for the past 25 years, and
23 recently I'm in transition to become a human resources
24 officer.

25 Throughout my many years I've worked with a

1 lot of the different groups; I've worked with the computer
2 group. I've worked with -- I've had the responsibility of
3 being a fuel bundle accounting, which is -- which means
4 that I would track all the movements of nuclear fuel
5 through serial numbers in our accounting systems and
6 present reports at the end of every month to our
7 regulator, the CNSC, and as well, it was under the
8 watchful eye of the IAEA.

9 I worked very closely with our fuel
10 handling department, who are very impressive and quite
11 protective as they move the fuel around safely. It's very
12 interesting and nice to watch the pride that they take.

13 In that role, and seeing as our fuel is
14 stored in areas where that is -- there is radiation
15 hazards which require that I take the radiation protection
16 training so that I could go into those areas unescorted.

17 And what that means is I'm green badged
18 training, which is two months -- two months of training
19 that I had to take to give me that level of training and
20 also some in the field practice, and anyone that has a
21 green badge at our station has to re-qualify every three
22 years. So I've maintained that for many years.

23 I've also had the role of tracking heavy
24 water. I've worked with the engineers tracking heavy
25 water movements throughout the station.

1 I've worked in our plant -- I've been in a lot; I've been
2 in our boilers, I've been in our heat transport systems,
3 I've been everywhere and I've still managed to have two
4 babies safely.

5 It gave me great comfort knowing that if
6 anything happened to me -- and it also gave my husband
7 comfort know that if anything happened to me during my
8 pregnancies that our response teams were medically
9 qualified to look after me because the hospital was so far
10 away.

11 I've been involved with many pre-job briefs
12 that we're expected to do at our station before any jobs
13 that are done. We're required to use our human
14 performance tools, which is three-way communication. We
15 go over the jobs in detail that are going to be occurring.
16 We're asked to ask any questions. We're encouraged for
17 safety that we have -- if you don't feel safe you don't
18 proceed, you stop, you ask questions.

19 I like that we have the World Association
20 of Nuclear Operators, WANO, looking after not only us but
21 all the nuclear facilities around the world. Because of
22 Chernobyl they were created and I personally like having
23 that.

24 As a member of the Province of New
25 Brunswick, I believe that Point Lepreau getting their

1 licence is a good thing. I feel safe, if I didn't feel
2 safe I wouldn't work there. But I also like that we
3 contribute 33 percent of the electricity and I like to be
4 self-sufficient myself.

5 In conclusion, I have no problems with
6 safety. If I didn't feel safe there I wouldn't work
7 there. Our people are the best. And I get passionate
8 when I talk about our people. I know that I can go to
9 anybody anywhere in any department, whether it be
10 mechanical, electrical, facilities. The people are proud
11 -- proud of the work they do. They're dedicated.

12 We're really looking forward to restarting,
13 getting our reactor back and starting the plant, not only
14 for us, but for the Province of New Brunswick.

15 And that's about it.

16 **THE CHAIRMAN:** Thank you.

17 Dr. McDill?

18 **MEMBER McDILL:** No, thank you.

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

20 **MEMBER BARRIAULT:** Thank you.

21 That's very positive, by the way, but I'm
22 looking for the other side of the coin. Are there any
23 areas that you can see that are problems between employee
24 and management?

25 I know it's a tough question. They're

1 going to close their ears and not going to listen.

2 (LAUGHTER/RIRES)

3 MS. SHEEHAN: What kind of problems?

4 MEMBER BARRIAULT: Any kind of labour
5 relation problems.

6 MS. SHEEHAN: Labour relations, I think --
7 I'm a member of IBEW also. I think that any labour
8 problems that we have we address them at the plant. This
9 is my understanding.

10 MEMBER BARRIAULT: M'hm.

11 MS. SHEEHAN: This is what I know.

12 MEMBER BARRIAULT: M'hm.

13 MS. SHEEHAN: That we try to address them
14 at the plant and issues are resolved.

15 I've talked to other people from different
16 places that have different union management relationships
17 and they don't sound to be as well as ours and I'm proud
18 of that.

19 MEMBER BARRIAULT: So you've got a
20 mechanism for working issues that you're happy with?

21 MS. SHEEHAN: Yes.

22 MEMBER BARRIAULT: Okay. My next question
23 really is that you're going to be transitioning to new
24 standards over the next licence period. Do you foresee
25 any difficulties with employee/employer relationships?

1 **MS. SHEEHAN:** Are you talking -- what kind
2 of standards? Like are you -- I know when you were
3 mentioning earlier about the fire standards ---

4 **MEMBER BARRIAULT:** Fire standards, safety
5 and other things.

6 **MS. SHEEHAN:** Coincidentally I eat lunch
7 with the engineer that is the project lead that's
8 implementing these new fire standards, and I know how hard
9 and diligently that team is working on getting those up to
10 the standards that our regulator says that we need to
11 have.

12 And I've also been in the plant and I've
13 seen new fire things popping up. Like I've been in the
14 plant for 30 years so when new red things pop up you
15 notice them and it's -- you know -- enclosed stairwells --
16 we have to do what we need to do to have our regulator
17 feel safe, that we are complying and I don't -- I don't
18 see anything wrong with that.

19 **MEMBER BARRIAULT:** Thank you.

20 Thank you, Mr. Chair.

21 **THE CHAIRMAN:** I have one -- just a
22 curiosity, in your submission, on page 2, you talk about
23 the human performance tools. What is phonetic alphabet
24 and star; what are those?

25 **MS. SHEEHAN:** The phonetic alphabet, it's

1 almost funny that you mention that because I also said in
2 my submission that I take some of this stuff home and my
3 children know the phonetic alphabet, like a is alpha, b
4 is bravo, c is Charlie, so when we're talking about
5 specific things like channel, alpha or -- that means
6 channel A or if we're talking -- anything that you refer
7 to with a letter you say the phonetic so that it's not
8 mistaken. Because you can mistake a C for a D but you
9 can't mistake Charlie for Delta, so we use that at the
10 station regularly.

11 I bet you everybody knows the phonetic
12 alphabet.

13 **THE CHAIRMAN:** Obviously I didn't.

14 ---

15 (Laughter/rire)

16 **MS. SHEEHAN:** Well, no, I mean at our
17 station. I don't mean you, I mean at our station. I
18 don't mean you.

19 Especially in our -- in our protected area
20 and the control room, they all know it.

21 I didn't mean you.

22 **THE CHAIRMAN:** So that's for communication
23 purposes?

24 **MS. SHEEHAN:** It's for communications to
25 make sure that the language is -- if you get the right

1 letter.

2 **THE CHAIRMAN:** And "star", what is star?

3 **MS. SHEEHAN:** Star is the Stop act -- Stop,
4 think, act and review. And what that is is that if you're
5 working on a job and you're not sure then we have to stop,
6 you have stop, you have to think, you have to act and
7 review.

8 Sometimes the acting is going to get more
9 input from your supervisor, review what you're doing, it
10 could be a co-worker but if you're not sure we have to
11 stop.

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

13 Thank you very much.

14 We will move now to the next submission
15 which is an oral presentation by CCNB Action, Saint John-
16 Fundy Chapter as outlined in CMD 12.33, 12.33A, B, and C.

17 And I understand that Ms. Sharon Murphy and
18 Mr. Chris Rouse will deliver the presentation.

19 Please proceed.

20

21 **11-H12.33 / 11-H12.33A / 11-H12.33B / 11-H12.33C**

22 **Oral presentation by**

23 **CCNB Action, Saint**

24 **John-Fundy Chapter**

25

1 **MS. MURPHY:** Mr. President and esteemed
2 Commission Members, my name is Sharon Murphy and I'm the
3 Chair of the CCNB Action, Saint John-Fundy Chapter.

4 We're a local community-based environmental
5 group and received some funding from the CNSC to produce
6 one part of our intervention.

7 I would like to start by pointing out our
8 concerns to you. As the regulator, you do not seem
9 objective to us. We were under the opinion that the CNSC
10 is supposed to provide objective scientific information to
11 the public, that was from the *Nuclear Safety and Control*
12 *Act*.

13 However, a few months ago when we attended
14 the CNSC 101 workshop, we were all given a report that
15 stated fact nuclear in Canada is safe -- fact, nuclear is
16 safe in Canada. Where is the objective scientific
17 information in this statement?

18 We wonder how the CNSC can protect people's
19 health and safety and the environment adequately when they
20 already believe that nuclear in Canada is safe.

21 As well, we'd like to point NB Power to a
22 ruling by Advertising Canada. NB Power said at the
23 beginning of Day One that Point Lepreau was a part of
24 their renewable portfolio with non-emitting generation and
25 that Point Lepreau was non-emitting energy.

1 Advertising Canada has stated in a decision
2 to counsel the general (inaudible) conveyed by the term
3 "emission free" was that CANDU reactors did not emit any
4 emissions of any kind, neither greenhouse gas emissions
5 nor any other type.

6 And according to the uncontroverted
7 information cited by the complainant, taken from Ontario
8 Power Generation's 2009 application to renew -- to the
9 renewal of its basic comprehensive certificate of approval
10 for the Darlington nuclear generating facility, numerous
11 different contaminants are emitted into the atmosphere
12 from the CANDU generating sites; and counsel, therefore,
13 concluded that the unqualified emission free claim in this
14 advertisement is inaccurate and unsupported.

15 Therefore, we can only conclude that NB
16 Power has honesty problems and has difficulty
17 understanding rules and may be misrepresenting other
18 issues.

19 Regardless, we agreed to participate in
20 these hearings and will soldier on.

21 The CCNB Action Saint John-Fundy Chapter
22 produced two documents and several supplementary documents
23 for these hearings. The first one is a scan and critique
24 of the application for re-licensing of Point Lepreau.

25 My partner, Chris Rouse, took the lead on

1 Passamaquoddy Bay pock marks continues to be a subject of
2 investigation by the ocean mapping group at the University
3 of New Brunswick.

4 In an email exchange. Mr. Burke noted
5 that there has been little work done, at least to his
6 knowledge, of the public domain on neo-tectonics in
7 southern New Brunswick. In an email exchange Mr. Bourque
8 says that:

9 "From experience, research has never
10 finished and there are always new
11 scientific ideas to test and validate.
12 I think NB Power has to demonstrate
13 they're at least up to date in what is
14 known."

15 In an email exchange, Mr. Bourque noted
16 that:

17 "NB Power have usually used outside
18 contractors to do a seismic
19 probability analysis. The only
20 exception of which I am aware is when
21 it was done in-house by Maritime
22 Nuclear for the proposed Lepreau-2
23 Reactor. It should state in the
24 Canadian Nuclear Regulations what is
25 required when a nuclear power plant is

1 refurbished. I do not have a copy of
2 the latest relations. It would be my
3 guess that an up to date seismic
4 hazard assessment would be required."

5 In the email exchange, Mr. Bourque says

6 that:

7 "It is surely the responsibility of NB
8 Power to prepare a full environmental
9 assessment report. And I assume this
10 has already been done by a consulting
11 company similar to Jacques Whitford."

12 In an email exchange, Mr. Bourque notes

13 that:

14 "I am a seismologist and not an
15 earthquake engineer. I do the front
16 end of the seismic hazard studies. In
17 other words, study the previous
18 earthquake history in regions of
19 interest and try to determine their
20 cause."

21 This is a personal note aside. I
22 personally would like to note that this is an important
23 distinction. An earthquake engineer would need to use
24 Bourque's data rather than simply taking it as a
25 standalone piece of science that they based their

1 earthquake ready confidence in.

2 Mr. Bourque explains that:

3 "This value, although conservative,
4 would indicate that NB Power should
5 have retained the services of
6 consulting engineers to make a site-
7 specific hazard assessment."

8 In his report, Mr. Bourque notes that:

9 "The continuing activity in the
10 Passamaquoddy Bay region is the most
11 likely source area for the next
12 significant earthquake in southern New
13 Brunswick."

14 I would like to add that this fact alone,
15 it seems to us, should warrant an on-the-ground, in real
16 life, peer-reviewed seismic engineer-led analysis and
17 seismic hazard study of the region.

18 For our expert, Alan Ruffman -- Mr. Ruffman
19 explains that he is concerned that he was unable to access
20 documents cited in the Lepreau environmental assessment
21 report to ascertain exactly the data used to set the
22 maximum magnitude earthquake for which the original
23 Lepreau plant was designed.

24 Mr. Ruffman expresses his concerns
25 regarding seismicity. He says:

1 "Can subsequent historical seismicity
2 work would have led to a larger
3 possible designer earthquake. And the
4 real question is, did this more
5 stringent requirement get applied and
6 built into the current Lepreau
7 refurbishment. I suspect it was not".

8 Mr. Ruffman expresses his concerns about
9 the CNSC re-licensing process. He says that:

10 "I cannot bring myself to call this
11 CNSC early December 2011 process a set
12 of hearings since they do not seem to
13 be -- so they do seem to be a farce as
14 far as hearing from very many people
15 and certainly there seems to be no
16 opportunity to allow intervenors to
17 challenge or to review the material
18 and opinions submitted by the Lepreau
19 authorities in support of their bid to
20 get re-licensed."

21 Mr. Ruffman expresses that:

22 "There is uncertainty when you are
23 limited to the last 100 years of data,
24 like when Point Lepreau was designed
25 using 1962 data."

1 Mr. Ruffman expresses his concerns
2 regarding the seismic standards that Lepreau was built to.

3 He says:

4 "One could reasonably argue with
5 hindsight by 1985 that the Canadian
6 plant as virtually on the U.S. border
7 5 to 6 years earlier was under-
8 designed with respect to seismic
9 risk."

10 In a letter, Mr. Ruffman exemplifies the
11 importance of action on new knowledge by including a
12 document that warned of a tsunami in Japan in 2001.

13 Mr. Ruffman reiterates his concerns that
14 the plant was possibly not re-designed after Bourque's
15 historic work had been done in the mid-80's as opposed to
16 the Smith's 1961 catalogue which was all that was
17 available in 1973-1974.

18 He suggests that there would have been a
19 more stringent engineering requirement put on its design
20 to withstand a somewhat higher seismic hazard. As well,
21 Mr. Ruffman repeats that he had difficulties finding the
22 documents used to justify the current design of the plant
23 and eventually gave up with his due diligence.

24 For Raphael Shea, our climate change
25 expert, Mr. Shea is concerned that the claim by certain

1 media and policy makers that climate science is highly
2 uncertain is not true. Mr. Shea is concerned that
3 society's inability to curb emissions globally also
4 indicates we are currently following the higher emission
5 scenarios that bring with them more significant impacts.

6 Mr. Shea is concerned that New Brunswick's
7 infrastructure will be put to the test and states that:

8 "We must be prepared to deal with an
9 increasing amount of severe storms,
10 including hurricanes."

11 Mr. Shea cited a national roundtable on the
12 environment and the economy which recently reported that
13 the estimated costs of climate change could escalate from
14 roughly 5 billion per year in 2020 to between 21 billion
15 and 43 billion per year by the 2050s.

16 The study also concluded that these costs
17 will have a highly uneven distribution on a per capita
18 basis. New Brunswick was amongst the worst fairing
19 provinces which will hinder its ability to adapt and
20 mitigate climate impacts.

21 **THE CHAIRMAN:** Sorry to interrupt you.

22 But, you know, we have read all this
23 documentation and you are now into a 15 minutes.

24 So please don't read verbatim everything
25 you have written to us.

1 **MS. MURPHY:** I have actually cut this into
2 very short points that I want on the record as my oral
3 presentation and I read it to myself and it took 8
4 minutes, 9 seconds. I will endeavor to go faster but with
5 all due respect, Mr. President, there are many, many
6 intervenors today that have gone far over their time and
7 I've been very careful.

8 **THE CHAIRMAN:** We will allow for question
9 period to allow us to deal with some of those issues
10 rather than you repeating what we have read.

11 **MS. MURPHY:** Of course. I beg for you to
12 allow me. Thank you.

13 Mr. Shea is concerned that the consequences
14 of a failure at Point Lepreau may be too great compared to
15 the lessons that we would have learned about climate
16 change adaptation after the Saint John and Bay of Fundy
17 are possibly destroyed forever.

18 Mr. Shea is concerned that recent cuts in
19 climate design and monitoring in Canada render structure
20 design of any kind, particularly vulnerable.

21 Mr. Shea pointed to Canada's Commissionaire
22 of the Environment and Sustainable Development who
23 underscore the concern that Canada has yet to take
24 appropriate action to adapt to climate change.

25 The fall 2010 report, which occurred prior

1 to the cuts at Environment Canada, point out that:

2 "Overall, the departments we examined
3 have not taken concrete actions to
4 adapt to the impacts of a changing
5 climate. With exceptions, they have
6 yet to adjust or develop policies and
7 practices to better respond to the
8 risk."

9 Finally, Mr. Shea noted that:

10 "Climate change is starting to
11 overwhelm our engineered expectations
12 using the recent example of the
13 Missouri River to highlight this
14 point."

