

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public hearing

Audience publique

December 2nd, 2011

Le 2 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

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Saint John, New-Brunswick

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2
3 --- Upon commencing on Friday, December 2, 2011
4 at 8:34 a.m.

5
6 **Opening Remarks**

7
8 **M. LEBLANC:** Bonjour, mesdames et
9 messieurs. Bienvenue à cette audience publique de la
10 Commission canadienne de sûreté nucléaire.

11 I'd like to touch on a few items pertaining
12 to today's -- some procedural considerations for today's
13 hearing.

14 The Canadian Nuclear Safety Commission is
15 about to resume the public hearing on the applications by
16 NB Power Nuclear for the renewal of the power reactor
17 operating license 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. Les appareil de traduction sont
22 disponibles à la réception. La version française est au
23 poste 2, and the English version is on channel 1.

24 Please keep the pace of your speech
25 relatively slow so that the translators have a chance to

1 keep up.

2 I would also like to note that this
3 proceeding is being video webcasted live and that the
4 proceeding is also archived on our website for a three-
5 month period after the closure of the hearing.

6 Les transcriptions seront disponibles sur
7 le site web de la Commission dès la semaine prochaine.

8 To make the transcripts as meaningful as
9 possible, we would ask everyone to identify themselves
10 before speaking.

11 Also, as a courtesy to others in the room,
12 please silence your cellphones and other electronic
13 devices.

14 I would just like to remind everyone that
15 the Commission is a quasi-judicial administrative
16 tribunal. As such, there are decorum considerations and
17 we ask that everyone contribute to a respectful and
18 orderly proceeding.

19 Mr. President.

20 **THE CHAIRMAN:** Thank you, Marc, and good
21 morning and welcome to the continuation of the public
22 hearing of the Canadian Nuclear Safety Commission.

23 Mon nom est Michael Binder. Je suis le
24 président de la Commission canadienne de sûreté nucléaire
25 et je souhaite la bienvenue aux gens ici présent.

1 And welcome to those joining us via
2 webcast, which I assume is working this morning.

3 Thank you. For those of you who were not
4 here yesterday, I'd like to begin by introducing Members
5 of the Commission that are here with us today.

6 On my right is Dr. Moyra McDill. On my
7 left is Dr. Ronald Barriault. We've heard from Marc
8 Leblanc, the Secretary of the Commission, and we also have
9 with us Monsieur Jacques Lavoie, senior general counsel to
10 the Commission.

11 So we will continue with the presentation
12 from intervenors. And again, I'd like to remind everybody
13 that we've allocated 10 minutes for all presentation. We
14 have read in detail the actual submissions; so you don't
15 have to repeat them.

16 You can take advantage about making
17 additional points or summarizing your presentation.

18 So the first oral presentation for today is
19 by Chief Akagi -- welcome -- as outlined in CMD H12.32

20 Chef Akagi, the floor is yours.

21

22 **11-H12.32**

23 **Oral presentation by**

24 **Passamaquoddy Nation**

25

1 **CHIEF AKAGI:** Thank you, Mr. President.

2 My name is Hugh Akagi. I am Chief of the
3 Passamaquoddy people in Canada.

4 I don't want to blind-side you. I have
5 about eight minutes. My friend has about five, and Willie
6 will wrap up. I believe we have two spots of 10 minutes
7 each? At least I hope that's okay with you.

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

9 **MR. AKAGI:** I won't be repeating anything
10 that's in my submission. Thank you.

11 Yesterday, I asked the Grand Chief of the
12 Wolastoqewiyik if I might speak in his territory. You
13 need to understand that if his reply had been no, I would
14 not be here before you today.

15 Did anyone on this panel thank the Grand
16 Chief and his people for the use of his territory? This
17 is what we refer to as respect.

18 The territory we are here to discuss is
19 actually where overlap occurred between our tribes. We
20 did not fight over this area for we would traditionally
21 use it at different times for different reasons.

22 None of these were destructive, and
23 certainly none would have left the site unusable for
24 others, a relationship which lasted for thousands of years
25 and this too with respect, not just for our peoples but

1 for the territory which we refer to as our mother.

2 I have been treated very well by the
3 personnel, both at Point Lepreau and from CNSC. I would
4 like to believe that their respect was real and has no
5 hidden agendas, that they would truly appreciate the
6 relationship perhaps bordering on friendship, which means
7 I would do nothing to hurt them or jeopardize careers.

8 What did develop, however, surprised even
9 me. I became concerned for them, the same concerns I've
10 had for others, because many are young and they would be
11 impacted by whatever happened or is happening in respect
12 to this facility.

13 They have ultimate faith in the guarantees
14 given to them by others and seem unwilling to question
15 whether they are hearing the truth.

16 And this reminds me of the Premier of Japan
17 surveying the ruins of his country, as he told the world
18 "they lied to me" in reference to this industry.

19 When I asked one of the employees why Korea
20 began refurbishment after Lepreau, which has been
21 completed, the reply was obviously they are learning from
22 our mistakes.

23 I cannot share their faith in this
24 industry. Why did this person not understand that being
25 the canary in a mine might not be the best choice for a

1 career?

2 I've heard a few times that meetings have
3 been held between the Passamaquoddy and parties in this
4 room. And that is the truth.

5 However, there's a game being played, which
6 requires some explanation and I would ask the panel to
7 take a close look at the language, and I do not mean that
8 of my people, but that of yours.

9 I am sure you, the panel, are aware of the
10 duty to consult, as outlined in Supreme Court decisions
11 and ratified into government language at all levels.

12 The game, however, becomes an art when the
13 party responsible for the consultation follows an
14 interesting path to avoid using the word "itself". If you
15 should ask "Why bother?", the answer would be because of
16 another government obligation called due diligence, or
17 "cover your butt".

18 Here is how to manipulate the language to
19 create the illusion of consultation. The word
20 consultation, clearly defined by the Supreme Court, must
21 pass through a process called perceived consultation. And
22 then it morphs into another word we call meeting.

23 Take for instance how three different
24 persons responded to Dan's and Harry's presentation
25 yesterday, using the following language -- and I've taken

1 the liberty to translate it for you.

2 They used the word discussed, which is at a
3 meeting. They used the word addressed -- meeting; liaison
4 -- meetings; extensive dialogue -- meetings. "Met with
5 the Passamaquoddy" -- yet another meeting.

6 And so it goes; the two words consultation
7 and meeting are not interchangeable, unless you have been
8 told not to consult. Talk is cheap -- meetings, remember?

9 But this is the tool they would bring to
10 the table when it comes to respecting the concerns of
11 those whose indigenous footprint spans over 11,000 years
12 in this territory.

13 The intent is not to do what is right, but
14 to do what is easy. This is aptly described, I believe,
15 by Will Shakespeare -- much to do about nothing.

16 They believe it is easier to deal with the
17 damage than to fix the problem. However, this becomes the
18 problem when their solution is to leave the waste -- the
19 damage, if you will -- for generations to come.

20 If none of my questions should ever be
21 answered, I ask one question be imprinted into the minds
22 of all that are here to hear my words today. Why is it
23 acceptable to anyone in this room -- to people of
24 conscience -- to contaminate my territory with a toxic
25 waste which will have lasting effects far into the future

1 on generations to come.

2 This is a legacy left from my people, a
3 people already extricated from their territory by those
4 seeking a comfortable life using the resources which
5 sustained us on this land from time immemorial.

6 And please do not tell me that this is not
7 your mandate -- your mandate of health and safety. Safety
8 can be immediate such as fire prevention, infrastructure
9 integrity, security; or long term, 50 year incubation
10 periods for cancers. Thousands of years of nuclear waste,
11 thinking about this is enough to make me sick and that's a
12 health issue.

13 If you understand that your environment is
14 my mother and what would be sacrificed by playing these
15 games would be a people, then perhaps you might reconsider
16 the statement you gave to Chiefs Dan and Harry yesterday -
17 - these are my Wolastoqewiyik brethren -- when you
18 correctly informed them that it was not in your authority
19 to decommission Point Lepreau. However, it is within your
20 authority to deny this licence. I have bullet points, but
21 in 10 minutes we're not going to cover them; recognition,
22 Supreme Court decisions in our favour, environmental
23 impact assessments requiring real consultation, reasons
24 for the name Indian Cove at Point Lepreau. How about the
25 UN declaration; do you realize there are enough violations

1 on this one subject to justify the drafting of the
2 declaration in order to protect the rights of indigenous
3 peoples, my people? How about Honour of the Crown?

4 I know what it takes to be a people again.
5 I know that being Passamaquoddy requires access to
6 traditional territory and this may be difficult if the
7 territory is harbouring a toxic landfill for thousands of
8 years. As you fight to maintain access to our traditional
9 homeland again -- I guess legal eviction, government
10 denial of recognition and treaty rights, both corporate
11 and private ownership of property -- the last thing we
12 need is a game of Russian roulette with a loaded gun.

13 For the Indian, the only solution is to
14 return the territory to the way you found it. Only then
15 might you join us for a relationship of peace and
16 friendship -- our treaties remember -- lasting thousands
17 of years as in days of old; otherwise, your relationship
18 will remain as toxic as the land itself, desecrated by
19 this country's greed for energy and profit.

20 All might enjoy hiking, picnicking and
21 recreation as traditional use of the wonderful place which
22 was once a bountiful source of food, medicine, and fuel
23 for my people. Our Mother Earth is not something we talk
24 about; it's not a policy. It is the way we live in
25 relation to what you refer to as the planet, nature, the

1 environment, other species of wildlife both plant and
2 animal. We refer to her as someone we are obligated to
3 protect. We refer to her neither objectively nor
4 subjectively, but symbiotically. We have been sacrificed
5 and we have sacrificed enough.

6 The refurbishment being proposed is not
7 what is needed. What is needed is the refurbishment of my
8 people and what is being proposed is counterproductive to
9 that. Returning our people to their territory requires
10 returning the territory to the people. Here is an
11 opportunity to restore what was once a beautiful part of
12 our territory to its former self so all might enjoy it
13 without passing through homeland security to encounter a
14 jungle of cement, steel, and mortar. I have heard it said
15 too many times that natives are against progress, but I
16 tell you right now; it depends upon your definition of the
17 word progress.

18 I'd like to finish with the words of Buffy
19 St. Marie and a song known as Windigo.

20 "You say silver burns a hole in your
21 pocket and gold burns a hole in your
22 soul while uranium burns a hole in
23 forever and just gets out of control."

24 Thank you.

25 **MS. BROOKS:** Good morning. I come from the

1 Maliseet Grand Council with a message from the
2 grandmothers and the elders.

3 The planet earth is a beautiful, living,
4 breathing, spiritual body. She got along very well
5 without us before and she can do so again. She has tried
6 her very best to provide for us all the things that we
7 need to sustain our lives and we, insignificant creatures
8 that we are, we human beings dare, in the blink of an eye,
9 to destroy what has taken millions of years to create.

10 In prehistoric times, there were
11 earthquakes in the east. In fact, the reversing falls at
12 Manogwesk (phonetic) -- which is here -- is evidence of a
13 major earthquake in past ages. There was an inland sea at
14 one time, as well, in Central New Brunswick and they have
15 fossils that have been found to prove it. Our traditional
16 stories tell us about these happenings on the river and
17 how Gluscap (phonetic) helped our people to survive. And
18 again in 1904, I'm told that there was an earthquake in
19 Saint John; that's not so long ago. That is in my
20 father's day; he was born in 1904 right here in Saint
21 John, New Brunswick. So earthquakes in New Brunswick are
22 not far-fetched ideas and here you are manufacturing and
23 recklessly accumulating the most poisonous substance ever
24 known to man and then you sanction contamination of an
25 irreversible nature into Passamaquoddy and most of land

1 and ocean waters. What kind of risks are you inventing in
2 the event that there be a catastrophic disaster such as a
3 major earthquake? What are the immediate and cumulative
4 environmental impacts of the land, water, and air? When
5 you have to say I'm sorry, it will be too late. The
6 Wabanaki are the stewards of our respective traditional
7 homelands and we are very concerned these days about the -
8 - our grandchildren's environmental inheritance.

9 Due to our treaties, the 1763 Royal
10 Proclamation states that Indian rights to land exist
11 unless extinguished by voluntary cessation which means the
12 ceding or giving up of something, especially land,
13 property or rights. The Wolastoqewiyik have not ceded one
14 inch of our homeland. We continue to possess title to the
15 land of our territories, surface, sub-surface, waters,
16 oceans, bays, estuaries, sea beds, sea ice, and the
17 airspace above them. The United Nations Declaration on
18 the Rights of Indigenous Peoples is a foundation document
19 which helps to interpret the rights that we hold as
20 indigenous people to this land. Section 35 of the
21 Canadian Constitution recognizes and affirms the
22 aboriginal and treaty rights of our people. I don't know
23 what more is needed, but these laws are being ignored by
24 Federal Government, by the Province of New Brunswick, and
25 by industry. Do you not have -- you do not have our

1 consent to expose us to things that are harmful to the
2 health of our children and to other forms of life such as
3 the animals -- the four-legged -- birds, fish. And we --
4 what we do to the earth will be reflected in human health.
5 Killing us slowly is not okay. You have already gone too
6 far in damaging the waters, the land, the forest, and the
7 habitat of other living things in the natural world.

8 Under our treaties you have an obligation,
9 as well as we do, to protect the sacredness of the earth
10 from contamination and exploitation and to respect and
11 care for the land that we have shared with you. The
12 presence of oil, gas and mining companies, and the
13 development of nuclear power plants are all in violation
14 of the Peace and Friendship Treaty signed between the
15 Crown, its citizens, and the first people of these
16 territories. The Maliseet Grand Council is here to
17 support the Passamaquoddy in their fight to protect their
18 traditional homeland from contamination and exploitation
19 by oil, gas companies, and nuclear power commissions who
20 hold secret meetings with ghost workers behind closed
21 doors and behind the backs of our people.

22 Our peace and friendship treaties are still
23 valid today and they are legally binding. We do not want
24 you to be experimenting with your technologies in Wabanaki
25 territory. Wabanaki land is not a mining-friendly

1 jurisdiction. It is the land that belongs to our people.
2 We use it to hunt and fish and gather. It is our
3 children's inheritance. Just because you took it, doesn't
4 mean you own it at all.

5 The disregard being shown towards the
6 rights of indigenous people in New Brunswick is shocking.
7 This kind of treatment by government and industry really
8 makes a mockery out of the so-called truth and
9 reconciliation process, and the ink is not even dry.

10 The majority of all the water on this
11 planet is saltwater, and it is essential to all life.
12 When the earth is healthy, she supports life. And to
13 quote the spirits of our ancestors, all things have a
14 right to live. It is the blind and greedy people who are
15 dirty and that poison everything that they touch. If you
16 want to manage something, manage them.

17 The earth would be -- would cleanse herself
18 very quickly if given a chance. Nuclear power is not the
19 way to go. It's too dangerous now or in the future. You
20 cannot clean radioactive material. The scientists say you
21 do not have the technologies to do it. You just spread it
22 around and contaminate everything, including the food that
23 we eat and the water that we drink.

24 We must, all of us, begin to take care of
25 the environment for our children and grandchildren, yours

1 and mine, or we must prepare ourselves for the dark days
2 ahead.

3 Thank you very much.

4 **THE CHAIRMAN:** Thank you for this
5 intervention.

6 I would like to start with Commission
7 members. Dr. Barriault?

8 **MEMBER BARRIAULT:** Thank you. Was someone
9 going to make another presentation or was it just the two
10 of you? I understood that ---

11 **MS. NOLAN:** I am here in collaboration with
12 Passamaquoddy ---

13 **MEMBER BARRIAULT:** Okay.

14 **MS. NOLAN:** --- Wabanaki people.

15 **MEMBER BARRIAULT:** No, that's ---

16 **MS. NOLAN:** I will present in a moment for
17 the International Institute of Concern for Public Health.

18 **MEMBER BARRIAULT:** Okay. Thank you.

19 You mentioned the duty to consult,
20 obviously. And I guess what I would like to ask really is
21 in the process of consultation, it seems to have fallen
22 off the rails, I guess is what I'm hearing.

23 Can I ask CNSC to explain their
24 responsibility to consultation, and then I'd like to ask
25 N.B. Power after, if I may. So does CNSC wish to comment,

1 please?

2 **MR. RZENTKOWSKI:** Thank you very much for
3 this question. We will gladly do so. I'll ask Ms. Claire
4 Cattrysse, the Director of Policy, Aboriginal and
5 International Relations Division to respond to that
6 question.

7 **MS. CATTRYSSE:** Hello, this is Claire
8 Cattrysse, for the record.

9 I think I want to clarify that when we're
10 looking at aboriginal consultation and we are definitely
11 -- you know, I see where this community is coming from.

12 But the decision at hand right now is
13 relicensing and restarting of an existing facility that
14 has been there since the 1970s, and we are looking at what
15 are the potential impacts on establishing potential
16 aboriginal and treaty rights as a result of this decision
17 at hand that you will be making.

18 And we have, with respect to this project,
19 working with the Passamaquoddy group, we have had more
20 than a dozen exchanges and in each letter exchange we have
21 expressed that it's important that if there were rights
22 being -- taking place that we were not aware of, that we
23 should know about them so that we can ensure that the
24 continued operation of the plant will not impact on them.
25 Our staff met on August 5th.

1 And again, I am using the word, "meetings,"
2 but I want to clarify, meetings, notification and letters
3 are recognized and discussed in the courts common law and
4 also in the federal guidelines to be consultation.

5 And we have also -- have provided
6 opportunities which -- for capacity funding. We have also
7 utilized the meetings and the experiences that happen with
8 the New Brunswick Power as well.

9 So -- and maybe I could defer to them as
10 well, because I know that New Brunswick Power has had some
11 meetings as well with the community and have also had some
12 tours of the site.

13 **MEMBER BARRIAULT:** Could I ask N.B. Power
14 to comment?

15 **MR. KENNEDY:** Yes. For the record, it's
16 Blair Kennedy.

17 Just some first comments; this application
18 for renewal and fuel loading does not introduce any new
19 impacts since the environmental assessments were conducted
20 in 2003.

21 These assessments -- at that time, these
22 assessments included the effects on future operations.
23 And at that time, First Nations were consulted, including
24 site visits and necessary support was given for their
25 involvement. At that time, Passamaquoddy was not

1 recognized.

2 But regardless, N.B. Power is committed to
3 have dialogue with the Passamaquoddy and we have held two
4 meetings. And perhaps we should maybe review some of the
5 history with respect to the environmental assessments that
6 have been carried out around the Point Lepreau generating
7 station since its conception.

8 So to that, I refer to Charles Hickman to
9 give us a -- maybe a rundown on just what has happened
10 from an environmental impact assessment point of view over
11 the times that Lepreau has been started and operating.

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

14 As indicated by Mr. Kennedy, we have had a
15 number of environmental assessments associated with the
16 Point Lepreau site in general and the existing generating
17 station specifically.

18 Those environmental assessments go back to
19 the late '70s and been, in every single one of the
20 assessments, discussion of First Nations. Particularly in
21 the 2003 environmental assessment we did provide very
22 specific funding and support to First Nations through the
23 recognized umbrella organizations at that time, the Union
24 of New Brunswick Indians and Mawiw.

25 I recognize that Passamaquoddy wasn't part

1 of that specific activity at the time. However, through
2 all the environmental assessments which very specifically
3 did look at the both current activities in terms of the
4 refurbishment outage, the activities involved in this
5 outage did specifically look at any modifications to our
6 waste sites and did specifically look at the impacts of
7 future operations on the environment, First Nations use of
8 the land, First Nations activities in the area.

9 I understand and I hear what the intervenor
10 is indicating with regards to meeting, whether there's any
11 consultation or not. From our point of view, we've tried
12 to make information available to share information, to
13 provide opportunities for First Nations to come to the
14 site, and we're committed to continue doing that.

15 We've gathered the information that's been
16 shared with us. We've gathered our own independent
17 information, and we've tried to provide that in a fair and
18 equitable light for people to understand what impacts, if
19 any, there are associated with the station.

20 In 2003 when the Commission reviewed that
21 environmental assessment, that included that information
22 that was reviewed by the Commission, including the
23 involvement with the First Nations and information that
24 the First Nations had provided to us.

25 **THE CHAIRMAN:** Ms. Nolan, do you want to

1 say something?

2 **MS. NOLAN:** Thank you. Wilhelmina Nolan,
3 for the record.

4 In August this year, we met with Ms.
5 Cattrysse, Ms. Tedjoutomo from the Nuclear Safety
6 Commission and the health physicist.

7 At that time, we offered to develop a
8 consultation process appropriate for Passamaquoddy needs,
9 and the needs of the Wabanaki people of this territory.
10 We set a meeting for September. That meeting was
11 cancelled. We have attempted to engage in a consultative
12 process.

13 We also offered a consultation waiver to
14 immediately open the dialogue for this process to begin.
15 Ms. Cattrysse rejected the waiver. Contrarily, New
16 Brunswick Power signed the waiver allowing us to be
17 engaged in dialogue with them to look toward a
18 consultation process.

19 I expect the Commission to respond to the
20 misinformation that they have been given by one of the
21 CNSC staff.

22 Thank you.

23 **THE CHAIRMAN:** Can I -- let's first allow
24 the clarification here. Go ahead, please.

25 **MS. CATTRYSSSE:** Claire Cattrysse, for the

1 record.

2 I do just want to clarify I was not at the
3 meeting, but CNSC staff Lisa Love-Tedjoutomo and Erica
4 Ucomonowich from our team were at the meeting. But I was
5 involved in some of the decisions. We -- in terms of
6 signing waivers, we did not want to sign a waiver saying
7 it was or wasn't consultation, because, as I had said
8 before, notification, meetings, discussions --we asked
9 many questions concerning what were the established rights
10 that were taking place at and around the site area.

11 We don't want to sign -- get into signing
12 waivers that say this is or isn't consultation because we
13 felt that this was the beginnings and discussions on
14 consultation.

15 With respect to cancelling the meeting, we
16 were getting close to the hearings and we were also
17 recognizing that we are not the forum for -- we are
18 federal officials who work for the Canadian Nuclear Safety
19 Commission; to get into rights recognition, we do not do
20 that. There is a process within government that takes
21 that process; we are here to just make sure that we have
22 asked and tried to understand what those concerns are with
23 respect to the existing facility on the site. And we're
24 still actually trying to understand what this particular
25 decision, if there were any particular -- if there were

1 any rights taking place at the site.

2 And I think that's really all I can say
3 right now. Thank you.

4 **THE CHAIRMAN:** Mr. Mailman. Go ahead.

5 **MS. BROOKS:** I just wanted to respond to
6 what's been said. You know, somebody mentioned there was
7 consultation with the Union of New Brunswick Indians. I
8 just want to bring about a point that the Union of New
9 Brunswick Indians consists of Chiefs only and there's a
10 question of jurisdiction, I mean, they're elected under
11 the *Indian Act*. There's a question of jurisdiction and
12 there's also a question of decision-making authority.

13 I believe under the *Indian Act*, the
14 majority of the Council in each respective community is
15 the decision-making body under that particular regime or
16 whatever you want to call it.

17 And finding people off the street or
18 individuals, that is not -- that's meaningless
19 consultation. Our people must be engaged and I can tell
20 you that people in our communities, the community people
21 themselves knew nothing, or know nothing about these
22 consultations. They're in the dark about these things and
23 we have to -- if there's -- they cannot go around and
24 imply that there is consultation when there really is not.

25 Without the people -- we have a right, as

1 well as anyone else, to due process and we have a right to
2 -- including under International law, we have that right
3 to participate in the decision-making processes that take
4 place that affect our life, and that has not happened.

5 **THE CHAIRMAN:** Dr. McDill, you were going
6 to intervene on this one.

7 **MEMBER MCDILL:** Thank you. I just wanted
8 to ask Ms. Cattrysse: There was no ill will on the part
9 of CNSC staff in this meeting. The meeting was not
10 cancelled out of spite or any bad wishes. The meeting was
11 cancelled for difficulties with jurisdiction?

12 **MS. CATTRYSSE:** For the record, this is
13 Clare Cattrysse.

14 Absolutely. There was absolutely no ill-
15 will meant for this. Again, it is just a matter of
16 jurisdiction, in terms of what are -- what we're able to
17 address through this process.

18 To follow-up also on this comment, we
19 didn't -- when we sent notification letters, we've
20 followed up with phone calls to over 11 First Nations
21 around the area. And we also followed up with letters and
22 we also directly mailed to each of the Chiefs and the
23 tribal councils, the participant funding information and
24 tried to make sure that the communities were aware about
25 this. We also sent mail-outs; when CNSC -- just for

1 information's sake, we do outreach because a lot of
2 communities don't know that the Canadian Nuclear Safety
3 Commission exists and what our role is. And so we held
4 here, in June of this year, a CNSC -- what we call a CNSC
5 101 course to explain who we are, what we do, what our
6 processes are, and to answer questions about the
7 facilities that we regulate. And again, invitations went
8 out to many of the communities.

9 Thank you.

10 **THE CHAIRMAN:** Can I just get
11 clarification? On the process, do you send those
12 invitations for consultation to the Chiefs or to the
13 authority bodies? I'm trying to understand who gets those
14 letters and information and posting and all that stuff.
15 To whom do you send it?

16 **MS. CATTRYSSE:** Clare Cattryssee for the
17 record.

18 I have the mailing lists here. They go
19 through the Chiefs and -- yes, all of these have gone to
20 the Chiefs, for the record.

21 **THE CHAIRMAN:** Okay, so are you waiting --
22 so you normally get acknowledgement of receipt? I'm
23 trying to see the process, but that's an administrative
24 process. Maybe you can also enlighten us about some of
25 the issues about the land rights, et cetera. You know, if

1 it's not us, who are the parties? You know, you mentioned
2 a couple of times the *Indian Act*, well, we are not the
3 authority under the *Indian Act*. So you know who they are
4 and so the question is, what do they do about some of the
5 issues that have been raised here that -- well, I cannot
6 help you with another agency that has the responsibility
7 of dealing with this.

8 I'd like just to, maybe if I -- since I'm
9 taking the floor here -- we share many of the concerns
10 that you have about the environment, about the land, about
11 the sea. If you heard us yesterday, we spent a lot of
12 time trying to make sure about what is the -- any
13 emissions, the impact on the environment, the impact on
14 the water, the impact on fishery, impact on the air, et
15 cetera. We will not licence a facility which we, the
16 Commission, reach a conclusion that it's unsafe. If it's
17 not safe we will not licence it.

18 Now, we may disagree about what happens to
19 waste, and we can talk about that, and we will talk about
20 that, because we believe that the waste is managed in a
21 safe way. You may not like the fact that it's going to be
22 there for thousands of years, but it's going to be there
23 for thousands of years safely. We will not licence it any
24 other way. So we can debate this point for a minute.

25 And the last point I would like to ask your

1 opinion about: we consider you appearing in front of us
2 as part of the discussions. We'll take your input very
3 seriously. We've read everything you sent to us about
4 this; we take this into consideration, so that's part of
5 the dialogue.

6 So enough of me, maybe you want to respond
7 to that.

8 **MR. AKAGI:** Thank you. If I could clarify
9 a few points?

10 Number one, Miss Cattrysse, I believe you
11 did attend that meeting via conferencing?

12 **MS. CATTRYSSE:** That was Erica Ukamonowich,
13 one of our staff. She works for me.

14 **MR. AKAGI:** Thank you. I understood it was
15 you. My apology.

16 Secondly, the language is reappearing,
17 we're looking at things, we're discussing things, we're
18 holding meetings here. And I have no problem with having
19 a discussion with everyone on this panel. But we also
20 mentioned the PSP funding and yes, thank you, by the way,
21 we are here because -- well, actually that's not
22 necessarily true. But it was the funding that helped get
23 a lot of this presentation together and I'm afraid I would
24 have appeared anyway. Whether or not it was by
25 invitation, it wouldn't have mattered. I would just

1 appear, because I am accountable and I will speak for my
2 people.

3 The PSP Funding; we asked to have the
4 lawyer who has been in dialogue and discussion with CNSC
5 now for quite a while, I haven't heard any of that
6 mentioned. He has tried to approach a consultation
7 process with regards to the legal definitions as defined,
8 outlined, by the Supreme Court of Canada.

9 We asked to have him funded to come here.
10 I'm tired of asking people to do pro bono for me, when
11 they have to come from Halifax and give up their lives,
12 their jobs, to come and do these things. And we were told
13 that he could not be funded. Meanwhile, these questions
14 that you're asking, he would very easily and very
15 willingly have answered. And it's not that I don't
16 necessarily know what's going on or what's happening and I
17 certainly do understand. It's been happening to me for a
18 long time. But I'm not going to sit here and discuss
19 legal definitions of consultation which we have been
20 begging to help this organization, this organization and
21 everyone around us understand.

22 And yet when the keep telling you you can't
23 come to the door because we are not recognized, this is a
24 major stumbling block. So the games that are played,
25 they're -- when -- in our definition it would be

1 considered nasty.

2 So how do we get by these and what are we
3 going to do? We don't have any quick solutions. But I'm
4 telling you that as long as barricades are put in the way
5 there is no proper discussion. And that's where we need
6 to go.

7 **THE CHAIRMAN:** I interrupted Dr. Barriault.
8 You were in the middle of your question.

9 **MEMBER BARRIAULT:** Yeah. I guess some of
10 the other issues that you've raised, if we can -- if I can
11 move on is the issue of waste management. And you refer
12 to the opposition really of waste management and long-term
13 control of these wastes.

14 I'd like to ask maybe N.B. Power to explain
15 it and CNSC the process for waste management of the
16 nuclear plants and the long-term responsibility.

17 **MR. KENNEDY:** Yes. Again just to emphasize
18 that N.B. Power does do the management of the nuclear
19 waster in a safe manner. And for the details of it I will
20 ask Charles Hickman to proceed through the steps. Thank
21 you.

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

24 For completeness I'll discuss all aspects
25 of our waste streams. Yesterday we discussed some of the

1 low-level waste management activities. We have a facility
2 on site where we manage our low-level waste. It was
3 constructed in the early 1980s, went into operation in
4 1982 or '83 when the plant came operational.

5 Those facilities allow us to manage waste
6 on site as low-level waste which we then, as we are at the
7 moment, discussing yesterday looking at opportunities to
8 reduce the volume of waste. But also for us to then
9 receive back the radioactive portion of that waste which
10 we can continue managing on site for as long as we need
11 to.

12 The structures are monitored, inspected,
13 checked on a regular basis. The -- and that covers both,
14 basically the low- and intermediate-level waste. The
15 long-term plans for that are part of ongoing discussions
16 -- and I apologize for the use of the word; I understand
17 Chief Akagi may not feel satisfactory, but it's part of an
18 ongoing planning and discussion with regards to options
19 for long-term disposal of that radioactive waste.

20 Our site is not a disposal facility. The
21 long-term decommissioning plan and long-term waste
22 management plan would involve sending the radioactive
23 waste, low-level waste off site to a third-party facility
24 in the future.

25 With regards to fuel waste, there's been a

1 number of discussions in front of the Commission and with
2 First Nations and with the general public with regards to
3 the nuclear waste management organization, its role in
4 finding and implementing a long-term solution for the
5 management of used fuel waste.