15 My final expert, Dr. Dugue, discussed the
16 history and significance of earthquake hazards and that is
17 a very grave concern.

18 He told us that the probabilities over a
19 50-year interval of a serious seismic incident is the same
20 probability of getting three six's upon a single throw of
21 three dice.

22 He discussed the pressure tube aging and
23 the large break loss of coolant accidents and that they
24 are of a very large concern. He also discussed large
25 break loss of coolant accidents and the possibility of an

1 earthquake are not analyzed together.

2 He discussed that the dangerous buildup of
3 uranium oxide fuel damage is possible and that aging of
4 equipment and structures can lead to accumulated fuel
5 damage.

6 In conclusion, in the nuclear power
7 industry, the new and current knowledge that exists
8 regarding safety and concurrent accidents is rife with
9 uncertainties, unknowns and, recently, with the accident
10 in Fukushima, lessons possibly learned but not acted upon.

11 The CCNB Saint John Fundy Chapter is of the
12 opinion that the uncertainties, concerns and risks that
13 exist surrounding the refueling of the Point Lepreau
14 generating plant far outweigh the adaptation and
15 precaution that has been taken to mitigate such issues
16 from happening.

17 We respectfully request that the CNSC order
18 a full environmental impact assessment and support the
19 creation of a Royal Commission of Inquiry into the future
20 of nuclear power in Canada.

21 I'd like to turn the mike over inquiry into
22 the future of nuclear power in Canada.

23 I would like to turn the mike over to Chris
24 Rouse. He is a technical adviser to our Chapter, who will
25 take a brief few minutes to go over what he found when

1 reviewing the N.B. Power licence application.

2 **MR. ROUSE:** For the record, Chris Rouse.
3 I'll keep mine a little bit shorter.

4 **THE CHAIRMAN:** Please, a lot shorter.

5 **MR. ROUSE:** Yes. Yes.

6 The first thing I'd like to do is, the
7 second submission supplemental, I wrote -- I was under a
8 lot of stress, working really hard, and I wrote it really
9 from my heart, very personal to me. I was very upset at
10 some things that I had learned the week before, and I
11 didn't let any of my other Chapter members read it before
12 it went out, and it really shows the importance of peer
13 review, I guess.

14 What I did was, really, just a critique of
15 the licence itself and the lessons learned document from
16 N.B. Power, and I've started down this road, trying to be
17 objective and whatnot, and as working in the engineering
18 environment, I started to become really concerned of all
19 the things I was finding. Anyways, it was very
20 disheartening.

21 I guess one of my biggest problems with the
22 licence and the lessons learned is the actual
23 probabilistic safety analysis.

24 **MEMBER McDILL:** I'm sorry, I don't mean to
25 interrupt. I'd like to know where your submission is.

1 I've got about 200 pages from you in front of me, and I'd
2 like to know where ---

3 **MS. MURPHY:** It's the very beginning of the
4 Chapter.

5 **MEMBER McDILL:** Is it H-12.33 ---

6 **MS. MURPHY:** Yes.

7 **MEMBER McDILL:** --- 33A), 33B ---

8 **MR. ROUSE:** Thirty-three (33) has two parts
9 to it. It's broken up in ---

10 **MS. MURPHY:** It looks like the licensing
11 application, but it's actually Chris going through each
12 aspect of the licensing application with his comments and
13 critique.

14 **MEMBER McDILL:** And so there's a table of
15 contents at the beginning, at page 33?

16 **MR. ROUSE:** Yes.

17 **MEMBER McDILL:** Thank you.

18 **MR. ROUSE:** Actually, I used it as a
19 template. Thank you very much; it was a nice way to
20 organize things, actually.

21 So anyways, the problem -- everybody talks
22 about the probabilities and risks, and how we include
23 things and don't include things, and my biggest problem
24 with the PSAs is, under a footnote in the regulations,
25 earthquakes have been excluded to them. So the numbers

1 that were given really don't mean much without one of the
2 biggest risks to a power plant included in them. So I
3 feel that without those included, that the limits should
4 have been changed, because the biggest thing was taken out
5 of them.

6 And also, the review of earthquakes, I
7 guess, the .3 and the .4 -- the .3 I'm actually quite
8 happy with. I could live with that. The .4 really
9 doesn't fall in line with the PSAs. If you externalize
10 that, I really feel that we need to keep it, you know, in
11 line with the PSAs and, you know, it really should have
12 been a one in a 1,000 year earthquake, and it turned out
13 to be only a one in 20,000 year earthquake, which would
14 only be one-fifth of the limits.

15 I have read the AECL document for the --
16 you know, how they were going to go about doing these
17 PSAs, and it only really mentioned the level one, and it
18 did mention that it was a one in 10,000 year earthquake,
19 and that falls in line with eastern Canada, like the CNSC
20 staff said earlier.

21 And I don't really think that the second
22 level was given much thought. Anyways, you guys have all
23 read my document, so I'll let you continue.

24 **THE CHAIRMAN:** Okay. Thank you.

25 Do you want to start? Dr. Barriault?

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

2 I guess I'll just go through a list of
3 questions, and the first one is around the operating
4 costs, and obviously that's beyond the scope of this
5 Commission.

6 But for the satisfaction of the group,
7 really, maybe we could ask N.B. Power to respond. They
8 raised a question regarding the energy policy of the
9 province with regards to Point Lepreau which is not part
10 of the CNSC mandate. Will N.B. Power address these
11 comments for the intervenors outside of the CNSC scope,
12 just to address the operating costs associated with Point
13 Lepreau on an ongoing basis, if I understand correctly?
14 Is that what you were asking?

15 **MR. ROUSE:** Yes. Yes, and not to mention
16 the operating costs, but the risks that go along with it,
17 especially the regulatory risks.

18 **MEMBER BARRIAULT:** So this has nothing to
19 do with the operating costs then? No?

20 **MR. ROUSE:** I thought you were talking
21 about our business plan in general.

22 **MEMBER BARRIAULT:** Yes, it is.

23 **MR. ROUSE:** Yes, I believe I mentioned
24 regulatory risks and the price of running the operator can
25 go up at any time, with putting new standards and stuff

1 in.

2 **MEMBER BARRIAULT:** That's item number two
3 on page five. You're talking about the Public Utilities
4 Board.

5 **MR. ROUSE:** Oh, yes. Yes, in 2002, the
6 Public Utilities Board deemed it not in New Brunswick's
7 best interest, and it was really quite clear -- it was a
8 unanimous decision, but the project went ahead anyways, so
9 yes.

10 **MEMBER BARRIAULT:** So did you want an
11 answer to that question, or...?

12 **MR. ROUSE:** Yes, please.

13 **MEMBER BARRIAULT:** Okay.

14 **MR. KENNEDY:** For the record, it's Blair
15 Kennedy.

16 I would be in agreement with the CNSC's
17 decision that this is not within the mandate of this
18 hearing to address economic issues with respect to Point
19 Lepreau.

20 **MEMBER BARRIAULT:** Thank you.

21 The next issue is the decommissioning cost.
22 Okay. You questioned how decommissioning costs were
23 affected by the waste generated by the refurbishment. So
24 could we ask what impact it's going to have on the
25 decommissioning costs to have done, I guess, the

1 refurbishment of the plant? Is that the question?

2 **MR. EAGLES:** This is Rod Eagles, for the
3 record.

4 Decommissioning cost estimates were updated
5 recently, and of course we understand the impact of the
6 refurbishment on that, and essentially concluded that it's
7 an insignificant difference in the overall costs of the
8 decommissioning of the plant on the basis of the work that
9 we've done during the refurbishment.

10 **THE CHAIRMAN:** Can we be a little bit more
11 precise? Let me -- I'm trying to understand. Right now
12 there is a \$500 million pot set aside for the
13 decommissioning. Somebody correct me if I'm wrong.

14 So the question is, in view of the
15 refurbishment, do you need -- is staff required to adjust
16 this \$500 million figure that existed for a while?

17 Who wants to start?

18 **MR. KENNEDY:** No, those numbers are --
19 that's sufficient, at this particular time, to meet our
20 decommissioning costs and also our unfunded -- the fuel
21 management point of view, we put aside and we adjust that
22 number on a periodic basis to ensure that we have enough
23 to decommission the plant as well as deal with the fuel
24 from the fuel management point of view.

25 **THE CHAIRMAN:** And you also have enough

1 space onsite to deal with all the additional waste, once
2 you're coming back for -- if you come back ---

3 **MR. KENNEDY:** Yes.

4 **THE CHAIRMAN:** --- in operation?

5 **MR. KENNEDY:** Yes. For the record, it's
6 Blair Kennedy.

7 Yes, we do.

8 **THE CHAIRMAN:** Staff, you agree with all of
9 this? When was the last time this \$500 million was
10 reviewed?

11 **DR. RZENTKOWSKI:** It was reviewed in
12 preparation for the relicensing hearing. And was a part
13 of our Day One submission.

14 So I will go back to Ron Stenson, from the
15 Waste and Decommissioning Division, who may provide a more
16 specific answer to that question. He's connected from the
17 Ottawa office.

18 **THE CHAIRMAN:** Ottawa? Ottawa? While we
19 find Ottawa ---

20 **DR. RZENTOWSKI:** Okay. If he's not there,
21 we can dig out the ---

22 **THE CHAIRMAN:** I think we got -- I think if
23 you updated, I think it's enough. I really would like to
24 deal with many of the other issues here.

25 Dr. Barriault?

1 **MEMBER BARROIAULT:** The next question is to
2 CNSC staff. The intervenor mentions, really, that given
3 RD-360, that there's a question of the gap between the
4 standards for a modern reactor and those of Point Lepreau.
5 In other words, Point Lepreau will not be up to modern
6 standards; is that correct? Do you want to comment on
7 this?

8 **DR. RZENTKOWSKI:** For some of the modern
9 standards, some requirements, of course it's next to
10 impossible to reconcile the old plant design with those
11 new requirements, but anything that what was practicable
12 was taken into consideration, and in most instances
13 resulted in safety upgrades or replacement of existing
14 components to really bring the standard of the plant to
15 that of modern plants.

16 So anything what was state of the art,
17 anything what was reasonable, has been included in the
18 scope of refurbishment activities.

19 Yes, this was for RD-360, because the first
20 step is to establish the set of modern standards, and I
21 would like to put on the record that more than 100
22 standards were considered to define the scope of
23 refurbishment activities. This was really a very
24 systematic and very comprehensive assessment.

25 **MEMBER BARRIAULT:** Thank you.

1 **MR. ROUSE:** Sorry, that really wasn't the
2 intent of my question. I guess, as New Brunswickers, it
3 would be really nice to know what we're not getting.

4 We hear lots of times, with everybody
5 talking, what we're getting and what's new and what's not,
6 but, I guess, the intent was to know what we're not
7 getting by not getting a new plant.

8 **MEMBER BARRIAULT:** So quoting RD-360 does
9 not apply, is what you're saying?

10 **MR. ROUSE:** I believe the only part of RD-
11 360 that applies to this license is the readiness to
12 restart, and which everyone is asking for you guys to
13 relinquish your powers to the CNSC staff, which we don't
14 really agree to.

15 **MEMBER BARRIAULT:** Thank you.

16 Yeah, I'll give Dr. McDill a chance.

17 **THE CHAIRMAN:** Dr. McDill, your turn.

18 **MEMBER McDILL:** Thank you.

19 I also have some questions. And I think
20 after Fukushima there's a natural sensitivity to the
21 effects of earthquakes, so it's worth doing it as many
22 times as is required, I think.

23 In H12.33, on page 13, there's a question
24 with respect to a document, and the question is did anyone
25 in this room for NB Power or the CNSC staff have prior

1 knowledge of this document?

2 And then there are several questions which
3 follow. These are posed several times, so I think it's
4 worth answering the question for the intervenors.

5 Maybe it will require both CNSC staff and
6 NRCan involvement.

7 **MR. RZENTKOWSKI:** I would like to direct
8 this question to Mr. Andrei Blahoianu, who is present in
9 the room.

10 **MR. BLAHOIANU:** For the record, my name is
11 Andrei Blahoianu.

12 So in the report it's referred -- this
13 report itself is referring to N40656, seismic hazard data,
14 reported by Western Geophysical Corporation. It is my
15 understanding that this an obsolete report, in the sense
16 that it was done many years ago, and more recent
17 information was already provided in the NRCan by the
18 Geological Survey of Canada in the NBCC edition 2010.

19 So this is information that has to be used.
20 So this is my first comment, the fact that it is referring
21 to a study which, as I said, it was good at that time but
22 we have to look into the current data.

23 The second thing, referring to the
24 reference with the containment failure probability, so
25 what I want to mention -- so the containment itself, it's

1 not designed or it's not reviewed using NBCC, which is for
2 existing civil structures, no. It's used -- so we have to
3 use the CANDU standards N-287, which are specific for
4 containment.

5 The second thing, and definitely the
6 review-level -- so it was -- the review-level earthquake
7 against which the containment was checked -- again, I
8 repeat, it was 0.3G and it was identified safety margin.

9 Talking about -- just about the containment
10 itself, as a result of the PSA study performed for the
11 Level 1 PSA, showed that the containment would not -- the
12 containment itself as systems, not as a building itself --
13 would not fail for something less than 0.42G for an
14 earthquake which has a PGA 0.42g.

15 This is far beyond the intent to -- so it
16 shows consistent safety margins against the original
17 design, which was 0.2g

18 And one more thing, if you talk just about
19 the containment itself, and I'm asking here NB Power to --
20 New Brunswick Power to confirm, because they did the
21 study. I just quote from memory.

22 The PSA indicated that the containment
23 itself has a confidence -- how we call it in an
24 engineering way -- high confidence or low failure
25 probability of failure -- 1.2G. So the containment will

1 not fail itself below this 1.2G.

2 And the 0.42g that you talk about when we
3 say that will have large release, due to the containment
4 failure, is not the containment itself. There are some
5 containment systems like ventilation. Or it's about
6 interaction between the service building during the
7 earthquake and the containment itself.

8 As I said, this information I quote it from
9 memory, and NRCan -- and I will invite NB Power to confirm
10 the data.

11 **MR. KENNEDY:** Yes, I would ask Paul
12 Thompson, the Manager of Nuclear Safety and Regulatory
13 Affairs, to address that question.

14 **MR. THOMPSON:** For the record, Paul
15 Thompson.

16 Yes, what the CNSC staff have said is
17 correct in terms of the seismic capacity of the building,
18 and in fact what results in the more limiting value, which
19 is in the service building and interaction with the
20 containment ventilation systems, which is what results in
21 the limit of 0.42G.

22 **MR. ROUSE:** In our submission I've got a
23 document from Science Direct, from Korea, which is a very
24 similar reactor, its CANDU 6 reactor, it's the
25 international one.

1 And they did a study, and it came up with a
2 similar result for failure mode, but for cracking mode to
3 actually let radioactive release out it said it was
4 0.28Gs, I believe.

5 **THE CHAIRMAN:** Okay, let me try something
6 here. We now heard from the intervenors about Dr. --
7 Professor Bourque. We heard Dr. Adams. We heard a plan,
8 etc.

9 I'm trying to understand the issue, and I'm
10 really not interested in who is the right expert, who is
11 not the right expert.

12 What I thought I heard this morning is from
13 Dr. Adams, saying that the largest magnitude -- let's
14 assume its magnitude six -- he said magnitude six,
15 magnitude seven -- what I'm trying to understand is assume
16 the worst earthquake ever, they'll break the machine down,
17 everything will -- what I'm trying to understand is -- I'm
18 not trying to save the machine, I'm not trying to save the
19 nuclear power plant, what I'm trying to save is the
20 population around.

21 So my question is even that kind of an
22 earthquake occurs, what is the safety -- will it shut down
23 safely?

24 That's really what I'm interested in.
25 There can be cracks; there can be all kind of things. Is

1 the defence, in depth, will work? Why don't I start with
2 you guys, NB Power?

3 **MR. KENNEDY:** I would ask, again, Paul
4 Thompson, the Manager of Nuclear Safety and Regulatory
5 Affairs, to address that question.

6 **MR. THOMPSON:** For the record, Paul
7 Thompson.

8 What the seismic margin assessments look at
9 is trying to quantify the additional seismic margin that
10 exists within the design -- that is, above and beyond what
11 it was originally designed for -- and also to identify any
12 particular vulnerabilities that could then be addressed in
13 order to try to achieve these values.

14 We talked about that the original design of
15 the station was between 0.15 to 0.2G. That, in fact, was
16 upgraded from the original concept of a .1 g when they
17 looked at some of the -- during the design process when
18 they looked at some of the earthquakes from the
19 Passamaquoddy fault, in fact.

20 The seismic margin assessment looked at the
21 ability for a much larger earthquake; one that would
22 result in a peak ground acceleration of 0.3 g and to
23 demonstrate with high confidence low probability of
24 failure that the reactor will shut down and that there
25 will not be severe core damage. That demonstrates good

1 margins, defence and depth.

2 Furthermore, the seismic margin assessment
3 shows that we could withstand up to a much larger
4 earthquake that would result in a peak ground acceleration
5 of 0.4 g in order to demonstrate with high confidence and
6 low probability of failure that we wouldn't have a large
7 release of radioactivity.

8 **THE CHAIRMAN:** Staff, do you agree with all
9 of this?

10 **MR. RZENTKOWSKI:** Yes, we generally agree
11 and I would like to direct everyone's attention, again, to
12 the Fukushima Task Force report the progression of events
13 for a doomsday scenario is discussed in Appendix B.

14 So even if we imagine an earthquake of an
15 enormous magnitude, the worst what will happen here at
16 Point Lepreau probably will be unfiltered venting that may
17 be necessary -- after about five days after accident.
18 That's the doomsday scenario.

19 But in the meantime of course there will be
20 sufficient time for the population to be relocated from
21 the vicinity of the reactor.

22 **THE CHAIRMAN:** Okay.

23 Dr. McDill?

24 **MEMBER McDILL:** Thank you.

25 My next question is on page 35 and it's

1 with respect to the change in material and the comment
2 from the intervenor is "This change in material for piping
3 hasn't been tested" and I think it's a fairly well-known
4 material so perhaps I could ask NB Power to discuss it.

5 **MR. KENNEDY:** I would ask Mr. Eagles to
6 take that question.

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

8 Within the submission, they reference
9 studies and reports done earlier in the life -- the first
10 life of the nuclear power plant at Point Lepreau where
11 there were some concerns with the feeder material and
12 mechanisms, causing challenges to the operation of the
13 plant, through either cracks or wall thinning.

14 Evaluation of those challenges led through
15 the work in the design of feeder piping for the
16 refurbishment of Point Lepreau to upgrade that material to
17 a higher chrome content to address really two issues;
18 higher resistance to stress, corrosion, and cracking and
19 also a higher resistance to flow accelerated corrosion.

20 That was one of the changes that was made
21 on those feeder pipes. Now, the material is very similar
22 to that which was used in the original design of the
23 marginally higher chromium content.

24 Additionally, in the design, we added
25 stress -- or sorry, stress relieving to the very tight

1 radius elbows of the feeder piping where some of this high
2 stress and stress corrosion cracking had been observed in
3 our earlier operation.

4 So to suggest that these factors have not
5 been tested, I don't think would be accurate. You know,
6 these are methods that are, you know, widely proven.

7 We work with the industry, the CANDU
8 Owners' Group, that's had a significant research and
9 development program on feeder-related issues over the past
10 number of years and some of that work was conducted here
11 in New Brunswick at the University of New Brunswick
12 through the research group there.

13 We are confident that the work that has
14 been done to identify opportunities to improve the service
15 of feeders will be successful for the remaining life of
16 the revised or the refurbished plant.

17 Thank you.

18 **MEMBER McDILL:** Are there journal papers or
19 university reports or accelerated corrosion tests that the
20 intervenor could have a look at so they can be more
21 confident that the material has been tested in some way
22 other -- beyond ---

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

24 Certainly. The reports that have been done
25 through the research and development program at COG over

1 the past number of years have been done with the support
2 of the balance of the industry.

3 And I would have to review the -- you know,
4 the commercial nature of those in order to determine
5 whether they would be free to be released to the
6 intervenor, but certainly we could have a dialogue
7 regarding that and perhaps bring an answer back tomorrow.

8 **MEMBER McDILL:** Thank you.

9 I see a hand at the back.

10 **MR. BLAHOIANU:** Okay.

11 **MEMBER McDILL:** Several hands just went up.

12 **MR. BLAHOIANU:** So I assume that talking
13 we're talking about primary heat transfer system and I
14 assume that it's about the feeders. So feeders are new
15 feeders and I want to say that the feeders itself --
16 themselves were replaced from 106B to 106 grade C which
17 content of chromium nickel when this were already
18 installed at Qinshan so there is already a proven
19 experience for almost 10 years since they operated there
20 successfully.

21 **MEMBER McDILL:** I missed that last
22 statement. Ten (10) years experience where?

23 **MR. BLAHOIANU:** Since they're already
24 installed at Qinshan.

25 **MEMBER McDILL:** Thank you.

1 **MR. BLAHOIANU:** In China, sorry. These are
2 the CANDU -- two CANDUs which were built in China.

3 **MEMBER McDILL:** Yes, so ---

4 **MR. BLAHOIANU:** Maybe I'm not right with
5 the 10 years, but definitely they are operating for
6 several years there.

7 **MEMBER McDILL:** Okay, thank you.

8 So maybe between the two sources we can get
9 something to the intervenor that would reassure them on
10 this matter.

11 My next question is for staff and it's with
12 respect to loss of coolant, large LOCA, and the
13 intervenor's concern that this was not coupled with
14 earthquake scenarios.

15 So could you discuss for the room the
16 setbacks involved while the action item is still being
17 closed for LOCA, large LOCA, and how it corresponds with
18 earthquake?

19 **MR. RZENTKOWSKI:** Actually, in the seismic
20 analysis LOCA is included, but only a small LOCA is
21 included as a part of the seismic analysis because there
22 is an implicit assumption that one of the feeder lines may
23 eventually break, but there's no assumption that large
24 diameter piping, which is extremely robust, will also
25 break instantly as a result of seismic activity.

1 So but if we look again into the report --
2 the Fukushima report -- when the sequence of events for
3 the doomsday scenarios I described is very clearly stated.
4 This scenario equally applies to loss of heat sinks and
5 large-break LOCA.

6 Simply, what happens in the beginning is
7 that overheating of the primary heat transport system --
8 will happen in a very short period of time because there
9 will be no circulation of coolant; and the remaining
10 sequence of events will be exactly the same as described
11 in the report.

12 So the final stage would be as I described
13 responding to the previous question; that means the worst
14 case scenario is, here in Point Lepreau, the limited
15 unfiltered venting from the containment to maintain
16 containment integrity and prevent its failure.

17 **MEMBER McDILL:** There's a hand at the back.

18 **UNIDENTIFIED SPEAKER:** Yes.

19 **MEMBER McDILL:** Andrei?

20 **MR. BLAHOIANU:** So definitely I can confirm
21 from the -- that New Brunswick Power addressed so-called
22 seismic-induced LOCA. This is part of the internal events
23 assessment so this was done. So it's about the large LOCA
24 and also small LOCA.

25 And also were assessed the internal floods,

1 internal fire, and also seismic, so this was part of the
2 Level 1 and Level 2 PSAs. So the statement that these
3 were not considered in the PSA is not accurate; they were
4 included.

5 The reason why the seismic PSA is not done
6 together with the others, like internal, is because this
7 is a common cause failure for the plant while LOCA it's
8 not the common cause at all -- common cause failure for
9 the plant. And the total number which is provided by the
10 licensee is that in fact all of them together the core
11 damage frequency, the target 10 minus 4 and also the large
12 release 10 minus 5 probabilities are met, even with all of
13 them (inaudible) together.

14 **MEMBER MCDILL:** Maybe Point Lepreau would
15 like to wrap that up or add a little more to it.

16 **MR. ROUSE:** I believe there's a technical
17 document in our second submission where they tried to
18 prove that, in which I do not believe was done correctly.

19 Maybe we could handle that technical
20 assessment.

21 **MEMBER MCDILL:** Can you point -- do you
22 have the page number?

23 **MR. ROUSE:** Yes.

24 **MEMBER MCDILL:** It makes it easier.

25 **MR. ROUSE:** Yeah. Okay, just a second.

1 It's actually on our slide show if I could
2 show everyone, so everyone can see what we're talking
3 about.

4 I believe it starts with this technical
5 assessment here that was done.

6 **MEMBER MCDILL:** I have two bright lights in
7 my eyes, I can barely see most of you -- most of the time
8 so I head for the voice. When you hold a piece of paper
9 up I can't read it, I assume you.

10 So give me a number and a page.

11 **MR. ROUSE:** It's in the 33B document.

12 **THE CHAIRMAN:** We should never accept
13 documents like this unless somebody puts page numbers on
14 them.

15 **MR. ROUSE:** I apologize.

16 **THE CHAIRMAN:** So it's somewhere in the
17 middle of the document there is a technical assessment;
18 that's the document you are referring to?

19 **UNIDENTIFIED SPEAKER:** Ten (10) pages from
20 the end.

21 **THE CHAIRMAN:** Okay, what do you want to
22 say about it?

23 **MR. ROUSE:** I'm not a seismologist, I'm not
24 a seismic hazard engineer but I have taken quite a lot of
25 my own personal time to try and understand it and I

1 mentioned earlier that when I apologized for writing the
2 second supplemental in a very personal nature it was
3 actually because of this technical assessment.

4 What they did was -- I'd like to really
5 describe the high confidence that everyone talks about and
6 I think the public should really understand this.

7 This is not a regular seismically qualified
8 .3 Gs or .4 Gs; they've done a bunch of math on it and
9 figured out that they are 95 percent confident that it
10 will be able to handle this kind of earthquake.

11 And this technical assessment was used to
12 prove that they were still meeting the regulatory limits.
13 Because as I mentioned earlier, the .4 Gs is only about
14 one in 20,000 years which isn't doomsday, I think the CNSC
15 described doomsday as one in 100,000 years.

16 Anyways, this technical document, you'll
17 notice the curves, they curve down and they keep curving
18 and then this technical assessment that was done, I
19 believe, by an electrical engineer, his name is on the
20 document, drew straight lines then to figure out the
21 probabilities.

22 Then they took this number and did some
23 more math on it and it says in this document as well that
24 they had already tried to submit something and industry
25 did not approve it.

1 It says in this document that the
2 calculations that they're using are a hybrid method and a
3 proposed method which doesn't really sound very scientific
4 or proven engineering to me.

5 But anyways, what I have learned about
6 seismic hazards is that to draw a straight line on a
7 seismic hazard curve, you have to do it on a log to log
8 scale, log arrhythmic on both the x and y axis.

9 This document here is log arrhythmic on the
10 left-hand -- on the y axis but the x axis is just a normal
11 axis. And I believe our experts will ascertain that this
12 isn't the proper way to do this.

13 And by doing this straight line down like
14 that they get a much lower probability. And kind of
15 really boils down to even using -- we're questioning the
16 old 1984 data that's been used, I really question this
17 calculation. I would really like to see it industry
18 approved as well.

19 But even using the old data and the
20 questionable calculation, if they had extrapolated the
21 data properly it shows that they don't meet their limits
22 when they include seismic hazard in the PSAs.

23 **THE CHAIRMAN:** Okay. NB Power, you want to
24 -- anybody over there taking a look at this. Is there
25 improper analysis being done here?

1 **MR. KENNEDY:** For the record I'll ask Paul
2 Thompson, Manager of Nuclear Safety and Regulatory Affairs
3 to address that question.

4 **MR. THOMPSON:** Thank you. For the record,
5 Paul Thompson.

6 We stand by that technical assessment but
7 what I'd like to do is step back a little bit and put some
8 perspective on this to begin with.

9 First, we performed the -- as part of the
10 life extension activities for the refurbishment project, a
11 full-scope level two PSA, and that included at power and
12 shut-down conditions and it included internal events and
13 it included external events for station fires and station
14 floods.

15 Recognizing that there are uncertainties in
16 the seismic hazard data we adopted a - as in accordance
17 with international standards and practices, PSA-based
18 seismic margin assessment which has its own safety goals.

19 So in other words there were safety goals
20 for the internal events and for the fires and floods and
21 then separate safety goals for the seismic margin
22 assessment and those were to demonstrate that there was a
23 high confidence, low probability of failure of 0.3 G for
24 the prevention of severe core damage, as I've mentioned
25 before and a high confidence, low probability of failure

1 for an earthquake that will result in a peak ground
2 acceleration of 0.4 G for the prevention of large
3 releases.

4 So it was dealt with separately, so two
5 separate safety goals.

6 Now there are in fact three different ways
7 that the PSA can go about treating seismic; one is a full
8 PSA seismic -- sorry, seismic PSA, the other is a seismic
9 margin assessment and the third is a PSA-based seismic
10 margin assessment.

11 And we selected the third which many
12 jurisdictions have done so, because it gives the best of
13 both worlds and it avoids the discussion around the
14 precise probability of these very large, very low
15 probability earthquakes.

16 Avoid a lot of the discussion, in fact,
17 that isn't really at the core of the discussion that we're
18 having right now.

19 So this -- the PSA-based seismic margin
20 assessment was done in accordance with international
21 standards and practices. It was performed by qualified
22 professionals, including well recognized international
23 experts.

24 As I mentioned, it is -- it has the
25 advantage of addressing consequential events which was

1 also discussed earlier, without getting into the big
2 debate about the precision of the probability of the large
3 earthquakes. So it has its own safety goals.

4 Now, we also submitted in response to the
5 questions on Fukushima as the CNSC staff had asked us to
6 back and re-look at new data, there were two particular
7 assessments that we did, in addition to what was done for
8 the level 2 PSA and the PSA-based seismic margin
9 assessment.

10 The first was to look to see if there had
11 been new data on the seismic hazard for the site. And so
12 when doing that, we went and we utilized the latest
13 information from NRCan that was used in the 2010 National
14 Building Code and that -- we talked about that earlier,
15 that that sensitivity study demonstrated in fact that
16 there was even more margin than that was understood at the
17 time when we selected the design basis earthquake.

18 And what that gave us is confidence that
19 the design is good and that the results of the seismic
20 margin assessment remain valid for the specific site data
21 that we had, using the latest information from the
22 National Geographic.

23 The second thing we did was also a sanity
24 check, which we referred to as "Sanity Check," and this is
25 what this assessment that Mr. Rouse is referring to, is to

1 demonstrate that if we were to look and do a rough
2 calculation using the probabilities, would they fall in
3 line with the overall PSA goals?

4 So this is good practice, as recommended by
5 New Reg. 1407, to do -- and, in fact, they refer to it
6 explicitly as a "Sanity Check". So it wasn't the formal
7 part of the PSA; it was just another verification that
8 said if we were to look and do this assessment, does it
9 seem or fall in line?

10 So this was not meant to be a seismic PSA,
11 and I think that's where the misconception is there. It
12 was really a confirmatory check to say, if we were to look
13 and include those kinds of frequencies, would there be
14 anything that would be out of line with those fundamental
15 safety goals, and the conclusion was that there are not.

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

17 Dr. McDill?

18 **MEMBER McDILL:** Does staff want to add
19 anything to that, because I think there's a disconnect
20 here between the analysis that's been done and the
21 intervenor's understanding of the analysis that's been
22 done, and the intervenor's response to the analysis.

23 **MR. BLAHOIANU:** Okay, so just one comment.

24 So there is no requirement to qualify
25 against one in 100,000 years. It's about, as I said

1 earlier before the break, that the methodology itself
2 asked to choose and review level earthquake, which is
3 according to the standard, our Canadian standard are also
4 following the guidance from NUREG. 1407. For this
5 northeast -- the centre east of North America, is 0.3 g.
6 So this is what was done.

7 And after this it has to be demonstrated,
8 it has to be identified and demonstrated that components
9 important to safety have sufficient safety margins. So
10 doing projected calculation, other things like this,
11 you'll get by the end what's the real PGA for which the
12 component will fail; so this has to be done.

13 And the result of this tells that we have
14 high confidence that for a number which is like a -- a
15 report, it was this review level earthquake, no? It's
16 higher or less than a review level earthquake.

17 Calculations shown by PSA, PSA based SMA --
18 which was done -- demonstrates that the components
19 important to safety, all of them are above what was chosen
20 as a review level earthquake. A reviewable earthquake, it
21 also happens to coincide with one in 10,000 years. Zero
22 forty-two g (0.42g), it's a PGA for which -- for an
23 earthquake anchored at 33Hz, and which shows that actually
24 in order to have large release you have to have an
25 earthquake which will have a PGA 0.42g.

1 So it's above what was for the purpose, the
2 0.3 g, so it shows an additional safety margin for this.

3 It was never the intent to extrapolate or
4 to use one in 100,000 years, or even further than this, to
5 show that you meet these requirements. It's just -- as I
6 said, it's screening against which the owner demonstrates
7 there are enough safety margins, and this was done. I
8 don't know if it's clear.

9 **THE CHAIRMAN:** Dr. McDill?

10 I'm not sure we're going to get into -- you
11 know, into this resolution of this kind of a technical
12 issue right here, so I suggest that we'll just have to
13 review those documents internally and decide how to
14 resolve this, if resolution is required.

15 **MR. ROUSE:** Would it be possible to get the
16 IAEA have a look at our intervention?

17 **THE CHAIRMAN:** Staff, IAEA is now in place
18 and presumably they're looking into all our methodology
19 and our approach; is that correct?

20 **DR. RZENTKOWSKI:** That's correct. They
21 generally assess our assessment processes, and also our
22 regulatory framework which includes regulatory documents;
23 so, yes, from that standpoint, they can probably have a
24 look.