6 That project run through the -- the waste
7 management organization is ongoing today. There's an
8 active set of consultation and discussion, and
9 consultation is formal consultation with a number of First
10 Nations and host communities.

11 There have been presentations to the
12 Commission to explain the process, the timelines, and the
13 involvement of all the different parties. I know that
14 some First Nation groups have had active meetings with the
15 Nuclear Waste Management Organization. To be honest I
16 can't say whether or not they've been and met with the
17 Passamaquoddy Band or not.

18 So N.B. Power as the ultimate owner of the
19 waste today, we're actively involved and participating in
20 the studies and the discussions with the Nuclear Waste
21 Management Organization. We're actively involved and
22 working with the individuals looking at the long-term
23 solutions for the low-level waste.

24 **THE CHAIRMAN:** There's a concern that's
25 been expressed about earthquake and waste. Okay? So

1 let's assume a disastrous magnitude earthquake. I think
2 we heard yesterday a magnitude 6. What would happen to
3 the waste? Will it leach to the environment? What -- you
4 know, give us the -- a scenario under -- a doomsday
5 scenario. What will happen to the waste?

6 **MR. KENNEDY:** For the record, it's Blair
7 Kennedy. To that question I refer to Charles Hickman.

8 **MR. THOMPSON:** I guess for the record it's
9 Paul Thompson. I think I'll take that one for Charles, if
10 that's okay.

11 I just want to reiterate that the -- both
12 the spent fuel bay which is where the -- let me -- sorry,
13 let me step back. When fuel bundles come out of the
14 reactor, they're discharged into the spent fuel bay where
15 they are cooled for a period of seven years.

16 After seven years, they are transferred to
17 the onsite solid radioactive waste management facility and
18 they are loaded into concrete canisters where air cooling
19 is sufficient.

20 Both the spent fuel bay and the concrete
21 canisters are seismically qualified. So they're qualified
22 up to the necessary design braces earthquake levels. We
23 talked about before that that's equivalent of around a
24 magnitude 6 earthquake about 20 kilometres away from the
25 site, 18 kilometres away from the site. We heard that

1 from Dr. John Adams yesterday.

2 So the water will remain in the spent fuel
3 bay. The tray -- the structure itself, the concrete
4 structure is physically qualified. The piping loops are
5 designed so that they will not drain.

6 The trays upon which the spent fuel is
7 loaded are seismically qualified so fuel will not fail.
8 So fuel in the bay is perfectly fine. And the canisters
9 are seismically qualified so there's no damage to those
10 canisters.

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

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

13 Can CNSC staff comment on the methods
14 really of monitoring the fuel.

15 **MR. RZENTKOWSKI:** Mr. Don Howard, the
16 Director of Waste and De-commissioning Division is
17 available in Ottawa head office to answer this question.

18 **THE CHAIRMAN:** Ottawa?

19 **MR. HOWARD:** Don Howard, Director of the
20 Waste and De-commissioning Division.

21 With respect to the waste that is generated
22 at the Point Lepreau generating station, the CNSC staff
23 has a baseline compliance program which we do inspect the
24 waste management facilities, both the spent fuel and the
25 low- and intermediate-level waste facilities.

1 We review their monitoring programs and
2 basically we are confident that the waste is being
3 management in a safe manner at Point Lepreau. We have to
4 understand that the containers for the waste, including
5 the spent fuel, is a multiple barrier concept.

6 So there's many barriers in which the --
7 that would have to be breached in order for the
8 containment to be lost. So this was all examined early in
9 the -- when the applications were submitted back in the
10 early '90s, I believe it was.

11 So CNSC staff is confident that based on
12 the monitoring programs, the -- and our inspections that
13 the facilities are being safely managed.

14 **MEMBER BARRIAULT:** Thank you.

15 Thank you, Mr. Chairman.

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

17 **MEMBER McDILL:** Several questions. Is
18 there a better way to communicate with you than through
19 the Chiefs and Tribal Councils? Should there be direct
20 mail outs to the families? Would that be of help?

21 **MS. BROOKS:** To me I think that a proper
22 consultation would be a forum whereby our people can come
23 together and the Wabanaki Confederacy Conference or these
24 kinds -- a conference where people -- our people as a
25 people can sit down and discuss the issues and then put

1 forward our position.

2 First of all you know we have that right to
3 be free and informed consent. Free and informed. It
4 would be nice to be informed fully. So at a conference we
5 can discuss the information and things like that.

6 That's a proper consultation, as far as I'm
7 concerned.

8 **THE CHAIRMAN:** So is everybody aware of
9 such events when they happen?

10 **MS. BROOKS:** That should be required. That
11 should be required. Like, you know, people in our
12 community are in the dark about mostly that's being
13 decided for us.

14 **THE CHAIRMAN:** So N.B. Power, do you go and
15 actually attend such opportunities to reach a wider
16 audience?

17 **MR. KENNEDY:** Yes. For the record, it's
18 Blair Kennedy.

19 We make every effort that we can to reach
20 the proper First Nations Representatives that we are aware
21 of, if such a forum is available. We need to be aware of
22 a wider group of people and we would certainly be willing
23 to meet with that body of people.

24 **MS. BROOKS:** No, it should be a
25 requirement. I mean, under the *Indian Act* it's the

1 majority of council members that are the -- that are the
2 legal decision-making authority, not one person, not just
3 the Chief alone. And even our council members are in the
4 dark about a lot of issues that are happening; things that
5 take place, decisions that are being made.

6 So therefore, you know, we don't feel like
7 there's a proper meaningful consultation that's happening,
8 and we can't even seem to sit down with the appropriate
9 people to decide what that process -- you know, outline
10 that process. And the people should be engaged. Our
11 people, community people, should be engaged in some form,
12 it seems to me. We have a right -- even prisoners have a
13 right to due process for heaven's sakes.

14 So, you know, we just feel like we're being
15 left out in the dark and one person alone, I don't feel,
16 is adequate consultation if you're just dealing with the
17 Chiefs alone. Because, you know, they say, "Well, you
18 know the Chief" -- you might get a Chief from Woodstock or
19 Tobique or somewhere. Well, we don't, you know not
20 everyone -- only the people from that community vote for
21 that Chief. So even the election process, it's just not a
22 fair process if you're going to use that as a consultation
23 method.

24 Our people need to be engaged. We have
25 Wabanaki Confederacy conferences, we have -- you know, we

1 have -- we should be having annual assemblies. That
2 should be a requirement ---

3 **MEMBER McDILL:** So let me try ---

4 **MS. BROOKS:** --- of our people.

5 **MEMBER McDILL:** --- something, if I may.

6 If the CNSC and N.B. Power are to consult in that manner,
7 they need to know, or be informed, of when there are
8 council meetings at the community level, at the individual
9 community level and maybe ---

10 **MS. BROOKS:** --- (off mic) I was not even
11 talking about the community.

12 **MEMBER McDILL:** All right. So define what
13 you mean.

14 **MS. BROOKS:** Okay, what I mean by -- we
15 have, you know, the Wolastoqewiyik are a people and
16 they're the People of the Beautiful River, and so we need
17 a forum where we can get together, not just a Reserve but
18 the people. Then you have the Mi'kmaq, you have the
19 Passamaquoddy.

20 **MEMBER McDILL:** Sure. Do those forums
21 exist now, or do they need to be created?

22 **MS. BROOKS:** Well the Wabanaki Confederacy
23 has regular conferences. But, you know, we haven't been
24 able to access dollars to have annual -- the annual
25 assemblies that should be. You know, we can't seem to --

1 don't know who to engage, or we don't -- we're not
2 approached about any of these things. I think it's been
3 50 years or more since the aboriginal community people
4 have had an annual assembly in New Brunswick.

5 **CHIEF AKAGI:** Sorry, could I perhaps
6 contribute to your question, the answer to your question
7 as well?

8 **MEMBER McDILL:** Please do.

9 **CHIEF AKAGI:** Thank you. One of the
10 problems is that you're looking at different types of
11 government within Indian country and the one that Alma is
12 speaking about is one where you reach out -- the people --
13 you reach out to the people, and she mentioned some
14 funding.

15 This is where proper consultation takes
16 place, the mandate by the Supreme Court is, yes, you can
17 put this together. Yes, you have all of the money. Yes,
18 you can fund it. I know NWMO monies is everywhere. It's
19 in the schools, we heard it yesterday. Why is it not
20 putting together proper consultation? Not meetings, not
21 dialogue, not discussion, proper meetings.

22 We can help, but if you don't talk to us
23 properly, meeting doesn't do any good if you don't go back
24 and pay attention to what you've heard. It's two
25 different things to hear and to listen. Well, we need

1 people to listen to us and to understand that there are
2 ways to do it, yes. We can help, yes. But not when
3 we're, just as I said, shut out at the door, and when
4 language is being used.

5 Mr. Kennedy, I didn't understand but when
6 he says since '93 there hasn't been a proper environmental
7 impact assessment and it sounds as if nothing has changed.
8 Well, excuse me, but 18 years of waste and increased waste
9 container size applications and all of this, that's a
10 change. Can't we get down to some real language, deal
11 with real people and real issues, and stop playing with
12 games?

13 We would like to do that, we would like to
14 help you, and we can do that. You want us to put together
15 the Wolastogewiyik people, with the Passamaquoddy people,
16 and the Mi'kmaq people? We can do that, yes.

17 **MEMBER McDILL:** I think that's a very good
18 place to start. Hopefully there will be more.

19 **THE CHAIRMAN:** Can I just add, you know, it
20 seems to me it's a two-way street. We cannot manage your
21 assembly but we would appear. I can tell you that every
22 time CNSC staff is invited we are -- you know, we are
23 willing and ready to come and spend as much time in
24 discussion. At least to try to explain what is it we are
25 doing, and our process, and our -- you know, what we can

1 and cannot do, and we can enter into this.

2 But it's got to be, you know -- we have to
3 know when is a good time to do it and you should also,
4 whenever possible, if this is a big issue in your
5 community you should try to invite us. Invite for a
6 discussion on a particular issue and I assume that N.B.
7 Power would also interested in attending such an event.
8 So it's got to be a two-way street here.

9 **CHIEF AKAGI:** When would you like to come?

10 **THE CHAIRMAN:** Again, we're not talking
11 about a moment of decision here, but after -- anytime.
12 You just give us when you want to talk about a specific
13 particular issue, we will be there. But, again, I -- just
14 to quote you, you will gather the community or, you know,
15 for a discussion so it's not a -- it's not somebody off
16 the street, as you mentioned.

17 **CHIEF AKAGI:** Yeah.

18 **MEMBER McDILL:** I have another question,
19 Mr. Chair.

20 **THE CHAIRMAN:** By all means.

21 **MEMBER McDILL:** With respect to -- within
22 the fence line of N.B. Power, how much is accessible for
23 walking through, walking around, you know, you can walk
24 past the can stores, which is where the waste is stored.
25 But land-wise, percentage, how much is still "walkable-

1 throughable," if I can use a non-existing word?

2 **MR. KENNEDY:** Yeah, we'll try and answer
3 that question. You're talking about where there's no
4 equipment, buildings? Okay, I'll pass that over to
5 Charles Hickman.

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

8 What we have done is try to make as many
9 areas as possible accessible, and in particular instances
10 we've really tried to accommodate intervenors, First
11 Nations and other groups over time to visit, essentially,
12 the entire site.

13 So for example, we had some groups down in
14 the past few months and we had them up through the waste
15 canister sites to be able to visit and look at the waste
16 facilities that we have onsite today. We have had them
17 down into the station itself, into some of those areas
18 Charlene Sheehan yesterday mentioned being a protection
19 assistant. We've had a number of intervenors including
20 some of the First Nations groups over time have been to
21 sites and to those Zone 3 areas.

22 In addition, in previous years we have had
23 representatives including Elders, Chiefs, members of
24 different parts of the First Nations communities come to
25 site to do inspections of the sites prior to being

1 developed for the new waste facilities to see if there
2 were any traditional herbs in the areas, any items that
3 would have been interest -- of interest to the First
4 Nations. And I recognize and I hear the comments and the
5 intervenors about whether that represents all of the First
6 Nations' interests, and I respect that comment. We
7 approach those that we had contact with at the time and
8 report them to a site, did the -- made everything
9 available to them.

10 In a more generic sense, the site does
11 include a bird observatory, and for the general public,
12 and for those interested in the ornithology side, the bird
13 observatory is available to members of the public to come
14 on to site to do bird surveys and so on. Since 9/11 there
15 are obviously some constraints.

16 That said, we make every effort we can to
17 make this site available and accessible. Through our
18 public affairs folks, we have set up tours and will
19 continue to do so going forward.

20 **MEMBER McDILL:** Thank you.

21 Have either of you taken advantage of that
22 and seen what is there? Walked? Have you -- would you
23 wish to do so?

24 **MR. AKAGI:** I do understand that there were
25 opportunities to go and visit the site, and I actually

1 arranged through Mr. Guay (phonetic) to visit the site,
2 but it was different; it was special. I took an elder to
3 do a ceremony and that is -- that was very private. It
4 had nothing to do with looking at nuclear waste deposits
5 or infrastructure.

6 **MEMBER MCDILL:** I wasn't referring to any
7 personal visit which may have been for whatever personal
8 reasons.

9 **MR. AKAGI:** Okay, I'm just trying to
10 explain because it comes up that I have visited the site
11 and it comes up that I have talked to people and I don't
12 lie about things. Yes, obviously I have, but the reasons
13 I have are usually my own and that's why I needed to
14 clarify that.

15 We've had the opportunity so I'm not going
16 to lie and say no, we haven't gone because we haven't been
17 invited. The problem is we keep hearing words like
18 stakeholders, intervenors. We are a people; that's what
19 I've tried to explain to you today. And we're different
20 and that's why the consultation process, as outlined by
21 Supreme Court decisions; treaty rights recognizing the
22 Supreme Court very clearly state that it's First Nations
23 first, then everyone else. And look at us today; we're
24 here discussing my culture in public. That was not what
25 consultation was about, but that's where we are so when it

1 comes to visiting sites and yes, gladly, I have another
2 side to me.

3 I have -- I'm educated in a sense, I guess,
4 similar to yourselves. My degree is from Dalhousie
5 University. My major is in math and physics with a minor
6 in chemistry. Yes, I have an interest just like I have an
7 interest in all the people in this room, but I'm here to
8 explain to you that the native content is real. It's
9 different and it demands respect - as outlined by your own
10 Supreme Courts. I hope I haven't muddied the water too
11 much for you.

12 Thank you.

13 **MS. BROOKS:** And the Maliseet Grand Council
14 has never been notified or invited to anything like that.
15 If whoever the contacts are that they've been in touch
16 with haven't been doing a very good job, I guess, of
17 passing along the information so it's -- all I'm saying is
18 that it's not getting down to the community level. The
19 Maliseet Grand Council is an organization based on
20 extended family. And so we are the community and you know
21 just like I said before, it's been 50 years or more; I
22 even hate to say how long. It's been 50 years at least
23 since there's been an annual assembly of our people on the
24 river and we have a Saint John River Tribal Council, but
25 you know we are making efforts to try to see if we can

1 unite or at least find a way to work with the INAC chiefs
2 because they also have to include their councils. And no,
3 like I said, the Maliseet Grand Council, we want to
4 participate in the decision-making in a meaningful way --
5 a decision-making process about what happens to our
6 future. So that's all I can say right now.

7 **MR. AKAGI:** If I could have one more quick
8 one. Perhaps I'm partly to blame for not bringing my
9 people into the -- my people, the Wabanaki people into the
10 total picture, but please understand again what I'm trying
11 to say. You have all the money. You have all the
12 resources and by you I mean not us. So when the
13 Wolastoqewiyik Grand Council come and when I invite them,
14 we're talking about a four-hour drive in the (inaudible).
15 We're talking about coming from Fredericton. We're
16 talking about spending a day. Nobody funds these people.
17 Nobody compensates them when they have to come from their
18 jobs, but if proper consultation takes place that is in
19 place -- the funding is put in place immediately. It
20 kicks in and these people can be compensated to come and
21 listen and hear, but without that, they're here on their
22 own. They come on their own and nobody can afford that.
23 Everybody in this bloody room representing the other side
24 is paid to be here. Yes, we got some funding from PSP,
25 but all these issues that we're working on, all these

1 meetings we're trying to host; we're not funded so if
2 proper consultation takes place and that funding is built
3 in; why not?

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

5 **MEMBER McDILL:** One last question, you said
6 that there was a -- I think you used the term "lawyer" in
7 Halifax; did you consider a teleconference?

8 **MR. AKAGI:** He offered. Virtual is the
9 name of the organization, but he has given enough and I
10 thought with 10 minutes it probably wouldn't be enough to
11 hear from him as well.

12 **MEMBER McDILL:** Thank you, that was my
13 question.

14 **MS. NOLAN:** I can speak to that. In August
15 when we met with Ms. Tedjoutomo and -- my apologies --
16 Cattrysse, Erica (phonetic), and Burton, we were told that
17 the participant funding program would be available to us.
18 I balked at the idea; I said I have enough work to have me
19 take an onerous applications process, I don't want to do
20 it at that time. Ms. Tedjoutomo and the others agree. We
21 will help and walk you through that process and so we did
22 apply for funding to attend these hearings. It has not
23 been received yet. I begged Ms. Tedjoutomo about two
24 weeks ago. Our elder is having trouble; we cannot put
25 this money out of our pocket and subsidize CNSC's

1 financing of participant funding. It's a hardship for me
2 to have been here. It has had to come out of our pockets;
3 mostly, Chief Akagi.

4 Compounded with this problem, we find out
5 too late to apply that there is a fund for lawyers to
6 support us. Obviously we've talked about legal
7 implications of the infringement of Passamaquoddy rights;
8 things that need to be established, while with this
9 assistance, we were denied the information until it was
10 too late to apply. I did complain. I actually talked to
11 the Comptroller General of Canada. I said:

12 "Well, this is not a very efficient
13 process. It would have been much
14 easier for you to book a hotel room
15 the same as you did for all of these
16 people here and have us come and not
17 worry about being accommodated."

18 I ask you please investigate the
19 participant funding process. I know that it's a new
20 program and it does have some bugs. It did feel, when I
21 addressed it, and with my heart said it's so hard for the
22 elder who showed up here yesterday and told you what you
23 needed to hear. It was a hardship. I conveyed it
24 repeatedly and basically I got a, "That's too bad, we
25 can't do anything." And do you know that there is policy

1 to advance up to 75 percent of approved funding prior to
2 the hearing? It was denied and created hardship for me,
3 for Chief Akagi, for our chiefs who showed up here
4 yesterday, and for our grandmother who's here today.

5 Thank you.

6 **MEMBER MCDILL:** I regret that those things
7 occurred. It's -- I guess perhaps I could ask staff again
8 to give a -- try to explain what we've just heard.

9 **MS. CATTRYSSSE:** Hello, this is Clare
10 Cattrysse, for the record.

11 The participant funding is a new program.
12 The program -- we did -- we do offer to help people
13 filling out the application forms because it can be a bit
14 onerous. When an application form is filled -- if an
15 applicant wins the participant funding program, they will
16 get some cash. The -- when signing the contribution
17 agreement, there is an allowance that you could have up to
18 75 percent of the money up front. There was a short time
19 window on this because it was for a licensing hearing, and
20 typically it takes at least 30 days to get money out so it
21 wasn't discussed at the point when we were doing the
22 forms, but there might have been -- I know we'll be
23 flexible, but we'll look into this. We typically would
24 see maybe giving some cash out for larger projects, where
25 you have an environmental assessment in various five or

1 six steps.

2 So we have -- that's where we considered
3 that we might provide funding upfront. So we'll discuss
4 this. It's a new program; it's ever-green.

5 We've already made some modifications to
6 some of the forms based on some feedback that we've had,
7 and we'll take this into consideration, some of these
8 challenges.

9 Just a comment, quick, on the legal; there
10 is funding and we have a criterion -- on our webpage, we
11 have a booklet that describes what we fund and what we
12 don't fund.

13 People can use the services of a lawyer to
14 help them in reviewing material, but we did make it clear
15 in the program that we weren't funding people bringing
16 lawyers for the applications -- for the interventions.

17 And again, we'll be reviewing the program
18 and we can consider that later, but that's the way the
19 program is set up at the moment.

20 Thank you.

21 **MEMBER McDILL:** But you would provide a
22 teleconference facility if that were requested for a
23 lawyer who might be in another location, for example?

24 **MS. CATTRYSSSE:** Absolutely, that's the case
25 for any intervenor. There is the availability of

1 teleconferencing.

2 Thank you.

3 **MEMBER McDILL:** Do groups have access --
4 full access to all the website material?

5 **MS. NOLAN:** I have repeated to the staff
6 many times. I live in a rural area and have a problem
7 with fast-enough internet connections to do something like
8 participate in webcast and voice-conferencing, video-
9 conferencing.

10 So it's not necessarily available to all of
11 us.

12 **MEMBER McDILL:** Thank you.

13 I'm not sure how we can address that, but
14 maybe I will ask staff to consider that, going forward,
15 because naturally many of the Aboriginal communities will
16 be in non-high speed areas, and rural residents of Canada
17 would share that difficulty.

18 **MS. CATTRYSSSE:** Claire Cattrysse, for the
19 record.

20 Absolutely. I mean, we do send out email
21 notices just to make sure we get notices out as quick as
22 possible, but we also do direct mail-outs and we could
23 send out copies of the guide in paper form.

24 I mean, there are different solutions to
25 get material and the forms out. So we will explore that,

1 absolutely.

2 Thank you.

3 **MEMBER McDILL:** One comment I wanted to
4 make is it would be my wish for you to understand it is
5 not intended to be adversarial this interaction with the
6 community, the people.

7 **THE CHAIRMAN:** Go ahead.

8 **MR. AKAGI:** Sorry for the time, sir.

9 And I agree. It doesn't need to be
10 adversarial. Nothing here was meant to be adversarial,
11 but the point again, I'd like to know why people remain
12 silent.

13 You realize that in your society, silence
14 is taken as consent. Whatever has happened to my people,
15 whatever has happened to my territory, if it goes without
16 question, and that doesn't mean you have to question them.
17 I'm here; you can question me.

18 Any thoughts, any ideas, anything you need
19 to know, this is an open book here. You really should ask
20 the questions.

21 And we don't worry about being politically
22 correct. You don't have to decide whether you want to
23 call me Indian, Native American, Indigenous, First Nation.
24 Ask the questions.

25 **THE CHAIRMAN:** I think you gave us plenty

1 to think about here and in your submission, et cetera, and
2 there's some relationship that need tweaking. I think
3 that both sides can do better, obviously. I can see that.

4 The one easy fix, I cannot believe that you
5 cannot -- NB Power should invite many of the leaders to
6 come and see.

7 You have to see a facility to try to
8 understand some of the issues and some of the things that
9 are involved in the long term and how it's being managed,
10 and that's almost like a start for this dialogue and I
11 would hope that NB Power will follow up on that.

12 Go ahead; you want to say something about
13 that.

14 **MR. HICKMAN:** Charles Hickman, for the
15 record.

16 That invitation has been provided, both to
17 Bands and Chiefs, and I recognize there may be issues
18 about whether that was the right people to be invited, but
19 we have extended that invitation to all the Bands in the
20 province over time.

21 And yes, we may not have used the -- all
22 the correct doors into the First Nations communities, but
23 that invitation is there.

24 **MEMBER MCDILL:** So can we say that is a
25 standing invitation to all?

1 **MR. HICKMAN:** Yes, that is a standing
2 invitation.

3 **MEMBER McDILL:** Thank you.

4 **THE CHAIRMAN:** Okay. I think we need to
5 move on. So thank you very much for this intervention.

6 So we will move to the next submission,
7 which is an oral presentation by the International
8 Institute of Concern for Public Health, as outlined in CMD
9 H12.22 and 12.22a, and Ms. Nolan, I understand you are
10 going to make the presentation.

11 The floor is yours.

12

13 **11-H12.22 / 11-H12.22A**

14 **Oral presentation by the**
15 **International Institute of Concern**
16 **for Public Health**

17

18 **MS. NOLAN:** Thank you.

19 I'm Wilhelmina Nolan with the International
20 Institute of Concern for Public Health where I've been
21 working under Dr. Rosalie Bertell for the last 15 years.

22 I have a slide presentation here.

23 CNSC staff and others have said repeatedly
24 that an environmental assessment is not required.

25 However, IICPH begs to differ.

1 Under the *Nuclear Safety and Control Act*, I
2 understand that the purpose of the Act is to address risks
3 associated with the development, production, and use of
4 nuclear substances and nuclear energy.

5 I understand the objects of the Commission
6 itself to be to prevent unreasonable risk. IICPH
7 maintains that there is no safe level of exposure to
8 ionizing radiation.

9 Non-radiological contaminants and
10 radiological contaminants are not being checked, is what
11 we're hearing, at least not with the kind of diligence
12 that one would expect if we were truly to protect public
13 and environmental health.

14 June 23rd of this year, I asked questions.
15 Less than one month ago I received some answers. The
16 staff reported that environmental assessments consider
17 community values and Aboriginal interests.

18 You've had Aboriginal people here from both
19 sides of the river. This is the place where the
20 Passamaquoddy and Wolastoqewiyik lands converge, living
21 now for 30 years with an aging reactor.

22 Point Lepreau has had myriad problems. The
23 refurbishment is the first of its kind. There have been
24 many material changes to this facility, compounded with
25 unanticipated volumes of waste that are to be transported,

1 exported, packaged, and imported back into the facility.

2 There has been hydro-fracking in the
3 region. Controversy exists as to whether this will
4 precipitate earthquakes. The staff has said they have not
5 -- they have a report but they've not been much in
6 consultation with the Province of New Brunswick.

7 Many questions are answered and unclear.
8 An environmental assessment -- a full and comprehensive
9 environmental assessment would clear it up, as Doctor
10 McDill so kindly pointed out yesterday.

11 Whether a leak test is mandatory, how much
12 leaking of radioactive contaminants is allowed, -- is a
13 question that's been raised. Fairly scary.

14 Mr. Rzentkowsky said that, with his RD-360,
15 plus new standards which cannot yet be reconciled and yet
16 they seek to have this licence application approved.

17 Thank you.

18 The Point Lepreau generating station sits
19 on the ancestral territory of the Passamaquoddy Nation in
20 Wabanaki. The truth is the lands are unseated. The truth
21 is that the Canadian Nuclear Safety Commission itself is
22 obliged to consult as representatives of the Crown.

23 Whether or not you think you need to
24 delegate it to New Brunswick Power, you are agents of the
25 Crown, all of you.

1 information that I got written from them, they said they
2 did not understand Point Lepreau. Staff keep saying they
3 have been in consultation with them.

4 Come on. How many times do we have to say,
5 it's not happening. We don't understand.

6 The United Nation's Declaration on the
7 Rights of Indigenous People is international law whether
8 it's considered to be legally binding or not.

9 The International Institute of Concern for
10 Public Health operates under the principle that a safe,
11 healthy environment is a fundamental human right.

12 We have a problem with access to
13 information. Other intervenors have said much of the same
14 thing. June 23rd, I was promised if I made a request for
15 raw data of radiological contaminants in the biota
16 surrounding the Point Lepreau territory that I would
17 receive it.

18 Staff reported, "What data are you talking
19 about?" This is insulting.

20 Canadian Standards Association proprietary
21 documents cost 250, 700, \$800 each. As I mentioned, we
22 did not receive any advance funding of any kind. We are
23 here under our own merits hoping that CNSC will honour its
24 obligation to remit that funding.

25 Apparently the Commission purchased CSA

1 documents but the public isn't allowed to share them.
2 Radionuclide levels have been detected in marine, in the
3 lands. We asked many times.

4 Attached to this submission for ICCPH, you
5 will find my 51 questions from the June 23rd information
6 session. I'm still waiting for most of those questions to
7 be answered.

8 Other damage has been done; warming water,
9 transportation, non-nuclear work. The Commission says:
10 "We don't deal with anything except the nuclear." Well,
11 what if the operations are contaminating in other ways,
12 are you not responsible for these operations? The way
13 that I read the Act, I think you are.

14 We require the information, documents about
15 earthquakes, documents about decommissioning, documents
16 about fire. There's a list from staff attached to my 51
17 questions from last June. There is a list from
18 intervenors which has been developing over the course of
19 these hearings.

20 Of great concern are these things that you
21 are calling hold points, things like feeder pipes that
22 won't be fixed until 2012. These things carry uranium-
23 based fuel and they would seek hold points not to have
24 these things perfectly installed before starting up a
25 nuclear power plant.

1 The intervenors mentioned piping system.
2 They mentioned seismicity. These hold points need to be
3 presented to the Commission, not to the staff. How dare
4 they usurp your position, if I may so?

5 They are still updating emergency
6 management plans with off-site implications.

7 The community is not confident; they have
8 been here telling you so. Except of course for the ones
9 who seem to have vested interests, the ones who get nice
10 funding for their fire departments or their husbands used
11 to work at the plant and now they are retired and able to
12 brag about nuclear education for school children so we can
13 perpetuate the contamination.

14 We talked about compensatory standards not
15 being met until 2014, fire standards until 2012. There
16 were emissions.

17 France had a recent fire at one of their
18 nuclear power plants. There certainly were very high
19 levels of radionuclide emissions. I would not want to be
20 near Point Lepreau when a fire happened that was not being
21 managed properly.

22 Now, these compensatory standards will not
23 be revised until 2017. Well, do we hold the licence until
24 2017, that we're safe, really safe, as safe as we can be?
25 Are you looking at some kind of acceptable risk for my

1 life, for the grandchildren's lives, for our Wabanaki
2 people's lives?

3 There are numerous other modifications,
4 things that are being finalized, things that are not
5 updated. We're looking at detectable sizes we can ignore
6 of leaching of radioactive contaminants.

7 Staff is investigating hydro-fracking and
8 seismicity and as I mentioned not communicating much with
9 New Brunswick Power or the New Brunswick government
10 itself.

11 Socioeconomic factors; apparently more than
12 \$19 million will be spent on compensatory standards. This
13 could go towards decommissioning, which is my goal today
14 to convince you. Decommissioning is what we have to do.
15 This facility is not safe and it costs too much.

16 Apparently under the *Nuclear Safety and*
17 *Control Act*, the operator is liable for any compliance
18 costs. That means the taxpayers of New Brunswick are
19 liable for anything wrong that happens with Point Lepreau.

20 The Commission says we don't have to deal
21 with finance. Excuse me. My health and safety has much
22 to do with the ability that I have to provide for myself
23 and my family.

24 Finance is an issue. It is in the public
25 interest to address this, just the same as it in the

1 public interest to address the remedial and preventive
2 measures that are necessary with regard to Point Lepreau.

3 It needs to be shut down.

4 **THE CHAIRMAN:** Ms. Nolan, you are going to
5 run out of time. Could you please speed it up?

6 **MS. NOLAN:** Thank you, sir. I won't be too
7 much longer.

8 There is a great impact on the public and
9 the Commission is a court of record. Whatever you do,
10 whatever orders you make will become decrees, can become
11 decrees in federal/provincial courts and superior courts.

12 Your reliance on the ICRP and IAEA
13 radiological representations of human health and safety
14 are based on a 35-year old healthy male, not on babies,
15 not on sick people, not on the unborn or pregnant women.