25 The question is; do they have on staff the

1 experts who can look into this seismic assessment.

2 But I think it's very important what Mr.
3 Blahoianu said, that this goes well beyond the regulatory
4 requirements, the regulatory requirement is in one in
5 10,000 years.

6 **MR. JAMMAL:** Thank you. For the record,
7 it's Ramzi Jammal.

8 As Dr. Rzentkowski mentioned, the IAEA is
9 here. But we have to be careful as on the graph that's
10 been shown here, if I'm going to use laymen's terms here,
11 we've gone to the fiction end of the graph with respect to
12 one -- the frequency of one in 100,000 years.

13 And that is the debate that is taking place
14 into the -- one might call into the fiction zone of what
15 is the calculation showing versus what is required to
16 maintain a safety margin.

17 As Mr. Blahoianu mentioned, that the safety
18 margin is adequate, .3 g, you can go to the infinity if
19 you want to, and that's what we're talking about here.

20 But by all means, the IAEA is here, and
21 then will have conducted the assessment with respect to
22 the Fukushima lessons learned, and that's where we can
23 request a special look at this.

24 **THE CHAIRMAN:** Andrei?

25 **MR. BLAHOIANU:** I want to clarify that the

1 interval which really matters, it's between one in 1,000
2 years and one in 10,000 years, because 0.3 g, which was a
3 review level earthquake, no, coincides to one in 10,000
4 years, and this is -- as you see, this is log (inaudible)
5 interpolation, and these numbers again, these were
6 confirmed by NRCan. There is no need for IAEA to confirm
7 what our Geological Survey of Canada says.

8 So these numbers in terms of probabilities
9 and PGAs are confirmed by NRCan. This extrapolation which
10 is leading it outside, we shouldn't even discuss about
11 this because it is irrelevant.

12 The second thing, talking about bringing
13 experts from IAEA, these experts -- IAEA doesn't have its
14 own experts, they hire consultants all over the world, and
15 probably it will be an interesting situation to bring --
16 to see the experts who New Brunswick Power hired, for me
17 to say coming and checking this.

18 **THE CHAIRMAN:** Dr. McDill?

19 **MEMBER McDILL:** Thank you.

20 I think the 0.3 is the important number
21 here.

22 **MR. BLAHOIANU:** That's correct, because we
23 stopped there at one in 10,000 years because this was the
24 review level earthquake which was chosen.

25 **MEMBER McDILL:** Then you have -- I think

1 the concern is that ---

2 **MR. ROUSE:** The second level.

3 **MEMBER McDILL:** So, let's go back.

4 **MR. ROUSE:** Sorry -- the second level is
5 what we're really calling into question.

6 **MEMBER McDILL:** I'll go back to Point
7 Lepreau.

8 **MR. THOMPSON:** For the record, it's Paul
9 Thompson.

10 I just want to reiterate that we followed
11 international practice and guidance in performing the PSA
12 and the PSA-based seismic margin assessment, and that we,
13 in performing that seismic margin assessment, included
14 international experts who are well-recognized in seismic
15 hazard and fragility assessments, and they were part of
16 doing both the plant walk-downs, and the fragility
17 analysis.

18 So all the way along we've followed
19 practices, international practices, using well-recognized
20 experts, and we're very confident and had the
21 methodologies appropriately reviewed and approved along --
22 several years ago, with the PSA, and then -- and then we
23 followed and performed those methodology -- the analysis,
24 in accordance with the methodologies.

25 **THE CHAIRMAN:** Okay. Look, I know this is

1 a fascinating subject, of probability and safety analyses,
2 et cetera, but again, I am not concerned with that, I'm
3 concerned with the consequences of having somebody exceed
4 those parameters.

5 And all I heard you -- both sides, saying,
6 that the machine will shut down. And that's all I want to
7 hear, from my perspective, and that's really all that
8 matters.

9 We're not here to -- as a Commission, to
10 protect the building and the machine, we are here to
11 protect the environment and the people. And as long as
12 there are assurances that the shut-down system and the
13 defence in-depth will kick in -- I don't care if it's one
14 in 1,000 or one in 100,000 or one in a million, and that's
15 really what I take away from this.

16 Anybody wants to argue with me on that?
17 You have a last round before we move on.

18 **UNIDENTIFIED SPEAKER:** I'll argue with
19 that.

20 **THE CHAIRMAN:** I didn't ask for somebody
21 from outside to argue with me on this. You'll have your
22 turn.

23 Go ahead. Mr. Rouse, go ahead.

24 **UNIDENTIFIED SPEAKER:** --reactor shut down
25 immediately--

1 **THE CHAIRMAN:** You'll have your turn to
2 raise this when you come in front of us.

3 **UNIDENTIFIED SPEAKER:** I thought you said
4 go ahead. That's what I thought I heard.

5 **THE CHAIRMAN:** Sorry.

6 **MR. ROUSE:** My biggest concern in these two
7 technical assessments that I received afterwards and that
8 really, really concern me, Commissioners, is that this one
9 up here -- if I could just -- it takes two seconds to
10 explain what they were supposed to do and there was an
11 example of what they were supposed to do and then just why
12 it was wrong.

13 They were supposed to check three levels,
14 the design base and the two other levels. In this graph
15 here they only checked one against the NRCan data and they
16 had the ability to verify the other two. It shows exactly
17 how to do it on their website and it was an electrical
18 engineer that did it, I believe anyways.

19 It was very clear how to do it and if you
20 had of checked it way, the increase seismic risk would
21 have actually been 20 percent higher, but they didn't
22 extend that curve like they did wrongly on the other
23 technical assessments. They just left the graph shorts.
24 You can see over here on the thing, it's -- it doesn't
25 even go down, they were supposed to check down here and

1 down here. And it says that it was just bound.

2 This curve here is getting closer and
3 closer and closer to these other two. There was no way
4 objectively or scientifically that you could have
5 guaranteed that that curve stayed on that other side.

6 So we have two technical assessments that
7 we're trying to disprove our intervention that we spent a
8 whole, whole lot of time on and trying to learn the facts
9 and I believe feel misinformed -- you know, there's lots
10 of emails going back and forth but my concern is, is that
11 I've reviewed six documents, I've found lots and lots of
12 lots of problems.

13 I got these two technical assessments that
14 were done, I believe, incorrectly and accepted by the CNSC
15 staff. The CNSC NRCAN has since verified that is true but
16 it only happened after I started asking NRCAN some
17 questions after this had already been approved.

18 And what makes nuclear power really, really
19 dangerous is stuff going out unchecked and unreviewed and
20 this kind of stuff, like it's funny these ---

21 **THE CHAIRMAN:** Okay, listen -- please ---

22 **MR. ROUSE:** I know, I know, I know, I know.

23 **THE CHAIRMAN:** We've got to move on, we've
24 got some other questions to go.

25 Anybody wants to specifically to close on

1 this particular graph or this particular issue?

2 **MEMBER McDILL:** Maybe I could ask that the
3 staff and the intervenor spend some time offline on this
4 and come back at some point.

5 **THE CHAIRMAN:** Andrei?

6 **MR. BLAHOIANU:** Just one last
7 clarification; the title is incorrect, there is no New
8 Brunswick report on Increased Seismic Risk.

9 This situation is true for United States
10 and in their document, CNRC presentation, status of
11 Genetic Issue '99 they show that actual years there is
12 indeed an increase of seismic risk and this is why they
13 proceed now through additional verification.

14 This is not true for Canada and as Dr. John
15 Adams said, in fact the -- talking -- referring to the
16 original design numbers and also what we have in 2010 NBCC
17 and also it will be in 2015, wouldn't you know that we see
18 a reduction on the seismic hazard, not because the seismic
19 hazard changed, because it doesn't change, it's about the
20 fact that information that NRCan has today allowed them to
21 conclude that the real numbers will be lower.

22 So I ask Dr. Adams to confirm this.

23 **THE CHAIRMAN:** Okay, Dr. McDill, any other
24 subjects?

25 **MEMBER McDILL:** Yes. The intervenor made

1 some reference to one of their experts having trouble
2 getting documents and I wanted to ask the question, did he
3 call staff?

4 **MR. RUFFMAN:** I'm the person.

5 **MEMBER MCDILL:** Did you call staff?

6 **MR. RUFFMAN:** I have a file folder of many

7 ---

8 **MEMBER MCDILL:** I'm going to ask you, maybe
9 just -- maybe you could just step forward and swap places
10 with someone so we can hear you and it goes on the record.

11 Thank you.

12 **MR. RUFFMAN:** Yes, my name is Alan Ruffman.
13 I was the one who was invited to Memphis to give a
14 historic seismicity study. I did a look at the pro area
15 and specifically looked at south-western New Brunswick and
16 the work that Dr. Burke had done with his students.

17 And when I came back to Canada I decided I
18 would try to find the original documents that were put
19 into the 1971-'72 environmental assessment. I ultimately
20 failed.

21 I wrote letters, initially, to the logical
22 people, some of the names had changed, I have a file
23 folder of letters and ultimately there were two documents
24 that just could not be produced and I was at a loss and I
25 didn't know Paul Thompson at that time, I don't yet know

1 him but I know his name, and I suspect had I contacted him
2 I would have found the right documents but I failed at
3 that point.

4 So when I wrote that comment to Ms. Murphy
5 it was because I had not been successful in finding the
6 documents.

7 I don't think I was being stonewalled, I
8 think I just ran into a lack of corporate knowledge that
9 has stretched back now for almost 30 years.

10 **MEMBER McDILL:** Okay, thank you. That was
11 my question. So presumably you can continue your hunt
12 now, maybe with -- but 1971-'72 was a while ago.

13 Could I ask NB Power to see what it can do
14 with that.

15 **MR. THOMPSON:** Yes. For the record, Paul
16 Thompson.

17 We've tried our best working -- interacting
18 with the intervenors to provide and make available
19 information, that which can't be available in the open
20 source we've made available for them to read in closed --
21 in closed sessions. So we certainly can follow-up and try
22 to understand what information they would like to see and
23 provide, to the best of our ability.

24 **MEMBER McDILL:** Thank you.

25 Thank you, Mr. Chair.

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

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

3 Just a few brief questions this time. The
4 first one deals on page 38 of the intervention and it's
5 the issue of intake and outtake water -- cooling water
6 pipes. And I guess what the intervenor says is because of
7 the amount of mussels in the pipe that you cannot inspect
8 those with a diver.

9 So maybe you would like to comment on that
10 if that's possible.

11 **MR. KENNEDY:** If I may, I would direct that
12 question to Charles Hickman, he's our fish guy.

13 **MR. HICKMAN:** Charles Hickman, for the
14 record.

15 **MEMBER BARRIAULT:** First paragraph.

16 **MR. HICKMAN:** Yes. As mentioned in the Day
17 One hearing we did do inspections on portions of the
18 tunnels, the tunnels are designed and constructed to allow
19 a troth of mussels. The inspections were done in 2006 and
20 2009 and we focused on the -- the first -- I'll say --
21 100-odd feet of the tunnels where they go vertically from
22 the seafloor down towards essentially an elbow before they
23 come in towards the land.

24 And at that time the divers were able to do
25 the inspection, they were to find enough of the -- I'll

1 say -- visible concrete that they could do the inspection
2 on the tunnels, on those sections.

3 **MEMBER BARRIAULT:** So what I'm hearing is
4 that they can do the inspections?

5 **MR. HICKMAN:** They were able to do the
6 inspections at that time in 2006 and 2009, yes.

7 **MEMBER BARRIAULT:** Okay ---

8 **MR. HICKMAN:** And no issues were
9 identified.

10 **MEMBER BARRIAULT:** Will they be done before
11 the restart or?

12 **MR. HICKMAN:** There's no intention to do an
13 additional inspection before restart ---

14 **MEMBER BARRIAULT:** Because there was no
15 issues?

16 **MR. HICKMAN:** Because there were no issues
17 and realistically, 2009 is not that long ago either.

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

19 Next question is -- go ahead.

20 **MR. THOMPSON:** Could ---

21 **MEMBER BARRIAULT:** You sure can.

22 **MR. THOMPSON:** Thank you.

23 These tunnels ---

24 **THE CHAIRMAN:** Can you identify yourself,
25 please?

1 **MR. THOMPSON:** David Thompson with the
2 Saint John Chapter.

3 I was very concerned about this
4 particularly because the age of those tunnels and the
5 tunnels are made through soft stone, stone that could be
6 damaged in an earthquake. And this lining of these
7 tunnels, this concrete lining, is very old now, it was put
8 in place before the plant was commissioned.

9 And we were told, in our meeting with NB
10 Power in this particular matter, that the only inspection
11 was a visual inspection with divers swimming through the
12 intake and outfall tunnels. There was no draining of the
13 tunnels or no physical examination, only just a visual
14 examination.

15 There was no sampling measuring of any kind
16 that we're aware of other than a visual examination, and
17 we feel that that's a very weak point in the future
18 operation of the plant.

19 I think it's a concern whether there were
20 mussels there or whether there were not mussels there --
21 it's just the condition of those intakes and outfalls,
22 they're very long and very large.

23 **MR. ROUSE:** Can I point out one more thing
24 too? The tunnels weren't included in the seismic margin
25 analysis, I don't believe.

1 **MEMBER BARRIAULT:** Could I ask CNSC staff
2 to comment on the tunnels -- the cooling system?

3 **MR. RZENTKOWSKI:** I would ask Andrei
4 Blahoianu to respond to this question.

5 **MR. BLAHOIANU:** So I think that this was
6 taken into account, but again I'm not a PSA specialist, so
7 I just read the report PSA and I think that was taken into
8 account, but I ask the licensee to -- I would ask New
9 Brunswick to confirm.

10 **MR. HICKMAN:** We'll address that question.
11 We'll have Mr. Thompson address that question.

12 **MEMBER BARRIAULT:** Thank you.

13 **MR. THOMPSON:** For the record, Paul
14 Thompson.

15 Yes, the fragility of the seismic -- of the
16 intake tunnels were considered, but its not a significant
17 aspect of the seismic story, because what you rely on is
18 what we refer to as our Group 2 systems, which does not
19 credit the raw service water and condensing cooling water
20 intakes and discharges.

21 So it's a separate seismically qualified
22 system that is in fact what we are using for the heat sink
23 purposes, for those seismic events.

24 In addition -- so that I think that's as it
25 relates to seismic. In addition the PSA as well looks at,

1 as an initiating event, the loss of cooling water system
2 as an event in itself as well, and that's why that's
3 explicitly included in the periodic safety -- or, sorry,
4 in the probabilistic safety analysis.

5 **MEMBER BARRIAULT:** Thank you.

6 I guess the next -- it's on the next page,
7 page 39, and it's concerning the electrical wiring I guess
8 of the cooling -- control room and the storage for the
9 spent fuel.

10 Maybe somebody would like to comment on
11 some of these issues. Actually, there are three issues.
12 One of them is the control room knobs, the lights and
13 whatever.

14 The next one deals with the trays being I
15 guess at full capacity and its felt that the -- they
16 should be de-rated in terms of power capacity.

17 And the other one, really, is the secondary
18 control room, the emergency vent system.

19 So what they're saying is that the controls
20 and electrical wiring are -- at least they feel, don't
21 meet the codes.

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

23 **MEMBER BARRIAULT:** Page 39.

24 **MR. EAGLES:** As you mentioned, there are a
25 number of issues or questions here, and so I'll address

1 them and hopefully we'll get all of the items.

2 First off, just around age of machines and
3 human-machine interfaces, the plant -- as all nuclear
4 plants have -- and you know, we're quite proud of the
5 program that we have to ensure that all equipment remains
6 in good operating order.

7 The review of that equipment on a regular
8 basis by system engineers, called our system health
9 monitoring program, reviews maintenance data, reviews
10 orders that come in through defects and those kinds of
11 things, give us information about where, perhaps in
12 future, we may need to look at additional upgrades and
13 those kinds of things.

14 It is those kinds of reports and
15 information from system health monitoring that help lead
16 us to -- through a more comprehensive condition assessment
17 to decide on what the scope of the refurbishment project
18 would be.

19 So, in this case, evaluations of plant
20 equipment and control panels gave us confidence that those
21 were in good order and that they would continue to operate
22 successfully.

23 There is a note here on human performance,
24 and, you know, some discussion of that happened earlier,
25 and I think it's good here to identify that a change for

1 change sake is not necessarily beneficial to the plant.

2 Our operations teams undergo extensive
3 training in their workforce -- in their work areas, and to
4 make a change would introduce the opportunity for human
5 error because of that chance and because of the new
6 systems they would have to become familiar with.

7 In the course of the work that we did, we
8 focused very hard on making all of the new control systems
9 look and feel very similar to the control systems that
10 they were very used in order to minimize the human error
11 potential. And that has been incorporated in all of the
12 training that has been done for those new systems.

13 To address the issue of cable trays and an
14 observation that's been made by the intervenor, is in fact
15 correct. We do need to take into account the loading of
16 cable trays and the de-rating of cables to compensate for
17 heating of those cables when they're in service, and in
18 fact that is exactly the design standard that's used when
19 we make designs and when we designed the plant initially.