16 These standards are not acceptable.

17 The staff responded to my questions about
18 medical monitoring, letting me know that there are no
19 doctors having much at all to do with Point Lepreau.

20

21 They say that the medical community says that there is no
22 -- there is no medical community that says there's no safe
23 threshold of exposure. Excuse me.

24 The World Health Organization announced in
25 May -- Margaret Chan, Director, announced that there is no

1 safe level of exposure to radiation. Which medical
2 community do the staff refer to?

3 The Wabanaki Nations present have
4 Aboriginal authority, not in the enacted authority; you're
5 looking at Chief and councils. Those are federal
6 employees and they are the wrong ones to be consulting
7 either way.

8 The nations do not give consent and have
9 asked for the removal of the facility. As I say, we have
10 communicated with CNSC Aboriginal Affairs who deny whether
11 these responsibilities and obligations are binding. The
12 transport incinerations are further risks to the
13 territory.

14 We are not convinced that this is being
15 conducted into the law. Yesterday, responses suggested
16 that compliance is being left to the transport companies
17 for radioactive waste. Where is the CNSC authority here?

18 Paper reviews are not good enough. Our
19 confidence has waned. Why are there still non-Fukushima
20 hold points after three years of refurbishment? There are
21 too many hold points, too many new standards, too many
22 findings not yet revealed that could allow anyone to
23 reasonably approve the application, no guarantees and
24 certainly no public confidence as the intervenors.

25 Key issues, seismicity, protecting the

1 health of workers, some misrepresentation it appears by
2 the Canadian Nuclear Worker's Council; CUPE is on site.

3 Well, I have reports -- resolution from
4 Canadian Union of Public Employees locals that are firmly
5 against nuclear and the same with the Electrical and
6 Paperworkers Union.

7 You know, there's a bit of a -- we've got
8 to be very careful how we look at these applications. You
9 have a lot of submissions from industry-based vested
10 interests. We are not vested interests. We need health,
11 safety and security.

12 Beyond-design basis accidents, positive
13 void coefficients of reactivity, so many questions;
14 massive amounts of waste and more to come. We need to
15 move from contain -- to containment from the biosphere.

16 Dr. Bertell, Dr. Rosalie Bertell, under
17 whom I've studied, sent me with a message that we can
18 follow the example of the women from Germany; that if you
19 stop making the nuclear waste, we will help you to take
20 care of it.

21 Thank you.

22 **THE CHAIRMAN:** Thank you.

23 Doctor McDill, would you start us off?

24 **MEMBER MCDILL:** I would like to address
25 something that was said towards the end first.

1 Could I ask staff to discuss the issuing of
2 licences to companies which transport and how that is done
3 and under what transportation standards?

4 Thank you.

5 **MR. RZENTKOWSKI:** I would direct this
6 question to Mr. Phil Eyre who works for Transport
7 Licensing and Strategic Support Division. He is present
8 in Ottawa Head Office.

9 **THE CHAIRMAN:** Ottawa?

10 **MR. EYRE:** Yes. It's Philip Eyre with the
11 Transport Licensing and Strategic Support Division.

12 Could I have the question repeated please?

13 **MEMBER McDILL:** Explain how transport of
14 radiological substances is carried out and the licensing
15 procedures that are followed.

16 **MR. EYRE:** The transport of radioactive
17 materials in Canada is governed by the Packaging --
18 Transport Packaging and Transport of Nuclear Substances
19 Regulations, as well as Transport Canada's Transport of
20 Dangerous Goods Regulations.

21 The Packaging and Transport of Nuclear
22 Substances Regulations establishes a graded level of
23 requirements, depending on the quantity and the nature of
24 the radioactive material.

25 So it depends on what you are transporting,

1 what requirements are applicable. If the material is a
2 small quantity, such as the low-level waste that is being
3 stored at the Point Lepreau nuclear generating station,
4 the requirements are limited or low.

5 In some cases, the material is not even
6 considered radioactive for transport. So it depends quite
7 a bit on what you want to transport.

8 **MEMBER McDILL:** Thank you.

9 But there are a series of steadily
10 increasing requirements as you go from what might be
11 called waste that could be sent to a landfill under
12 municipal or provincial regulations, all the way up to
13 full requirements for complex packaging and so on.

14 **MR. EYRE:** Yes, that's correct. It depends
15 on what -- exactly what you want to transport. So it can
16 go from something that's below the definition of
17 radioactive material for transport all the way up to large
18 quantities which we call Type C quantities, which require
19 very stringent packaging requirements.

20 And the packaging for more significant
21 quantities of radioactive material has to be certified by
22 the CNSC and, in some cases, require a transport licence.

23 **MEMBER McDILL:** And under no circumstances
24 is anything with some radiological risk going to be put on
25 the back of a truck of an unnamed individual who may or

1 may not be trucking, you know, on the side. Everything is
2 done properly?

3 **MR. EYRE:** Yes, the regulations are quite
4 specific. All transport has to be -- of radioactive
5 materials in Canada have to be in compliance with the
6 Packaging and Transport of Nuclear Substances Regulations,
7 as well as Transport Canada's Transport of Dangerous Goods
8 Regulations.

9 **MEMBER McDILL:** Thank you.

10 **MR. EYRE:** I should mention also though
11 that these regulations in Canada are based on
12 international standards, which are accepted around the
13 world.

14 **MS. NOLAN:** Wilhemia Nolan, for the record.

15 I understand that these substances are also
16 -- transport of nuclear substances are also subject to the
17 Nuclear Non-Proliferation Treaty. Perhaps the helpful
18 friend in Ottawa could explain this a little bit more.

19 Aren't the transports to the United States
20 also subject to the NPT?

21 **MR. EYRE:** The Nuclear Non-Proliferation
22 Treaty -- I'm not an expert in this but the -- any export
23 to the United States or to any other country from Canada
24 is subject to licensing by the Canadian Nuclear Safety
25 Commission.

1 But it's not a -- I should point out that's
2 not a -- the Packaging and Transport of Nuclear Substances
3 Regulations is a health and safety requirement and the
4 Nuclear Non-Proliferation is more -- is not directly
5 related to health and safety.

6 **THE CHAIRMAN:** We are talking low-level
7 kind of equipment. Can somebody clear the air and be very
8 precise what we are talking here? Staff?

9 **MR. JAMMAL:** Ramzi Jammal, for the record.
10 There's a couple of things we need to
11 really clarify. The transport of such level material, as
12 Mr. Eyre and Doctor McDill questions, has indicated that
13 it's under regulatory scrutiny.

14 Depending on the level, Transport Canada
15 has requirements under the transport of dangerous goods
16 and so does the CNSC.

17 So regardless of the transport, this is not
18 a common transport that someone puts it in the back of a
19 truck and takes off with it. The transporter must be
20 qualified.

21 In addition to their qualification, they
22 must comply with Transport Canada requirements which would
23 include the Emergency Response Plan and there is a
24 centralized center called CANUTEC. That's in global. So
25 there is always an oversight, on goods and control

1 oversight.

2 Now, to differentiate what is being
3 transported as low level, which is extremely low level as
4 Mr. Eyre mentioned, at times the activity is so low it's
5 not considered to be "radioactive material". However, we
6 apply the same principle as the transport of radioactive
7 material for all of that substance.

8 But there is one issue here; not to
9 confuse; this is not the transport of fuel cycle material
10 that requires the NPT. Regardless, even at the low-level
11 stuff, there is communication; and approval process for
12 importation/exportation to the United States in order for
13 them to accept.

14 So there are two different things here and
15 we should not mix the two substances. As a matter of
16 fact, they are apples and oranges. There are two
17 different substances here. We're not talking about the
18 transport of nuclear fuel cycle. We're talking of
19 substance such as gloves, clothing, so on and so forth.

20 So this is extremely low level and must be
21 packaged in an approved packaging.

22 **THE CHAIRMAN:** Doctor McDill?

23 **MEMBER McDILL:** I'll go back to the
24 intervenor.

25 **MS. NOLAN:** Thank you.

1 When you say low-level waste and you say
2 incineration, now as far as I'm aware, those low-level
3 wastes contain traces of fissile materials.

4 These fissile materials have a tendency to
5 decay into more and more dangerous products. They tend to
6 ceramicise when you subject them to high temperatures.

7 What is the condition of these low-level
8 materials when the ash is returned to this territory?

9 **MEMBER McDILL:** Perhaps what I could
10 suggest is that staff get together with you or NB Power
11 get together with you and explain what is in the low-level
12 waste and the process that is carried out through the
13 incineration.

14 It is, as I understand it, a well known and
15 well understood process. And I have other questions, but
16 perhaps that is the best.

17 **MS. NOLAN:** I think it would be better if
18 the Commission addressed that with their staff.

19 **THE CHAIRMAN:** Let me address it. This is
20 not weapon grade material. Even if you tried, you
21 couldn't generate any weapon out of this material. Okay.
22 And that's as far as we ---

23 **MS. NOLAN:** We don't ---

24 **THE CHAIRMAN:** I can tell you that for a
25 fact and it has been going on for years, and this weapon

1 is just -- you should worry about more on isotope traffic
2 that goes across the whole world in pre-approved packages.
3 And, you know, there you get even higher activity as
4 opposed to gloves and material which is at the low level.

5 **MS. NOLAN:** Staff were not clear.

6 **THE CHAIRMAN:** It is in terms of
7 international agreement on how to transport this. It's
8 travel internationally under very, very strict
9 regulations, and we would not approve it without all those
10 regulations in place.

11 So just to give you the bottom line, if you
12 want to know more about this, you have to spend more time
13 thinking about this.

14 **MS. NOLAN:** Sir, I'm very concerned about
15 isotope traffic. That's why I'm here. It's apparently
16 going into the United States ---

17 **THE CHAIRMAN:** But it's very good. So we
18 are not talking about this particular ---

19 **MS. NOLAN:** --- and coming back.

20 **THE CHAIRMAN:** --- nuclear power plant. So
21 let's ---

22 **MS. NOLAN:** I've asked for the condition of
23 this. It's being reduced in volume ---

24 **THE CHAIRMAN:** Right.

25 **MS. NOLAN:** What is the condition? What is

1 being transported? How much is going into the water? How
2 much is going into the air? You're asking me to ask these
3 questions of your staff?

4 **THE CHAIRMAN:** Staff yesterday answered all
5 of those questions about this particular low-level
6 material, what happened to it, how the Americans dispose
7 of it according to American regulations, et cetera, and it
8 is coming back according to our regulations.

9 I don't think it can be any clearer than
10 that. Can we move on?

11 Doctor McDill?

12 **MEMBER MCDILL:** This is a question to
13 staff. There are 50 incomplete questions -- or incomplete
14 answers; I guess the questions are complete.

15 Is this within the capacity of staff to
16 respond?

17 **MS. CATTRYSSSE:** For the record, this is
18 Clara Cattrysse.

19 Maybe just to clarify, in June we held a
20 CNSC 101 course and there were a number of questions that
21 came up so they were sort of put into a parking lot and
22 there were 53 questions and they were all responded to and
23 they were emailed out on November 9th to the people who
24 were at the course and there have been some other emails
25 that have been coming in with further questions.

1 I believe most of them have been answered
2 and sent out but there are -- we're continuing to respond
3 to questions as they come in.

4 Thank you.

5 And I just want to clarify too that this
6 101 course is not intended to be an advanced forum for the
7 Commission hearings. It's an outreach program that we
8 run.

9 Thank you.

10 **MEMBER MCDILL:** So these questions were
11 received in June?

12 **MS. CATTRYSSSE:** The course was held on June
13 23rd and a number of them were quite technical in nature.

14 Much of the information is available on our
15 website, but the way the questions were framed we wanted
16 to make sure that we got the information pulled together
17 accurately. And we had to go through numerous specialists
18 within the organization because they covered a wide
19 spectrum.

20 And there were also a few questions we
21 couldn't answer due to privacy issues; so we had to
22 clarify that as well.

23 Thank you.

24 **MEMBER MCDILL:** Those would be the
25 questions asking for individuals' names and backgrounds

1 and that sort of thing that would be ---

2 **MS. CATTRYSSSE:** That's correct.

3 **MEMBER McDILL:** --- protected information.

4 **MS. CATTRYSSSE:** That's correct.

5 **THE CHAIRMAN:** Doctor Barriault?

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

7 One of the issues raised was the access
8 documentation. Can we ask the CNSC staff to explain how
9 the public has access to all documentation prior to
10 hearings?

11 **MR. RZENTKOWSKI:** I would like to explain
12 that many of our documents are published on our external
13 website so there's an access to all regulatory documents
14 or requirement documents which could be applicable to a
15 re-licensing hearing.

16 At the same time there is a process called
17 the Access to Public Information Right and under this
18 Access to Public Information Right, we will make any
19 documents available which is not protected or is not
20 confidential.

21 So there are well-established processes in
22 place to share the information which is in our possession.

23 **THE CHAIRMAN:** So to be very specific, the
24 intervenor on page 4 talks about the CSA document that was
25 not available.

1 What is the problem with the CSA -- first
2 of all, is it one of those things that you actually have
3 copyright issue that you have to pay for it? Can somebody
4 clarify this?

5 **MR. RZENTKOWSKI:** That's correct. CSA
6 documents are not the CNSC documents and there is a
7 copyright issue. So they can be obtained directly from
8 Canadian Standards Association but at a certain cost.

9 What we have done in the meantime; we
10 contacted local libraries here in Saint John and as a
11 matter of fact, those libraries are in possession of some
12 of those standards and they can be obtained directly by
13 the public for free.

14 **MR. BLAHOIANU:** I can provide
15 clarification. I just have one of the standards. It is
16 written "Committee Member Copy Only - Distribution
17 Prohibited".

18 I have it because I'm a member of the
19 Committee. So distribution is prohibited.

20 **THE CHAIRMAN:** But once the standard is
21 adopted and it's finalized, we have no ability to make it
22 public?

23 **MR. BLAHOIANU:** They have to be bought from
24 the CSA.

25 **THE CHAIRMAN:** So when we make reference in

1 our licence to an existing CSA, how do we make this
2 available? So if somebody wants to, they have to buy it?

3 **MR. RZENTKOWSKI:** That's correct. We
4 cannot directly publish the documents, but what we do in
5 the Licence Condition Handbook, we generally describe the
6 intent of the documents and we also outline some general
7 regulatory requirements which are contained in the
8 documents.

9 So at least we are trying to summarize the
10 content because that's what we can do.

11 **THE CHAIRMAN:** Doctor McDill? I'm sorry.
12 Doctor Barriault?

13 **MEMBER BARRIAULT:** Thank you.

14 With CNSC, is there a focus point or a
15 person that an intervenor can contact to get information
16 prior to an intervention? And if so, can you explain how
17 it works?

18 **MR. RZENTKOWSKI:** Generally, the question
19 has to be posed to the staff through the Secretariat or
20 through ATIP request, and we are trying to respond as
21 quickly as we can under circumstances to make sure that
22 intervenors will get the information prior to Day Two
23 Hearing.

24 And in this particular case, we also
25 responded to many private requests coming to our staff via

1 email.

2 So really we were responding to those
3 requests almost the last day before leaving for New
4 Brunswick.

5 It was a very difficult process for our
6 staff engaged in preparation of those documents because
7 sometimes you have to impose a certain level of review.
8 So the documents cannot be released instantly.

9 **MEMBER BARRIAULT:** Because I feel like some
10 of the problems with this intervention is the fact that
11 the information wasn't forthcoming to the intervenor
12 because I think a lot of these questions could have been
13 answered prior to the intervention and it would certainly
14 save a lot of time.

15 The other issue she or was raised is the
16 issue of hold points and the explanation of how hold
17 points work. Perhaps somebody could explain that to the
18 intervenor so as to clarify this point.

19 **MR. RZENTKOWSKI:** We didn't receive this
20 question prior to this hearing, but I would gladly take a
21 couple of minutes to explain what is the role of the
22 regulatory hold points.

23 The hold points are there to strengthen our
24 regulatory oversight and not to relax it. What I mean by
25 that is that we introduced the hold points in the overall

1 project plan for the return to service of the facility.

2 The hold points are there to make sure from
3 the regulatory standpoint, that the project has been
4 conducted in accordance with all applicable requirements
5 and we verify this through the desktop review of the
6 documentation and we also verify this through the
7 inspections.

8 We have site inspectors and we also conduct
9 very focused inspections on certain aspects of the
10 refurbishment activities.

11 And there was also a concern raised with
12 respect to feeders because feeders are not installed here.
13 They are not installed before fuel loading into the
14 reactor core but that's why we have subsequent hold
15 points.

16 The next hold point is removal of GSS and I
17 can ensure the intervenors that by removal of GSS, all
18 feeders will be in place, all feeders will be tested by
19 the CNSC staff and verified that they comply with all
20 applicable standards.

21 Thank you.

22 **MEMBER BARRIAULT:** Thank you.

23 Thank you, Mr. Chairman.

24 **THE CHAIRMAN:** Doctor McDill?

25 **MEMBER McDILL:** I think that's all.

1 **THE CHAIRMAN:** Okay. On page 6, can we get
2 staff to talk about this health -- I am looking at the
3 third bullet about the health risk of the World Health
4 Organization.

5 The intervenor made some statement about
6 the ICRP, the IEA, et cetera, et cetera. We are using
7 their standard but their standard is not good.

8 Can somebody make a comment on this please?

9 **MR. RZENTKOWSKI:** I would like to direct
10 this question to Ms. Patsy Thompson who is the Director
11 General of Directorate of Environmental and Radiation
12 Protection Assessment. She's in the Head Office in
13 Ottawa, sir.

14 **THE CHAIRMAN:** Ottawa, go ahead.

15 **DR. THOMPSON:** Good morning. This is Patsy
16 Thompson.

17 Your question refers to the third bullet on
18 page 6 which speaks that the Director General of the World
19 Health Organization stated that there is no safe dose for
20 low-level radiation.

21 In fact, we have gone back and looked at
22 the information posted on the World Health Organization
23 website and the statements that were made by the Director
24 General in May and we have not seen that statement. The
25 statement does seem to appear in many non-government

1 organizations' documents, but the World Health
2 Organization, per se, we have not seen that statement.

3 To go back to how the CNSC regulates
4 radiation protection, we do an ongoing review of the
5 scientific literature, as well as the review of documents
6 and standards published by international organizations, to
7 make sure that our regulatory framework of dose limits,
8 and our programs effectively protect workers and members
9 of the public.

10 There's been many discussions about the
11 linear no-threshold relationship and what it means. The
12 CNSC does use the LNT in its regulations and that's the
13 basis, essentially, for the dose limits and the ALARA
14 requirements in our regulations.

15 Doses to both members of the public and
16 workers are very much below the dose limits that are
17 themselves below levels where health effects have been
18 observed in epidemiological studies.

19 We have done a recent study of nuclear
20 power plant workers that include NB Power workers, and
21 that study shows that there is no increased risk of cancer
22 in relation to the radiation exposures of those workers.
23 And those workers have doses of radiation that are higher
24 than the doses that members of the public around Point
25 Lepreau would receive.

1 So on that basis and on the basis of the
2 ongoing scientific literature that we review, we feel that
3 our regulatory framework is appropriate and has
4 effectively protected members of the public and workers
5 around our nuclear facilities.

6 **THE CHAIRMAN:** But Ms. Nolan specifically
7 mentioned the fact that the international standard is
8 based on a male, rather than female, or children.

9 Can you comment on that?

10 **DR. THOMPSON:** Patsy Thompson.

11 Yes, I can. In fact, that's not true.
12 Many of the work that has been done and the basis for the
13 linear no-threshold relationship is based on the atomic
14 bomb survivors and the -- essentially, the people who were
15 exposed at that time included women and men, and children
16 -- essentially, people of all ages.

17 And the epidemiological studies and the
18 follow-ups that have been done of the atomic bomb
19 survivors has included people of both sexes, and of all
20 ages, and this is essentially a basis for the work that
21 led to the establishment of the dose limits.

22 And in addition, when we establish, for
23 example, the release limits for nuclear power plants, for
24 emissions that will expose members of the public, we do
25 consider various exposure pathways, so to air and water

1 and food, et cetera, and we include assessments and
2 exposures to people of all age groups to make sure that
3 the release limits are protective of all members of the
4 public, including infants.

5 **THE CHAIRMAN:** Thank you.

6 Anybody else? Doctor Barriault?

7 **MEMBER BARRIAULT:** Just one brief question.

8 I think the intervenor in the conclusion
9 states that this is the first refurbishment of the CANDU
10 reactors. Perhaps we could ask CNSC staff to tell us how
11 many CANDU reactors have been refurbished?

12 **MR. RZENTKOWSKI:** There's more CANDU units
13 which are undergoing refurbishment as we speak.
14 Specifically, there is Unit 1 and Unit 2 at Bruce site,
15 and they are a little bit ahead of this particular project
16 because in both Bruce reactors, fuel had been reloaded to
17 the reactor core, and Unit 2 is approaching removal of GSS
18 which is currently planned for early January.

19 So they are almost in sync with the
20 progress of the work here in Point Lepreau.

21 And, internationally, there is the Wolsong
22 reactor in Korea which underwent refurbishment activities
23 and returned to service I think it was in September of
24 this year.

25 So there is definitely a certain level of

1 experience from which New Brunswick Power can benefit in
2 order to return reactors to service.

3 **THE CHAIRMAN:** What about some of the older
4 -- Pickering, they were not refurbished? I thought they
5 were refurbished also.

6 **MR. RZENTKOWSKI:** No, those reactors, older
7 reactors, were laid off for a significant period of time,
8 five to six years, and after such a prolonged period, the
9 system components have to be assessed from the condition
10 standpoint. Some of those system components were
11 replaced, but it hasn't been really a full-scope
12 refurbishment.

13 And also, they didn't undergo this kind of
14 public scrutiny and regulatory scrutiny, as the
15 refurbishment project of Point Lepreau.

16 **THE CHAIRMAN:** Doctor Barriault?

17 **MEMBER BARRIAULT:** Yes. So Point Lepreau
18 is the first refurbishment then?

19 **MR. RZENTKOWSKI:** In terms of a full scope
20 which started from the integrated safety reviews to
21 establish the scope in a very systematic way, yes, this is
22 the first project.

23 **MEMBER BARRIAULT:** Thank you.

24 Thank you.

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

1 If I might just add a bit of clarity to the
2 question regarding the Wolsong unit, I met earlier this
3 week with a number of members from Wolsong to describe to
4 me their experience following the restart.

5 They were returned to service in July of
6 this year and they reported to me that their unit has been
7 operating very successfully at full load since that time
8 with no problems whatsoever.

9 So they were very proud of that achievement
10 and we congratulated them on that.

11 **THE CHAIRMAN:** Okay.

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

13 **THE CHAIRMAN:** Anything else? Okay.

14 Okay, I think I got signaled that a
15 biological break is required. We will meet in 15 minutes;
16 it's going to be 10:45.

17

18 --- Upon recessing at 10:31 a.m.

19 --- Upon resuming at 10:54 a.m.

20

21 **THE CHAIRMAN:** Okay. Can everybody sit
22 down, please?

23 We're moving to the next submission, which
24 is an oral presentation from the Musquash Fire Rescue
25 Department, as outlined in CMD 12.27 and 12.27A, and we

1 understand that Mr. Wayne Pollock will make the
2 presentation.

3 Please proceed, sir.

4

5 **11-H12.27 / 11-H12.27A**

6 **Oral presentation by the**

7 **Musquash Fire Rescue Department**

8

9 **MR. POLLOCK:** Thank you, Mr. Chair, and
10 ladies and gentlemen of the Commission. My name is Wayne
11 Pollock and I am the Fire Chief of the Musquash Fire
12 Rescue Department.

13 Just to, I guess, give you a little
14 background, a little bit of a history, I guess, why I feel
15 I'm qualified to speak to Point Lepreau is the fact that I
16 have been a resident of the Parish of Musquash for 40
17 years now, and during that 40 years, I did raise my family
18 in the Parish of Musquash.

19 I also worked for the New Brunswick
20 Telephone Company at the time, and one of my
21 responsibilities was overseeing the phone installation,
22 phone maintenance, repair, at Point Lepreau, right from
23 the day it started, right until I retired in the late
24 '90s; so a good period of time that I was in and out of
25 the facility down there over those years.

1 I am also a member of the community liaison
2 committee that meets on a regular basis with the people at
3 Point Lepreau, and those meetings are intended to keep us
4 informed, us being the people in the community, so that we
5 can go back and let the people in our community know
6 exactly what's going on -- regards to the handling, the
7 safety, all the things that go on at the plant.

8 I've also, as I mentioned earlier, am the
9 fire chief, and I have been the fire chief in that area
10 for the past 22 years. During that time, spent many hours
11 training with the response team at the plant, along with
12 the -- our neighbouring department, St. John Fire, which
13 also spends a lot of time training -- getting ready for a
14 possible incident at the plant.

15 With that knowledge, I guess I feel that I
16 can speak to the fact that Point Lepreau is a very
17 valuable asset to the community that I live in.

18 When it comes to safety, as I say, I've
19 probably been in and out of the plant probably more than
20 even some of the workers down there, and one of the other
21 roles I had when I worked with the telephone company -- I
22 was responsible for safety with the telephone company.
23 And I do have a very good understanding of safety and
24 safety concepts.

25 And what I've witnessed and seen over the

1 years down there -- it's a safety culture that's really
2 second to none, I would say.

3 As far as the community is concerned, and
4 some of the benefits, I guess, that the community receives
5 having such a facility in their backyard. They support
6 many of the fundraising efforts that are put on in the
7 community. Such things as our Fishermen Days, which is a
8 huge event in the area, people come from all over New
9 Brunswick to attend that, Fishermen Days.

10 NB Power is a big part of that, they help
11 make that happen. Our fire department hosts a Canada Day
12 event each year, which draws in the vicinity of 500 people
13 to our small community. Once again, NB Power helps us
14 with that, helps make that happen.

15 The local school -- the Fundy Shores School
16 that's in the area -- are working on projects all the
17 time, again being supported by a good corporate citizen in
18 NB Power.

19 The big thing our fire department receives,
20 I guess, from NB Power is it has a world class -- probably
21 the best in Eastern Canada, fire training facility -- fire
22 grounds that we have the privilege of using at any time,
23 and we do take full advantage of that.

24 And not just our department, but
25 departments all over the southern part of the province

1 come to that facility for training, and it's a tremendous,
2 again, asset to have at your disposal.

3 Another big thing is the water supply.
4 Most rural departments do not have access to water unless
5 it's by a pond or a brook or a stream somewhere, is which
6 certainly we do have to use as well, but there's a hydrant
7 facility at the plant that we have access to in the event
8 of a major structure fire in the community.

9 The employees -- a lot of the employees
10 that work in the plant are members of the Musquash Fire
11 Department. The facility has been kind enough to allow
12 those individuals, when they're -- during their work day
13 to come out and attend highway accidents, structure fires,
14 any incidents that happen. Again, those employees have
15 the privilege of coming out and supporting their community
16 and supporting their local fire department.

17 Just sort of -- to wrap up a little bit
18 here, again, I have got to meet and work with pretty well
19 all of the people at Point Lepreau at one time or another,
20 and they're very knowledgeable, very dedicated individuals
21 that work at that facility, and I guess I'm proud to say
22 that I've had the privilege, and still do have the
23 privilege of working with them.

24 And I guess having a world-class facility
25 like Point Lepreau in my backyard makes me proud. So

1 that's pretty much summing up the letter that I've already
2 sent in to you.

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

4 Dr. Barriault?

5 **MEMBER BARRIAULT:** Thank you Mister
6 Chairman.

7 Just a brief question. You may have heard
8 yesterday that Point Lepreau has had difficulty meeting
9 the new CSA standards for fire protection.

10 Can you comment on your observation, of
11 what they have available?

12 **MR. POLLOCK:** Yes. I wasn't here yesterday
13 to hear that, but I am familiar with what you're talking
14 about.

15 The Point Lepreau Generating Station has a
16 response team consisting of seven people that are there,
17 onsite, ready to respond to an incident at any given time,
18 7/24. That is supported by Musquash Fire, that would be
19 paged out through a 9/11 call to respond and assist that
20 response team that is on site, along with the St. John
21 Fire, which also are paged out and they also respond.

22 So it's a sort of a three-tier agency
23 response, if you like, and we have trained for many years,
24 and we've developed many standard operating procedures
25 with those three agencies.

1 We actually have built a unified command
2 system that was recognized in fire-fighting in Canada as
3 being on of the best they've seen yet.

4 And I guess what the improvement that is
5 being made is that, that team of seven are people at work
6 at the plant. They work in other aspects, they're not
7 full-time dedicated fire fighters, even though they've
8 been trained and -- but they still have to leave their
9 position, whatever it is, to deal with that fire.

10 What is taking place, and I'm sure you've
11 probably heard, is that there is going to be a dedicated
12 full-time response team that would be strictly fire
13 fighters associated with their work would be in things
14 that are associated with fire-fighting at the plant.

15 So that certainly has improved, I guess,
16 that situation that you're talking about.

17 **MEMBER BARRIAULT:** Thank you.

18 NB Power, did you want to comment on the
19 relationship with the fire department?

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

21 As was mentioned, yesterday, and again here
22 with the Musquash Fire Chief, there is a significant
23 amount of interaction.

24 We don't take that lightly, because, as you
25 can well imagine, coming into a nuclear power plant is one

1 thing -- and there's always concerns with that, as there
2 would be from the public. Coming into the station, if
3 things are progressing through a fire or some sort of
4 event like that, it is absolutely a significant piece for
5 us in our emergency planning to have that knowledge and
6 that understanding that our local fire department. As
7 well as those from the city fire department to have them
8 in our station regularly, to have them made aware of the
9 hazards, to have them a part of our planning and the
10 strategy. And as the fire chief has indicated, that
11 interaction, the command structure that we have -- because
12 you can well imagine that, when we start with a small,
13 very specific response, and that upgrades to a secondary
14 response with the local fire department, and the upgrades
15 again when the city shows up. That has to be done well.

16 And that is a recognized -- that is working
17 very well for us. So those things we work very hard on.
18 As the Fire Chief has indicated, we are now moving to
19 doing that piece differently.

20 Now, does that mean that what we have in
21 place today is not qualified? It does not. The people
22 that are there are fully qualified, they meet the
23 requirements, but we are going in a bit of a different
24 direction than we have in the past 30 years, to make sure
25 that we meet those requirements of the standards and our

1 program ramps up to meet that.

2 **MEMBER BARRIAULT:** Thank you.

3 Thank you Mister Chairman.

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

5 Chief, your intervention on page 2 -- you
6 talked about in the event of an incident. I'd like to
7 hear your view -- yesterday, there was a lot of discussion
8 about whether there should be drills, exercises, involving
9 everybody involved -- the community, inside, outside.

10 So, what's your view? I mean, are you part
11 of some sort of actual exercise or a drill, a simulated
12 disaster, how you would handle it? And also, is your
13 staff and you are trained in radiological issues?

14 **MR. PARKER:** I'll try to answer that. As
15 far as an incident at the plant -- I guess, we're talking
16 a fire incident. Certainly our people are going to be on
17 site dealing with that fire incident.

18 Within the plant itself the amount of
19 protection that had been put in there, and particularly
20 during the refurbishment, it's almost impossible to think
21 of a fire even getting the chance to start. Like, the
22 fire protection systems in there are just unbelievable.