20 In the case of the environmental closure on
21 panels, these particular panels that were being discussed
22 were not required to be environmentally qualified, and so
23 they operated in an area that didn't have the kinds of
24 risks that would normally be associated with an area that
25 required environmental qualification.

1 So I think that addresses the three
2 questions that you had.

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

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

5 **MEMBER MCDILL:** One more question with
6 respect to page 41, which is just a couple pages over.

7 I think we talked about this in Day One, or
8 maybe a previous hearing, the tritium releases. I wonder
9 if I could just get New Brunswick Power to go over that
10 again.

11 **MR. KENNEDY:** Yes, I would direct that
12 question to Charles Hickman.

13 **MR. HICKMAN:** Charles Hickman, for the
14 record.

15 The item on page 41 covers two different
16 aspects of tritium releases.

17 The first section of that paragraph is in
18 relation to the emissions to receiving environment from
19 our liquid and gaseous effluent monitoring systems.

20 The higher number that appear in 2007 and
21 2008 -- they are reported in the annual report as well --
22 they reflect the preparatory work that was being done for
23 the outage.

24 So when we were planning for the outage, we
25 took one of our prime heat transport resin tanks, we

1 cleaned it, essentially made it ready to receive part of
2 our prime heat transport system. So when we did that work
3 on the resin tank that would have led to some increases at
4 that time.

5 Subsequently, when we actually started the
6 outage, we drained down the moderator into a series of
7 tanks. We flushed that moderator system. That indeed
8 would have caused those increases in both carbon-14
9 emissions and tritium emissions from the liquid streams.

10 The second half of the paragraph the
11 interventions has in it is in relation to the waste-
12 management facility. And, yes indeed, we did discuss
13 those in the Day One and at previous meetings as well,
14 where the presence of the heat transport system filters
15 from the early days of operation, which were not correctly
16 dried or adequately dried in the early days, would have
17 been off-gassing over time, and we picked up those
18 resultant emissions, if you would like, or the resultant
19 tritium numbers in the partial flume, which is a
20 completely separate monitoring system associated with the
21 waste management facility and stand-alone systems that we
22 monitor on a regular basis. And those numbers -- none of
23 those numbers either for the professional work, for the
24 outage or from the waste management facility, none of
25 those numbers are close to any actual limits or any

1 registered limits and no cause for concern.

2 **MEMBER McDILL:** Thank you. Perhaps I could
3 ask if the intervenor is a little more comfortable now
4 with those numbers.

5 **MR. RZENTKOWSKI:** (Off microphone).

6 **MEMBER McDILL:** You'll have to use the
7 microphone.

8 **MR. ROUSE:** I wasn't the sole author of
9 that part.

10 **MEMBER McDILL:** Okay. Thank you.

11 **THE CHAIRMAN:** Dr. Barriault, go ahead.

12 **MEMBER BARRIAULT:** Just one more brief
13 question. Again, on page 41, the intervenor comments
14 about the number of non-lost time injuries. Could we ask
15 the CNSC staff to comment on this? They're wondering if
16 it's a concern to the CNSC staff and what is being done to
17 correct the number of non-lost time injuries.

18 Top of the page, page 41.

19 **MR. RZENTKOWSKI:** Before I answer this
20 question, I would like to provide an answer to the
21 previous question posed for the CNSC staff, the question
22 which we didn't answer properly. This was on the raw
23 service water tunnels. And the question was if those
24 tunnels are included in probabilistic safety analysis.

25 **MEMBER BARRIAULT:** Yes.

1 **MR. RZENTKOWSKI:** The question is yes --
2 the answer is yes, the analysis considers the raw service
3 water.

4 **MR. ROUSE:** The seismic margin analysis --
5 sorry, not the PSAs.

6 **MR. RZENTKOWSKI:** Yes, this was my
7 question. It's actually, strictly speaking, is the PSA
8 based seismic margin assessment because seismic assessment
9 is done based on probabilistic considerations.

10 **MEMBER BARRIAULT:** Thank you. And now for
11 the other question.

12 **MR. RZENTKOWSKI:** Now, coming back to your
13 last question, I would like Kathleen Heppell-Masys to
14 answer this question. She is present in the room.

15 **MEMBER BARRIAULT:** Thank you.

16 Do you want me to repeat the question?

17 **MR. RZENTKOWSKI:** It appears that we cannot
18 find the owner for this question. If the Commission
19 doesn't mind, we will respond to this question tomorrow
20 morning.

21 **MEMBER BARRIAULT:** Okay. Thank you.

22 Could I ask NB power to comment?

23 **MR. KENNEDY:** Yes, I would ask the Station
24 Director, Wade Parker to answer that question.

25 **MEMBER BARRIAULT:** Thank you.

1 **MR. PARKER:** For the record, Wade Parker.

2 Just a very brief set of numbers on our
3 safety record because I believe it's relevant to the
4 conversation. If we look at our numbers when we were going
5 through our refurbishment project, which is a significant
6 sized project for the Province of New Brunswick.

7 We have 15.7 million person/hours in on
8 this project to date. Our lost-time injury frequency,
9 national average is 1.8, the province is 1.3, and for the
10 project, we are at 0.14, which is extremely low compared
11 to the averages.

12 So what does that mean? If I understand
13 your question correctly, the question is in regard to the
14 high number of near misses. Is that correct?

15 **MEMBER BARRIAULT:** Yes, that's correct but
16 (off microphone) the use of the -- metric industrial
17 safety accident rate as a performance indicator. So they
18 want you to compare it to the ---

19 **MR. PARKER:** So if I speak directly to the
20 high number of near misses, we, at the station, take pride
21 in the level of reporting that we have for very, very low
22 level events. So those numbers are significant. I'm not
23 certain if you are aware of the safety triangle. You have
24 low level reporting, which works its way up to the more
25 significant events.

1 So these numbers -- we take these numbers
2 seriously. Through our corrective action program, we trim
3 them, we look for trends that are developing and we work
4 these down and knock these down.

5 Now, the WANO numbers that are in question,
6 if we look at our WANO numbers over the years of -- the
7 last few years of operation, if we look at Lepreau versus
8 the CANDU versus the WANO averages, the numbers are not
9 significantly higher. They're in the range.

10 The CANDU mean for -- if I'm looking at my
11 numbers here correctly, the three-year average is a 0.28;
12 that's restricted work frequency. Sorry -- yes, that's
13 the CANDU mean. Our number is 0.34. So it's not
14 magnitudes of difference. So they're in the range.

15 **MR. ROUSE:** What three years are those?

16 **MR. PARKER:** My understanding is those are
17 the last three years.

18 **MEMBER BARRIAULT:** Does that answer your
19 question?

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

21 **MEMBER BARRIAULT:** Good.

22 **THE CHAIRMAN:** Okay. Any other questions
23 because I want to give them the last word. We want to go
24 through our own.

25 **MEMBER BARRIAULT:** That's it, Mr. Chairman.

1 Thank you.

2 **THE CHAIRMAN:** Anything else?

3 Okay, I've got two quickies here. On page
4 37, can somebody explain to me the containment? There's a
5 reliability of containment in safety-related structure and
6 right under the box, the red box, it says:

7 "The containment does not pass a leak
8 test."

9 **(UNIDENTIFIED SPEAKER):** What page, sir?

10 **THE CHAIRMAN:** On page 37, on Intervenor
11 33. And while you're thinking about this, think about
12 something else here. On Raphael Shay, shay? He's
13 forecasting -- I don't know if forecasting or -- "a worst-
14 case scenario of 100 centimetres sea level rise by 2100."

15 One hundred (100) centimetres is one metre.
16 I want to know what would be the implication if sea level
17 went up by a metre and then hurricanes and storms and all
18 the rest of this stuff.

19 So who wants to go first? NB Power, go
20 ahead.

21 **MR. KENNEDY:** Yes, Mr. Eagles will address
22 that question.

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

24 In reading the intervention, it suggests
25 that if the containment leakage is not passing the leak-

1 rate test that there may be some structural problems. We
2 have conducted our structural assessment of the reactor
3 building and are confident in the reactor building and the
4 containment structure's integrity. There is to be
5 performed at the end of our refurbishment and on a routine
6 basis a reactor building leak-rate test, which you know
7 confirms that the containment itself is adequate to meet
8 the technical specifications and standards that are
9 necessary.

10 That test not only tests the containment
11 structure itself, it also tests the liner on the inside of
12 the containment building. It tests the equipment that
13 passes through the containment boundary and all the
14 associated equipment there.

15 And so I don't think it would be fair to
16 characterize it to say that if the containment leak test
17 did not pass it, there was a problem with the containment
18 structure. I don't think that would be an accurate
19 description.

20 There are many factors that go into summing
21 to the total leak rate from containment and there is a
22 defined value for that, and so when we conduct the test we
23 evaluate all aspects of the test to determine where
24 there's maybe opportunities to improve performance.

25 **THE CHAIRMAN:** Is there -- parameters, are

1 there regulatory requirements that specify how tight this
2 thing is and how do you pass the test or not?

3 **MR. EAGLES:** Yes, there is. This
4 containment vessel, the reactor building containment
5 vessel is a pressure boundary registered in the Province
6 of New Brunswick and there is regulatory criteria as to
7 the leak rate -- the maximum possible leak rate in that
8 vessel.

9 **THE CHAIRMAN:** So you obviously would
10 expect to pass that if you ---

11 **MR. EAGLES:** We would expect to pass that
12 test.

13 **MR. ROUSE:** Do you have to pass it to put
14 fuel back in?

15 **MR. EAGLES:** That may be a -- Rod Eagles,
16 for the record. That may be a question for CNSC staff.

17 **THE CHAIRMAN:** Staff?

18 **MR. RZENTKOWSKI:** Yes, for the time being,
19 we are relying on the test which was conducted in 2004 and
20 confirmed a leak rate of .5 percent which is the
21 operational target.

22 However, in the safety analysis, five
23 percent is being credited so there is a very significant
24 safety margin imbedded in that.

25 But, in any event, this leak rate test will

1 have to be repeated shortly. And this time we have our
2 specialist online in Ottawa, who is James Mok, and he will
3 say more about the schedule of upcoming tests.

4 **THE CHAIRMAN:** Ottawa, go ---

5 **MR. MOK:** Yes, James Mok, for the record.

6 The leak rate we measure from the 2004 with
7 the building pressure test was 0.497 percent volume per
8 day, which is within and slightly below the operational
9 acceptance criteria of five percent volume day. Hence the
10 leakage rate test result from 2004 was acceptable.

11 However, in line with the defence in depth
12 concept and a conservative approach, the operational
13 accepted criteria of 0.5 percent volume per day chosen by
14 the licensee has a very significant effect on safety in
15 building. The design limit in the safety analysis was
16 five percent volume day. Hence there's a special safety
17 in the leakage rate measured in the 2004 test.

18 And all the tests performed by the licensee
19 has to be submitted to CNSC for review and acceptance and
20 staff have reviewed the result and found them acceptable.

21 Thank you.

22 **THE CHAIRMAN:** So I'm not sure I got the
23 answer so will they have to retest this again before
24 restart?

25 **MR. MOK:** Yes, there's a condition in the

1 licensee's condition handbook. The licensees have to
2 perform the leakage rate test before they remove TSS.

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

4 I'd like to move to the ---

5 **MR. ROUSE:** They have to do the test
6 though. It doesn't say that they have to pass.

7 **THE CHAIRMAN:** I assume there may be a
8 little loophole you just discovered. I assume if you do
9 the test, there's some ---

10 **MR. ROUSE:** There seems to be lots of other
11 loopholes so I just -- I'd like to have it nice and
12 clearly in the licence condition.

13 **THE CHAIRMAN:** Is the intervenor right?
14 Just do the test ---

15 **DR. RZENTKOWSKI:** No, the intervenor is not
16 right in this particular case because they have to meet
17 the standards and leak criteria are provided in the
18 standards so those criteria have to be met in order to
19 progress with refurbishment activities and restart.

20 **MR. ROUSE:** Thank you.

21 **THE CHAIRMAN:** Thank you.

22 **MR. ROUSE:** Could I make just one more
23 comment about the structural integrity and the pressure
24 and what Mr. Eagles said?

25 I didn't just come up with that out of my

1 head. That's a CNSC document that I got that from -- some
2 studies that were done -- it wasn't just something I came
3 up with; seems to be kind of thrown out there.

4 **THE CHAIRMAN:** Oh, no, no. We got it from
5 your red thing. It's a quote from CNSC staff. I got
6 that.

7 **MR. ROUSE:** It wasn't very well addressed.

8 **THE CHAIRMAN:** Okay, we've got to move on.
9 On just the last question is seawater going
10 up 100 centimetres. The depth -- what does that do to the
11 safety case for doomsday scenario?

12 **DR. RZENTKOWSKI:** The seawater going into
13 the reactor core?

14 **THE CHAIRMAN:** The whole seawater are
15 raised by 100 centimetre -- by a metre.

16 **DR. RZENTKOWSKI:** Karina Lange will respond
17 to this question.

18 Thank you.

19 **MS. LANGE:** Regarding the comments on
20 climate change, CNSC staff do recognize that an increase
21 in global temperature will cause sea levels to rise and
22 will also change the amount and pattern of precipitation,
23 other events, including changes in frequency and intensity
24 of extreme weather events, although the nature of these
25 regional changes is uncertain.

1 Specifically talking about the 100
2 centimetre increase, I'd like to just remind the
3 Commission in Day One we discussed the original flood
4 assessment that considered a combination of rare frequency
5 but severe events and that combination of events caused
6 the water level to rise up to 10 metres above mean sea
7 level and we compared that 10 metres to the average grade
8 of the station which was at 15 metres so we have that
9 five-metre buffer.

10 So the impacts of climate change are still
11 within the conservativeness and the margin of safety
12 associated with the original flood assessment and,
13 furthermore, in 2008 PL staff and CNSC reviewed more
14 recent storm data which would be associated with changes
15 in climate and measured tides and they were still within
16 those predicted maximum values.

17 Although there is no imminent risk to the
18 plant though from climate change, at this time, it is
19 prudent that we do re-assess the flood risk of Point
20 Lepreau and other sites under the new lessons learned from
21 Japan and, currently, CNSC staff are sharing knowledge and
22 best practices with leading technical authorities
23 including the IEA and very recently the U.S. NRC to
24 consider the latest studies on climate changes and how
25 these studies and research can be used in the

1 determination of design values for external events.

2 **THE CHAIRMAN:** Thank you.

3 Anything else? Last word, both of you
4 guys?

5 **MR. ROUSE:** I just want to speak from my
6 heart to everyone. I really think this is being pushed
7 through. The proper checks and balances are not in place.
8 These two technical assessments that were accepted by the
9 CNSC staff is unacceptable to New Brunswickers and there's
10 no reason to believe that there's not a bigger case of
11 this. I really believe that the *Nuclear Safety and*
12 *Control Act* has been broken in regards to our intervention
13 and this hasn't been a very pleasant experience.

14 **MS. MURPHY:** And thank you very much. I
15 would just like to say yet again that a full environmental
16 assessment would have cleared up an awful lot of this and
17 the fact that this plant has been a maintenance shutdown
18 when really even your staff has said it's practically a
19 fun, new plant, it's been rebuilt, and without these
20 assessments that would have really answered so many
21 questions and so many concerns. Without that being done,
22 it leaves us to really do assume that there's another
23 agenda.

24 Thank you.

25 **THE CHAIRMAN:** Thank you. Thank you very

1 much.

2 This is the end of today's agenda plan. I
3 am thinking since we are still awake maybe we should
4 continue with some written material from ---

5 **MR. LEBLANC:** Do you have your binder?

6 **THE CHAIRMAN:** No, I don't so do we want to
7 take a break and then ---

8 **MR. LEBLANC:** We said we'd finish around
9 six thirty.

10 **THE CHAIRMAN:** Yes.

11 **MR. LEBLANC:** It's already seven. We have
12 time tomorrow.

13 **THE CHAIRMAN:** Do you want to reconvene and
14 do -- yes, why don't you take a ---

15 **MR. LEBLANC:** Start at six tomorrow
16 morning?

17 **THE CHAIRMAN:** No, no, no. Why don't you
18 take 15 minutes and then we'll go through the written
19 material; okay? So we'll reconvene in -- at 7:00 o'clock.

20 Thank you.

21

22 --- Upon recessing at 6:45 p.m./

23 L'audience est suspendue à 18h45

24 --- Upon resuming at 7:08 p.m./

25 L'audience est reprise à 19h08

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MR. LEBLANC: Okay, please take your seats.
We're ready to resume.

THE CHAIRMAN: Okay, I understand that
staff has an update.

DR. RZENTKOWSKI: Yes, we would like to
provide an answer to the previous question on near misses.
In terms of occupational health and safety. Mr. Burton
Valpy, who is the site supervisor of the CNSC site office
here at Point Lepreau site will provide this answer.