23 More the instance we would have would be
24 sort of surrounding the plant, I guess, outside the
25 protected area where there's various trailers,

1 outbuildings and things of that nature that would be no
2 different than a -- I guess a fire out in the community
3 itself, be it at a trailer or a structure outside.

4 So your other question again, if you would
5 repeat that? The second one there?

6 **THE CHAIRMAN:** Well, we were talking about
7 whether there's a -- it would be worthwhile to do a drill
8 together with the emergency people, with the plant people,
9 with you, and whether also everybody is trained in the
10 radioactivity issues.

11 **MR. POLLOCK:** Yeah. As far as drills are
12 concerned, we do drills on a regular basis. We do them
13 twice a year, in the springtime and we do drills as well
14 as in the fall of the year. And the majority of our
15 members do make it down to those drills, and we drill with
16 the response team that's on site.

17 The Saint John Fire also comes down quite
18 often to those drills and we practice our skills on these
19 drills. Some are done inside the protected area, the
20 challenges. Some are done outside. But we do drills and
21 have been doing drills for several years.

22 **THE CHAIRMAN:** Are you guys also being
23 trained in any radioactive incident? Or whatever it is --
24 we're talking about a doomsday scenario here where there
25 is some ventilation. Do you know what to do?

1 **MR. POLLOCK:** I do believe we have some
2 pretty good training on that. Our department consists of
3 41 fire fighters. Of those 41 fire fighters, 36 of them
4 are trained to the Fire Fighter 2 level, which is like
5 it's the highest level that's available in this province.
6 And part of that Fire Fighter 2 training does involve
7 Hazmat.

8 And our people are trained not only to the
9 awareness level, but to the operational level. We do not
10 get into the technical part of it. Our province has sort
11 of dictated that there's going to be certain departments
12 that will cover the province in the event of an incident,
13 but we are there to understand work and able to assist
14 those departments that come in for that particular type of
15 an incident.

16 **THE CHAIRMAN:** Thank you. Anybody else?
17 Anything else? Okay. Public Safety, by all means.

18 **MR. MacGILLIVRAY:** Ernest MacGillivray, for
19 the record.

20 Just maybe a quick point of clarification;
21 when we were talking about exercising the offsite plan in
22 which case police and fire and EMS and the plant staff all
23 participate and the warden service, N.B. Power
24 superimposes radiological survey personnel.

25 So these are typically green-qualified

1 people who work with the emergency response teams, and
2 they're the ones that provide the radiation protection
3 advice for the responders. So as the Chief said, he's not
4 an expert, neither am I, in those issues, but when the
5 teams are assembled and they're working in a potentially
6 contaminated area, N.B. Power staff provide the technical
7 advice to ensure that the workers are properly protected
8 from radiation hazards.

9 **THE CHAIRMAN:** Okay. I think I understand.
10 My interest was on the -- on the 20 kilometre radius,
11 you've got to cover a lot of territory and you should have
12 some training about what to do and what not to do and
13 refer to the experts.

14 Go ahead.

15 **MR. PARKER:** For the record, Wade Parker.
16 Speaking directly to the scenarios inside
17 our protected area, inside our fence, if you will, as the
18 Fire Chief was speaking to, it's no different than if we
19 had any member of the public come in to the protected
20 area. We are responsible for that, N.B. Power.

21 So what happens when we start to transition
22 from our emergency response team, our initial response to
23 the Musquash Fire Department, that goes through a
24 transition of who's doing what, and it evolves.

25 What that happens is that we fall back and

1 we are responsible for their radiological protection.
2 That is a fact. As it escalates with the Saint John Fire
3 Department coming in, again, we are responsible for that
4 protection.

5 As the command structure changes and
6 evolves, as was indicated, our response team leader is a
7 part of that command structure and we would not have
8 people on the staff -- sorry, not in our station without
9 having that protection provided to them.

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

12 If I could just complement Mr. Parker's
13 comments? I think your real interest is the RP or
14 radiation protection skills available off site in the
15 event of an emergency.

16 We've just completed actually what I'll
17 call a lab protection 101 course that we gave to the
18 wardens so that in their duties outside the protected area
19 offsite in the event of an emergency, they have a certain
20 level of understanding of the risks and the mitigation
21 measures to -- and protection measures to take in the
22 event they are called upon to do some offsite work.

23 We're also, over time, we have done the
24 same with members of the RCMP and we are working with
25 provincial EMO organization to coordinate that same level

1 of training and awareness for other members of the
2 response organization that might be involved in offsite
3 activities.

4 In addition, we would provide even in the
5 offsite aspects local expertise to support activities
6 offsite. So for example at a reception centre to
7 understand in the same way that we today would send a
8 protection assistant with an injured worker to a hospital,
9 we would provide that level of support to the offsite
10 agencies.

11 **THE CHAIRMAN:** Okay. Thank you.

12 Anything else?

13 Thank you very much.

14 The next submission is an oral -- is an
15 oral presentation by the Canadian Coalition for Nuclear
16 Responsibility as outlined in CMD 12.35.

17 Mr. Edwards, the floor is yours.

18

19 **11-H12.35**

20 **Oral presentation by**

21 **Canadian Coalition for Nuclear**

22 **Responsibility**

23

24 **MR. EDWARDS:** Thank you, Mr. Chairman.

25 My name is Gordon Edwards. I'm President

1 of the Canadian Coalition for Nuclear Responsibility
2 founded in 1975; I participated in many hearings on
3 nuclear issues over many years.

4 The important thing about nuclear power is
5 that unlike any other factory or machine for generating
6 electricity, it is also a warehouse of radioactive poisons
7 which could do an enormous amount of damage not just on
8 the plant site or in the immediate perimeter, but over
9 very large areas.

10 This is one of the reasons why the Canadian
11 Nuclear Safety Commission exists. This is one of the
12 reasons why we have a *Canadian Nuclear Liability Act* which
13 limits the liability of the owner of such a plant to a
14 maximum of \$75 million for offsite damages that might be
15 caused by such an accident.

16 There is no other industry that requires
17 legal protection from liability caused by an accident.
18 This is also why insurance companies write into every
19 insurance policy a nuclear exclusion clause saying that
20 each citizen or property owner is not covered in the event
21 of radioactive contamination from a nuclear accident,
22 because they are not willing to risk their assets on this
23 possibility.

24 In the *Nuclear Liability Act* itself, there
25 is also a total exemption for liability for any

1 manufacturer of nuclear equipment. Even if that nuclear
2 equipment may have been defective and may even contribute
3 to the nuclear accident, they would not be in the nuclear
4 business if they did not have this exemption.

5 So I think that when we talk about
6 probabilities, I don't think that these insurance people
7 and business people and reactor operators are willing to
8 take these risks, no matter what the probability is
9 calculated to be. And I think that this is why the
10 Canadian Nuclear Safety Commission exists and this is
11 something that really has to be constantly borne in mind.

12 As Nobel Prize winning physicist Hannes
13 Alfvén, the Swedish physicist, once said in connection
14 with radioactive waste, he said, "You cannot prove that a
15 problem has been solved simply by pointing to all the
16 efforts that have been made to solve it."

17 And I think that the same can be said about
18 reactor safety. It's not a question of the competence or
19 the honesty or the ethics of the people who are working in
20 it. I'm sure the people who worked at the Fukushima Dai-
21 ichi plant were just as dedicated, just as careful and so
22 on.

23 Everybody inside and outside the plant was
24 absolutely dumbfounded by the sequence of events that
25 unfolded in Japan, totally unexpected. And as we know

1 now, of course, the accident was caused not really by the
2 earthquake and the tsunami, although they triggered it.
3 What was really the cause of the accident and the self-
4 destruction of those reactors and the meltdown of three of
5 them was a total prolonged loss of electrical power.

6 Anything that brought about a prolonged
7 loss of electrical power, both onsite and offsite would be
8 expected to have very similar circumstances at any nuclear
9 reactor anywhere in the world. Which of course, raises
10 questions about what if these are located in areas of
11 warfare or in areas of natural disasters of different
12 kinds?

13 Now, I participated in nuclear safety
14 hearings, reactor safety hearings in Ontario from 1977 to
15 1980. I'd like to read a couple of quotations from one of
16 these commissions that I participated in. The Ontario
17 Royal Commission on Electric Power Planning reported in
18 1978:

19 "When we talk about the safety of a
20 nuclear reactor we are referring,
21 essentially, to how effectively the
22 fantastic amount of radioactivity
23 contained in the reactor core can be
24 prevented from escaping into the
25 ground and atmosphere in the event of

1 major malfunctions. Clearly, if a
2 major release of this accumulated
3 radioactivity occurred as discussed in
4 the previous section, the consequences
5 would be extremely serious and could
6 involve several thousand immediate
7 fatalities and many more delayed
8 fatalities.

9 Assuming for the sake of argument that
10 within the next 40 years Canada will
11 have 100 operating reactors, the
12 probability of a core meltdown might
13 be in the order of once in 40 years if
14 the most pessimistic estimate of
15 probability is assumed." (As read)

16 Now, I'd like to -- I'd like the record to
17 show that this calculation of one in 40 years for 100
18 reactors operating in Canada is based upon the same target
19 probability of one in 10,000 years for a single core
20 meltdown in a nuclear reactor that is currently being used
21 by the CNSC.

22 Mr. Binder said yesterday that the CNSA
23 doesn't care so much about the protection of machinery,
24 but the protection of people and the environment. The
25 CCNR supports this sentiment very strongly, which is in

1 complete accord with the legal mandate that CNSC has been
2 given by Parliament to protect people and the environment.

3 Yet CNSC has never authorized any actual
4 study of the consequences of a major accident. We hear
5 statements like risk is equal to probability times
6 consequences. This formula was used just yesterday, and
7 yet all of the talk is about the probability and there is
8 no talk about the consequences. There is almost nothing
9 in the Fukushima Task Force report or in the documents
10 provided at these hearings that deals directly with the
11 protection of people and the environment.

12 We did hear from N.B. Power that they don't
13 want to have warning sirens because they don't want to
14 alarm people. Perhaps we should remove all our fire
15 alarms from schools and other public buildings for the
16 same reason.

17 But surely there are much more important
18 things to talk about if a large release of radioactivity
19 were to occur there are a host of vitally important
20 considerations. Where would people actually be evacuated
21 to? What sources of food and drink would have to be
22 monitored quickly and possibly prevented from entering the
23 marketplace? What special considerations should be given
24 to pregnant women, nursing mothers, and small children?
25 How will the enormous volumes of contaminated water be

1 contained? Will they be just dumped into the Bay of Fundy
2 as they were dumped into the Pacific Ocean at Fukushima?
3 Do we have any backup for that? How will contaminated
4 soil be dealt with? Will they be raked together and piled
5 with plastic coverings as has happened all over Japan?
6 How should radioactively contaminated workers or other
7 citizens be treated by first responders, and are they
8 trained to treat radioactively contaminated people?

9 An independent environmental assessment, we
10 feel, is absolutely necessary for -- before this plan is
11 allowed to proceed. We oppose the restart of this reactor
12 because we believe that it is not up to modern safety
13 standards. If this was a new reactor being proposed in
14 either the United States of America or Canada it would not
15 be licensed, in our opinion.

16 The lessons of Fukushima have not been
17 properly addressed and incorporated into the licensing
18 documents, so we believe that a full environmental
19 assessment is necessary with a panel that is independent
20 of both the industry and the regulator before any restart
21 licence is even considered. In fact, such a process is
22 long overdue. We feel that this should have been done
23 even before, when the refurbishment was first looming. To
24 treat the refurbishment as if it was just a regular
25 maintenance shutdown is absurd and I think it brings

1 discredit on the Commission.

2 I think the Commission -- if the Commission
3 really wants people to see it as acting in the public
4 interest, then they're going to have to stop sounding like
5 an arm of the nuclear industry. Putting slogans on the
6 cover of their annual report saying, "Fact: Nuclear in
7 Canada is safe." This is the kind of thing you expect
8 from a salesman, not from a regulator, and unfortunately,
9 Mr. Binder, I have to say that I was very distressed when
10 I attended a conference on nuclear waste decommissioning
11 and environmental restoration in Toronto and heard you say
12 that we have to do a better job of explaining our business
13 to the public.

14 It is not reassuring to know that the
15 President of the Canadian Nuclear Safety Commission
16 regards nuclear power as "our business." I think that
17 this has to really change and one way to do it would be to
18 call in some independent people.

19 Mr. Binder yesterday said, he didn't care
20 what the probability of an accident was, he said, "Will
21 the reactor shut down safely? That's what we care about.
22 Is there anybody who disagrees with that?"

23 Since nobody from New Brunswick Power spoke
24 up at that moment, nor anybody from the CNSC staff, I felt
25 compelled to speak up from the audience and say that I did

1 disagree. I was speaking out of order. I thought
2 afterwards maybe Mr. Binder was deliberately using a trick
3 question to see if the CNSC staff was actually paying
4 attention and also living up to its legal obligation.

5 In the law it's expressed very clearly that
6 the CNSC has an obligation to disseminate objective
7 scientific technical information related to the hazards of
8 nuclear power. This requirement is precisely delineated
9 in Article 7(v) of *The Nuclear Safety and Control Act*.

10 Well, if Mr. Binder's question was a test
11 then the staff failed by saying nothing. For everyone
12 knows that a safe shut down of a nuclear reactor is not
13 sufficient to protect the population or the environment
14 from the consequences of an uncontained nuclear meltdown.

15 All of the operating Fukushima reactors
16 were shut down safely and immediately when the earthquake
17 hit. It was only later, due to a complete loss of
18 electrical power that the core of three of those reactors
19 overheated and melted down releasing radioactive gases,
20 vapours, and cinders which are still a major source of
21 contamination in Japan today.

22 All of this damage in the shut down
23 reactors was due to the intense decay heat generated by
24 the radioactivity of the reactor core since radioactivity
25 cannot be shut off by any means known to science, so that

1 heat must be removed by active means long after shutdown.

2 In 1978 when the Point Lepreau reactor was
3 under construction, the Ontario Royal Commission on
4 Electric Power Plant reached the conclusions which I had
5 called to you before, and that was before there had ever
6 been a shutdown in any commercial nuclear reactor. One
7 year before the Three Mile Island accident. I would like
8 to -- Dr. Greg ---

9 **THE CHAIRMAN:** Can you start winding up,
10 please?

11 **MR. EDWARDS:** I will be winding up, I have
12 -- unfortunately 10 minutes is a ridiculously short period
13 of time to deal with these important matters, I must say.
14 And I did try and file this ---

15 **UNIDENTIFIED SPEAKER:** (off mic)

16 **MR. EDWARDS:** I did file this extra --
17 tried to file this extra document this morning but that
18 last -- yesterday, but I guess that it was considered to
19 be unfair to file a document at this point, although I
20 have known the staff to file documents at the last minute.

21 I have some other things I would like to
22 say, one thing having to do with what Dr. Greg Rzentkowski
23 stated at yesterday's hearing saying that statistics is a
24 very dangerous field. I certainly agree with that
25 statement especially if statistics is used to muzzle

1 people or to mislead them into thinking that a 1-in-10,000
2 probability offers any actual protection against the
3 occurrence of a core meltdown.

4 By the way, the 1-in-40 number that the
5 Royal Commission came up with was not dependent upon any
6 external event, so it did not presume earthquakes or
7 anything of the sort. It was simply saying mechanical
8 failures, just ordinary mechanical failures, such as a
9 loss of regular cooling and emergency backup cooling.

10 One of the intervenors yesterday said there
11 have been three core meltdowns in a fleet of some 433
12 nuclear reactors and hence the probability of one in 433
13 for a core meltdown. Dr. Rzentkowski disagreed,
14 understandably, saying that there had actually been some
15 15,000 reactors years of experience and since 15,000
16 divided by three is 5,000 the correct probability estimate
17 based on that experience should be one in 5,000 per
18 reactor per year.

19 Please note that one in 5,000 is already
20 twice as large as what the CNSC is using which is one in
21 10,000. And in fact I would like to point out that this
22 figure, not only is it already twice as large but if you
23 realize that three reactors melted down at Fukushima, and
24 then you throw in Chernobyl and Three Mile Island you have
25 five meltdowns out of 15,000 reactor years which comes to

1 an estimate of one in 3,000 years.

2 So these probabilities do indeed provide a
3 slippery slope and I would like to urge the Commission you
4 cannot use probabilities as a substitute for action or
5 thought. The probabilities can be calculated but they are
6 only mathematical calculations.

7 The reality is it could happen any time.
8 We must be prepared. At the moment we are far less
9 prepared than Japan was for the Fukushima accidents. Have
10 we really learned anything from the Fukushima disaster?

11 With regard to the reactor itself, I don't
12 believe the reactor itself has been materially improved.
13 It hasn't been fortified; it hasn't been strengthened
14 against possibly stronger earthquakes.

15 There has been a failure to resolve the
16 problem of the positive void co-efficient of reactivity
17 even though methods are known which would alleviate this
18 problem. For example, using fuel -- a different fuel
19 which would mitigate some of the consequences of the
20 positive void co-efficient which means that if you did
21 have a loss of coolant, you would also tend to get a power
22 surge at the same time.

23 Another thing that hasn't been analyzed or
24 dealt with is the ---

25 **THE CHAIRMAN:** Can you please wind up?

1 **MR. EDWARDS:** --- failure to talk about the
2 steam generators. They have -- the main object of the
3 refurbishment was to replace about 1,500 corroded,
4 deteriorated, and brittle wall-thinned tubes. But there
5 are still about 20,000 tubes in the steam generators which
6 have not been replaced. And the exact state of
7 deterioration of these tubes is unknown so the steam
8 generators are now the weakest link in the primary cooling
9 circuit.

10 In Ontario when Bruce Power refurbished
11 their reactors they automatically replaced the steam
12 generators realizing that they were an intrinsic part of
13 the primary cooling circuit. Why is New Brunswick Power
14 allowed not to replace the steam generators and leave that
15 weak link in the primary cooling circuit?

16 In addition there's a failure to analyze
17 the vulnerability of the ---

18 **THE CHAIRMAN:** Do you want me to shut off
19 the microphone?

20 **MR. EDWARDS:** Yes, go ahead.

21 **THE CHAIRMAN:** Okay. Could you please shut
22 down the microphone?

23 **MR. EDWARDS:** (off mic)

24 **THE CHAIRMAN:** Do you want me to get
25 somebody to escort you out?

1 **MR. EDWARDS:** (off mic) if you wish ---

2 **THE CHAIRMAN:** Yeah. Well, let some people
3 -- we want to get into some discussion -- we want to get
4 some discussion and it's a -- I don't want to be a one-way
5 dialogue here. (off mic) day (inaudible) procedures here,
6 we gave now 20 minutes for this discussion. We want to
7 have a dialogue here, not a one-way street. Okay? So ---

8 **MR. EDWARDS:** (off mic)

9 **THE CHAIRMAN:** Well, that's right. You
10 know the procedures here.

11 You've been with us for a long, long time.
12 So don't abuse what you know very well is the normal
13 procedures here.

14 **MR. EDWARDS:** I'm not the one abusing here,
15 sir.

16 **THE CHAIRMAN:** Okay. Can we get into the
17 question period now? Who wants to start.

18 Dr. McDill?

19 **MEMBER MCDILL:** Thank you.

20 Hoping there will be enough time for you to
21 continue speaking to us through our questions.

22 I'm going to start with staff because I'd
23 like to talk about the loss of grid power.

24 A number of years ago in Ontario and
25 Eastern United States we had a pretty significant failure

1 of the grid and we were many of us off the grid for a
2 significant number of days, including the reactors.

3 All of our reactors, if I remember
4 correctly, shut down safely with the exception of one at
5 Pickering which continued on thermal cycling. For how
6 many days did that reactor continue without grid power
7 before it was safely dealt with?

8 **MR. RZENTKOWSKI:** The natural circulation
9 took place for approximately six hours and then the
10 standby generators power was restored to the pump so
11 circulation was established by means of mechanical
12 equipment.

13 **MEMBER McDILL:** So there was no immediate
14 crisis that was caused by the loss of grid power to any of
15 our reactor sites?

16 **MR. RZENTKOWSKI:** No, there was no safety
17 concern. The reactors were shut down safely and
18 maintained in a safe state for the period required.

19 **MEMBER McDILL:** My next question is, in the
20 event that there had been no power, for how long would the
21 fuel have remained cool in the pools without the addition
22 of grid power?

23 **MR. RZENTKOWSKI:** Is this a generic
24 question or a question ---

25 **MEMBER McDILL:** A general question for

1 CANDUs, I guess, yeah.

2 **MR. RZENTKOWSKI:** --- specific to
3 Pickering? And for CANDUs, it depends on the specifics of
4 the design but it's minimum four days before water in the
5 spent fuel bays would reach 100 degrees Celsius.

6 And it's approximately 10 to 12 days before
7 fuel will uncover. So yes, this aspect of the design is a
8 part of the Fukushima task force report. And we requested
9 that additional sources of water could -- should be
10 assessed and provided to spent fuel bays. This has been
11 achieved through the connection to the fire water.

12 **MEMBER MCDILL:** So we have, as a
13 Commission, learned from incidents that have happened in
14 the past. And the Commission and the industry, which is
15 separate from the Commission, have adjusted and changed as
16 information has become available to us?

17 **MR. RZENTKOWSKI:** Yes. We are a learning
18 industry. And this applies to both the regulator and to
19 the industry. So we analyze lessons learned from any
20 events, from any accidents, of course including Fukushima.

21 And we see what realistically can we
22 implemented it into the reactor design to further and
23 further improve its safety. So here we are talking about
24 the safety of reactors in the '75, '80s and I would like
25 to say that the safety of currently operating reactors has

1 been significantly enhanced. And in particular here in
2 Point Lepreau where many design upgrades have been
3 implemented with particular focus on beyond-design basis
4 accidents and severe accidents. The list is very long; I
5 think it has been presented yesterday.

6 **MEMBER MCDILL:** Thank you.

7 One more question in this cycle. One of
8 the problems at Fukushima was the hydrogen, nuclear --
9 I'll go to N.B. Power in a minute. With respect to
10 hydrogen, how is that dealt with normally in the CANDU
11 fleet?

12 **MR. RZENTKOWSKI:** Currently each CANDU
13 reactor has so-called hydrogen igniters installed. So
14 those igniters are not passive complements. They require
15 electrical power. And they can function for approximately
16 three days under accident condition to burn high
17 concentration of hydrogen and avoid concentration which
18 would lead to explosion.

19 In addition as a part of the refurbishment
20 here in Point Lepreau, passive re-combiners were installed
21 as a second line of defence. Those re-combiners are
22 passive and are independent of electrical power.

23 **MEMBER MCDILL:** I guess I'll go to N.B.
24 Power now. And I wonder if you could reiterate basically
25 in steps if there was a loss of grid power to the station,

1 how would the station respond, and then the reactor shut
2 down procedures and the issue of passive hydrogen igniters
3 not requiring grid power.

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

6 I'll have Paul Thompson step through those
7 scenarios. He's the Manager of Nuclear Safety and
8 Regulatory Affairs and will follow through and highlight
9 the steps that would occur.

10 **MR. THOMPSON:** Thank you. For the record,
11 Paul Thompson.

12 So first with respect to the reactor, the
13 reactor would trip immediately on loss of offsite power.
14 The ---

15 **MEMBER McDILL:** I'm going to ask -- because
16 many of the intervenors don't know what or may not be
17 familiar with words like GSS, guaranteed shutdown or what
18 a trip is, if we could use language that is something that
19 is not relying on the jargon of the industry.

20 Thank you.

21 **MR. THOMPSON:** I will try my best, just if
22 you could give me a signal as soon as I've said something
23 that may not be clear.

24 So when there's a loss of off-site power,
25 there is an increase in the heat transport system pressure

1 that will activate detection which will then be signalled
2 to the reactor shutdown systems to inject both rods
3 containing neutron-absorbing material from the top of the
4 reactor -- is in fact with spring-assist fired into the
5 core, as is a solution of neutron-absorbing material
6 injected under high pressures from the shutdown system to
7 tanks.

8 **MEMBER McDILL:** And neither of those
9 require any power to go?

10 **MR. THOMPSON:** They will activate
11 immediately under those circumstances terminating the
12 fission reaction.

13 The standby Class 3 diesel generators
14 would, in fact, start and we -- I mentioned yesterday that
15 we have three of them. We only need one to start to
16 provide power for the feed-water pumps, those are the
17 pumps on the boilers.

18 If we want to explore the situation --
19 because that term -- that provides a steady heat sink as
20 the reactor -- the primary system is thermo-siphoning --
21 that's a term that I need to explain, and I tried to do so
22 in our July 28th letter on Fukushima. Actually I'm
23 describing a scenario that is actually described in that
24 letter that we sent in response to the Fukushima event.

25 For the CANDU reactor, the boilers are

1 located above the reactor core, as is the headers. So the
2 heat source is at the bottom and it sets up a natural
3 circulating effect. So we reduce -- the secondary side
4 pressure is reduced and so long as there's flow to the
5 boilers, heat is being removed at the top and natural
6 circulation flow is established in the heat transport
7 system providing adequate flow over the fuel to provide
8 cooling. So that -- and in the longer term then, we can
9 use the shutdown cooling system which is a separate set of
10 pumps.

11 Now, if the Class 3 diesel generators --
12 all three of those are not available, which is a much
13 lower probability event, then we have emergency diesel
14 generators. So I can keep -- should I keep going assuming
15 this and this and this is not available because I can do
16 that?

17 **MEMBER McDILL:** I think that the concern in
18 the room we've heard over the last few days is a
19 Fukushima-like incident and so I think, for the audience,
20 it's worth going through it.

21 **MR. THOMPSON:** Okay.

22 **MEMBER McDILL:** If my Chair -- oh, I'm
23 getting ---

24 **THE CHAIRMAN:** Just let me intervene
25 because I've been accused of playing games here with the

1 word, "shutdown." When I said shutdown, I didn't want to
2 use the word "GSS" because I meant exactly that; safe,
3 permanent shutdown which meant that there is no doomsday
4 scenario where there is the Fukushima scenario where there
5 is absolutely no power. That's why we didn't care about
6 the probability issue; we cared about if something like
7 this happened tell us how the machine will be permanently
8 shut down, in case that wasn't clear last time. So that's
9 what we are fishing here. Give us the assurance from
10 staff and from NB Power that under -- so that we did learn
11 from the Fukushima event and we are trying to be prepared
12 to such a doomsday scenario.

13 **MR. THOMPSON:** Okay. So these various --
14 depending upon what's available, provides different
15 lengths of time as the event unfolds. So for example, if
16 the electrical-driven feed pump is not available, we have
17 a steam-driven steam pump which would again provide
18 inventory to the boiler from the reserve feed-water tank.

19 When that is depleted, we also have water
20 that is taken from the dowsing tank that will go in and
21 spray the tubes on the boiler. So they spray the outside
22 of the tubes and the top of the boiler, again enabling the
23 thermo-siphoning flow. In time, once that water starts to
24 become depleted, the emergency water supply is pumped in
25 to provide that spray cooling.

1 Now, if the emergency water supply is not
2 available, and that's seismically qualified, so now -- if
3 I talk that we don't have Class 3 power or we don't have
4 Class 4 power, then we're relying then on the moderator as
5 a heat sink. So the fuel is now overheating because the
6 heat is no longer being transferred actually to the
7 coolant and the pressure tubes start to heat up and they
8 expand or they sag down and heat is transferred radially
9 into the moderator. So the moderator is then -- it's a
10 relatively cool source of water and inventory and it takes
11 time for that to boil away. That's one of the very
12 positive things about a CANDU reactor is all the sources
13 of water between what's in the dowsing tank and what's in
14 the moderator. And later I'm going to explain what's in
15 the shield tank or the calandria vault.

16 So as that water boils off, at some stage
17 the fuel channels do start to heat up and the channels at
18 the top become uncovered. And at some stage they will
19 fail and the core will start to collapse into the bottom
20 of the calandria vessel. But the moderator is still
21 providing some heat sink and removing heat.

22 In time, if that is not replenished, heat
23 starts to be liberated from the calandria shell, the
24 calandria into the water and the calandria vault. The
25 calandria vault is really a concrete structure that is

1 supporting the calandria vessel filled with light water
2 that also acts as a biological shield. But that is
3 another great source of heat removal for a period of time.

4 **MR. CHAIRMAN:** How many -- as you relate
5 this story, what's the time element? Are you in day one,
6 day two, day three; where are you?

7 **MR. THOMPSON:** It depends what -- if things
8 have been working and then run out of water, or whether
9 they're not available to the start. We presented a fairly
10 complex table in our submission which shows if this is
11 available for a period of time, then you're good and this
12 will terminate. If this is not, it terminates.

13 So around -- if none of these sources that
14 I've talked about are available, at about 11 hours into
15 the event the calandria vessel is dry. So these timelines
16 are much, much longer if certain systems have been
17 available. So this is the Dr. Binder scenario that so --
18 as we refer to it.

19 It takes about 56 hours before the
20 calandria vault itself evaporates -- all the water
21 evaporates so we have a period of time to provide our pump
22 flow into the calandria vault. That's those two new
23 design changes that I referred to earlier is what will
24 terminate the event.

25 So if all of these systems are not

1 available, we can provide pumped water flow without
2 external power to the calandria vault to ensure that the
3 severe accident is terminated while the fuel is still in
4 the calandria vessel. And that -- also we have an
5 emergency containment filtered vent which we use in
6 parallel with this to ensure that the containment pressure
7 does not rise too high so that we can maintain the fission
8 products within the reactor building.

9 So those two new design changes that we
10 added -- and I'm going to make the story really simple
11 now. When we were getting ready for refurbishment and we
12 were starting to look at the probabilistic safety
13 analysis, we knew one of the most challenging scenarios we
14 were going to have to face was a complete loss of station
15 power. And it's interesting where Mr. Edwards referred to
16 it, it really doesn't matter what gets you into this
17 scenario because you can get there a number of different
18 ways, all very low probabilities, but if you ever get
19 there it's a challenging event. So we realized that we
20 needed to add some additional design features for
21 precisely this type of scenario, and those were the two
22 that we added in this refurbishment. They have been
23 installed and commissioned to the available -- to the
24 extent they can be at this point in time, and with the
25 plant conditions that we have.

1 **MEMBER MCDILL:** And the hydrogen build-up?

2 **MR. THOMPSON:** Oh, thank you. Just one
3 correction: We have -- we don't have hydrogen igniters,
4 but we have the passive autolytic hydrogen recombiners.
5 They have been installed.

6 **MEMBER MCDILL:** So they're installed and
7 they're functioning now, and they can function without any
8 source of power from the grid?

9 **MR. THOMPSON:** For the record, Paul
10 Thompson.

11 **MEMBER MCDILL:** From back-up diesel?

12 **MR. THOMPSON:** Yes. These -- as I
13 mentioned in the day one hearing, the boxes for the
14 recombining units are installed; the actual plates will be
15 installed just prior to start-up. And they do not require
16 any source of power, whatsoever, so they are self-start
17 and remove the hydrogen-producing water as the end
18 product.

19 **MEMBER MCDILL:** And for how many days can
20 they successfully remove hydrogen? How often do you have
21 to replace canisters and so on?

22 **MR. THOMPSON:** They will continue as long
23 as they need ---

24 **MEMBER MCDILL:** Indefinitely?

25 **MR. THOMPSON:** Indefinitely, that is --

1 that's correct.

2 **MEMBER McDILL:** So if I can go to staff
3 now. The incident in Fukushima, when the explosions
4 occurred, was one of the major causes of contamination, so
5 it's your expert opinion that that's not going to happen
6 in this case?

7 **DR. RZENTKOWSKI:** A hydrogen explosion,
8 yes?

9 First, I would like to correct my previous
10 response because I mentioned that, generally, we have
11 igniters and passive recombiners installed. So the
12 igniters are installed in every single reactor except
13 CANDU 6, so which is G2 and Point Lepreau. In all
14 remaining reactors, igniters are installed and passive
15 recombiners are in the process of installation.

16 So I think, having those two layers of
17 protection, we can safely assume that hydrogen build-up
18 would be prevented under accident conditions, so this is
19 not going to lead to an explosion. But, really, our
20 objective -- following the lessons learned from Fukushima,
21 is to avoid penetration of molten fuel out of the
22 Calandria vessel.

23 Paul Thompson, Mr. Paul Thompson, described
24 some additional safety features, which were installed here
25 in Point Lepreau; the objective of those safety features

1 was precisely to avoid penetration of molten fuel into
2 containment. If this can be successfully arrested, or the
3 progression of the events stopped either at the first
4 level of intervention, which is emergency water to the
5 steam generator, or the second level of intervention,
6 which is makeup water to the moderator, then there will be
7 very little hydrogen build-up in the containment.

8 There will be some hydrogen build-up
9 because, under an accident condition, the moderator has to
10 be vented and there would be some hydrogen present, but,
11 at any event, the hydrogen concentration is not going to
12 reach the concentration for explosion.

13 **MEMBER McDILL:** Two questions, then I'm
14 going to go to Mr. Edwards -- Dr. Edwards.

15 Are the passive absorbers in use elsewhere
16 in the industry?

17 **DR. RZENTKOWSKI:** Passive recombiners, for
18 hydrogen?

19 **MEMBER McDILL:** For hydrogen, yes.

20 **DR. RZENTKOWSKI:** Okay.

21 **MEMBER McDILL:** Sorry, passive recombiners
22 for ---

23 **DR. RZENTKOWSKI:** Yes.

24 **MEMBER McDILL:** --- hydrogen.

25 **DR. RZENTKOWSKI:** Yes. I wasn't sure; just

1 for clarification.

2 Yes, however, Canada pioneered, really,
3 this technology; I think AECL was the first company which
4 started massive -- massive, sorry -- which started routine
5 production of those components. Now AREVA is dominating
6 the market.

7 **MEMBER MCDILL:** Second question: One of
8 the other big differences, as I understand, between the
9 CANDU fleet and the situation in Japan, is the presence of
10 the -- the fuel bays are differently located. So I think
11 we can maybe talk just very briefly about that? And then
12 I would like to ask another question.

13 **DR. RZENTKOWSKI:** Spent fuel pools are
14 located outside of the reactor, so they are either in the
15 basement of the reactor building or are outside, like here
16 in Point Lepreau, or the G2 station. So, from that
17 standpoint, the seismic activity; or any kind of the
18 accident condition in the reactor building, is not going
19 to affect the integrity of the spent fuel pools.

20 They of course, are subjected to those
21 environmental stressors, let's call it that, like, for
22 example, seismic or flooding, but in any event they would
23 be not exposed to the consequences of accidents stemming
24 from the reactor itself.

25 **MEMBER MCDILL:** Thank you. Now,

1 Mr. Edwards -- Dr. Edwards, would you like to ask anything
2 about those specific items?

3 **DR. EDWARDS:** Well, you know, when it comes
4 to these rare events which we hope will never happen,
5 we're all really on the same side. I mean, we're all --
6 we don't want -- none of us want these accidents to
7 happen, but the point is that we can't -- we can't fool
8 ourselves into thinking they cannot happen, and this is
9 why I have these quotations from government documents
10 which indicate that it's wrong to say that these accidents
11 cannot happen.

12 Now, here are some concerns I have. I
13 think that -- I admire the ingenuity and the precautions
14 that have been taken, technologically, to try and mitigate
15 these severe accidents, but I don't think we should fool
16 ourselves into thinking they're necessarily going to do
17 the job.

18 For example, a loss of cooling is the
19 slowest possible kind of accident. If it's just a
20 question of a loss of electrical power, that's the slowest
21 possible route. If you had, for example, a pipe break,
22 which led to a power surge, you could have a much more
23 rapid situation, and you could also have what's called
24 pressurization of the Calandria, which would possibly
25 expel the moderator and you do not have that heat sink

1 anymore.

2 **MEMBER McDILL:** Let's stop right there, if
3 I can --

4 **DR. EDWARDS:** Okay, sure.

5 **MEMBER McDILL:** --- so you said a pipe
6 break leading to?

7 **DR. EDWARDS:** Well, if you had a pipebreak
8 ---

9 **MEMBER McDILL:** I just want to ---

10 **DR. EDWARDS:** -- lead to a power surge ---

11 **MEMBER McDILL:** Okay, so let's stop there,
12 and let's try it. That one question. One at a time,
13 solely, and then it's easier for, I think, the audience to
14 follow, if we do one thing at a time.

15 So I'm -- I'll come to staff first and then
16 -- because it's a bigger issue, it's a CANDU issue. So
17 we'll start with staff and then we'll go to NB Power.

18 **MR. RZENTKOWSKI:** Each CANDU reactor is
19 equipped with two fully independent and fully diverse
20 shutdown systems. They are fully effective in controlling
21 any conditions arising from either small LOCA or large
22 LOCA accidents.

23 **MEMBER McDILL:** That's ---

24 **MR. RZENTKOWSKI:** Sorry, loss of coolant
25 accidents.

1 **MEMBER MCDILL:** Thank you.

2 **MR. RZENTKOWSKI:** Thank you very much.

3 Where was I?

4 Okay, so they are designed to control any
5 condition arising from either small or large loss of
6 coolant accidents.

7 And also those safety systems are fully
8 passive, the first shutdown system injects the graphite
9 rods by gravity. Simply, they drop down into the reactor
10 core. The secondary system is injection of the poison in
11 the reactor core, and it happens also by means -- by
12 passive means.

13 **MEMBER MCDILL:** How many microseconds does
14 it take -- micro being lots of zeros

15 **MR. RZENTKOWSKI:** Yes, it would probably
16 be thousands of microseconds -- if I'm not mistaken it's a
17 little bit more than a second.

18 It really depends on the specifics of the
19 reactor design, because, as you know, we have 22 units in
20 Canada. But it definitely can be bracketed by saying one
21 to two seconds. This would be the activation time of the
22 shutdown systems.

23 **MEMBER MCDILL:** Now, NB Power?

24 **MR. THOMPSON:** For the record, Paul
25 Thompson, manager of nuclear safety and regulatory affairs

1 for Point Lepreau.

2 I'd just start off by saying that the
3 activities that we did in addressing the challenge for
4 life extension and refurbishment that are now documented
5 in RD360 had us expand the analysis for beyond design
6 basis events.

7 Originally when the plant was licensed, it
8 dealt with a set of very standard, stylized single-dual
9 events, and it was the basis for the original design of
10 Point Lepreau, and it was a very sound basis and a good
11 basis.

12 But recognized as part of the lessons
13 learned over the years, and the continual improvement in
14 the industry that we needed to address severe accidents,
15 and the way that that was done is through the
16 probabilistic safety assessment. And so in doing so, that
17 looks at the varieties of ways in which you can lead to
18 severe core damage and ultimately large release of
19 radioactivity.

20 So it looked at both slow heat-up types of
21 rates, as Dr. Edwards suggests, as well as fast ones.

22 So those were all incorporated in the
23 probabilistic safety assessments and it does recognize
24 that you need to follow the progression and that is part
25 of what we call the Level 2 PSA, which is the -- looking

1 at the severe core damage analysis and event progression.
2 And it looks at the consequences and the reactor behaviour
3 and fission product behaviour as these events continue to
4 progress.

5 So it takes them well down those scenarios
6 and then you try to design -- provide some additional
7 design features to mitigate them and stop that propagation
8 earlier in the stream.

9 In terms of the specific large break locus,
10 I concur with the comments made by the Dr. Rzentkowski.
11 We do have the fast-acting shut down systems, and that
12 will terminate the fission reaction.

13 We have emergency core cooling systems
14 which then keep the fuel cool.

15 I believe that Dr. Edwards was referring to
16 instances in which the emergency core cooling system is
17 not available, which is again is a very low probability.
18 Then, again, we have the moderator or the heat sync.

19 So if the initiating event is a failure of
20 a pressure tube that could lead to injection of the heat
21 transport system water into the moderator, yes, there is
22 some displacement of the moderator, but the moderator
23 still does not drain.

24 **MR. EDWARDS:** I think this brief discussion
25 here illustrates the advantages of having an environmental

1 assessment, where you can really explore these kinds of
2 questions in more detail. This forum here, I think,
3 which is a licencing forum, doesn't really lend itself to
4 a discussion of these topics in any depth.

5 There are many other concerns which are
6 controversial but very important. For example, the CANDU
7 reactor has far more zirconium in the core than any other
8 reactor design because of the pressure tube design.

9 Zirconium -- and this is controversial --
10 but people outside the nuclear industry have been saying
11 for many years that you can have a very fierce zirconium
12 fire if there is oxygen present or even steam in a steam
13 environment. You can have a very intense zirconium fire,
14 which in fact may have taken place in the spent fuel bay
15 of Unit 4 at Fukushima.

16 In Unit 4, there was no fuel at all in the
17 core of the reactor. The damage that was done to the fuel
18 bay was self-inflicted by the fuel bay itself and there
19 were two fires in the fuel bay on consecutive days, and
20 those fires are variously interpreted. Some people
21 believe very strongly that they were zirconium fires.

22 Now, if that's a consideration, I do not
23 believe that the safety analysis in CANDU reactors has
24 taking that into account.

25 Also, with regard to the efficacy of the

1 two fast shutdown systems, once again, I compliment the
2 designers of the CANDU for their ingenuity in designing
3 these systems and I admire their intent, which is exactly
4 to prevent a serious accident from progressing.

5 However, these are active systems which
6 require intervention by mechanical means and the general
7 trend is to move towards more passive systems where you
8 don't even have to have that emergency reacting so quickly
9 ---

10 **THE CHAIRMAN:** Wait a second. Wait a
11 second. I thought I just read that they are passive
12 automatic shutdown. They're not ---

13 **MR. EDWARDS:** They're not really passive,
14 sir.

15 **THE CHAIRMAN:** Can somebody explain?

16 **MR. EDWARDS:** If I could explain what I
17 mean -- could I explain what I mean by the difference?

18 In the modern designs that they're planning
19 for, for example, the advanced CANDU reactor and using SEU
20 fuel, the purpose is to prevent the power surge that would
21 require the action of those fast shutdown systems. And
22 that's what I mean by preventing the situation which would
23 cause the need for such rapid response.

24 **THE CHAIRMAN:** I understand that, but the
25 existing system ---

1 **MR. EDWARDS:** So maybe I used the word
2 wrongly. I'm sorry.

3 **THE CHAIRMAN:** The existing system though
4 is passive. It will shut down, if I understand correctly,
5 by itself?

6 **MR. EDWARDS:** Well ---

7 **THE CHAIRMAN:** You're talking about dealing
8 with the fuel itself to prevent or deal with a void
9 coefficient, if I understand what you are saying.

10 **MR. EDWARDS:** Perhaps I'm not using the
11 language correctly, in which case I apologize, but what I
12 meant by passive in this case is that they would be self-
13 correcting situations where the intervention of even a
14 mechanical system, even if it was automatic, would not be
15 so necessary because these systems can fail.

16 **MEMBER McDILL:** Thank you.

17 I want now to go to the issue of zirconium
18 fires, whether there is a risk of that in the CANDU fuel
19 bays, which are separate from the containment vessel where
20 the reactor sits?

21 And I'll go first to staff. Let's find out
22 if we have the knowledge base for that.

23 **MR. RZENTKOWSKI:** Yes. I understand
24 zirconium can cause fire only if it is uncovered in the
25 spent fuel pools.

1 As I indicated in my previous question, it
2 will be several days between fuel in the spent CANDU fuel
3 pools will be uncovered.

4 The main reason is that the heat load or
5 the heat addition to the spent fuel pools is relatively
6 low in CANDU reactors. This is the advantage of online
7 fueling when only a very small fraction of the core is
8 being deposited to the spent fuel pools at the time.

9 What happened in Fukushima was that in some
10 of the spent fuel pools, there was an entire inventory of
11 the reactor core being deposited.

12 Because those reactors were in a prolonged
13 outage, so this was the main difference. That's really
14 why the accident unfolded in that way in the spent fuel
15 pools in Fukushima.

16 **MEMBER MCDILL:** Thank you.

17 Mr. Jammal wanted to add something and then
18 I'm going to go ---

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

20 In addition to what Dr. Rzentkowski
21 mentioned with respect to the fuel pool, from the design
22 perspective, the fuel pools in Fukushima were at higher
23 level, which is the equivalent of a third story height,
24 number one.

25 Number two, as Dr. Edwards was mentioning

1 about the slightly enriched fuel in Fukushima, the
2 enrichment of the fuel was the key element with respect to
3 the fire and the production of zirconium, when the pool
4 lost the water due to the cracks in the wall.

5 So the multiple combination of the
6 geometrical positioning of the fuel, the fact that the
7 water was lost. The big difference between the spent fuel
8 and the CANDU that is using natural uranium versus
9 enriched fuel is, as Dr. Rzentkowski mentioned, you have a
10 four-day period. Even though the fuel is uncovered, the
11 criticality is of low probability and no significance.

12 And when the fuel in the CANDU reactor is
13 transferred to the pool, the heat transfer decay factor is
14 over 97 per cent to 98 per cent on a 24-hour basis.

15 **MEMBER MCDILL:** One more?

16 **MR. RZENTKOWSKI:** Yes, we are passing the
17 ball here because I would like to add something to that
18 response.

19 It's also very important to state that
20 because this is natural uranium, re-criticality cannot
21 happen in the CANDU spent fuels pools. And this is a big
22 difference comparing to the Fukushima.

23 **MEMBER MCDILL:** So I am going to go to N.B.
24 Power now.

25 Because the CANDU fleet uses online fueling

1 as opposed to much of the rest of the industry worldwide
2 where large portions of the core are refueled
3 simultaneously, how often are you rotating out fuel to the
4 fuel bay? That would be the first thing.

5 And then we asked this question yesterday,
6 but I see many new faces in the audience, so I'll repeat
7 again. In the event that you started to lose water from
8 the fuel bay, you said you could pump from the Bay of
9 Fundy. So I think you need to repeat that and perhaps
10 explain how you would pump from the Bay of Fundy?

11 So I think I've repeated everything.

12 **MR. THOMPSON:** For the record, Paul
13 Thompson.

14 First, though, I'd like to just separate
15 out -- there's been a bit of -- I think we're getting
16 confused between zirc fires and a zirc steam metal water
17 reaction. They are very, very different. The types of
18 things that we would get in the presence of steam or air,
19 for that matter, on fuel sheaths and pressure tubes is an
20 exothermic reaction between the steam and the zirconium
21 sheets or the zirconium in the pressure tube. That is
22 very different than a zirc fire. A zirc fire, which is --
23 which is possible to generate in a facility where, for
24 example, you are cutting metal zirconium and you have very
25 thin strips or ribbons at very high temperatures, it's

1 possible to get that kind of a reaction, but not in the
2 situation which we have in the reactors.

3 So what we're talking about is a chemical
4 reaction, oxidation, in essence, that is where the sources
5 of the hydrogen is, and hence the relevance. So the steam
6 flowing in the reactor core, steam flowing over the fuel
7 as it oxidizes the fuel sheathes or the pressure tubes is
8 the sources of the hydrogen, which is germane to the first
9 question that we answered, but it's not a zirc fire, per
10 se.

11 The question that you asked, in terms of
12 fuelling rates; we do about -- we visit about 15 fuelling
13 visits per week on average. And that's an eight-bundle
14 shift. So those would be, then, discharged into the bay,
15 into the spent fuel bay.

16 You asked a little bit about the spent fuel
17 bay. One of the advantages of the fact that we are doing,
18 if you wish, a more homogeneous fuelling, is the fact then
19 that the heat loads in the bay tend to be lower than if
20 you were, for example, to discharge an entire core load of
21 fuel at once.

22 As you could imagine so, the spent fuel bay
23 -- I mentioned yesterday that that fuel resides in the bay
24 for about seven years, and then we go through a process
25 where we load it into baskets and take it up to the solid

1 radioactive waste management facility, and we put it in
2 the concrete canisters.

3 So in essence, what you have in the bay is
4 fuel from the reactor coming in, which is your input, and
5 then you have, periodically, the output when we get ready
6 to load the baskets and then take it out. So there's
7 somewhat of a continuous input and an output. It tends to
8 be relatively homogeneous, although we don't do fuel
9 transfers to the canister site during the winter months.
10 But it's fairly homogeneous. If you think of the
11 situations, though, with different types of reactors,
12 where they have a refuelling outage, then the entire core
13 load is discharged into the bay and then there's a very
14 high heat load. So ours is much lower because it's
15 averaged out for those reasons.

16 Now, for the instances in which there is
17 loss of circulation in that, Dr. Rzentkowski mentioned
18 that there is significant time before the pools do boil
19 and significant time before they become uncovered.
20 There's quite a height of waters above the bundles because
21 that's in fact used two purposes, both for cooling and for
22 providing shielding.

23 If that ever was to happen, we do have
24 provision, in the Point Lepreau reactor, for providing
25 direct fire-water addition to the spent fuel bays. That's

1 directly from the fire-water system. That's a little
2 different than the design feature that I talked about,
3 about adding water to the calandria vessels, so that's the
4 core, but this is in the spent fuel bay.

5 **MEMBER McDILL:** And can the fire-water --
6 is it gravity-fed? Can you just open the taps, so to
7 speak, and -- or does it have to be pushed?

8 **MR. THOMPSON:** It is -- for the record,
9 Paul Thompson.

10 It is pump-flow, but we also have diesel-
11 driven -- we've got difference types of fire-water pumps,
12 one of which is a diesel-driven fire-water pump, in case
13 there was no power.

14 **MEMBER McDILL:** I'll go back to Dr.
15 Edwards, and then I'll pass to Dr. Barriault, unless you
16 could take him.

17 **THE CHAIRMAN:** I think -- we're going to
18 give you a break here.

19 Dr. Barriault.

20 **MEMBER BARRIAULT:** Just a brief question,
21 really. We've been pumping this water and cooling off the
22 reactor, what happens to the cement water? That was one
23 of the questions, by the way, of the intervener.

24 **MR. THOMPSON:** Paul Thompson, for the
25 record.

1 Just a clarification, Dr. Barriault, are we
2 talking about the water in the core, or the water for the
3 spent fuel bay?

4 **MEMBER BARRIAULT:** Let's start off with the
5 core.

6 **MR. THOMPSON:** Okay. For the water in the
7 core, the CANDU-6 was designed with specific sources of
8 water in mind. It has a closed heat transport system, so
9 that's a closed-loop heat transport system. It has a
10 closed-loop moderator system.

11 There is dowsing water, water at the very
12 top of the reactor building, and I should like to make the
13 distinction that when I talk about Point Lepreau, the word
14 reactor building and containment are the same. It's a
15 very important distinction, because that's not the case in
16 Fukushima. What they're calling their reactor building is
17 really a service -- their secondary containment is a
18 service building. That's what they call their reactor
19 building.

20 So we have a large source of water at the
21 top of our reactor building which is used for a number of
22 different purposes. One is it provides a source of water
23 for dowsing, which is a very rapid spray that takes place
24 to reduce the temperature and pressure within the reactor
25 building if there were to be a loss of coolant accident.

1 That water also plays a role in our
2 emergency core cooling system. And I'll have to step back
3 a little bit to talk about that. That water also can play
4 a role in providing water to the secondary side of the
5 boilers, which I talked to earlier about, so that's
6 another source of water.

7 There's another source of water from
8 outside, which is our high-pressure emergency core cooling
9 tanks. So if we had a loss of coolant, the first phase is
10 what we refer to as a high-pressure injection phase. So
11 water from these external tanks are pushed in. There's a
12 tank of air at high pressure; these valves open and air
13 pressure pushes this water into the core. When that--

14 **MEMBER BARRIAULT:** If I could just
15 interrupt; where does this water go, I guess, is what I'm
16 asking.

17 **MR. THOMPSON:** Simple answer, the bottom of
18 the reactor building.

19 **THE CHAIRMAN:** I think the intervener made
20 the point, I think we actually agree on, that we want to
21 make sure that we are prepared for a doomsday scenario.
22 I'm glad you mention it -- you called it Dr. Binder's
23 scenario. Yeah, that's my preoccupation and I'm not
24 worried about probability, just to repeat. I don't care
25 how we got there. If there is a doomsday scenario -- I

1 think the intervener made some interesting points; we've
2 got to be ready. So the question is are we ready? And he
3 asked about what happened to the evacuation plan. I hope
4 the Public Safety people will go -- where do we take our
5 citizens; to which facility? How do we nourish them? He
6 talked about what are we doing with the contaminated
7 water, the contaminated soil? All the things that we are
8 now seeing happening.

9 No matter how highly improbable it might
10 be, what I want to know is if it happens, what we will do,
11 are we ready; is there a plan? I think that was the
12 general question. So can we focus on this and -- time
13 running -- you know, time is marching on. I'd like some
14 short and direct answers.

15 **MR. THOMPSON:** Thank you. For the record,
16 Paul Thompson.

17 I'm going to keep this very, very simple
18 this time. For the design-basis event, all the water for
19 the reactor core stays within the reactor building.

20 For the severe station blackout scenarios,
21 the scenario that Dr. Binder likes to refer to, and we are
22 using the new design feature of the calandria vault make-
23 up line, we are adding water from an external source, into
24 the reactor building and that is evaporating and it is
25 leaving the building after it has gone through the

1 emergency containment filtered vent. So effectively,
2 there's a mass balance that's set up. So it is
3 evaporating and going out after it has been -- gone
4 through the high-efficiency scrubbers and filters. So
5 that takes care of the water for the reactor building. So
6 there is not a large amount of water that's being flown
7 into the sea or going anywhere else.

8 So for design-basis event, it stays within
9 the reactor building, for the beyond-design-basis event,
10 there's a mass balance set up.

11 As for the spent fuel bay, if we need to
12 add water, again, so long as there's plenty of time, this
13 is a very slow developing event, because of the heat loads
14 are much slower.

15 We can set up, again, a mass balance where
16 we can add it at a rate at which it evaporates, or we can
17 set up a cooling system back to our onsite pond to
18 effectively keep that water recirculated that way. So that
19 we're not having contaminated water going everywhere.

20 So I think it's a very manageable event. So
21 I think we're prepared from it. We've got our severe
22 accident management guidelines. We're prepared for it as
23 we reasonably can be.

24 We've got -- we talked about yesterday the
25 severe accident management guidelines. We've added new

1 design features as a result of this event. For the
2 particular details with regards to the evacuation of
3 people, etc., I'd like to refer that -- that's the offsite
4 component, and I'd like to refer that to Mr. MacGillivray.

5 **MR. MacGILLIVRAY:** Mr. MacGillivray, for
6 the record.

7 I might have missed just the last part of
8 that from Mr. Thompson. So which football did you give me
9 Mr. Thompson?

10 **MR. THOMPSON:** Maybe be Mr. Binder, you
11 could -- Dr. Binder ---

12 **THE CHAIRMAN:** This is -- this is a
13 doomsday scenario is here, what are the evacuation plan?
14 To where are you going to take the people? Where are you
15 going to accommodate them? What are you going -- what's
16 the plan for -- to dealing with this 20K and beyond zone?

17 **MR. MacGILLIVRAY:** There are, in fact, two
18 sort of evacuation scenarios. One is where safety systems
19 have provided us with time to get the word out about the
20 need to evacuate at some point and get lots of
21 arrangements in place to make that go as smoothly as
22 possible.

23 And decisions along those lines have a lot
24 to do with plant status and what people are telling us
25 about how serious a threat there might be in time.

1 But if there is any potential for radiation
2 to come over the fence, then you're looking at a more
3 urgent evacuation scenario. The intent of our emergency
4 arrangements is to prevent any dose to the public. It's
5 to get people out of harms way before they receive a dose.
6 However, insignificant that dose might be.

7 So we would evacuate, you know, based on
8 the assessment at the time, probably as far out as 20
9 kilometres. Now you could step back from that, because
10 the technical advice suggests that 12 is enough.

11 But as a matter of practice, we've said,
12 look, let's get all of these folks safely out of the 20
13 kilometer area, which is also the area where emergency
14 responders have to do their work.

15 So you move people out in two directions,
16 typically. You can go to St. John. There's the existing
17 plans talk about using facilities at UNBSJ, and you go to
18 St. Steven, and we've exercised several times using the
19 St. Steven High School.

20 So we would set up reception centres, which
21 is not mass care shelter. Reception centre is to process
22 people, provide them with the information that they need,
23 account for them, and then make arrangements for them to
24 have temporary accommodations where needed.

25 This kind of evacuation process is not

1 something that's unique to Lepreau radiation contingency.
2 We do evacuations as needed fairly routinely. They're
3 typically done by local authorities in municipalities.

4 What is sort of unique about the Lepreau
5 situation is you don't actually have a municipal authority
6 within the 20 km zone, so it falls to the province to make
7 all of these arrangements. In large part what the offsite
8 plan is about is notifying people at risk, mobilizing the
9 resources necessary to conduct a staged evacuation, and
10 get people to a reception centre.

11 One thing that has, let's say, degraded
12 over the last number of years, which we're addressing, is
13 the ability to do mass decontamination, if that was
14 necessary.

15 Again, given Mr. Thompson's description,
16 it's unlikely that the local population would be exposed
17 to radionuclides. But if they were, we have to have a
18 capability to decontaminate them.

19 So we've typically used fire departments to
20 do this and shower facilities in places like our reception
21 centres. And in the past, the public health component of
22 our Department of Health had those responsibilities.

23 With changes to government and the way that
24 government services are delivered, we don't have the same
25 capacity in the public health organization that we once

1 did. So we're in the process of building new -- both fixed
2 decontamination facilities intended to go into fire halls,
3 or near fire halls, and mobile capabilities that can be
4 deployed as needed.

5 So we would move people, sort of, outside
6 the 20 km zone with the assistance of NB Power. In the
7 plan we assess people as they come through a checkpoint to
8 see if, in fact, they have levels of contamination that
9 are of concern, or more than nuisance levels.

10 And if so then they would be going through
11 a decontamination process. We'd get on a bus and be taken
12 to the reception centre.

13 So in the old model, you did
14 decontamination at the front door of the reception centre,
15 and that proved difficult to do satisfactorily and
16 effectively. So now the intention is, we'll do
17 decontamination between the 20 kilometre zone and the
18 reception centre, so everyone arrives clean at the
19 reception centre.

20 So a lot of thought has gone into this.
21 There's a lot work underway, and this particular aspect of
22 the plan will be retrained and exercised in warmer
23 weather, in the spring. We think probably in the June
24 timeframe.

25 And we would invite those interested to

1 participate in those activities.

2 **THE CHAIRMAN:** Thank you. We've really got
3 to move on.

4 Dr. Edwards?

5 **DR. EDWARDS:** If I could just wrap up by
6 making three recommendations.

7 One recommendation is, I would recommend
8 that the Panel -- the Commission recommend to the
9 Government of Canada to have an environmental assessment,
10 with an independent panel, to look into the situation,
11 especially in light of concerns after Fukushima with
12 regard to nuclear safety. And the fact that this is not
13 up to modern standards of safety -- this particular plant.
14 I think the Commission would agree with that.

15 Secondly, with the -- I would hope that the
16 Commission would also recommend a national Royal
17 Commission of Inquiry into the future of nuclear power,
18 where all of the benefits and safety concerns and hazards
19 of nuclear power can be clearly put on the table for the
20 benefit of politicians and citizens alike, so that people
21 can have better understanding of what all these matters
22 are concerned with.

23 And I think that it's overdue in Canada,
24 and I would hope -- we are calling for that ourselves -- a
25 Royal Commission of Inquire into the future of nuclear

1 power and would hope the Commission would recommend that
2 to the government.

3 And the third thing is, I do think the
4 Commission would be -- might consider finally getting
5 around to following a recommendation made 35 years ago by
6 the Select Committee on Ontario Hydro Affairs that a study
7 be done of the consequences of a major nuclear accident,
8 rather than just dwelling on the machinery and on the
9 probability.

10 Thank you.

11 **THE CHAIRMAN:** Any body still has --

12 Okay. Just a couple of observations.

13 First of all, I cannot let you without a reply on your
14 comment about me saying how business is to disseminate
15 information.

16 I've got to tell you, when you quote me,
17 please put some context to this. What I meant is that our
18 business is safety regulation. It is our business, and
19 part of that safety regulation is to disseminate the
20 information, and I'm actually scolding the industry for
21 not doing enough to go out there and explain their
22 business, because most of the technical issues that we're
23 trying to explain are not easily absorbable.

24 So we need some more -- whether you like
25 nuclear or not is irrelevant. You've got to put some

1 scientific information out there. And so do we, as to our
2 business -- what is the business, how do we assess safety,
3 etc.

4 The other thing is, the annual report --
5 when we state that nuclear is safe -- I got to tell you.
6 I keep on saying that because if it wasn't safe we
7 wouldn't license it.

8 And that's an issue, and if you think I'm
9 promoting it, you're wrong. I'm not. All I'm trying to
10 tell you -- whatever we license, we believe it's safe.

11 **DR. EDWARDS:** I wish you had said we
12 believe it's safe, rather than saying, fact, it is safe.

13 It is not ---

14 **THE CHAIRMAN:** (off mic)that we believe
15 that it is safe.

16 **DR. EDWARDS:** --- it is not a fact that
17 nuclear power safe. If it was a fact, there would be no
18 Canadian Nuclear Safety Commission.

19 Thank you.

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

21 We need to move on, and the next
22 presentation -- what are we going to do? Are we going to
23 break here, or are we going to do another?

24 One more. So the next one -- nobody must
25 have a break? Okay, I think I'm not going to ask.

1 So we move to the next submission, which is
2 an oral presentation by Ms. Nolan and as described in CMD
3 11-H12.26 and 11-H12.26A. Ms. Nolan, the floor is yours.

4
5 **11-H12.26 / 11-H12.26A**

6 **Oral presentation by**

7 **Wilhelmina Nolan**

8
9 **MS. NOLAN:** Thank you everyone.

10 Point of order regarding the last
11 questions, before I begin my presentation, I've been given
12 some information; here's a message from Kathleen Duguay
13 sent to Larry Lack regarding the waste transport to the
14 United States. The answer around what transuranics --
15 what constituents, radioactive constituents, might be in
16 the shipments. It says here plutonium may be present.

17 The other with regard to the World Health
18 Organization and whoever that was in Ottawa talking about
19 the contradiction, you can find a letter of
20 congratulations to Dr. Margaret Chan at the IICPH website
21 -- that's iicph.org -- where we congratulated her for her
22 announcement that there is no safe level of exposure to
23 ionizing radiation.