MR. VALPY: Burton Valpy, Inspector.

I think to begin with we should put this in
context. Occupational health and safety is part of the
inspection program we execute at Point Lepreau. Most, if
not all, of our inspections have an occupational health
and safety component.

We've also been performing, for the
duration of the refurbishment joint inspections with Work
Safe New Brunswick and have seen very few problems of any
significance.

Bear in mind, for the duration of
refurbishment, Point Lepreau has been a construction site.
From a normal complement of 500, 600 people on-site during
the course of a week, we've been up to 2,500. As a
result, we've expected an increase in the rate of

1 injuries, as consistent with what you'd expect from an
2 increased workload and the nature of the work, which is
3 large amounts of welding, cutting, chopping.

4 We have been aware of these numbers as
5 they've passed through and have seen no reason to be
6 concerned. NB Power for the more serious accidents or
7 incidents has been very diligent about finding out what
8 happened and why, including having stand-downs with the
9 station, some of which we've attended to witness, to
10 review safety procedures with staff.

11 With respect to the large number of near
12 misses, be careful. New Brunswick Power is very diligent
13 about reporting things. In many cases they're overly
14 conservative in reporting things and that tends to inflate
15 numbers to levels that appear shocking at first glance but
16 are not that significant from an individual point of view
17 or even as a collective.

18 The important thing is if you look at the
19 way these numbers are structured, with a very small number
20 of lost time accidents, slightly larger work restricted --
21 restricted work injuries, and so on, down to near misses,
22 you get a pyramid that flows the way you would expect it
23 to.

24 And, finally, with respect to WANO
25 performance indicators, CNSC staff do not use the WANO

1 performance indicators for occupational health and safety.
2 We have our own, more sensitive for our purposes, that we
3 track, and the Commission Members may remember the
4 discussions for the annual report this year in August,
5 about the nature of that performance indicator and why we
6 use it.

7 **MEMBER BARRIAULT:** Thank you. Thank you so
8 much.

9 **THE CHAIRMAN:** Okay. Are you happy with
10 that answer, Dr. Barriault?

11 **MEMBER BARRIAULT:** Yes.

12 **THE CHAIRMAN:** Okay.

13 **MEMBER BARRIAULT:** It was for the record,
14 really, thank you.

15 **THE CHAIRMAN:** So we will now move to the
16 written submissions and we have a process here that the
17 Secretary of the Commission will identify the intervenors
18 and the CMD number, and the Commission Members will have
19 the opportunity to ask questions.

20 Marc?

21 **MR. LEBLANC:** The first submission is from
22 Mr. Timothy Curry, as outlined in CMD 11-H12.2.

23
24 **11-H12.2**

25 **Written submission from**

1 **Timothy L. Curry**

2

3 **MR. LEBLANC:** Are there any questions from
4 the Commission Members with regard to this submission?

5 **MEMBER MCDILL:** What is the current
6 projected number of employees at Lepreau after restart?

7 Maybe you could divide them into the
8 various skilled trades, engineers, that sort of thing.

9 **MR. KENNEDY:** For the record, my name is
10 Blair Kennedy.

11 After the refurbishment, we're looking in
12 the neighbourhood of -- the total, from somewhere between
13 -- around 700 -- between 720 and 750 employees at the
14 Point Lepreau generating station.

15 As far as the breakdown, I don't -- I
16 wouldn't have that right at this time, but I could provide
17 it.

18 **MEMBER MCDILL:** That's fine. It can come
19 tomorrow maybe. I think our youngest ever intervenor just
20 left.

21 **(LAUGHTER/RIRES)**

22 **THE CHAIRMAN:** Okay. Just a quick question
23 on this, it says here on the second page -- second
24 paragraph -- that you actually get broadly-based respect
25 and support from citizens of New Brunswick.

26 I have a question; did you have -- did you

1 do a survey of New Brunswick population with respect to
2 the power plant?

3 **MR. KENNEDY:** I would like to direct that
4 question to Kathleen Duguay, our Manager of Public
5 Affairs. She could answer that, if there is -- if they
6 have.

7 **MS. DUGUAY:** Kathleen Duguay, for the
8 record.

9 Thank you for your question. Actually, I
10 just received the results of the survey last night. It
11 does indicate that there's an increase of support from a
12 community interactions perspective, and that they see NB
13 Power as being more involved in communities and supporting
14 communication in open and transparent dialogue.

15 So that's the ---

16 **THE CHAIRMAN:** That's a recent survey?

17 **MS. DUGUAY:** I got my -- yes, it was done
18 on 600 participants in the Province of New Brunswick, from
19 the various age groups, and I just received the survey
20 results last night.

21 **THE CHAIRMAN:** And that's post-Fukushima it
22 was done?

23 **MS. DUGUAY:** That is correct. It was done
24 in the first two weeks of November.

25 **THE CHAIRMAN:** Are you planning to share it
26 with the public, post them? What do you plan to do with

1 it?

2 **MS. DUGUAY:** We usually share some of that
3 information.

4 **THE CHAIRMAN:** It will be very interesting,
5 interesting to see them.

6 **MS. DIGUAY:** Thank you.

7 **THE CHAIRMAN:** Okay, thank you.
8 Marc?

9 **MR. LEBLANC:** The next written submission
10 is from Saint John Energy, as outlined in CMD 11-H12.3.

11

12 **11-H12.3**

13 **Written submission from**

14 **Saint John Energy**

15

16 **MR. LEBLANC:** Any questions from the
17 Members with regard to this written submission?

18 **MEMBER BARRIAULT:** Just one brief question
19 to Point Lepreau.

20 Following the refurbishment, your
21 electrical output will be how much higher than what it was
22 previously?

23 This intervenor feels that you're a
24 sustainable and efficient provider.

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

26 There's two points to be made on that. The

1 station prior to the shutdown was slightly de-rated from
2 its maximum performance as a result of ageing issues,
3 which, you know, are addressed as part of the
4 refurbishment activity, so we'll be returning to 100
5 percent full power.

6 And in addition to that, the upgrade of the
7 low-pressure steam turbines will offer the opportunity for
8 us to generate an additional 25 megawatts of electricity.

9 Of course, without any additional steam
10 flow, no additional reactor power increase and reducing
11 greenhouse gas emissions from some other plant somewhere
12 else in the province.

13 So 705 megawatts gross, about 45 megawatts
14 of station service load.

15 **MEMBER BARRIAULT:** Thank you.

16 **THE CHAIRMAN:** Just to follow up on this,
17 how crucial is having a nuclear power plant to support the
18 alternative energy?

19 Because this is a base power, whereas the
20 other ones are intermittent kind of power supplies, so a
21 lot of people argue that you need nuclear to support wind
22 and solar. Is that correct?

23 I mean it's ---

24 **MR. KENNEDY:** Yes. Yes, for the record.

25 Point Lepreau, when it comes back on the
26 grid, as has been mentioned several times, will produce a

1 base load energy which is very important to the ratepayers
2 in the Province of New Brunswick.

3 We'll have from that in excess of 35
4 percent. I shall say CO₂ the emission-free energy coming
5 off the unit. That, combined with the output of our hydro
6 system, will put us in a stead where we'll have -- if you
7 put the hydro and the nuclear together, would give us some
8 kind of -- a 65 percent output, as we move forward. So
9 the nuclear unit does provide a base.

10 It is a bit difficult to follow the wind
11 around with the nuclear, but we have some other resources,
12 resources that we can follow the wind. We also have some
13 wind in New Brunswick.

14 So on a move-forward basis, Point Lepreau
15 will provide a lot of advantages from the point of view of
16 voiding other types of fuels that are more CO₂ emitting,
17 for example, oil, and a certain amount of coal will be
18 displaced, but that will provide some opportunities
19 perhaps to export some of the other resources that we
20 have.

21 **THE CHAIRMAN:** So even though you
22 refurbished this plant, it doesn't have the capability to
23 follow and fluctuate load, it's still a steady load. Is
24 that right?

25 **MR. KENNEDY:** It doesn't do it easily, but
26 it -- you know, when we're refueling there are some drop-

1 downs, but it's a pretty -- once we get it set, we like to
2 leave it really -- we like to leave it base load and keep
3 it pegged and we'll move other units that we have on the
4 system around.

5 We can follow -- we're following wind in
6 this province with some of our hydro even though it is
7 around a river.

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

9 Marc?

10 **MR. LEBLANC:** The next written submission
11 is from the Saint John Board of Trade, as outlined in
12 CMD 11-H12.4.

13
14 **11-H12.4**

15 **Written submission from**

16 **The Saint John Board of Trade**

17
18 **MR. LEBLANC:** Any questions from the
19 Commission Members with regard to this submission?

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

21 **MEMBER BARRIAULT:** Just one brief question.

22 They raised three issues, and we've dealt
23 with some of them already. They feel it's good from an
24 economic perspective, and I'm wondering if you've done, I
25 guess, an impact analysis from an economic point of view

1 as to what it provides for the area and the community.

2 They also go on to say that it's good from
3 an environmental and energy supply perspective, but we
4 dealt with those already, so...

5 **MR. KENNEDY:** I don't know whether we ---

6 **MEMBER BARRIAULT:** Economic fallout, I
7 guess, is what they're asking.

8 **MR. KENNEDY:** Yes, okay. For the record,
9 I'll pass that to Charles Hickman. He may have some
10 results as we went into this refurbishment, then, with
11 respect to what that would do from an EIA point of view
12 when it was done.

13 **MR. HICKMAN:** Charles Hickman, for the
14 record.

15 Between 2000 and 2003 as part of the
16 environmental assessment that was conducted, which
17 included the future operations of the plant, we did look
18 at what the both immediate and indirect benefits to the
19 community and to the province were.

20 I can't pretend to remember the numbers,
21 but there was significant local benefits through direct
22 employment, significant indirect benefits, both through
23 taxation, through jobs, through maintenance work, outage
24 work as well.

25 There was also -- the study was interesting

1 in that it pointed out that the employees here at the
2 station are extremely active in their local communities,
3 in support groups and, as mentioned earlier, in supporting
4 schools as well.

5 And the study indicated that, you know, the
6 loss of those opportunities would be a significant impact
7 to New Brunswick.

8 So there was a study done. I can't quote
9 the numbers. We do actually have an information sheet on
10 socio-economic benefits in the plant that is part of our
11 website and is available through the information centre.

12 So a study was done as part of the
13 environmental assessment, was reviewed at that time.

14 **MEMBER BARRIAULT:** Thank you. Thank you,
15 Mr. Chairman.

16 **MR. LEBLANC:** The next written submission
17 is from the Centre for Nuclear Energy Research as outlined
18 in CMD 11-H12.5

19 Any questions from the Members with regard
20 to this submission?

21
22 **11-H12.5**

23 **Written submission from**

24 **The Centre for Nuclear Energy Research**

25

1 **THE CHAIRMAN:** Dr. McDill.

2 **MEMBER McDILL:** Thank you.

3 Perhaps New Brunswick Power can tell me a
4 little bit of what they have done, just a few examples.
5 They say they've been involved.

6 **MR. EAGLES:** This is Ron Eagles, for the
7 record.

8 It actually leads me back to a question
9 which I took an undertaking from earlier on, so it's good
10 timing.

11 The Centre for Nuclear Energy Research is
12 stationed at the University of New Brunswick and takes
13 advantage of a number of the skills of the university
14 staff and students that are there to undertake to do
15 research.

16 One of the areas that they have done a lot
17 of research in is in the area of feeder degradation and
18 feeder life management.

19 So as we were speaking earlier about that
20 particular area and whether research papers were
21 available, most of that work is funded in part by us, but
22 through the CANDU owners group and, as a result of that,
23 we don't have the ability to release that material, so I
24 did take an undertaking to find that because we don't
25 commercially own it.

1 Certainly, if an intervenor wanted to
2 review some of that material, we could make it available
3 to observe, you know, at our site.

4 Secondly, and more recently, the CNER has
5 been working with our human resources group to look at how
6 they could assist us in the training and development of a
7 new generation of nuclear employees and nuclear workers
8 and so a dialogue has been going on as to how the Centre
9 for Nuclear Energy Research, you know, at its location at
10 the University of New Brunswick could assist us in
11 staffing in the future.

12 So those are two areas, in particular, that
13 they've been working.

14 **MEMBER McDILL:** Is the Enterprise UNB
15 building a commercial, sort of, incubator facility? It's
16 sort of a little -- do you know?

17 It's odd to have contractors in a
18 university in that way; that's why I'm asking. It's just
19 a matter of curiosity. If you don't know, we'll leave it.
20 We'll let it go.

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

22 I'm not entirely sure what else is in the
23 Enterprise UNB building. It is on the campus of the
24 University of New Brunswick and the CNER has a leadership
25 team that's not employed directly by the university but by

1 the centre itself, which gets funding from many different
2 sources.

3 I'm sure that the university is part of
4 that funding source, as is the CANDU owners group. And a
5 number of the researchers that they have there are part of
6 research teams in the fields of study at the university.

7 **MR. LEBLANC:** The next submission is from
8 the Environmental Coalition of Prince Edward Island as
9 outlined in CMD 11-H12.9.

10 Any questions from the Members with respect
11 to the written submission?

12

13 **11-H12.9**

14 **Written submission from**
15 **The Environmental Coalition**
16 **Of Prince Edward Island**

17

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

19 I guess the first question, really, is to
20 CNSC staff. The intervenor comments on the amount of
21 tritium produced by the reactors and -- so the intervenor
22 comments on the release of tritium and their effect on
23 human health.

24 So can we have some comments from CNSC
25 staff on this issue?

1 **MR. RZENTKOWSKI:** I will direct this
2 question to Mike Rinker.

3 **MR. RINKER:** Mike Rinker, for the record.

4 I guess I'll provide some comments on
5 tritium levels in the environment and their releases and
6 some general context on tritium and health, and if you
7 need more information, we can refer to our staff in
8 Ottawa.

9 But tritium is important for the CANDU
10 nuclear fleet. I think exposures to members of the public
11 from nuclear substances, tritium probably represents about
12 80-plus percent of the dose they receive, so it's an
13 important consideration.

14 But there are no observed health effects
15 below 100 millisieverts per annum so we set in regulation
16 a level of one millisievert per annum, so, you know, a
17 factor of 100 safety.

18 And so tritium levels are well monitored
19 around the Point Lepreau facility. They're in the range
20 of 10 to 20 becquerels per litre close to the surface,
21 higher in groundwater at site, but still below the
22 drinking water objectives set by Health Canada.

23 So the consequence of people being exposed
24 to tritium through breathing air, eating food, drinking
25 water, results in about 0.001 millisieverts per annum, so

1 again, another factor of 1,000 below what's in regulation.

2 So the dose consequences of what is
3 released are extremely low and the effects on the
4 environment are non-existent.

5 **MEMBER BARRIAULT:** And do we have a program
6 to reduce the emissions in the nuclear plants?

7 **MR. RINKER:** Let me think of exactly what a
8 program is.

9 There certainly is for the protection of
10 people within the facility -- there's an ALARA program.
11 That's to keep doses to workers as low as reasonably
12 achievable.

13 In terms of releases to the environment, I
14 guess the thing about tritium is when you manage your
15 facility very well, you optimize your facility like you
16 would do under an ALARA program, you would -- you
17 subsequently reduce much less tritium.

18 So the releases to the environment are
19 controlled to that manner. There's action levels and
20 limits that are important, and Point Lepreau is very much
21 below those levels.

22 **MEMBER BARRIAULT:** Thank you.

23 Thank you Mr. Chairman.

24 **MR. LEBLANC:** The next written submission
25 is from J.D. Irving Limited as outlined in CMD 11-H12.11

1 Any questions from the Members with regard
2 to this submission?

3 **11-H12.11**

4 **Written submission from**

5 **J.D. Irving Limited**

6

7 **MEMBER BARRIAULT:** Just one brief question.

8 J.D. Irving comments that the Point Lepreau
9 generating station produces 25 to 30 percent of New
10 Brunswick electricity need.

11 And I guess the next question really is
12 that, during the shutdown period, how was this provided?
13 How did we make up the difference between what Point
14 Lepreau produces and what we need?

15 **MR. KENNEDY:** For the record, it's Blair
16 Kennedy.

17 During the shutdown, we have been providing
18 other energies from neighbouring utilities based on market
19 prices around us.

20 So we've been purchasing some energy from
21 our neighbours to fill in the void for Point Lepreau, some
22 four and a half terawatt hours.

23 So we've been enjoying the situation where
24 the market around us has been depressed, so it's gone to
25 contribute towards that, but also, we've been running our

1 units harder ourself. Like we're running Belledune full
2 out for in-province needs.

3 When Lepreau comes back that'll provide an
4 opportunity for us to perhaps export some Belledune if it
5 can go into the market because they'll have a base load of
6 700 to 660 megawatts.

7 So we've been fortunate enough to purchase
8 from our neighbours, either through New England or -- but
9 predominantly it's based on the market price around this,
10 so -- and running our units that we would -- some units
11 that we'd be exporting if the market allowed but we're
12 using to serve in-province load.