24 And now I need to switch hats here. I live
25 in New Brunswick. I am a grandmother and I am also known

1 as an elder and teacher. The wonderful man, Saugama
2 (phonetic), Wolastogewiyik Traditional Council at Tobic,
3 he had confirmed that for me as have a number of others.
4 As you see on the first page of the -- of my slide
5 presentation that is my spiritual mother and I invoke her
6 spirit to come and help me with this -- with our
7 responsibility to the coming generations.

8 The participant funding program asked for
9 aboriginal, traditional knowledge. With the work that I
10 was doing -- have been doing with the Passamaquoddy and
11 IICPH, but particularly from Passamaquoddy. We were
12 rather nonplussed because our concerns are rather
13 substantive with regard to safety and health, coming
14 generations, and certainly environment.

15 Looking at a legal, moral, and a
16 responsible position, I walk as a traditional grandmother.
17 (native language), this is my fourth spirit name; it is
18 the last that I will get in my traditional pathway now and
19 so you need to understand that I speak to you not only as
20 a grandmother and a resident of New Brunswick, but as an
21 elder who has a responsibility to speak.

22 I choose with my personal presentation to
23 share some of my teachings with you. These are the seven
24 teachings of the grandmothers and grandfathers. These are
25 not just teachings, but laws for me to live by and I

1 uphold my responsibility by sharing these with you now in
2 the hope that you will take a look at our teachings, get
3 to understand aboriginal culture and tradition in a very
4 serious way. This is not frivolity. I don't expect to be
5 patted on the head, good little Indian and sent off.

6 The teachings give us direction and
7 balance. We use them all. We don't leave any out. This
8 eliminates contradiction; rules are rules. We need to
9 respect and protect our Mother Earth or we will not
10 survive. Our physical and cultural survival is a priority
11 as is all of life. I'm teaching all my relations. All of
12 you are included in my prayers before I come here today
13 because we need to be wise. We need to use our wisdom.
14 We must always remember that after our lives on earth are
15 finished, the children are the ones who must care for
16 Mother Earth and the next generations to come.

17 I'm pleased to be here with some who have
18 not yet got gray hair, but they will after we're gone.
19 And it will be their job to look after the legacy of
20 nuclear waste and proliferation that we have left and we
21 need to be cognizant of that as grandmothers and
22 grandfathers.

23 Thank you, Dr. McDill, for speaking to your
24 concern for future generations yesterday. I highly
25 appreciate that.

1 We need to speak not only to the human
2 lives, but the new life forms that are at risk; yesterday
3 we talked about zooplankton and phytoplankton. Nuclear
4 radiation causes changes at the atomic level, the very
5 fabric of DNA; everyone is at risk. Wisdom tells us we
6 have a nuclear problem.

7 The first teaching of the grandmothers and
8 grandfathers is wisdom. I happen to be a grandmother with
9 knowledge and some training in hazardous exposures. This
10 is what I do for my life, the last 37 years; the last 15
11 with the institute which has a right livelihood award.
12 I'm really proud to work with this.

13 Harm is being caused by the nuclear fuel
14 chain. It is essential if we are wise to turn to non-
15 harmful ways of producing and using energy to supply juice
16 for the computers and the microphones. We are
17 accountable. We are the ancestors of the next seven
18 generations. We are the children of the last seven
19 generations. Whichever way you look at it, we have
20 responsibility. It must be met.

21 The second teaching of the grandmothers and
22 grandfathers is love. If we really love our children, we
23 will face the facts about nuclear energy; the fuel chain.
24 The care for our children and the environment is a sacred
25 trust. There is no benefit worth altering our DNA, not

1 even miniscule amounts. No exposure is acceptable. The
2 effects are cumulative. The more you get, the worse it
3 is. Think about it.

4 The third teaching of the grandmothers and
5 grandfathers is respect. Animals, all life has a right
6 not to be interfered with as do the plants and humans.
7 Exposures from nuclear plants are not voluntary; they are
8 forced on populations. The little baby who was here, she
9 didn't ask. Her mother came here and was put out, was
10 harassed by plainclothes officers. She brought that child
11 here to show you, to be here, to say I did something to
12 try to stop this mess. She's not here. She was chased
13 away. What kind of hearing is this? The CNSC must return
14 to actually controlling nuclear substances. You must
15 respect the people's right to refuse this technology; both
16 the aboriginal and ---

17 **THE CHAIRMAN:** Wait a second. I can't let
18 that go. I want to understand whether that lady was
19 actually harassed or sent out of this room?

20 **MS. NOLAN:** I said she was harassed.

21 **THE CHAIRMAN:** No, you told me that she --
22 you just now said she was sent away from this.

23 **MS. NOLAN:** Yes, she was harassed; that was
24 causing her to be gone.

25 **THE CHAIRMAN:** Who harassed -- not to our

1 knowledge and not to any of the security people who
2 actually are in charge so I don't know where you're
3 getting this information so please be careful with your
4 allegation.

5 **MS. NOLAN:** Please speak. Please speak.
6 Can someone please find Sharon and bring her here? Thank
7 you.

8 **MEMBER McDILL:** There was certainly no
9 intention for that to have happened.

10 **MS. NOLAN:** Yes, it's very sad.

11 **MEMBER McDILL:** You know, well, I'm
12 riveting, there was no intention.

13 **MS. NOLAN:** It's very sad.

14 **THE CHAIRMAN:** She was here the whole day
15 and the whole day ---

16 **MS. NOLAN:** Yes.

17 **THE CHAIRMAN:** --- last day ---

18 **MS. NOLAN:** There was a mean man with a
19 dog.

20 **THE CHAIRMAN:** She was here -- she was
21 walking in the back ---

22 **MS. NOLAN:** Yes.

23 **THE CHAIRMAN:** The baby was crying. Nobody
24 intervened. Nobody said anything so I have no idea what
25 you're talking about.

1 **MS. NOLAN:** You'll find shortly.

2 The fourth teaching of the grandmothers and
3 grandfathers is bravery. We are not afraid. We are not
4 afraid to let nuclear energy go. We can do better. We've
5 got to face the facts; nuclear power is too risky.
6 Decommissioning is the brave new world we must walk
7 together and never let another nuclear power plant
8 explode.

9 I'm a young grandmother. There have been
10 five reactor accidents in my lifetime. I'm not 60 yet.
11 Mathematically that's one every 10 years or so. We can
12 brave the first step now by revoking this application and
13 ordering the decommissioning of Point Lepreau. We can be
14 brave like the Chernobyl fire fighter was brave, like the
15 Musquash fire fighter is brave. We can be brave.

16 The fifth teaching of the grandmothers and
17 grandfathers is honesty. The risks are real. There's a
18 map from the communities that I work with in New
19 Brunswick, radius around Point Lepreau. Do you know that
20 we're not in contact with the United States authorities;
21 there's barely any communication. When I go to Chief
22 Akagi's house, I can look across the water and see the
23 reserve of Passamaquoddy on the United States side. They
24 don't have any part of this emergency management. What is
25 going on? Someone said 200 kilometres was too far;

1 Fukushima radiation in Tokyo, 250 miles to the south. Are
2 we trying to kid ourselves? Are you trying to kid me? It
3 is not real. We have no plan for an accident like this.
4 The initial Chernobyl radius there, you can see at 1,200
5 kilometres, terrible contamination. Worst-case scenario,
6 the Binder scenario, we can't let it happen. We can shut
7 it down and prevent it ever happening.

8 The sixth teaching of the grandmothers and
9 grandfathers is humility. This Tribunal, as a court of
10 record, is part of the problem; it's a pyramid. You guys
11 are up here; the public is down here. The commissioners
12 must understand their ultimate responsibility is to the
13 public.

14 I am grateful that our President here says
15 that the protection of the public is the priority. Yes,
16 it is. It is certainly not the promotion of the nuclear
17 industry.

18 I will tell my grandchildren and yours,
19 though I come here with a small voice -- a little bit of a
20 cold -- but I'll tell them that I did my best to speak to
21 the problems created by the nuclear industry, that I spoke
22 to the problems of the legacy of toxic waste, and still
23 perhaps by the time I leave this world we'll have some
24 answers if we stop making it and start addressing there's
25 too much of it that we can't handle right now, that we

1 have to find a way to deal with.

2 I am a grandmother and an elder and you are
3 required to respect my responsibility. You need to
4 respect my aboriginal right. If only one Indian showed up
5 here, you'd have to respect the aboriginal right. The
6 Aboriginal Affairs Program needs to get clear about
7 aboriginal, not *Indian Act* rights.

8 Commissioners, you're public servants.
9 Please join me. Humble yourselves and listen. You've got
10 to do the right thing here. Close it down.

11 The seventh teaching of the grandmothers
12 and grandfathers is truth. We've got to admit the truth;
13 nuclear is too risky. People, pets, birds, tiny lives are
14 mutated. Genetic code is altered, creating a potential
15 for diseases and deformities. Our future is at risk from
16 this technology. It's gone too far. There is too much
17 waste. There is absolutely no sense in making any more.
18 Let this be our last hearing as adversaries, our last
19 hearing as adversaries. Let our next time be together to
20 talk about how we're going to work on solving this big
21 problem, about shutting down Point Lepreau.

22 (Aboriginal language spoken). I give
23 thanks for being here.

24 **MR. CHAIRMAN:** Thank you.

25 Dr. Barriault?

1 **MEMBER BARRIAULT:** Thank you, Mr. Chairman.
2 Thank you for your presentation.

3 The issue that you are asking us to do
4 basically falls within the realms of politics. You are
5 asking us to close the nuclear plant and we're not here to
6 do that. We're here to assure ourselves that the plant is
7 managed safely and that the plant refurbishment is done in
8 a safe manner.

9 If you want the province to make a
10 decision, and you've heard yesterday the Minister of the
11 Environment -- I think it's the Minister of the
12 Environment -- statement -- the written submission
13 supporting the nuclear plant, then these are the people
14 you'll have to talk to rather than knocking at our doors.

15 We wish we could accommodate, and we
16 certainly sympathize with your view on what's going on,
17 but having said that, you are asking us something beyond
18 our mandate.

19 **MS. NOLAN:** Perhaps I should restate my
20 request. You have the authority to revoke the application
21 which would initiate a ---

22 **MEMBER BARRIAULT:** I'm sorry, I'll have to
23 ask the CNSC senior staff, but I don't think we can revoke
24 the application. We can certainly assure ourselves that
25 it is done safely.

1 **MS. NOLAN:** You can't refuse?

2 **MEMBER BARRIAULT:** The application?

3 **MS. NOLAN:** You can't say no, you don't
4 approve it?

5 **MEMBER BARRIAULT:** We don't approve of the
6 refurbishment?

7 **MS. NOLAN:** The Point Lepreau licence and
8 approval to reload and restart, you can't refuse that,
9 this Tribunal?

10 **MEMBER BARRIAULT:** Yes, we can.

11 **MS. NOLAN:** Oh, okay.

12 **MEMBER BARRIAULT:** Yes. But that does not
13 -- the decommissioning of the plant is what you are
14 asking. You are asking to abolish all nuclear activities
15 in Canada. That's what you're asking.

16 **MS. NOLAN:** I'm asking you to take the
17 first step ---

18 **MEMBER BARRIAULT:** No, but isn't that what
19 you are asking?

20 **MS. NOLAN:** --- and refuse the licence.

21 Yes, I am asking you to take the first step
22 and refuse the approval to reload, restart and re-license.

23 **MEMBER BARRIAULT:** I understand all that.

24 **MS. NOLAN:** Okay.

25 **MEMBER BARRIAULT:** But what you're asking

1 us really is to take the first step to abolish all nuclear
2 activity in Canada, and that is not our mandate. I'm
3 sorry.

4 **MS. NOLAN:** I am asking you, once again, to
5 refuse this application, refuse the approval to reload and
6 restart and re-license.

7 **MEMBER BARRIAULT:** That's all, Mr.
8 Chairman. Thank you.

9 **THE CHAIRMAN:** Okay. Dr. McDill?

10 **MEMBER McDILL:** Thank you.

11 Where do you sit on nuclear medicine?

12 **MS. NOLAN:** I've been very happy to
13 understand that finally the last isotope, uranium-based
14 isotope, is no longer necessary. It can be produced with
15 cyclotron particle accelerators rather than uranium. I
16 understand there's quite -- there's value in the treatment
17 and diagnostics available through nuclear medicine.

18 I also understand that these are voluntary
19 procedures, not enforced the same way that nuclear power
20 is releasing emissions that no one has agreed to.

21 **MEMBER McDILL:** I'm going to pass it to
22 staff because the generation of medical isotopes is a long
23 cycle that starts at a very key point.

24 **MR. JAMMAL:** My name is Ramzi Jammal, for
25 the record.

1 There are a couple of things. The
2 intervenor mentions of the production of radioisotopes,
3 short-lived radioisotope through a cyclotron. That is
4 correct. Such isotopes do exist and, as we know, every
5 practice and every procedure and every isotope has its
6 limitation from the medical perspective and the
7 application perspective.

8 The CNSC, of course, will have to oversee
9 the application to ensure that safety is being maintained
10 at all lifecycle of the production of the beneficial use
11 of nuclear energy. From the production of the isotopes
12 out of the reactor itself to the administration and so on
13 and so forth, and the disposal.

14 So there are a couple of things I would
15 like to make. Definitely, new evolving techniques for the
16 production of isotopes does exist using the linear
17 accelerators. However, technetium as a product itself,
18 the 99M technetium produced from the Molly is used around
19 the world for multiple types of imaging and each isotope,
20 from the cyclotron or from the technetium, has its unique
21 specificity for detection or the treatment of a disease.

22 So the question is what we consider safe
23 will be safe. And if it was not safe, we have issued
24 orders against hospitals. We have issued orders against
25 universities. We've issued orders against researchers who

1 are using radioisotopes for the purpose of research to
2 ensure the safety and the handling and the production --
3 again, the whole lifecycle from the transport to the
4 production, to everything else. If I didn't answer the
5 question, please let me know.

6 **MEMBER MCDILL:** You don't do cobalt-60 like
7 some of the other Ontario reactors. Okay.

8 **MR. THOMPSON:** No, we don't.

9 **MEMBER MCDILL:** Thank you.

10 **MR. CHAIRMAN:** But just to piggyback on
11 that, you know, a lot of people come in front of us and
12 talk about how radiation is hitting the DNA level, the
13 atomic level.

14 Can somebody tell me, how does one -- if
15 that were true, how come we're not all dead because of
16 background radiation? We live with background radiation,
17 right? So what's going on? Somebody explain to me where
18 is this idea that there is no safe level? Surely at least
19 background level is safe level? We all live with it,
20 don't we?

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

22 Before I pass that on to Dr. Patsy Thompson
23 in Ottawa, I would like to answer the question to Dr.
24 McDill about Cobalt-60. I did miss one key element and my
25 answer is that Cobalt-60 production out of the CANDU

1 reactors in general actually supplies the world with
2 respect to Cobalt-60 for the teletherapy treatment.

3 Now, the intervenor talks about the
4 benefits for the children and the use of the -- the
5 beneficial use and the goodness of the society. The
6 Cobalt-60, to date, is one of the lifesaving treatments
7 for cancer in the developing countries due to its ease of
8 use, to its ease of transport and with no requirement of a
9 complicated infrastructure that actually impacts on other
10 types of treatment.

11 So the IAEA has a program for the
12 beneficial use and the benefit of the public in the
13 developing countries.

14 But I'll pass it on to Dr. Thompson.

15 **MEMBER McDILL:** It's principally the Third
16 World now that the Cobalt-60 is -- the developing world
17 that the Cobalt-60 is being sent to. Is that correct?

18 **MR. JAMMAL:** That's very much so, correct.
19 The Cobalt-60 -- the infrastructure in the developing
20 world cannot handle the ---

21 **MEMBER McDILL:** Technetium and things like
22 that, yes.

23 **MR. JAMMAL:** Not just the technetium,
24 cannot handle the sensitive linacs. The linacs will get
25 destroyed due to the fluctuations and the instability of

1 the process in the developing world.

2 **MEMBER McDILL:** Dr. Thompson?

3 **THE CHAIRMAN:** Ottawa?

4 **MS. THOMPSON:** Patsy Thompson for the
5 record.

6 In terms of the effects of the radiation on
7 cells, it is correct that ionizing radiation will impact
8 DNA and chromosomes essentially. But it's also a fact
9 that -- because life has evolved in a radiation
10 environment that there are well established functional
11 repair mechanisms that allow life essentially to continue
12 in a radiation environment.

13 These mechanisms have been studied
14 extensively and are well understood. And that's why with
15 the combination of epidemiological studies of human
16 populations exposed to radiation through work and
17 accidents, such as the atomic bomb, as well as laboratory
18 studies on cells and molecules, we have a good
19 understanding of radiation.

20 And we understand from these studies that
21 at very low levels repair mechanisms are effective. And
22 if there is a risk of radiation it would be very small and
23 cancers have not been observed to be higher than sort of
24 background cancer levels in the general population if
25 doses are less than 100 millisievert.

1 **MEMBER MCDILL:** Is this person a doctor.

2 **THE CHAIRMAN:** She's Dr. Thompson.

3 **MS. NOLAN:** She's a medical doctor.

4 **THE CHAIRMAN:** No.

5 **MS. NOLAN:** No. Thank you.

6 **THE CHAIRMAN:** Are you trying to make a
7 point?

8 **MS. NOLAN:** Absolutely.

9 **THE CHAIRMAN:** Health Canada ---

10 **MS. NOLAN:** I spoke earlier about no
11 medical doctors. You know if health physicist ---

12 **THE CHAIRMAN:** All the health standard that
13 they apply --

14 **MS. NOLAN:** -- if I may finish answering
15 your question --

16 **THE CHAIRMAN:** -- is backed by health
17 authorities.

18 **MS. NOLAN:** May be backed by health
19 authorities. I notice there are health physicists and one
20 of my 51 questions from last June was; are there any
21 medical doctors monitoring these health physicists? They
22 are not medical doctors.

23 Why is it that doctors are not welcome at
24 Point Lepreau? I have stories that I cannot tell you
25 because of confidentiality of workers who have been sick

1 with Lepreau. Their lawyers buy them off.

2 I've had stories of doctors being gagged.
3 Medical doctors do not seem to be welcome. I am afraid
4 because you guys are not looking at this. I speak as an
5 individual here. And I am afraid. Where are the medical
6 doctors?

7 You have someone talking to me here about
8 repair mechanisms and selective studies about exposures to
9 radiation who is not a medical doctor. This is
10 unacceptable.

11 **THE CHAIRMAN:** Dr. Thompson, do you want to
12 reply to this.

13 **MS. THOMPSON:** Yes, if I could.

14 We did answer some of the questions that
15 the intervenor asked last June and one of the questions
16 was about whether or not the CNSC had medical doctors.

17 Essentially what the CNSC has done, which,
18 and all regulatory agencies have done the same thing, we
19 participate in international committees that have medical
20 professionals as well as various scientists like
21 environmental toxicologists, toxicologists,
22 radiobiologists. And it's with the weights and the sum of
23 knowledge that has been developed over decades of study by
24 various professionals including medical professionals that
25 those limits are set.

1 There's very stringent monitoring programs,
2 individual workers at NB Power like every other nuclear
3 facility in Canada are individually monitored for their
4 doses. We review them and if there would be a dose that
5 would raise concerns we have relationships with Health
6 Canada where we can call on their expertise.

7 I would like to say there's also been there
8 recently an epidemiological study that has been done of
9 42,000 Canadian workers at nuclear plants including Point
10 Lepreau and that study clearly indicates that there is no
11 increased risk to these workers from their radiation
12 exposures.

13 In fact, the risk is negative. It's minus
14 1.2.

15 **THE CHAIRMAN:** Okay.

16 **MEMBER McDILL:** Could I ask one more
17 question Dr. Binder?

18 **THE CHAIRMAN:** Go ahead.

19 **MEMBER McDILL:** Dr. Thompson, what is our
20 relationship with Health Canada, as a commission?

21 **MS. THOMPSON:** Patsy Thompson for the
22 record. The CNSC has a Memorandum of Understanding with
23 Health Canada. It has been in place for many, many years.

24 **MEMBER McDILL:** So in many respects we
25 take, if you'll forgive the liberty with words, we take

1 our medical advice from Health Canada or with Health
2 Canada?

3 **MS. THOMPSON:** Patsy Thompson for the
4 record. We have, through that agreement, for example,
5 there have been situations where workers were taught to be
6 exposed to very high levels and in those cases we have
7 called upon the services of Health Canada. They provide
8 health advice. They have also the systems in place where
9 we can do individual monitoring to identify whether or not
10 there's actually been a radiation exposure because it can
11 be -- there are tests that can be done.

12 In the vast majority of cases it turns out
13 that these are non-personal doses. Essentially monitors
14 have been left -- weren't borne by the individuals and
15 were left in an area where they've been exposed. But we
16 do have that system in place and it has been used and is
17 effective.

18 **MEMBER MCDILL:** And Health Canada is
19 frequently, for example, in new builds or environmental
20 assessments, Health Canada and other organizations such as
21 Department of Fisheries and Oceans, just as an example,
22 are a part of the process. Is that correct?

23 **MS. THOMPSON:** Yes, Patsy Thompson for the
24 record. Health Canada as well other departments provide
25 technical advice and support to the CNSC in environmental

1 assessments and we would also call upon their expertise
2 during the lifecycle of a facility outside of any
3 environmental assessments if we require that support from
4 any of the departments.

5 Also, Health Canada has representatives
6 like the CNSC has representative on the United Nation
7 Scientific Committee on the effects of atomic radiation.

8 **MEMBER McDILL:** And since medicine is a
9 provincial jurisdiction, perhaps I could ask NB Power to
10 talk about how the provincial -- I'm uncomfortable saying
11 provincial health care system but how the medical system
12 in the province interacts.

13 Perhaps I will just ask Dr. Barriault.

14 **MR. BARRIAULT:** Thank you.

15 I'm a practicing physician by the way. And
16 one of the questions I would like to ask, I guess NB
17 Power, is the issue of physicians being refused access I
18 guess to data from the plant. Is that what you were
19 asking?

20 **MS. NOLAN:** Actually no, I'm more concerned
21 with the monitoring of the patients. Who's looking after
22 --

23 **MR. BARRIAULT:** Okay.

24 **MS. NOLAN:** -- the medical needs of people
25 being exposed to radio isotones.

1 **MR. BARRIAULT:** Do you have an occupational
2 health department at the plant of Point Lepreau?

3 **MR. KENNEDY:** Yes we do. We have a health
4 facility department, we have a nurse on staff. I know of
5 no situation where we've stopped someone from coming to
6 Point Lepreau or doctor. I mean, it's an item between the
7 patient and the doctor.

8 **MR. MARMEN:** So if I could get a clear
9 answer. Is there a medical physician that frequently
10 checks the health of staff at the Lepreau facility and do
11 they assess on, you know, with integrity the basis of the
12 health aspect of this plant? Is there any kind of ---

13 **MR. BARRIAULT:** --Sure. Yes. Would you care
14 to reply to that? Both from an occupational health point
15 of view, traditional, and from a nuclear.

16 **MR. KENNEDY:** Yes, if I may, I'll ask
17 Charles Hickman to address that question.

18 **MR. HICKMAN:** Charles Hickman for the
19 record. With regards to dose information and potential
20 impacts in that respect, that information goes into the
21 national dose records. So individual physicians would not
22 see that on a regular basis as part of the normal course
23 of business.

24 **MR. CHAIRMAN:** Sorry to interrupt. Can you
25 explain where is that registry?

1 **MR. HICKMAN:** National dose records is a --
2 perhaps Patsy Thompson could probably could talk to better
3 than I can. It's basically a national registry system
4 where all dosimetry information is maintained for every
5 person, not just utility workers --

6 **MR. CHAIRMAN:** I'm fishing it's managed by
7 Health Canada. It is a Health Canada, Health Canada
8 measures the dosage, they're looking into any patterns
9 across the whole -- any dose received by an employee, goes
10 to Health Canada for registry.

11 **MR. MARMEN:** So it's essentially the
12 responsibility of the staff members themselves to look
13 after their own well-being and the Lepreau plant and its
14 administration doesn't take steps to maintain the well-
15 being? On a frequent basis.

16 **MR. BARRIAULT:** No. Do you want to reply to
17 that?

18 **MR. HICKMAN:** Charles Hickman for the
19 record. To just continue, every employee gets a summary
20 of their dose information on an annual basis, and if they
21 have any questions either during the year, after a
22 particular job, or at the end of the year when they get
23 their dose information -- which is provided in a hard copy
24 and electronically -- then they can follow-up either with
25 our own internal staff, or they could take that

1 information and those questions to their own personal
2 physicians, if they wish.

3 At any time at all, any one of us at the
4 station can go and get updated information on any dose
5 that we have received.

6 **MR. MARMEN:** So it's essentially the
7 responsibility of the employee, and not the employer, for
8 the well-being and health of its workers.

9 **MR. HICKMAN:** Sorry, if I could just
10 complete the discussion.

11 The dose information that is provided is
12 effectively tied to our internal dose limits that we have
13 set internally, and they were obviously set in
14 relationship to the radiation protection regulations,
15 through the CNSC Act and so on in terms of what is an
16 acceptable dose for nuclear energy workers on site.

17 So we followed the ICRP expectations, as
18 reflected in the regulations. We followed our ALARA
19 principles to maintain doses as low as reasonably
20 acceptable, and yes, if we are well within those limits,
21 and we are always well within those limits, it is assumed
22 that it is acceptable for a nuclear energy worker.
23 Though, as I say, if anybody has any questions, either to
24 our health physicists or to their own physicians, they're
25 certainly welcome to take those questions up.

1 In a more generic sense -- if I can just
2 pick up on the study that Dr. Thompson referenced -- that
3 really is the -- the National Dose Records is the source
4 of the best information to understand if there are
5 epidemiological issues related to working with nuclear
6 substances.

7 So the study, which looked at over 40,000
8 employees, both utility workers and radiologists, is the
9 best place to understand if there's an issue.

10 **MEMBER BARRIAULT:** Now, do you want to
11 explain your traditional occupational health system and
12 involvement with health and safety in New Brunswick?

13 **MR. HICKMAN:** Charles Hickman, for the
14 record.

15 I'm not quite sure I understand the
16 question.

17 **MEMBER BARRIAULT:** You have two
18 occupational health systems. You have nuclear and you
19 have traditional that's mandated by Health and Safety New
20 Brunswick that you have -- if you don't have it, you have
21 to have it, I guess, is what I'm saying.

22 So can you explain that system to the
23 intervenor?

24 **MR. HICKMAN:** Charles Hickman for the
25 record.

1 So the dosimetry side of life is already
2 explained and, on the conventional side of life, you have
3 a health unit on site -- nurse, medical staff available on
4 site.

5 You also have access through, actually, a
6 corporate program, to a doctor that is on call and
7 available to staff. And that is completely separate to the
8 worker's compensation process, whereby if there's an event
9 of some nature, we advise the Worker's Compensation and
10 Worksafe New Brunswick, who have the ability -- and indeed
11 the authority and obligation -- to investigate.

12 So there's a process and procedures in
13 place for any event, for the notification of potential
14 exposures of either a chemical or radiological nature
15 above the expected limits, which is then investigated as
16 per due diligence and appropriate investigation.

17 **MEMBER BARRIAULT:** Okay.

18 **MR. HICKMAN:** Is that what you were getting
19 at, Dr. Barriault?

20 **THE CHAIRMAN:** Okay, look, we need to move
21 on. I am sorry.

22 So I'd like to give one final minute, just
23 one comment.

24 **MS. NOLAN:** Thank you. I am understanding
25 the reliance on Health Canada data. There is some

1 contradiction.

2 By the way, I work with epidemiologists,
3 doctors all the time. I ask about exposures, and doctors,
4 on the whole, agree there. Best not to bioaccumulate
5 radiotoxins in the body.

6 Health Canada guidelines for drinking water
7 are now -- for tritium in drinking water is 7,000
8 becquerels. In California it's 20 becquerels. Ontario
9 drinking water advisory 20 becquerels.

10 You are relying on the Health Canada data,
11 as is New Brunswick Power and the staff here are relying
12 on the ICRP data. I want to point out, and remind people
13 in case they've forgotten, that both the ICRP,
14 International Committee on Radiological Protection,
15 International Atomic Energy Association -- that both of
16 these agencies has been condemned by the Permanent
17 People's Tribunal at Chernobyl for being complicit in the
18 promotion of the industry rather than protective of
19 people's health.

20 The CNSC is deciding to base their health
21 and safety on agencies which have been condemned in
22 international tribunals.

23 **THE CHAIRMAN:** By the way, it's also an
24 assumption by the World Health Organization and Health
25 Canada, so I know all those allegations about conspiracy

1 theory---

2 **MS. NOLAN:** Actually ---

3 **THE CHAIRMAN:** --- but the World Health
4 Organization is a medical -- and they set up the rules ---

5 **MS. NOLAN:** Yes.

6 **THE CHAIRMAN:** --- and we follow.

7 **MS. NOLAN:** And they have created quite a
8 bit of distance between themselves and IAEA --

9 **THE CHAIRMAN:** Okay.

10 **MS. NOLAN:** --- and ICRP lately.

11 **THE CHAIRMAN:** Thank you very much for this
12 intervention.

13 I'd like to take a break. We'll get back
14 here at 1:46, please.

15

16 --- Upon recessing at 1:02 p.m.

17 --- Upon resuming at 1:49 p.m.

18

19 **THE CHAIRMAN:** Okay. Can we get going
20 again?

21 So we will move to the next submission,
22 which is an oral presentation by the Canadian Nuclear
23 Assoc -- whoops -- I am -- I'm in the wrong place. Sorry
24 about that.

25 Oral presentation by Mr. Lymon? Lymon

1 Spear as outlined in CMD H12.28.

2 Mr. Spear, the floor is yours.

3

4 **11-H12.28**

5 **Oral presentation by**

6 **Lymon Spear**

7

8 **MR. SPEAR:** Mr. Chairman, Commissioners,
9 ladies and gentleman.

10 Welcome to Saint John, which some of us
11 from Lepreau figure is the outskirts of Lepreau, but
12 welcome anyway.

13 It's been -- give you a condensed version
14 my 77 plus years living in Lepreau. Now Lepreau is three
15 actual places. There's Point Lepreau, which is the home
16 of the nuclear generating station, and then we have Little
17 Lepreau, which is not too far away, but it's a bit away,
18 which has the best clams, the best lobsters, the best
19 sardines, and the best scallops in the country.

20 And then we come to downtown Lepreau, which
21 is on the main highway, leading from Saint John to the St.
22 Stephen border -- Calais, Maine. And the name of Lepreau
23 was probably given -- the best version that I can give you
24 is the actual naming of Lepreau which means "Quiet
25 Waters." So if you take a look at the three places, if

1 you look at Point Lepreau, Point Lepreau is right on the
2 Bay of Fundy which has the highest rise and fall of tides
3 anywheres around; it can be pretty stormy. And then you
4 have Lepreau, Little Lepreau which is a little quieter and
5 that's why they named it Little Lepreau which is a little
6 quieter water.

7 And then you go to Lepreau itself and we
8 have one of the finest rivers there is that has five falls
9 on it. They're not large waterfalls but they're beautiful
10 if you take a picture of them and can travel that whole
11 river system. So it's just a little area that's there and
12 you've got a little information of what Lepreau actually
13 is. But it probably means "Quiet Waters."

14 I remember the first day that I come across
15 some land surveyors. And the land surveyors were on the
16 Point Lepreau Road. Didn't know why they were there. And
17 at the time I was the Postmaster of Lepreau, and also the
18 Rural Route courier for that area.

19 And on a six-day basis we would deliver
20 mail in the area, and every day we went down we'd actually
21 see these land surveyors and more stakes and more cutting
22 of trees and no one seemed to know why they were there.
23 All that was at the point at the time was a lighthouse,
24 which is still there, and three residences which housed
25 the lighthouse keepers. And we would deliver the mail to

1 them. And then finally, we had a meeting at the old
2 schoolhouse and we were told that we were going to get a
3 nuclear power plant.

4 What's a nuclear power plant? You know,
5 back then we really didn't know what that was all about.
6 And most of the residents didn't know what that was about.

7 Well, we found out that this is what was
8 going to happen, the surveyors were there. The -- a few
9 years later the lighthouses disappeared. And, you know,
10 by going there on a daily basis we could see the
11 generating station come together piece by piece.
12 Truckloads of material in and out the site. Thousands of
13 tons of steel taking shape and cement being poured until
14 the nuclear power plant emerged.

15 Men and women from around the world worked
16 at the construction of Point Lepreau. And within the 20
17 kilometre radius I think most houses could fly any flag
18 from any country in the world because we had people from
19 all over the world. And they came in as trades people,
20 engineers, inspectors, some of them stayed, some of them
21 married. They raised families and they've now -- some of
22 them have actually retired in the area and are now raising
23 grandchildren. And it's been very good to us, the whole
24 system. And 40 years later we -- a lot of them still call
25 Point Lepreau their home.

1 Over the years our community have watched
2 the evolution of the station with planned maintenance
3 outages. The impact of 9/11 had, and an onset of
4 refurbishment plus the coming and going of workers and
5 their families. Yes, there's been a great deal of
6 activity in our community over the years, but I want to
7 stress at every step of the way we've been kept informed.
8 Not just informed, but we've kept informed. And we've
9 been involved.

10 We have a community liaison group that meet
11 with the Point Lepreau Nuclear Generating Station
12 management, usually on a four-month basis. We meet with
13 them and they really tell us what's going on and what's
14 happened over the four months, and how the plant's
15 evolving and what's going on.

16 So this has been, and we want it to
17 continue, a positive impact on our communities. By now
18 you know I'm passionate about the community and the
19 community includes Point Lepreau generating station.

20 Not only have I watched the station evolve
21 over the years, I have witnessed firsthand the dedication
22 and expertise of employees bring to their role as -- and
23 employees bring into their role. Also, as Chief Warden
24 for the New Brunswick Electric -- or the New Brunswick
25 Measure -- Emergency Measures Organization, I have

1 participated in many emergency preparedness training
2 exercises for the station.

3 As Chief Warden I have responsibility for
4 any activities outside the fence of the station within the
5 20-kilometre radius and have a Deputy Warden and 16 area
6 Wardens. We operate under the direction of the Public
7 Safety Officer with the New Brunswick Emergency Measures
8 Organization and our job is to assist the RCMP in case of
9 an evacuation, and each one of my wardens are equipped
10 with a pager, an EMO portable radio which is carried 24/7.

11 We take our -- from the Public Safety
12 people and Ernie MacGillivray is here today and he's one
13 of the originators of the Emergency plan that we have in
14 force at the Point.

15 The Wardens, along with the Musquash
16 Volunteer Fire Department with Chief Wayne Pollock, who's
17 one of our Wardens also, do a demographic survey
18 delivering K.I. pills on a routine basis. And we report
19 to Public Safety in Fredericton on births and deaths and
20 construction, new family, moving, moving residents who
21 have special needs in case of evacuation.

22 In the event of an announcement regarding
23 an emergency, the Point Lepreau generating station and the
24 Point Lepreau Wardens are ready and trained to respond.
25 In addition to my role as Chief Warden, I have another

1 role, one that I feel privileged to be part of, not
2 because of the special treatment I feel but because I know
3 how the management and staff treat everyone, employees and
4 community members and how important the community is to
5 them.

6 Now I'm speaking in my role as a community
7 liaison member and before I go further I want to
8 acknowledge the incredible work that Kathleen Duguay is
9 doing. And she's always been available to us; we've
10 always been able to call her if anybody wants to know
11 anything. Whether it be the school or whether it be the
12 Fundy fishermen or whether it be the fire department,
13 Kathleen is always available to everyone at the station
14 and everyone outside in the community. So we really look
15 forward to what Kathleen is doing for us.

16 There are many previous and current senior
17 management including Rod Eagles, Paul Thompson, Lee
18 Parker, Charles, and of course Gaetan Thomas, President
19 and CEO of the New Brunswick Electric Power Commission.

20 They hold nothing back from us and they
21 tell it how it is and how we appreciate their openness.
22 At any one time any one of the committee members can
23 contact any one of the management people and also Gaetan
24 which is -- never held nothing back from us.

25 I have the privilege of receiving community

1 updates and information about all the activities at the
2 station and also the solid radioactive waste management
3 facility. The updates include information regarding the
4 type of waste, the amount of waste and the shipping of
5 non-active waste. I feel fully informed and confident
6 that the work carried out by the station is professional
7 and is the best interest of the environment.

8 I know I could go on, I could tell you what
9 Lepreau was like before nuclear power, and that's 70-some
10 years ago plus, plus, plus. It was different than what it
11 is today. Back then we had one road. We might have two
12 or three vehicles an evening pass through our area. We
13 had one bus that would travel at 10 o'clock at night from
14 Saint John to St. Stephen.

15 We had a locomotive, a train that passed
16 through the area every day. We had an Air Force base that
17 trained Air Force pilots during the Second World War. We
18 had an Army camp area that trained soldiers during the
19 Second World War.

20 There's a big change in what's there now at
21 the present time. And we also now have a four-lane
22 highway which we didn't have when Point Lepreau was
23 constructed. We had a single highway from Saint John to
24 Lepreau, and it was a very dangerous piece of road. When
25 you had 1,000 employees wanting to leave Saint John in the

1 morning and wanting to be at Point Lepreau for 7 o'clock
2 you always had that 1,001 that wanted to be number one and
3 left last.

4 It was a dangerous piece of highway. We
5 now have a four lane. Our accident has cut at least 98
6 per cent. It's very seldom we get an accident now. If it
7 is, it is usually with an animal and that happens.

8 But it's safety and safety first, and this
9 is was what the people at Point Lepreau, the residents of
10 Point Lepreau, we feel that safety is the number one thing
11 at the Point.

12 And we also have a tremendous amount of
13 local residents that work at the Point itself. This is
14 how the local residents find out what is actually going on
15 at the Point, because we know within minutes if something
16 has happened because they're going to call home; they're
17 going to tell their mother, their father, their brother,
18 their sister.

19 **THE CHAIRMAN:** Okay.

20 **MR. SPEAR:** But anyway, I know I could go
21 on. I have a lot to say and I feel that I've made my
22 point. I would strongly recommend that you grant a five-
23 year operating licence to N.B. Power for the operation of
24 Point Lepreau generating station. It is part of our
25 community and we want it to continue to be there for many

1 years to come.

2 Thank you very much.

3 **MR. CHAIRMAN:** Thank you.

4 Thank you for the intervention.

5 Dr. Barriault?

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

7 Just a brief question. The population, as
8 Chief Warden, that you cover is how big? I know it's a
9 20-kilometre radius, but what is the population?

10 **MR. SPEAR:** About 50 -- about 2,500.

11 **MEMBER BARRIAULT:** And the system of
12 notification, do you think there could be a more efficient
13 system or are you happy with the system that exists?

14 **MR. SPEAR:** We're into the place right now
15 that they are talking of a new system coming back in. The
16 original notification was the wardens would -- there were
17 sirens. The first thing we had was sirens, pole-mounted
18 sirens. They did not work well; they were removed.

19 The wardens' vehicles were all equipped
20 with sirens, loud hailers that we would proceed to the
21 home of the residents, operate the siren, operate the loud
22 hailer and tell them that it was an emergency, to either
23 stay in the house, turn the radios on, turn their TVs on
24 and an announcement would come from there.

25 Then they came in with the CSN-added device

1 which was put in each residence and that operated from
2 emergency measures in Fredericton and it would tell that
3 there was an emergency or whatever. And this device
4 operated that you would know what call was coming in and
5 who was calling, almost like a call waiting or a call
6 answering.

7 And then that device has now been replaced
8 by a Alliant Answering Service. So each telephone, pager,
9 cell phone, computer will get this message directly from
10 Fredericton. So whether that's working at the present
11 time, we put some tests out and it does work.

12 **MEMBER BARRIAULT:** Do you have any people
13 who do not have these communication systems in the area?

14 **MR. SPEAR:** That do not?

15 **MEMBER BARRIAULT:** Cell phones, telephones,
16 computers?

17 **MR. SPEAR:** Not to my knowledge, but there
18 possibly could be.

19 **MEMBER BARRIAULT:** Thank you.

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

21 **MEMBER McDILL:** No questions, but thank you
22 for coming.

23 **THE CHAIRMAN:** Let me ask you, you've
24 obviously been in the community for a long, long time.
25 You probably have a feeling to the population's attitude,

1 views.

2 Did it change after Fukushima? You heard a
3 lot of people who have a lot of angst about this
4 particular plant. I understand the economic benefit and I
5 understand the four-lane highway, but was there anything
6 that you could detect in the attitude of the people who
7 live near the plant?

8 **MR. SPEAR:** I think everybody was probably
9 impacted by Fukushima, but then during the construction of
10 Point Lepreau we also had Three Mile Island that failed,
11 and it was talked about at the time, but Point Lepreau
12 kept moving.

13 Fukushima, Chernobyl, terrible disasters,
14 but as far as anyone being that concerned that the same
15 thing could happen at Point Lepreau, I don't think so.
16 They seem to be okay with what's going on and how it's
17 working and what's going to happen. But we know that
18 Fukushima was a terrible accident and it's not over with
19 yet.

20 **THE CHAIRMAN:** Okay. Thank you very much.
21 I assume nothing -- no other questions?
22 Thank you for your presentation.

23 **MR. SPEAR:** Thank you, sir.

24 **THE CHAIRMAN:** I'd like now to move to the
25 next submission which is an oral presentation by the

1 Canadian Nuclear Association, as outlined by CMD 12.18.
2 Ms. Denise Carpenter will make this presentation. Please
3 proceed.

4
5 **11-H12.18**

6 **Oral presentation by the**
7 **Canadian Nuclear Association**

8
9 **MS. CARPENTER:** Good afternoon, Mr.
10 Chairman and members of the Commission and the public.

11 I am Denise Carpenter and I am the CEO and
12 President of the Canadian Nuclear Association. With me
13 today is Mrs. Heather Kleb who is our Director of
14 Regulatory Affairs, but more importantly she is a
15 scientist and a mother of a nine year old son.

16 We're here today to represent our industry.
17 The Canadian Nuclear Association has some 100 member
18 companies representing about 70,000 people employed in the
19 production and advancement of nuclear medicine, uranium
20 mining and exploration, fuel processing and electricity
21 generation. This includes approximately the 800 employees
22 who operate the Point Lepreau generating station and the
23 1,500 to 2,800 employees responsible for its
24 refurbishment.

25 Before I get into the details of New

1 Brunswick Power's application, I'd like to first talk a
2 bit about their employees.

3 In our industry, we recognize that we are
4 only as good as our employees as they responsible for
5 maintaining our 50 year plus safety track record. So I
6 was pleased to see that in their application, New
7 Brunswick Power listed the qualities that they expect from
8 their employees as openness, respect, team work,
9 commitment and integrity. I was also pleased to see that
10 in their intervention, local community members use these
11 same words to describe Point Lepreau's staff.

12 Other words used to describe Point
13 Lepreau's staff include knowledgeable, professional,
14 competent and responsible. These statements say a lot
15 about the true character of Point Lepreau employees, and
16 they should be commended for it.

17 With respect to New Brunswick Power's
18 application to renew their power reactor operating licence
19 and restart the Point Lepreau nuclear generating station,
20 we would like to discuss four points. The obvious is the
21 commitment to safety, the need for clean energy, clean
22 reliable energy, the contribution to New Brunswick's
23 energy mix, and the many socioeconomic benefits that the
24 Point Lepreau provides.

25 Regarding the safety of Point Lepreau

1 generating station, we believe there is no better
2 predictor of future performance than past performance.
3 The generating station has been safely operating for 28
4 years. It has consistently met safety requirements
5 leading up to the 2008 outage and can reasonably be
6 expected to meet safety requirements following the
7 proposed restart.

8 As indicated in their application, New
9 Brunswick Power will address the known and manageable
10 risks that they have become familiar with over three
11 decades of operation through their emergency preparedness
12 program, emergency operating procedures, and these
13 programs and procedures also describe how New Brunswick
14 Power will manage even the most implorable of events.

15 New Brunswick Power participated in the
16 recent investigations by the Fukushima Task Force, and
17 while the probability of a major earthquake occurring on
18 one of Canadian's nuclear power plants is negligible, it
19 was confirmed that our nuclear power plants could
20 withstand conditions similar to those at Fukushima.

21 When it comes to safety, Point Lepreau
22 staff are never complacent. As a result of the lessons
23 learned from Fukushima, they are considering the risks of
24 less probable events and events of greater magnitude.

25 Point Lepreau Generating Station also

1 provides a clean and reliable source of energy. As with
2 all low carbon energy sources, fossil fuels are required
3 during construction and refurbishment, but once in
4 operation, nuclear power plants produce virtually no
5 greenhouse gas emissions.

6 In fact, they offset greenhouse gases that
7 are produced by Canada's fossil-based energy sources.
8 Point Lepreau alone has avoided the emissions of about 87
9 million tonnes of CO₂ since 1983.

10 Point Lepreau also compares favourably when
11 you consider the waste generated from nuclear power
12 generation.

13 In the 2009 inventory of radioactive waste
14 in Canada, Point Lepreau reported the production of a mere
15 17 cubic metres of fuel waste. Once produced, our
16 industry relies on their decades of experience in
17 transporting and managing these small volumes.

18 Nuclear power is increasingly recognized as
19 a solution to the challenge of climate change. As Canada
20 and the global community work to address the challenge of
21 climate change, nuclear power will be an important part of
22 Canada's clean energy portfolio.

23 Point Lepreau is also an integral part of
24 New Brunswick's plans to meet their energy demands.
25 Because Point Lepreau has the capacity to produce large

1 amounts of energy over a very long period, it has not only
2 provided the stability needed to meet New Brunswick's
3 energy demands, but also provides the stability needed to
4 support less reliable energy sources such as wind and
5 solar.

6 The Province of New Brunswick is committed
7 to ensuring reliability and diversity in that energy
8 supply. Point Lepreau plays a vital role in New
9 Brunswick's energy mix which includes hydro power, coal,
10 oil, wind, and solar-based energy sources. As a 24/7
11 baseload power source, nuclear power can act as an enabler
12 to support emerging, renewable energy courses. As I often
13 like to say, there's room for all of us in the mix.

14 Point Lepreau is not only an integral part
15 of the local energy mix, it's also an integral part of New
16 Brunswick's economy. This is apparent not only in the
17 hundreds of highly-skilled jobs that New Brunswick Power
18 provides, but also in the many contracts that it awards
19 for refurbishment and other activities.

20 In 2009, Point Lepreau was reportedly
21 injecting a total employment income of about seventy
22 million per year with the local Saint John economy and
23 spending, approximately, thirty-four million per year on
24 contractors.

25 Our industry also invests millions of

1 dollars to ensure against events and accidents that could
2 place an undue burden on Canadians. Our nuclear liability
3 insurance is required under the *Nuclear Liability Act*,
4 which came into effect in 1976; however, I'm proud to say
5 that such an insurance claim has never been filed in
6 Canada.

7 Nationally, Canada's nuclear sector is a
8 \$6.6 billion industry generating \$1.5 billion in federal
9 and provincial revenues from taxes.

10 To sum up, we'd like to remind you of New
11 Brunswick Power's mission, which is, to proudly serve
12 their customers by demonstrating the values of safety,
13 quality, and innovation in everything they do.

14 As I've just explained, the Point Lepreau
15 staff are instrumental in meeting these objectives and,
16 given that that is the case, I'm pleased to recommend that
17 the Canadian Nuclear Safety Commission approve New
18 Brunswick Power's request to, one, renew the power reactor
19 operating licence for Point Lepreau Generating Station
20 and, two, reload fuel and restart the Point Lepreau
21 Generating Station.

22 At this time I would be pleased to take any
23 questions.

24 **THE CHAIRMAN:** Thank you. Questions?
25 Dr. McDill? Dr. Barriault?

1 **MEMBER BARRIAULT:** Just one brief question,
2 on page 3, earlier, you mentioned that the operating
3 performance of the (inaudible) that it continues to
4 achieve satisfactory performance rating and is working to
5 continually improve, particularly in the areas of
6 emergency management and preparedness.

7 How does CNSC staff feel about that? Are
8 they happy with that (inaudible)?

9 **DR. RZENTKOWSKI:** Yes, we are happy with
10 the resolution of this issue. As we commented in the Day
11 One hearing, this actually below expectation rating would
12 be corrected before Day Two and I am pleased to announce
13 that performance of the emergency team has been
14 demonstrated, and has been demonstrated to be
15 satisfactory.

16 **MEMBER BARRIAULT:** Thank you. Thank you,
17 Mr. Chairman. Go ahead, yes?

18 **MS. KLEB:** Heather Kleb, for the record.

19 I was just going to add that before making
20 that statement, we went back and reviewed their safety
21 performance back until 2001 and, as you are very aware,
22 those ratings are based on an assessment of radiation
23 protection, environmental protection, environmental
24 preparedness, and on the whole; Point Lepreau has done
25 very well in meeting -- in achieving satisfactory ratings

1 and, in some instances, exceeding the requirements. But
2 as you mentioned on that occasion, they have done some
3 additional work to address that particular rating.

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

6 **THE CHAIRMAN:** Dr. McDill? No, nothing?

7 I guess one question; you know, during this
8 hearing, the last two days, I heard the term "clean
9 energy," "emission-free technology," "green technology,"
10 "renewable energy," and I'm sure I'm missing some others.
11 And each one I think means something else and it's,
12 really, maybe time for staff or industry to come up with
13 an actual -- a better definition or study about the full
14 cycle because there's nothing that is purely clean energy.
15 Even wind turbines require carbon emission during the
16 processing and building.

17 So has there been a study that actually
18 take from -- I'd like to get it from cradle to grave, the
19 total life cycle of ---

20 **MS. CARPENTER:** Yes, there has ---

21 **THE CHAIRMAN:** --- such a technology.

22 **MS. CARPENTER:** There has been a study done
23 on this and it was in 19 -- 2006 series study. It's a bit
24 dated right now. From that study we know that there are
25 trace emissions that come from the construction process of

1 a nuclear power plant, but once in operation, there are no
2 CO₂ emissions or very, very few.

3 We'd be happy to work with the CNSC and
4 publish a final report on that, in the next ---

5 **THE CHAIRMAN:** But they go all the way to
6 uranium mining operation, decommissioning ---

7 **MS. CARPENTER:** Right.

8 **THE CHAIRMAN:** --- storage and all that
9 stuff that goes with it. So I think that to be actually
10 fair, you're actually going to look at the whole cycle of
11 the technology if we do apples-to-apples comparison.

12 **MS. CARPENTER:** Okay.

13 **THE CHAIRMAN:** Staff, are you aware of any
14 such study or NB Power, anybody? Anyhow, I think it's
15 something that, you know, could be very useful to us when
16 we hear those terminologies.

17 Anything else? Thank you. Thank you for
18 the intervention.

19 The next submission is a presentation by
20 Mr. Michel Duguay as outlined in CMD H-12.34. M. Duguay,
21 the floor is yours.

22

23 **11-H12.34**

24 **Oral presentation by**

25 **Michel Duguay**

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MR. DUGUAY: Okay, thank you. I just need 15 seconds more.

THE CHAIRMAN: Is the technology working?

MR. DUGUAY: Yes, everything's fine.

THE CHAIRMAN: Okay.

MR. DUGUAY: So thank you very much for the hearing. My name is Michael Duguay; en français, Michel Duguay.

Please note that I have dual Canadian and U.S. citizenship so that I care not only for the five Maritime provinces, which include Québec through the Gaspé peninsula, but also I care about the United States, the state of Maine, in particular, next door, where my American daughter has many friends.

As Dr. Binder recommended yesterday, I will assume that you have read already my two papers for this meeting and I will simply add a few important points and I will list them right away. These are demands from our coalition and I will attempt briefly to justify them.

The first one is that we demand an independent, up-to-date seismic hazard and nuclear engineering analysis for Point Lepreau.

Second, in light of lessons learned from Fukushima, we demand a full environmental assessment.

1 Third, we renew our demand for a Royal
2 Commission of Inquiry into nuclear power in Canada; a
3 demand already made by the United Church of Canada some 25
4 years ago.

5 And last and fourth, in view of the
6 reorganization of the nuclear regulatory process in Japan
7 following Fukushima and in view of the fact that the CNSC
8 has not fully respected paragraph (b) of the *Nuclear*
9 *Safety and Control Act* of 1997, we demand the same type of
10 reorganization for Canada.

11 So I will go into the justification of
12 these points.

13 One, the seismic hazard and reactor damage;
14 yesterday, we all heard an interesting debate over a
15 seismic peak ground acceleration -- acronym PGA -- of 0.3g
16 and another value at 0.4g, where "g" is the acceleration
17 of gravity.

18 Dr. Greg Rzentkowski expressed the 0.3g
19 with the help of a psychologically protective recurrence
20 period of 10,000 years. When it's put that way most
21 people think that such an earthquake won't happen for a
22 few thousand years -- even I myself was fooled by this for
23 a long time -- but people who construct the National
24 Building Code think otherwise. They take into account a
25 50-year time interval and they worry, in the case of

1 nuclear reactors or other chemical industries, about a 0.5
2 percent probability of occurrence of a damaging earthquake
3 over 50 years.

4 In line with this way of thinking, and
5 following mathematician Gordon Edwards, I prefer to
6 express a 0.3 G occurrence probability over 50 years as
7 being the same as the probability of getting three six's
8 on a throw of three dice. I strongly feel that the
9 uncertain future of a nuclear reactor is better
10 represented, especially in the public's mind, by the
11 outcome of a three-dice throw rather than by the illusion
12 of a protective temporal barrier of 10,000 years.

13 Along the same line of thinking, Dr. Greg
14 Rzentkowski, yesterday noted that the 10,000 year
15 recurrence period that you now uphold, if you divided by
16 400 the number of reactors in operation in the world right
17 now that gives 25 years for the recurrence of a big
18 accident. And that's pretty much what's been seen with
19 Three Mile Island in 1979, Chernobyl in 1986, and now
20 Fukushima 2011.

21 For investors in Point Lepreau, some of
22 them sitting to my right, and in CANDU reactors elsewhere,
23 it is perhaps important to note that another major nuclear
24 accident anywhere in the world could reduce Canadian
25 public confidence in nuclear power close to the rejection

1 point. New Brunswick Power and Hydro Quebec already have
2 to deal with increased demands on the part of the CNSC
3 because of the Fukushima events.

4 As far as PGA values are concerned, for a
5 magnitude between six and seven, as Dr. John Adams of
6 NRCan told us yesterday, it's good to keep in mind that
7 the PGA values depend on the chosen model -- John Adams
8 has told me this repeatedly -- and specifically on the
9 choice of active faults. When you see a fault like the
10 Chedabucto fault in the Bay of Fundy, whatever other
11 faults there's lots of them, you can decide it's inactive
12 or active. Well, the probability of your prediction will
13 depend on what you choose as an active fault.

14 I have a paper here by Korea, people in
15 Korea who look at the -- who did a seismic analysis of
16 CANDU reactors in Korea. And they worried, those people
17 in Korea, about faults that are not too far away, just a
18 few kilometres away. They give a whole list, about 40
19 earthquakes over the last two or three decades. Two
20 examples of earthquakes are one in 1979 at Cayouche Lake
21 in California, of a magnitude 5.7, just a little
22 Passamaquoddy earthquake here in 1904. That gave us 0.43
23 G value over the value that your reactor here, you claim,
24 will be able to withstand at a three kilometre distance.

25 A second earthquake in North Palm Springs,

1 California of 6 magnitude gave a 0.59 PGA -- 0.59 G more
2 than they had at Fukushima. They had .56 at Fukushima in
3 March.

4 American journalists David McNeil and Jake
5 Adelstein reported this summer that in Fukushima the
6 earthquake itself broke up pipes and different things well
7 before the tsunami that washed in 41 minutes later.

8 At this point in time, nine months after
9 Fukushima, more than 35 nuclear reactors are still shut
10 down in Japan largely as a result of the fear of potential
11 earthquake damage. Not every reactor in Japan is
12 threatened by the kind of tsunami they had in Fukushima.

13 Part of this point I come to reactor
14 damage, weakness in the pipes. You know darn well that
15 the big weakness of the CANDU reactors are the pipes.
16 When a reactor is shut down, only neutron-induced fission
17 is stopped. The individual residual heat due to
18 radioactivity is initially on the order of 100 megawatts,
19 which is enough to start a core meltdown if insufficient
20 cooling is available.

21 The Point Lepreau was designed for a PGA of
22 0.18 G. It was only years later that high pressure tube
23 degradation phenomena were observed. In August 1983 a
24 high pressure zirconium niobium tube burst in the
25 Pickering 2 reactor near Toronto causing a loss-of-coolant

1 accident. Hydro Ontario decided then to change all of the
2 tubes in all four reactors of the Pickering A station.

3 When an earthquake starts, North American
4 reactors are programmed to shut themselves off at
5 approximately half of their PGA design value, which would
6 be about 0.1 G for Point Lepreau. This is considered to
7 be prudent. In view of corroded pipes, that seems to be
8 well-justified. In Fukushima, as was pointed out, the PGA
9 was 0.56 G, that was 25 percent over the design value and
10 the CNSC pointed that out in their Fukushima report in
11 October. So just 25 percent over the design value and you
12 had damage to reactor components. According to McNeil and
13 Adelstein this PGA caused -- American journalists, caused
14 serious damage before the tsunami.

15 In view of this situation it would seem
16 like an earthquake at 0.3 G going over the .18 G design
17 value of Point Lepreau by 66 percent could cause a lot of
18 damage and probably would be a source of worry to New
19 Brunswick Power.

20 Second point, the CNSC Fukushima task
21 report -- which I have carefully read at least three times
22 and analyzed -- dated October 2011 now announces the
23 possibility that new safety requirements will be imposed
24 on CANDU refurbishments so that consequences of severe
25 nuclear accidents are adequately mitigated. I'm very glad

1 that you put that into your report.

2 This therefore justifies a full
3 environmental assessment of the Point Lepreau restart.
4 You're saying yourself that you can have a severe accident
5 with dire consequences. Well, it would seem to justify an
6 environmental assessment.

7 The quick justification I wrote was that
8 yesterday Dr. Binder himself asked CNSC staff and New
9 Brunswick Power what would happen in the case of a very
10 large -- if a very large earthquake hit Point Lepreau.
11 Well, people in the five Maritime Provinces and in the
12 state of Maine are also entitled to know what would
13 happen.

14 Third point, about the Royal Commission of
15 Inquiry. In the spring of 2011 under the leadership of
16 Gordon Edwards, that you just listened to a while ago, 20
17 organizations across Canada requested the setting up of a
18 Royal Commission of Inquiry into nuclear power in Canada.
19 Now that the CNSC and the international community are
20 moving to strictly enforce the 10,000 year specification,
21 or the three dice standard over 50 years, as I like to
22 call it, the time has come to request the role of ethics
23 in nuclear power; a request that the United Church of
24 Canada had already made some 25 years ago.

25 Picture yourself going to a school, talking

1 to children 10 years old and telling them, "Well your
2 future looks pretty good, except that when I throw the
3 three dice here if three sixes come up you might lose
4 everything." Think about the ethics of such a situation.

5 Last point, four, reorganization of the
6 nuclear regulatory process in Canada. Following
7 Fukushima, Japan stated that their nuclear regulatory
8 establishment had been too close to the nuclear industry.
9 Japan reorganized their regulatory agency and made it
10 report to a different department in their government,
11 which is not the case in Canada.

12 In Canada the CNSC has set up joint
13 industry CNSC committees to work on a number of safety
14 issues together. So they cannot claim -- the CNSC cannot
15 claim to be at arms' length from the nuclear industry.

16 Many official declarations of the CNSC that
17 tend to make people believe that Canadian nuclear reactors
18 are safe -- are unconditionally safe are something that
19 the majority of Canadians -- according to public opinion
20 polls -- do not believe. Last opinion poll showed that 75
21 per cent of Canadians don't believe that.

22 In addition, for obscure reasons, the CNSC
23 has not fully respected paragraph b of the *Nuclear Safety*
24 *and Control Act* of 1997 and that it has refused to answer
25 in a timely and in a scientifically objective manner many

1 questions that we had asked them in 2011.

2 The CNSC considers itself to be a quasi-
3 judiciary tribunal. I am personally of the opinion that
4 the CNSC should move into the direction of being more than
5 just a quasi-judiciary tribunal. A Royal Commission of
6 Enquiry could help that process.

7 Conclusion, Ontario has a strand of debt of
8 about \$30 billion because of problems with CANDU nuclear
9 reactors. In Quebec, Minister Clément Gignac, just last
10 week, recently expressed doubts about the economics and
11 the problems of Gentilly-2 refurbishment and a certain
12 degree of fear with respect to the CNSC -- future CNSC
13 requirements.

14 The former Hydro Quebec Financial Officer
15 has just published, yesterday, a study showing that almost
16 all jobs in Gentilly-2 can be maintained by going into
17 decommissioning. I think that New Brunswick Power could
18 also consider going into decommissioning as a better
19 economical alternative to restart.

20 Minister Joe Oliver that Dr. Binder reports
21 to wants to make Canada a leader in renewable energy. New
22 Brunswick could bring into this effort a significant
23 experience already with wind turbines and wind power and
24 its proximity to the Gulf of the St. Lawrence River which
25 has a huge wind power potential.

1 That's all. Thank you.

2 **THE CHAIRMAN:** Thank you.

3 Questions Dr. Barriault?

4 **MEMBER BARRIAULT:** Thank you, Mr. Chairman.
5 Merci, Monsieur le Président.

6 My question is to CNSC staff. The
7 intervenor highlights the fact that the CANDU reactors are
8 inherently -- I guess have problems from a safety point of
9 view; can you clarify those comments?

10 **DR. RZENTKOWSKI:** I think the reference was
11 made to the CANDU safety issues. That's -- am I correct?
12 Are you referring to CANDU safety issues?

13 **MEMBER BARRIAULT:** Does the CANDU reactor
14 have safety issues that were highlighted?