13 **MEMBER BARRIAULT:** Thank you.

14 Thank you, Mr. Chairman.

15 **THE CHAIRMAN:** On the third paragraph, it
16 claimed that since commercial operation began NB Power has
17 been able to displace the equivalent of approximately 162
18 million biofoils, averting the emission, on and on and on.

19 Maybe I'll open a parenthesis. I think
20 it's time for staff to do a little bit of research. Is
21 this thing net of -- I mean, is it a green technology or
22 is it not a green technology?

23 You heard the people making observation and
24 it's not. If you calculate all the emission that goes
25 into uranium production, fuel production, running the

1 operation and decommissioning, those are carbon emission
2 activities, so what is the net?

3 So I think it's time for staff to come up
4 with some sort of a position on this because I don't know
5 if this is true or not, and it's something that probably
6 requires you to have a proposed position on that.

7 And I think I've seen all kind of papers to
8 -- for and against. Some people arguing that it is green;
9 some people arguing that it's definitely not. Both cannot
10 be right; right?

11 So you guys want to shed some light on
12 this, it'll be great.

13 **MR. HICKMAN:** Charles Hickman, for the
14 record.

15 I won't make any judgments as to whether
16 it's green or otherwise. I feel that's an opinion that
17 most people will develop on their own.

18 I can tell you what the basis of these
19 numbers are, though. These are numbers I generated back
20 over number of years ago.

21 We look at the total number of gigawatt
22 hours generated from Point Lepreau and we assume that if
23 Point Lepreau was not available to the grid then we would
24 be producing it from other available plants. So we would
25 look at what the next plant would be that would be

1 dispatched to provide those giagawatt hours of energy.

2 And on that basis, these numbers are
3 basically run against our next available unit, which in
4 this case would have been the Coleson Cove generating
5 station. And so these are the savings on a year by year
6 basis, so it's just on a net basis. It's not on a gross
7 life cycle analysis, saying if it wasn't produced at Point
8 Lepreau it would have been produced at the Coleson Cove
9 generating station and these are the -- this is the delta
10 between those two numbers.

11 **THE CHAIRMAN:** But you heard today some
12 argue that if you bought it from Quebec, you would be just
13 the reverse because most of their electricity is hydro
14 generated, which is labelled as clean, green, even though,
15 even there, there's some -- in the building of a dam
16 there's some CO2 expenditure.

17 So people don't look at a full cycle of
18 those things, and so it depends on some the assumption
19 that one makes in this to try to get a feel for what is
20 the real number.

21 **MR. HICKMAN:** I agree entirely -- go ahead,
22 boss.

23 **MR. KENNEDY:** Those are all good points,
24 Mr. Chairman, and Mr. Hickman explained this very
25 accurately in the past, that's the way it's done and today

1 there was some other -- we read -- we heard some other
2 people so, you know, is it cradle to the grave and all
3 that stuff, so there are -- so I try to position myself
4 that it's CO2 emission free, anyway, from that point of
5 view, but there are some -- that's not net. But from
6 what's -- that's the issue, is it from cradle to the
7 grave.

8 **THE CHAIRMAN:** Thank you.

9 Marc?

10 **MR. LEBLANC:** The next written submission
11 is from Atlantic Nuclear Services Inc. as outlined in CMD
12 11-H12.13.

13
14 **11-H13.13**

15 **Written submission from**
16 **Atlantic Nuclear**
17 **Services Inc.**

18
19 **MR. LEBLANC:** Any questions from the
20 Commission Members on this submission?

21 **THE CHAIRMAN:** Dr. McDill?

22 **MEMBER McDILL:** Could I ask what this
23 intervenor contributed to the severe accident management
24 guidance program, in general terms?

25 **MR. KENNEDY:** I would direct that to the --

1 Paul Thompson, Manager of Nuclear Safety and Regulatory
2 Affairs.

3 **MR. THOMPSON:** Yes. For the record, Paul
4 Thompson.

5 There are a number of staff from Atlantic
6 Nuclear who have been involved in the development of the
7 application of the severe accident management guidelines.

8 For further details I'm going to pass that
9 to Mr. Charles Hickman.

10 **MR. HICKMAN:** Charles Hickman, for the
11 record.

12 The severe accident management guideline
13 project as I mentioned earlier has been an ongoing project
14 for several years. It was run through the COG, Canada
15 Owners' Group research activities.

16 So ANSL has provided both direct and
17 indirect support as we've been working through that
18 project.

19 Initially, we had staff in-house. They
20 actually then started working with ANSL and have continued
21 to provide the focus and the technical support to us as
22 they've developed the guidance documents that I referred
23 to earlier.

24 So they have been extremely instrumental
25 and key in terms of proceduralizing and providing

1 technical documentation for use by our planning staff and
2 operations staff in anticipation of or enabling us to
3 mitigate the effects of the severe accident.

4 So they've been very, very strong
5 supporters on a technical basis for that project.

6 **MEMBER McDILL:** And that includes training
7 of personnel, according to this.

8 How would this fit into the intervenor's
9 comments earlier today about human error?

10 **MR. HICKMAN:** If I can answer the first
11 part, yes, they've been -- sorry. Charles Hickman, for
12 the record.

13 They've been very instrumental in training
14 our personnel, our staff, and in that respect, the
15 expertise they bring to the table, part of the expertise
16 is they include previous operations staff, nuclear safety
17 staff, so people who are very familiar with, basically,
18 the behaviours required in an accident scenario and
19 accident response situation.

20 So they have been very much instrumental in
21 working with our training staff, with our simulator staff
22 to ensure that the people using the guidance documents
23 have the right behaviours, the right attitudes to work
24 forward through the guidance documents.

25 I don't know if Mr. Thompson wants to add

1 some details to that.

2 **MR. THOMPSON:** For the record, Paul
3 Thompson.

4 I agree with what Mr. Hickman said. There
5 was another point, though, that I did want to make with
6 regards to human error that we discussed earlier, and that
7 is the probabilistic safety assessment that we discussed
8 does, in fact, allow for a model for human error.

9 There's human reliability assessments that
10 are a part of that, and it looks at both errors of
11 omission and errors of commission.

12 So we recognize the potential for human
13 error. We have particular programs in place in terms of
14 human performance and human performance tools, recognizing
15 error likely situations, put necessary training on people,
16 both under normal operating conditions, but also under
17 accident conditions.

18 The uses of the simulators for training,
19 under high stress conditions, such as a response to severe
20 accidents was why in fact we have a very systematic
21 approach for severe accident management guidelines, but on
22 top of that, in terms of the probability and how it can
23 affect an accident, they've been modelled explicitly as
24 part of the detailed methodologies for that probabilistic
25 safety assessment.

1 **MEMBER McDILL:** Thank you, Mr. Chair.

2 **THE CHAIRMAN:** Thank you.

3 Marc?

4 **MR. LEBLANC:** The next written submission
5 is from the Atlantica Centre for Energy as outlined in CMD
6 11-H12.15.

7

8 **11-H12.15**

9 **Written submission from**
10 **Atlantica Centre for Energy**

11

12 **MR. LEBLANC:** Any questions from Members
13 with regard to this submission?

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

15 **MEMBER BARRIAULT:** Just one brief question.
16 The intervenor goes on to -- just to
17 mention really, that we have a non-CO2 generating facility
18 such as hydro, wind and nuclear.

19 I guess it begs the question really, what
20 percentage of our power is produced by non-CO2 producing
21 as opposed to those, I guess, fossil fuel plants that we
22 have?

23 **MR. KENNEDY:** With Point Lepreau back in
24 service and the wind that we have and the run-of-river
25 that we have, it would be in the neighbourhood -- if

1 you're taking all those gigawatt hours, it would be 65
2 percent.

3 **MEMBER BARRIAULT:** Thank you.

4 That's sixty-five (65) percent ---

5 **MR. KENNEDY:** Sixty-five (65) percent of
6 the in-province requirements, to serve the in-province
7 load in New Brunswick. That meets the in-province load
8 and that would be requirements. It does not include
9 export ---

10 **MEMBER BARRIAULT:** No.

11 **MR. KENNEDY:** --- because there could be
12 opportunities for export on top of that.

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

14 **THE CHAIRMAN:** Just an observation to the
15 previous -- notice that are here, in this organization
16 consider nuclear to be also in the same category of non-
17 carbon emitting generating asset.

18 So again, we keep hearing two opposing
19 views about where it fits into the scheme of emitting or
20 non-emitting.

21 Okay, Marc?

22 **MR. LEBLANC:** The next submission is from
23 Candu Energy Inc., as outlined in CMD 11-H12.17.

24
25 **11-H12.17**

1 **Written submission from**
2 **Candu Energy Inc.**

3

4 **MR. LEBLANC:** Any questions from the
5 Members on this submission?

6 **THE CHAIRMAN:** Just an observation; given
7 the kind of observation about AECL, I think that Candu
8 here should -- probably should appear in person in front
9 of us and introduce themselves to us. But I'm sure they
10 will come in the future.

11 Thank you.

12 **MR. LEBLANC:** The next written submission
13 is from Ms. Marion Pack, as outlined in CMD 11-H12.19.

14

15 **11-H12.19**

16 **Written submission from**
17 **Ms. Marion Pack**

18

19 **MR. LEBLANC:** Any questions from the
20 Members?

21 **MEMBER MCDILL:** Thank you.

22 I realize I'm asking for a summary of a
23 huge thing in a very few words, but for this intervenor,
24 how much of the plant is new and how much of the plant is
25 old, as in antiquated?

1 I mean I don't mean antiquated but new and
2 old. The intervenor's word is "antiquated" but in this
3 redevelopment, position the plant for this intervenor so
4 that...

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

6 So I will also say not antiquated, and I
7 think I addressed part of that earlier in one of my
8 comments regarding, you know, equipment which has been in
9 the plant for some time, which does undergo the age
10 management program and systems health monitoring to ensure
11 that it is all operating as it should be to safely and
12 reliably operate the station.

13 What I would say is that the most critical
14 parts of the station have been refurbished. You know, the
15 key to that is the reactor core obviously and many of the
16 other related systems, including shutdown system computers
17 and additional trip coverage instrumentation.

18 Our turbines, we did undertake to do some
19 replacements, obviously, on the low pressure turbines and
20 rewound the generator, both stator and rotor, but other
21 portions of the turbine in fact have not been replaced.

22 And so difficult to put a number on that
23 but, you know, we've added a substantial amount to the
24 asset value and probably doubled the -- you know -- what
25 was sort of the asset value of the plant as it was before

1 we went into the refurbishment.

2 So to give some idea, probably half.

3 **MR. THOMPSON:** Paul Thompson, for the
4 record.

5 Perhaps I could just add to that as well,
6 that part of the process for life extension as is now
7 documented in Regulatory Document 360, is we performed a
8 detailed plant condition assessment of the entire station
9 to -- for those systems required for safety and production
10 to ensure that we had excellent confidence in terms of the
11 longevity of those systems, structures and components.

12 And it was out of that, that we determined
13 what needed to be either replaced or refurbished. That's
14 on top of the ongoing systems health monitoring that is in
15 place at a nuclear power plant to manage the aspects of
16 plant aging.

17 In addition, there were detailed -- as we
18 talked about before -- safety studies that were done
19 explicitly on the safety side to look at what additional
20 provisions would be made.

21 So I think that plus what was done, I
22 think, gives a pretty good picture about the fact that
23 it's got a pretty clean bill of health and a good ongoing
24 program to monitor health and aging going forward.

25 **MEMBER McDILL:** This is a very far away

1 intervenor, from Arizona, a long way away.

2 **THE CHAIRMAN:** Go ahead, Marc.

3 **MR. LEBLANC:** The next written submission
4 is from the Honourable Craig Leonard, Minister of Energy
5 and Minister responsible for NB Energy Efficiency and
6 Conservation Agency, as outlined in CMD 11-H12.21.

7

8 **11-H12.21**

9 **Written submission from**
10 **Hon. Craig Leonard, Minister of**
11 **Energy and Minister responsible**
12 **for NB Energy Efficiency and**
13 **Conservation Agency**

14

15 **MR. LEBLANC:** Any questions from the
16 Members?

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

18 **MEMBER BARRIAULT:** Not so much a question
19 as a comment really.

20 We've heard discussion today about whether
21 New Brunswick should move away from nuclear and this
22 confirms the fact that the government, I guess, supports
23 the issue of revamping and starting up the plant again.

24 So just to clarify that point, I thought it
25 was interesting.

1 **THE CHAIRMAN:** As a supplement to this
2 observation, when they came up with their energy
3 blueprint, this is a -- this is a brand new government,
4 presumably they look at all options all the way from
5 stopping the refurbishment and going elsewhere. So that's
6 a new government that probably could have taken a fresh
7 look and make a decision, and they've decided to proceed.

8 Is that the way it -- did they address that
9 in the new energy policy that they issue? I didn't get a
10 chance to read it.

11 **MR. KENNEDY:** Yes. Yes, and for the
12 record, it's Blair Kennedy.

13 The energy blueprint has identified the
14 Point Lepreau Generating Station as being a key mix into
15 the future for the Province of New Brunswick.

16 **THE CHAIRMAN:** Thank you.

17 **MR. LEBLANC:** The next written submission
18 is from Ms. Edna Hoddinott, as outlined in CMD 11-H12.23.

19
20 **11-H12.23**

21 **Written submission from**

22 **Ms. Edna Hoddinott**

23
24 **MR. LEBLANC:** Any questions from the
25 Members?

1 **THE CHAIRMAN:** It's another supporting --
2 go ahead, Dr. Barriault.

3 **MEMBER BARRIAULT:** It's just a brief
4 comment really.

5 She goes on to mention -- we had a lot of
6 discussion about fire prevention today, and she goes on to
7 mention really how she -- or has appreciated the input of
8 Point Lepreau into their firefighting department.

9 So maybe NB Power would like to comment on
10 the relationship with the local fire departments?

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

12 The local fire department, the Musquash
13 Fire Department is only a few kilometres away from the
14 station. As a part of their response strategy that we
15 have for any fires that take place at the station, we have
16 an emergency response team that obviously is at the
17 station 24/7 to support all immediate concerns, issues;
18 fire, radiation, chemical, and first aid.

19 The first thing we do when the alarm goes
20 off for any of these events, you know, especially in
21 regards to fire is we start rolling fire trucks. Musquash
22 Fire Department being just outside the station gate for
23 all intents and purposes is the first station that
24 responds.

25 We have also -- the Saint John Fire

1 Department rolls at the same time.

2 So the interaction with our local fire hall
3 is -- also being a volunteer organization, we interact
4 with them regularly through our training, through having
5 them there at the site and working with us to make sure
6 that we have this area secured and addressed.

7 This is a real positive for that
8 interaction with the community and especially those on
9 that volunteer fire department.

10 **MEMBER BARRIAULT:** Thank you.

11 Thank you, Mr. Chairman.

12 **MR. LEBLANC:** The next written submission
13 is from Ms. Elva Waycott, as outlined in CMD 11-H12.24.

14

15 **11-H12.24**

16 **Written submission from**

17 **Ms. Elva Waycott**

18

19 **MR. LEBLANC:** Any questions from Members on
20 this submission?

21 **(NO RESPONSE/AUCUNE RÉPONSE)**

22 **MR. LEBLANC:** The next written submission
23 is from Mr. Gordon Dalzell, as outlined in CMD 11-H12.29.

24

25 **11-H12.29**

1 **Written submission from**

2 **Mr. Gordon Dalzell**

3

4 **MR. LEBLANC:** Any questions from the
5 Members on this written submission?

6 Dr. McDill?

7 **MEMBER McDILL:** First, to express sympathy
8 for him having lost everything after two hours of typing.

9 But I think the objection number one,
10 there's a comment about the one on 1,000 years earthquake,
11 which I think we addressed today with the one in 10,000.

12 I would like to ask about the hurricane
13 values that are dealt with and also the objection number
14 five on the positive void co-efficient. I think it needs
15 to be addressed. Thank you.

16 I think staff would be a good place to
17 start.

18 **MR. RZENTKOWSKI:** So I understand the first
19 question, it's about the hurricane winds, yes.

20 The station is qualified to hurricane winds
21 of category five, but beyond that is also an operating
22 procedure in place which requires the station to be
23 shutdown four hours before the predicted time of arrival
24 of a hurricane at the site.

25 So there is really like a double provision

1 built in into the safety of the plant, one's at the design
2 level, second in the operating level.

3 **MEMBER McDILL:** So if there's a predicted
4 hurricane it's shutdown -- the station is shutdown?

5 **MR. RZENTKOWSKI:** Four hours prior ---

6 **MEMBER McDILL:** Four hours prior.

7 **MR. RZENTKOWSKI:** --- to the anticipated
8 time, yes.

9 **MEMBER McDILL:** Thank you.

10 **THE CHAIRMAN:** Can I get a clarification?
11 It says the intervenor says Point Lepreau is only designed
12 for 108 kilometres per hour. I thought category five is
13 the highest -- the most -- what's the word I'm looking
14 for? The strongest hurricane you can get. And I thought
15 its way above 108.

16 **MR. RZENTKOWSKI:** I think it's about 175
17 kilometres per hour, if I am not mistaken. And this kind
18 of the assessment has been conducted here at the Point
19 Lepreau site, and ---

20 **THE CHAIRMAN:** So where does this 108 come
21 from?

22 **MR. RZENTKOWSKI:** I'm not quite sure.
23 Probably you would have to refer this question to Point
24 Lepreau staff.

25 **MR. KENNEDY:** Yes, if I may, I'll pass that

1 to Paul Thompson.

2 **MR. THOMPSON:** For the record, Paul
3 Thompson.

4 There's a number of aspects for severe
5 weather that have been taken account into the design and
6 then subsequent analysis. Not all of them are self-
7 consistent.

8 So the aspects of hurricanes have potential
9 for immediate wind damage. They have the potential for
10 precipitation over a period of time which could cause
11 localized surface flooding. And then there's the issue
12 related to the potential for storm surges, which I talked
13 about on Day One.

14 As far as the actual design -- original
15 design of the structures, they were built to the
16 appropriate codes, which is a relatively low level of the
17 108 which is where that number was coming from.

18 Dr. Rzentkowski is correct, though, in the
19 statement that we do have the emergency preparedness
20 procedure that looks at the potential for the approaching
21 storms. It takes a number of precautionary measures such
22 as securing -- doing the surveys of the station yard,
23 securing any loose material that may happen, et cetera,
24 and continuing to watch.

25 And depending upon the predicted wind

1 speeds and the probability, could lead in the extreme to
2 shutting down the station if those conditions are in fact
3 met and then the safety story is well versed.

4 In terms of the actual 108 in design, we
5 know that we've had winds locally that have exceeded that.
6 Those structures are significantly more robust in terms of
7 what is in fact the built in safety margins on those
8 structures.

9 The number of external pipes are limited
10 and relatively short length and well secured.

11 As I mentioned, there is the yard cleanup,
12 there is planned shutdown under the necessary conditions
13 if we believe that there's a high probability of
14 significant enough winds, and inspections would be done
15 before the plant would start up to verify that there
16 wouldn't be any external damage on those lines.

17 **THE CHAIRMAN:** Dr. McDill?

18 **MEMBER McDILL:** Maybe the simple thing to
19 do is just to go through these four, five, six -- start
20 there -- for tritium. Is there tritium in the fish, in
21 the fog? Maybe that should go to NB Power.

22 **MR. KENNEDY:** Yes, I will pass that to
23 Charles Hickman.

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

1 No, we do not have tritium in the fish or
2 the fog. I think the intervenor's comment comes from the
3 Day One discussion where we did discuss the tritium that
4 we're finding in the partial flume coming out of our waste
5 management facility, but the operation radiation
6 monitoring program, which monitors both fish, surface
7 waters and so on, is not showing any increased elevations
8 offsite, as staff indicated a few moments ago.

9 **MEMBER MCDILL:** And then the -- I think to
10 staff, the comment about positive void coefficient needs
11 to be addressed, unless you want to add something to fish
12 and fog.

13 **MR. RZENTKOWSKI:** Yeah, the positive void
14 coefficient is like a design CANDU feature and there is an
15 engineered safety system in place to prevent and mitigate
16 the consequences of a very fast void transient and
17 consequently a power transient.

18 Currently this issue is well researched by
19 the industry and I think, from the safety standpoint, we
20 have a good understanding on the path forward. But those
21 are only the enhancements to the existing design because
22 the margins are there and generally they are sufficient
23 margins in every single reactor to assure the safe
24 operation in the context of large LOCA and consequential
25 void activity transient.

1 Also this particular safety issue, how we
2 call it, has been addressed from the international
3 standpoint and during the last convention on nuclear
4 safety in Vienna has been internationally accepted as
5 closed, based on the commitment made. We currently
6 explore two paths towards resolution of the large LOCA
7 issue and void reactivity.

8 The first one is reclassification of this
9 event to beyond design basis accidents based on the
10 opening time for the large LOCA. By opening time I mean
11 the time, for the fracture of the piping.

12 And the second one is some stronger design
13 improvements like, for example, fuel redesign which is
14 being considered as well.

15 The resolution of this issue is expected to
16 be fully completed by the end of 2013.

17 That's the short update. The longer update
18 can be provided by Michel Couture if he's here in the
19 room.

20 **MR. COUTURE:** Well, I think Greg answered
21 most of the question. I would simply add that yes, it is
22 positive for the CANDU.

23 One thing that is often overlooked, the
24 fact that it is positive has been really the result of a
25 design decision by the earlier designers to go ahead with

1 an actual fuel -- actual uranium fuel -- combined with the
2 concept of separation of the coolant and the moderator.

3 As a result of that design decision the
4 cool and void reactivity coefficient is positive. And as
5 Greg mentioned, this has been known for a long time by the
6 designers and by the CNSC staff and various measures --
7 mitigation measures have been taken, including the two
8 effective -- two independent very fast acting shutdown
9 systems and some operational restrictions that have been
10 imposed.

11 For instance, following Chernobyl there has
12 been a restriction on the type of distortion and flux that
13 you can tolerate on a reactor -- in a CANDU reactor.

14 **THE CHAIRMAN:** But this intervention is
15 typical of what we continue to hear about the (a) it's a
16 design flaw, (b) it hasn't been fixed, and you keep
17 hearing this and (c) it's the same thing that happened in
18 Chernobyl.

19 So that's -- you know, listening to you I
20 hear a different story. So has it been -- okay, so you're
21 saying it wasn't a design flaw, it was designed at the
22 beginning to the combination of fuel and the parameters
23 here, everybody knew what they were doing. Is that what
24 you're saying?

25 **MR. COUTURE:** Well, yeah, that -- you're

1 right. I mean, that was the result of a decision, a
2 design decision. The difficulty would be a fact that it's
3 positive over the last 30 years it has been to determine
4 exactly its value, and with R&D there were more precise
5 numbers coming out and it tended to increase.

6 So what happens is that the net effect or
7 the fact that you coefficient was increasing in value it
8 ends up having a larger power increase when you do have a
9 large LOCA accident. But the -- all the analysis and the
10 supporting R&D tells us that the shutdown systems are
11 efficient at terminating the accident and meeting the
12 requirements -- the safety requirements.

13 **THE CHAIRMAN:** But isn't it true that
14 because it was designed to be positive, that's why you put
15 in two shutdown systems, which nobody ---

16 **MR. COUTURE:** Yes, and eventually that came
17 -- they come over the evolution, yes. The two independent
18 effective shutdown systems were a result of that as they -
19 --

20 **THE CHAIRMAN:** (Off microphone) ...so it was
21 fixed. I don't understand why people keep saying it's not
22 fixed.

23 **MR. COUTURE:** The thing that is not, like I
24 said is the value of the coefficient itself that has been
25 a subject of R&D.

1 One thing that compounds the difficulty, in
2 fact, its part of the analysis, is that originally, we
3 assumed and the industry assumed instantaneous break of a
4 large pipe. Why did they do that? It's because it was
5 simple to analyze.

6 So currently, the analysis framework
7 assumes instantaneous break of a large pipe. Of course,
8 what happens is that you have a certain power surge. If
9 your numbers and the coefficient increases, your surge
10 will be greater. So part of the problem was generated by
11 the method of analysis.

12 Currently, there is examination of looking
13 at more realistic breaks based on fracture mechanic
14 analysis and so on. And immediately, if you don't assume
15 instantaneous break, the margins increase significantly.

16 So right now, there is a lot of work being
17 done along those lines.

18 **THE CHAIRMAN:** Dr. McDill, you were on a
19 roll here.

20 **MEMBER McDILL:** Sorry, I think we need to
21 address the issue of U.S. plants having more stringent
22 limits on emissions.

23 (Off microphone)December 6th(off
24 microphone).

25 **MR. RINKER:** Mike Rinker for the record.

1 I'm not entirely certain about the context
2 of the statement. The CNSC does work on the concept of
3 having a regulatory limit of -- that would result in a
4 dose of 1 millisievert per annum. That's in regulation.

5 Through the regulatory framework, we also
6 use action levels, which are much lower to represent
7 operation of the facility and admin levels that the
8 Proponent would use to check to see if the facility is
9 operating appropriately.

10 In addition, there's a CSA standard that
11 has been revised in around 2008 for the calculations
12 behind derived release limits. The implementation of that
13 standard is based on new science, better models and more
14 realistic scenarios. The result for some facilities that
15 I've seen has meant that the derived release limit creeps
16 up a little bit and so that may be the context that
17 they're talking about that raising levels, whereas others
18 are not, but it's ---

19 **MEMBER McDILL:** My last point for this
20 intervenor is -- and he is not the only one who's made the
21 comment today about not feeling informed. I'm not sure
22 whether CNSC should have a "You Tube" channel or not, but
23 that may be helpful. Obviously, the newspaper is not
24 cutting it totally anymore.

25 Thank you, Mr. Chair.

1 **THE CHAIRMAN:** Anything else? Okay, Marc.

2 **MR. LEBLANC:** The next written submission
3 is from Ms. Ruth Stewart-Verger, as outlined in CMD 11-
4 H12.30. Any questions from the Members on this written
5 submission?

6

7 **11-H12.30**

8 **Written submission from**

9 **Ruth Stewart-Verger**

10

11 **MEMBER BARRIAULT:** Just a brief comment
12 really. The issues that she raises are some of the issues
13 we've raised, we've discussed just recently; severe
14 weather conditions, and how the facility is designed to
15 respond to severe weather conditions, and I think we've
16 hit that one.

17 And the next issue is the concern with the
18 emergency response -- preparedness. So just briefly, if
19 we can just address that and lessons learned from
20 Fukushima for emergency response. Those are the issues
21 she's raised, so just the last one, I guess, we could
22 briefly just touch on.

23 So can we ask NB Power to describe the
24 lessons learned from Fukushima for emergency response?

25 **MR. KENNEDY:** I would ask that Paul

1 Thompson address that issue from the point of view that
2 he's the Manager of Nuclear Safety and Regulatory Affairs.

3 **MR. THOMPSON:** Thank you. It's Paul
4 Thompson for the record.

5 We talked about -- there was a number of
6 reviews that were done as a result of the lessons in
7 Fukushima. One recognition of the importance of having a
8 systematic approach for addressing severe accidents and
9 that's what -- we were in the process of implementing the
10 Severe Accident Management Guides. So it was recognized
11 that it was important to complete that work and we're very
12 pleased, I think we noted earlier this morning, that we're
13 in the -- we've done a large number of drills and we are
14 in the final segment of those drills and both, we've had
15 CNSC staff observe them as well as our industry peers
16 observe the exercise that happened last week as well. So
17 that was a major piece.

18 Another one was looked at some of the
19 issues as to whether or not, in Japan, there were some
20 approvals that were required relating to onsite decisions
21 that required offsite authorities to make. And I want to
22 be very clear that all decisions that need to be done in
23 terms of managing the event at the site, onsite, are made
24 onsite. They do not require offsite approvals to make.

25 So we looked at what some of those

1 weaknesses are, made sure that we had those adequate
2 things in place.

3 We talked about looking at some of the
4 advancements and interactions with the Emergency Measures
5 Organization, looking at some of the upgrades that we
6 could be making in the communications and infrastructures
7 to better link up with the types of software that Mr.
8 MacGillivray was talking about this morning. And so we've
9 been doing some work to upgrade our IT structure to make
10 sure that we can link in very well with that and we talked
11 about this morning improving and moving over to an
12 improved incident command system, which we've done and
13 we're doing.

14 We had a number of discussions with
15 Emergency Measures Organization on logistics and ability
16 to get the necessary equipment in. Again, we probed that
17 this morning with regards to how fast can you get things
18 like oil in, et cetera, and how do you do that if the
19 roads are damaged, et cetera. So those types of
20 discussions happened as well.

21 We have been having some discussions with
22 our Canadian nuclear counterparts about whether or not
23 there are some additional merits in having a regional
24 emergency response centre that might house some of the
25 materials that are not so commonplace.

1 Obviously, commonplace materials, et
2 cetera, they are readily available within New Brunswick
3 and we get them here very fast. But looking at additional
4 very specific equipment, there might be some advantage for
5 all the Canadian CANDU industries having a regional
6 centre. And so we are exploring that.

7 So I think there have been a number of
8 important things that we've looked at from emergency
9 preparedness from Fukushima. We've identified those to
10 the CNSC. The CNSC Task Force also looks at some other
11 potential things that might be done and we're in the
12 process of looking at that task force to see what
13 additional things we might add on top of what we've
14 already looked at for emergency preparedness.

15 I hope that answers the question.

16 **MEMBER BARRIAULT:** Thank you. Thank you
17 very much, Mr. Chairman.

18 **MR. MacGILLIVRAY:** For the record, Ernest
19 MacGillivray.

20 I would just like to add a little bit that
21 maybe speaks more directly to the question that the
22 intervenor has.

23 You know, in terms of populated areas, in
24 the case of Lepreau, the nearest significant population
25 centre -- not that our smaller communities are not

1 significant, but the major population centre is St. John.
2 Greater St. John area is about 100,000. That's well
3 outside our planning basis.

4 So our planning basis traditionally has
5 been 20K and we just reviewed the criteria that that was
6 based on to familiarize ourselves for this hearing.

7 Twelve (12) K would be plenty based on all
8 of the planning assumptions that we have, including beyond
9 design-based radiation release. Nevertheless, decisions
10 were made 30 years ago to use a 20-kilometre zone for
11 reasons that weren't necessarily about the engineering but
12 about the practicality of how events might intersect with
13 local population and local communities.

14 So if we had an event that exceeded 20
15 kilometres, what would we do? Well, we've been
16 considering that in the post-Fukushima environment. We've
17 done a comprehensive risk assessment for Charlotte County
18 and we looked at not only the radiation threat, something
19 bigger than 20 kilometres, but we looked at a conjoined
20 threat and we looked at not only the radiation threat,
21 something bigger than 20 kilometres, but we looked at a
22 conjoined threat with a major hurricane, a Cat 3
23 hurricane. And we had one miss us by maybe 100
24 kilometres, so it's not an unreasonable planning basis.
25 And we've done a lot of work in that regard.

1 Another adjunct of that project is looking
2 at best practices for evacuation planning, including
3 software tools for that. We're evaluating a couple of
4 those tools now, and that's to give us the ability to,
5 very quickly, look at evacuation scenarios well beyond 20
6 kilometres, indeed, all of Charlotte County, at least in
7 those areas that would be at risk from a significant storm
8 surge.

9 So we're already sort of in that space
10 where I think the post-Fukushima recommendations would
11 like us to go, and I do think that we would be able to
12 have viable plans for dealing with larger evacuation areas
13 should they ever become necessary.

14 And if I may, just to add one more point,
15 we have good methods for contacting people in our planning
16 zone of 20 kilometres. If you have an event outside of
17 that, then you have to be able to find ways of connecting
18 and alerting those people, which is why we acquired the
19 Sentinel software suite, which has been deployed to all of
20 the municipalities in southern New Brunswick now, and it
21 includes a public warning system. This is the backup
22 system that I mentioned earlier for our primary system.

23 Municipalities with this system can even
24 offer self-subscription to their citizens to receive
25 alerts. So we are deploying the tools that would enable

1 us to deal with scenarios beyond 20 kilometres should they
2 occur.

3 **THE CHAIRMAN:** Just to add a question to
4 this, do you have an arrangement with the U.S.? You're
5 very close, obviously, to the U.S. -- to Maine and the
6 whole U.S. east coast.

7 So is there an arrangement for supporting
8 each other, cooperating with each other?

9 **MR. MacGILLIVRAY:** For the record, Ernest
10 MacGillivray.

11 Yes, sir, we do. In fact, we have an
12 international agreement, a federal agreement that enables
13 state-to-state, province-to-province mutual aid
14 arrangements. And we have such an arrangement, called the
15 International Emergency Management Group, which includes
16 all five New England -- sorry, all six New England states
17 and the five eastern Canadian provinces. And there's
18 actual business process around mutual aid across
19 jurisdictional boundaries.

20 And the Directors of that group meet twice
21 a year, face to face, and there's a lot of information
22 sharing. We learn from each other, and then, when we have
23 bad days, we help each other out.

24 So we do have the relationships and the
25 arrangements to do that.

1 **THE CHAIRMAN:** Thank you.

2 Anybody else? Okay. Marc?

3 **MR. LEBLANC:** So this concludes the list of
4 written submissions. It also concludes the proceedings
5 for today.

6 We will resume tomorrow morning at 8:30,
7 and with the eight remaining oral interventions. That
8 will be followed by rounds of questions, if any, from the
9 Commission Members towards completing the hearing tomorrow
10 afternoon.

11 Thank you very much.

12

13 --- Upon adjourning at 8:13 p.m.

14 L'audience est ajournée à 20h13

15

16