15 **DR. RZENTKOWSKI:** Yes, and we didn't hide
16 this fact because many reactor designs have many safety
17 issues. As a matter of fact, there are two reports issued
18 by IAEA; one pertaining to PWR, pressurized water
19 reactors, which contains more than 400 safety issues and
20 one with reference to CANDU reactors which contains
21 approximately 70 issues. So we took a very close look and
22 started a very concerted effort to resolve some of them,
23 but very quickly we concluded that "safety issues" was
24 somewhat misleading term because in fact CANDU reactors
25 attain an excellent safety records and when we look at so-

1 called safety issues, in fact, those are opportunities for
2 safety improvements and that's what, by exercising due
3 diligence, we decided to explore further and right now we
4 have a project in place looking to really capitalize on
5 this information and implement those safety improvements
6 into existing design of operating reactors. So safety
7 issues is somewhat misleading term.

8 **MEMBER BARRIAULT:** How does the level of
9 these safety issue compare, for example, to the GE reactor
10 at Chernobyl or the -- not Chernobyl, in Fukushima or the
11 reactors in Chernobyl?

12 **DR. RZENTKOWSKI:** It's next to impossible
13 comparing the CANDU design to the Chernobyl design. As it
14 is of course, the lesson learned from Chernobyl accidents,
15 all those types of reactors have been shut down
16 permanently all over Europe because they were not only in
17 Russia, but also in some other European countries. Those
18 reactors don't operate anymore and it's very difficult to
19 draw a direct analogy between the design of VVRs -- this
20 was the type of Russian reactors -- and CANDU reactors.
21 CANDU's are significantly safer and rely on very good
22 design assumptions, very safe design assumptions
23 predominantly redundancy, separation, and diversity of all
24 safety systems which are essential to maintain cooling of
25 the reactor core.

1 **MEMBER BARRIAULT:** Thank you.

2 Monsieur Duguay, français ou anglais?

3 Doesn't make any difference? Pas de difference, français
4 ou Anglais, la question?

5 **MR. DUGUAY:** Could you repeat the question?

6 **MEMBER BARRIAULT:** Yes, okay, yes. I'll go
7 to English then. I'm sorry. I was asking the question in
8 French.

9 Is there any reactors that you feel are
10 safe? We've gone through Chernobyl, CANDU, GE?

11 **MR. DUGUAY:** Well, all reactors are known
12 to have some degree of safety, but I'll have you notice
13 that just read the CNSC documentation and lots of
14 documentation -- in the sixties, people used to be happy
15 with 1,000 years, that was supposed to be sufficient; now
16 you've moved to 10,000 years and lots of people yesterday
17 were talking about 100,000 years. At 100,000 years -- at
18 10,000 years, as Greg said yesterday, you'll have a big
19 accident every 25 years, somewhere in the world.

20 **THE CHAIRMAN:** But I think Dr. Barriault is
21 asking an interesting question. You have a (inaudible) in
22 the U.S. The U.S. is now, as we speak, building two or
23 three new -- brand new -- nuclear power plants. Would you
24 support ---

25 **MR. DUGUAY:** Well, I'm not sure if they're

1 that brand new. You know, the Westinghouse design was
2 refused -- was turned down.

3 **THE CHAIRMAN:** So the question is, is there
4 any design globally that you would find acceptable?

5 **MR. DUGUAY:** Well, as you may know, people
6 discussed 4th generation reactors that would be much more
7 safe -- much safer than the present ones. The advanced
8 CANDU reactor that Atomic Energy Canada has been
9 advertising would be much safer; they have been
10 advertising, but they haven't had the funding to develop
11 it. So yes, one can conceive of a nuclear reactor that
12 would be extremely safe; that's conceivable.

13 **MEMBER BARRIAULT:** Thank you. Thank you,
14 Mr. Chairman.

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

16 **MEMBER McDILL:** I have a question for
17 staff; two, in fact.

18 I think the idea of the three dice thrown
19 together is an interesting one for people to think about,
20 but is it a fair mathematical correlation? So that's the
21 first question.

22 **DR. RZENTKOWSKI:** Yes.

23 **MEMBER McDILL:** Welcome back.

24 And the second -- would you like to read
25 this; your analogy or your mathematics of yesterday?

1 **DR. RZENTKOWSKI:** Thank you for both
2 questions.

3 Professor Duguay rolled the dice here and
4 based on rolling a dice concluded that we may anticipate 1
5 accident in 25 years so I performed a very simple
6 calculation yesterday. I must say that this was done
7 during the intervenor's presentation so it was a very
8 crude approach, but I just wanted to show the power of
9 statistics if you don't define properly the simplifying
10 assumption which goes into the definition of the numbers.

11 And here I am looking again at the numbers
12 presented by Professor Duguay. So he's assuming that all
13 400 operating reactors are constructed in a seismicly
14 active zone. This is not correct. If we assume that only
15 25 per cent are constructed in a seismicly zone, which is
16 probably a very conservative assumption, we would conclude
17 based on the calculation done by Professor Duguay, that we
18 will have 1 accident in 100 years, so now, one may wonder
19 why such a big difference between the numbers presented by
20 Professor Duguay and that's what I very quickly calculated
21 yesterday. It was 1 in 5,000 years.

22 The answer is very simple because by
23 talking about the risk, we cannot talk only about
24 probabilities, but we have to talk about the consequences
25 as well.

1 And here Professor Duguay assumes that if
2 we have a major earthquake, this is equivalent to a major,
3 catastrophic events -- to a major catastrophic event and
4 this is not the case because we demonstrated yesterday
5 that the modern design of current reactors meets safety
6 goals and the safety goal for the release frequency is
7 two orders of magnitude lower than the probability of a
8 seismic event. So we have to add two zeros to 100, we
9 will have 10,000. So all of the sudden, an accident can
10 be expected once in 10,000 years. Well this is becoming
11 very close to the number I predicted yesterday. I hope
12 this answers both of your questions.

13 **MEMBER MCDILL:** In terms of this, has the
14 commission ever looked at something like 6 Sigma
15 methodology, which is well understood in the manufacturing
16 sector where the process centre is +/- 6 Sigma away from
17 the tolerances. Where is this in the 6 Sigma kind of
18 mathematics?

19 **DR. RZENTKOWSKI:** We use the same
20 methodologies. Typically we use 2 Sigma only for the
21 analysis of beyond design-basis accidents when we apply
22 so-called best estimate and uncertainty methodology. For
23 that, you try to predict your input parameters to be as
24 realistic as possible. But if you do that, you always
25 have to have some uncertainty. And uncertainty -- you

1 typically assume at 95 percent level with 95 percent
2 confidence; so called two Sigma approach. This is what is
3 typically used in nuclear engineering.

4 **MEMBER McDILL:** Does N.B. Power want to add
5 anything in that and then I'll return to Mr. Duguay.

6 **MR. KENNEDY:** No, we wish to add nothing
7 further.

8 **MEMBER McDILL:** Does the intervener want to
9 talk math?

10 **MR. DUGUAY:** Comment on the 6 Sigma? Well,
11 I'd rather comment on the so-called demonstration. You
12 claim that yesterday you demonstrated that a CANDU reactor
13 will withstand a 0.4 G earthquake? Is that what you claim
14 you demonstrated?

15 **MEMBER McDILL:** I think this has to come up
16 through the table in back, so I'll ask staff if they wish
17 to respond.

18 **DR. RZENTKOWSKI:** I was referring to the
19 safety goals. I didn't refer to the magnitude of seismic
20 activity. But I think we have to talk about the seismic
21 magnitude as well because, from my perspective, the
22 discussion hasn't been very conclusive yesterday, and I
23 would be glad to come back to it as a result of the
24 presentation made by Professor Duguay. By all means, we
25 can focus on this subject as well.

1 **THE CHAIRMAN:** I think it's a good time to
2 focus because I -- you know, we're going in circles about
3 probabilities here and rolling of the dice and gambling,
4 and all this stuff. But I think Dr. Edwards had it right;
5 we don't care how you get there. The question in front of
6 us, in terms of safety is, is assume the worst possible
7 earthquake; what would be the consequences? And I'd like
8 to start with -- since Dr. Adams is here with us, I'd like
9 to put him on the spot. So you are -- if the Japanese
10 government asked you, you know, based on the scientific
11 information available, whether -- what would you be --
12 what would your highest possible magnitude earthquake down
13 that region based on all the seismic data; would you have
14 predicted the 9.1 or 10, I think there was such prediction
15 already in the scientific community, circulating.

16 **DR. ADAMS:** Dr. John Adams, Natural
17 Resources Canada.

18 My understanding was that they were
19 expecting earthquakes in the magnitude of 8.25 to 8.5
20 range. Effectively, what happened during the March event
21 was that all of these earthquakes happened together; one
22 led into the other.

23 In hindsight, there was evidence of the
24 1867 -- sorry, the 867 large tsunami, which suggested that
25 much larger tsunamis than they were modelling had actually

1 happened, and they should not have overlooked that. But,
2 you know, we learn from that sort of experience, and I
3 think everyone is now saying that magnitude 9s could
4 happen along subduction zones in many other places in the
5 world which were, perhaps, not expected.

6 For Canada specifically, we always assumed
7 that the Cascadia fault -- we have for the last 20 years
8 -- would rupture in a magnitude of a 9 to 9.5 event.

9 **THE CHAIRMAN:** So translating all of this
10 to Point Lepreau and that region, what would be your
11 estimate of the largest magnitude?

12 **DR. ADAMS:** So when we do calculations for
13 the National Building Code, which is a simplified model to
14 what one would do if one had done a site-specific, we
15 allow earthquakes as large as 7.5 in source zones in New
16 Brunswick and the Atlantic margin. So in the model, there
17 is a small contribution from a 7.5 happening close to the
18 plant. In fact, that's a very low probability event, so
19 the contribution from that very large earthquake is very
20 small, it's very unlikely. And the most likely earthquake
21 is something in the 6.5 range.

22 **MR. DUGUAY:** Well, in line with what you
23 said, Dr. John Adams, in Christchurch, New Zealand,
24 February of this year, there was a 6.3 magnitude
25 earthquake that caused a 2 G PGA in Christchurch. It

1 destroyed many buildings and killed 181 people. So if
2 you're saying that a 6.5 magnitude earthquake can occur
3 close to Point Lepreau, you have to look at what happened
4 in Christchurch, don't you?

5 **DR. ADAMS:** So the Christchurch situation
6 was an extreme event; in other words, it was a very, very
7 close event. It was virtually under the city by about two
8 kilometres. You have to look at the probability of that
9 happening and if we look at the distribution of
10 earthquakes in Eastern Canada, where they happen, not only
11 in space but also depth, the chance of an event that close
12 is much lower than the probabilities at which we're
13 considering.

14 **THE CHAIRMAN:** But again, coming back to --
15 let's assume the worst scenario did happen close to Point
16 Lepreau, it's 6.2 and everything -- damage is caused. So
17 now we are into -- that's the kind of scenario that I was
18 trying people to elaborate here, that given that
19 disastrous situation, what will happen to the facility,
20 will it GSS, guaranteed shutdown -- I'm not going to
21 believe it will shut down by itself -- shut down
22 permanently? Staff?

23 **DR. RZENTKOWSKI:** Yes, I tried to make this
24 point yesterday, that even if we will experience an
25 extremely high magnitude earthquake here in Point Lepreau,

1 approaching the level of that in Fukushima, the reactor
2 will shut down safely; however, there will be some
3 consequences. Definitely, the core will melt. Now the
4 question is, if the molten fuel will be contained in the
5 calandria. Probably not. It may be, but it cannot be
6 guaranteed. So the worst-case consequence would be some
7 level of unfiltered releases to the environment after
8 maybe four to five days from the accident. That's the
9 worst-case scenario.

10 **THE CHAIRMAN:** So you basically have four
11 days to mitigate, is that what you're trying to say?

12 **MR. RZENTKOWSKI:** That's correct. We will
13 have four days to mitigate the consequences, if that's --
14 would be absolutely necessary, including sheltering, the
15 population around the plant, just to avoid any exposure.
16 But this would be the worst consequence, which also
17 includes large releases, because we cannot preclude this
18 if we have a seismic activity of that magnitude.

19 **THE CHAIRMAN:** So in post-Fukushima now, in
20 your task force, that's what we are now having everybody
21 sort of prepare for that kind of a scenario?

22 **DR. RZENTKOWSKI:** That's correct. I would
23 like to stress this point, that for someone reading the
24 report, this would be probably obvious. The main lesson
25 learned from the Fukushima event is that no matter how low

1 the probability of an accident, it may happen tomorrow.
2 And because of that, the task force focused on mitigation
3 of the consequences of severe accidents.

4 The task force focused on so-called Level 4
5 and Level 5 of defence in depth. Level 4 is slowing down
6 or arresting the progression of severe accidents inside
7 the reactor, inside the reactor building. And Level 5 is
8 an emergency response which would include sheltering of
9 the populations, or relocation of the area around the
10 plant. So this is the main focus. As the regulator, I
11 think we learned to anticipate the unexpected.

12 **THE CHAIRMAN:** Mr. Jammal.

13 **MR. JAMMAL:** Thank you Mr. President, for
14 the record, this is Ramzi Jammal.

15 I want to regroup and start the discussions
16 from the design basis and the beyond design basis. So Dr.
17 Rzentkowski's gone to the beyond design basis scenarios,
18 let us go back to the design basis, if you'll allowed me
19 sir, because we need to clarify a couple things.

20 That we have the seismic events, they must
21 be assessed, no debate. And the assessment is based on
22 S294, which is standard of probabilistic assessment, and
23 the Canadian Standard Association N285, N287, N289, and
24 N291 all address the design criteria for a nuclear
25 facility and a nuclear power reactor.

1 As a matter of fact, we have those
2 documents and these requirements listed in our proposed
3 Licence Condition Handbook, pages 48-49 of the proposed
4 licence before you.

5 So we go now to the safety aspect -- what
6 is it you need to do from a design principle to conduct
7 physical enhancement for the facility?

8 The building code has changed. They moved
9 from one -- I'll repeat it on microphone-- from one in 450
10 years to one in 2,500 years with respect to the frequency.

11 So the improvement is taking place. Same
12 thing we're applying -- applying the fact is -- you're
13 going to go now for beyond design basis -- let's leave
14 probability out of the point here -- must be equivalent to
15 0.3Gs -- 0.3Gs at Point Lepreau. This is -- I'm going for
16 Point Lepreau.

17 So the -- taking into consideration the
18 release frequency, 0.3Gs. So in order to carry out the
19 enhancements in accordance with CSA standards. Okay. And
20 the USNRC, since you worked in the U.S. and a U.S. citizen
21 -- I'll refer you to guide to NUREG 1407, which is put out
22 by the USNRC with respect to the enhancement for
23 improvements in order to go beyond design basis for the
24 protection of the reactors.

25 So of course now we go to the 0.42, and the

1 performance based on -- you need to do the modelling --
2 using the PSA and include the seismic margin assessment.
3 So when we did the PSA to include the seismic margin
4 assessment for 0.3G, and Point Lepreau submitted their
5 values, we reviewed against the standards, and they did
6 meet the requirements for 0.3G.

7 And they applied the upgrades. They do
8 have physical upgrades. As a matter of fact, as I
9 mentioned, the IAEA International Expert Group -- they're
10 arriving tonight to visit Point Lepreau tomorrow, to focus
11 on the upgrades that were done based on the lessons
12 learned and based on our requirements -- because in
13 Canada, we don't stand still with respect to design
14 principles. The licensees must have continuous upgrades,
15 a review of the safety case, to include the design.

16 I know you're getting anxious, but I want
17 to go through the process.

18 **THE CHAIRMAN:** Quickly, please.

19 **MR. JAMMAL:** Okay. So in other words,
20 leave the probability out of it. Taking the PSA, taking
21 the seismic margin evaluation, and start to put the
22 numbers in place to determine what enhancements to be done
23 -- enhancements at Point Lepreau demonstrate, okay, the
24 seismic capacity to withstand 0.42Gs for the large release
25 frequency, okay?

1 If we go back to layman's terms, if you
2 allow me sir. I mean here we're going to go on non-
3 technical fact. You've got beyond design basis, and more
4 beyond design basis, and that's the safety margin we put
5 in place.

6 **THE CHAIRMAN:** Dr. McDill.

7 **MEMBER MCDILL:** I'll pass it to Dr.
8 Barriault.

9 **THE CHAIRMAN:** Dr. Barriault.

10 **MEMBER BARRIAULT:** No further questions at
11 this time, thanks.

12 **THE CHAIRMAN:** Just a couple of quick
13 items.

14 First of all, I do not report to the
15 Minister of Natural Resources. I report to Parliament
16 through the Minister of Natural Resources. It's like a
17 nuance, but I don't. I mean, it's only the parliamentary
18 -- the parliament that I report to.

19 Secondly, we do -- if we do have joint
20 meetings with industry, they are meeting on specific
21 technical issues at the industry's invitation, or
22 research, or etc. etc.

23 So I don't think that in any way
24 compromises our independence. So that's just a point of
25 clarification from where we sit.

1 And I -- on a royal commission, again, you
2 know those are the things that you have to go to
3 government and try to ask for a royal commission if you
4 want to see a royal commission on nuclear and energy mix -
5 - a lot of people in the industry, dare I say, are looking
6 for energy policy at a national level. That's not really
7 our domain.

8 You keep mentioning one point I wanted to
9 actually talk about, and that's, one more time, to remind
10 -- maybe from staff -- can we repeat one more time about
11 the EA. There was an EA done. When was it done? Why was
12 there a decision before the refurbishment not to do
13 another EA?

14 So could you put on the record some clarity
15 quickly on this?

16 **MR. RZENTKOWSKI:** I will ask Mike Rinker,
17 the Director of the Environmental Risk Assessment Division
18 to summarize what has been done in terms of environmental
19 assessment before the refurbishment of Point Lepreau.

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

21 I'll first give directly the answer about
22 the *Canadian Environmental Assessment Act*. First of all,
23 there was an original EA done for the construction
24 commissioning operation of the Point Lepreau facility.

25 It was done in -- quite some time ago,

1 before the facility was constructed, under the legislation
2 that preceded the *Canadian Environmental Assessment Act*.
3 That's the Environment Assessment Review Process
4 Guidelines Order.

5 And so that's the fairly unique thing about
6 Point Lepreau is that it was dated -- it was constructed
7 at a time when there was legislation around for
8 environmental assessment. A lot of the older projects
9 didn't have that.

10 And then there was some changes to the
11 waste management facility located at Point Lepreau, and
12 that triggered an environment assessment as well, and that
13 environmental assessment was scoped broadly to include the
14 continued operation of the Point Lepreau facility.

15 So when you look at those two environmental
16 assessments, the *Canadian Environmental Assessment Act*
17 does allow you to use previously conducted environmental
18 assessments, including those done under the Environmental
19 Assessment Review Process Guidelines Order.

20 And so the activities that were considered
21 for refurbishment were previously assessed, and there was
22 no need for an additional environmental assessment under
23 the *Canadian Environmental Assessment Act*.

24 I don't want to stop there though, because
25 that does not mean that we do not do a complete and full

1 assessment of the environmental effects of a facility,
2 including exposures to people who live in the environment,
3 because we do, under the *Nuclear Safety and Control Act*.

4 The CEAA is really an overlay over other
5 legislations that do not have environmental protection
6 provisions in it, such as the *Fisheries Act* or the
7 *Explosive Act*, things that do trigger CEAA.

8 What the NSC has is an environmental
9 protection provision, where we do a complete environmental
10 risk assessment of the facility, including all releases to
11 the environment -- things like impingement and
12 entrainment, exposures to people who are living in the
13 environment.

14 So that was done also twice. Once -- I
15 guess the latest one was in 2007, and we will continue to
16 do that whenever there's a review of the facility and
17 following the new CSA standards, yes, will be repeated.

18 **THE CHAIRMAN:** Thank you. You have the
19 last word.

20 **MR. DUGUAY:** If I can ask a question,
21 first.

22 **THE CHAIRMAN:** By all means.

23 **MR. DUGUAY:** Isn't there going to be an
24 environmental assessment for the refurbishment of
25 Darlington and, if yes, why does it take one in Ontario

1 and not one in Quebec or in New Brunswick?

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

3 There wasn't an original environmental
4 assessment done for Darlington under the Environmental
5 Assessment Review Process Guidelines Order that could be
6 used, like there is a Point Lepreau.

7 And in addition, the other facilities in
8 Ontario were put in a permanent lay-down state for some
9 time, and the licensing triggers that would authorize its
10 refurbishment and continued operation were different than
11 Point Lepreau.

12 So our licensing action, which is the
13 trigger for the *Canadian Environment Assessment Act* was
14 quite a bit different.

15 **THE CHAIRMAN:** Mr. Duguay?

16 **MR. DUGUAY:** (off mic)

17 **THE CHAIRMAN:** By all means. Whoops.

18 **MR. DUGUAY:** Well, I'll be spontaneous if
19 you allow me to. I think that for New Brunswick Power,
20 you have to resist the temptation of going down to the
21 slaughterhouse. You have to resist that temptation.

22 I lived my youth on the sea, in the Gulf of
23 the St. Lawrence River. I've worked on solar energy
24 boats. The Gulf of the St. Lawrence River is amazing.

25 Private capitalists invested \$200 billion

1 dollars last year on wind and solar power. All you have
2 to do is give them a telephone call instead of going on,
3 on this path to the nuclear slaughterhouse and you can
4 learn from Ontario what it looks like.

5 Second statement is with respect to
6 the people facing me here. I believe that Moyra McDill
7 and myself enjoy life a little more than many of you
8 because we have tenure. It's wonderful to have tenure
9 job.

10 I worked at AT&T for 23 years. And
11 every year, the managers reminded us that we might not be
12 there next year. And that happened to me. After 23 years
13 of service, I was fired.

14 But being a professor at Laval
15 University I have tenure. And I believe that Moyra is
16 doubly tenured, because she's a tenured commissioner as
17 well, isn't she?

18 So tenure is wonderful. And my
19 colleagues may not agree with this in the back me but I
20 think that the job of the CNSC is so important that every
21 employee at the CNSC should have tenure. In particular,
22 the president, not to have a repeat of what happened to
23 Linda Keen.

24 Now Mr. Binder doesn't worry because
25 he's already in the hall of fame. So, you know, your

1 legacy's assured. We're already in heaven.

2 **THE CHAIRMAN:** First of all you should
3 know that the commissionaires' are appointed for good
4 behavior. So they're appointed for, it's called a good
5 behavior...

6 **MR. DUGUAY:** But some of them are
7 permanent.

8 **THE CHAIRMAN:** It's a -- they're not
9 permanent. They are for a time. There's a time limit.
10 But the good news is during their time, they cannot be
11 fired. So they have a temporary tenure. But there's a
12 time limit in it, so we leave it at that.

13 **MR. DUGUAY:** Nevertheless, as a
14 personal opinion, I think that the president, who's facing
15 me right now, to me, is more important than the prime
16 minister.

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

18 **MR. DUGUAY:** Personal opinion.

19 **(LAUGHTER/RIRES)**

20 **THE CHAIRMAN:** Thank you. I will --
21 let the record show. Thank you. Merci Beaucoup.

22 **MR. LEBLANC:** So this was the last of
23 the intervention, and the commission did conclude also the
24 written submission yesterday. However, the commission has
25 received and accepted an oral request by CCNB action St.

1 John Chapter to further address the commission on a few
2 matters that have been discussed these past two days.

3 Mr. Rouse and, I understand Professor
4 Burke will address the commission. As agreed, Mr. Rouse
5 will speak for a maximum of five minutes and Professor
6 Burke will provided clarifications on the seismicity issue
7 that has been discussed in the last two days. Mr. Rouse,
8 please proceed.

9 **THE CHAIRMAN:** You're not a tenure
10 professor?

11 **(LAUGHTER/RIRES)**

12 **MR. BURKE:** I'm no longer -- I'm
13 retired from being a professor.

14 **THE CHAIRMAN:** What kind of a
15 professor are you then?

16 **MR. BURKE:** I'm a retired professor.

17 **THE CHAIRMAN:** A retired professor.
18 Well, I think you'll retain your title though, don't you?

19 **MR. BURKE:** Yes, I'm a seismologist and
20 I've continued in industry in the use of seismology and
21 applied seismology which is one of the topics I wanted to
22 speak about --

23 **THE CHAIRMAN:** So welcome - we can
24 call you Dr. Burke at least. Okay.

25 **MR. BURKE:** I do have a position at

1 UNB but not as professor.

2 **THE CHAIRMAN:** Okay, go ahead please.
3 Who is going to start? You going to start?

4 **MR. ROUSE:** Thank you very, very much
5 for giving me this other opportunity. Listen, I'd really
6 like to summarize all of our partner's interventions. It
7 can really be summed up in three statements that we all
8 believe, anyways. You know, it's not cheap, not green and
9 not safe.

10 You guys don't have a mandate for
11 cheap, but N.B. Power wouldn't comment yesterday, so I
12 guess that speaks loudly.

13 Not green. I guess if I could just
14 point to the *Nuclear Safety Control Act* and scientific
15 objective regulatory information to the public and
16 unreasonable risk.

17 So, onto not green. Under the Rules
18 of Receiving, 20-3, we were asking for the Commission to
19 make a decision on environmental assessment. Climate
20 change has not been considered in any of these EAs, even
21 the ones done for the solid waste thing really didn't
22 consider that and I think as Canada, we need responsibly
23 take that into consideration.

24 Now to not safe. Earthquakes have had
25 a long history with Point Lepreau, with Dr. Ferraz

1 quitting over reasons, and there's boxes full of
2 newspapers and all his stuff and -- this really needs to
3 be addressed if we're going to try and run this another 30
4 years.

5 I think a very reasonable request is
6 that a new seismic hazard study be done - you know the one
7 I used in my intervention was 96. Everyone was telling me
8 it's outdated. Well, the one N.B. Power's using is from
9 1984, so we'd really like to have an independent -- you
10 know, to keep things objective -- an independent seismic
11 hazard analysis done and really put the earthquake thing
12 to bed. I think New Brunswickers in light of Fukushima
13 deserve this. We would also like Ken Burke to talk about
14 earthquakes.

15 Now on to the objectiveness of the
16 regulatory information provided, especially to myself.
17 It's not only me that didn't believe that with earthquakes
18 included that the PSAs did not meet their safety goals.
19 It's also stated in those two documents that Mr. Jammal
20 was talking about.

21 The industry also did not believe in this
22 and that document was -- Mr. Burke will tell you, has some
23 serious problems, and we really need to have an outside
24 source besides the CNSC and N.B. Power to determine if we
25 really are meeting our regulatory limits.

1 The other document that I reviewed was
2 a warning from our partners in the U.S., the NRC. They
3 issued a warning that seismicity may have increased in the
4 eastern thing. And I've read these documents that these
5 PSA levels come from and they all believe that the .3Gs
6 might be not quite high enough.

7 We deserve it -- to the U.S.A. to make
8 sure that we actually did that document. That document
9 had some serious issues and, commissioners, you should
10 really be taking two very serious documents that were
11 technical reviews that were done after -- two months after
12 the Fukushima accident -- whether they were done properly,
13 very, very, very seriously because it could mean that
14 there's a lot of other issues with what's been going on
15 here and it really needs to be objective.

16 So under that we talked about the IIEA
17 yesterday. Under Section 20-3 I request that myself and
18 Mr. Duguay be able to talk to the IAEA while they're here
19 in town, possibly tomorrow, without the CNSC staff or N.B.
20 Power, to go over interventions and concerns and to keep
21 it objective -- be able to talk to these people.

22 One other thing I really would like to
23 talk about is neither N.B. Power's or the CNSC staff's CMD
24 documents have been translated into French. This is a
25 bilingual province. This is a bilingual country. And not

1 only, I believe, the First Nation's people don't feel very
2 happy about it. I really don't think that the French
3 community in New Brunswick would be very happy about that
4 as well.

5 So I guess really our three requests;
6 environmental assessment, seismic hazard thing and an
7 external review of the *Nuclear Safety Act* in regards to my
8 intervention and these two technical documents and the way
9 I believe I was misled.

10 **THE CHAIRMAN:** Okay.

11 **MR. BURKE:** My name is Ken Burke. I'm a
12 seismologist. I work for Satellite Geophysical
13 Administrative Services. I don't have a connection with
14 the university, except in an honorary sense of the moment,
15 so I just wanted to clarify that for the record.

16 I provided a written submission to the
17 Commission and I more than really talk about that sort --
18 an attempt to update the assessment of seismicity that has
19 occurred since 2002, because I actually prepared the
20 seismicity assessment in 2002 for the extension of the
21 waste facility at Point Lepreau.

22 What does concern me is that there doesn't
23 seem to have been any detailed seismic hazard analysis
24 since 1984. Again, I was involved with that, with
25 Maritime Nuclear, who were the people involved with the

1 design of Lepreau too, so that was -- I think the 1984
2 report that is referred to.

3 Since that time, there's been a lot of
4 updates and a lot of changes in idea in seismology, also
5 in our seismic technology. Besides being an earthquake
6 seismologist, some of our applied seismologists have been
7 involved with seismic expiration techniques.

8 In 1973, when I was first involved, we
9 didn't have the capability of doing seismic surveys in the
10 kind of detail that we do them today. We can actually do
11 a three-dimensional seismic survey, something like a CAT
12 scan in x-ray services. So if you have to rely in
13 medicine with a normal x-ray today, you couldn't do the
14 kinds of things that you can do with a CAT scan. Same
15 thing in seismology, we can now go in and look in great
16 detail in areas of quite complex geology, which Lepreau is
17 a good example of; the geology around that area is quite
18 complex.

19 So we have fiber sized screws in the
20 province looking at the general geology for shale gas
21 extraction. The same technique could be used around the
22 plant to see if there any hidden structures that might
23 have any consequence for Point Lepreau.

24 So that's an example of, say, bringing
25 things up to date, and this is why I think you really do

1 need a site specific, deterministic kind of seismic hazard
2 study, and not just rely on probability estimates which
3 you've heard several opinions about. I won't give you my
4 opinion, but I -- you know, I would differ with some of
5 the points that have been raised, but I won't say any more
6 about that particular topic.

7 **THE CHAIRMAN:** Well, let me ask you, you
8 heard that many of us are listening with great interest on
9 this probability debate here, but the bottom line is, what
10 we want to know is? What would be the most severe
11 accident that -- and even under that condition, we're
12 looking for the machine to be able to permanently shut
13 down ---

14 **MR. BURKE:** Yes.

15 **THE CHAIRMAN:** --- That's really where the
16 concern is, so that's my first question?

17 The second question, I thought that NRCan
18 and Dr. Adams, at least I was under the impression, keep
19 up with the most up-to-date technology, et cetera, not to
20 mention the international community is very preoccupied
21 now with seismic technology and methodology. So I thought
22 I heard that all of this study had been done, you know, to
23 take a fresh look at all of this.

24 So what am I missing here?

25 **MR. BURKE:** To my knowledge, no site-

1 specific study is being done. The studies done by ---

2 **THE CHAIRMAN:** What will a site-specific --
3 it would bring you more insight into the magnitude, let's
4 say, 6 or 7, by .3g, those kind of things? What more
5 insight will you get?

6 **MR. BURKE:** We would know the dimensions of
7 possible faults in that area that could generate, say, a
8 magnitude 6 earthquake. At the moment, as a seismologist,
9 I would say the most likely place to get up to a magnitude
10 6 earthquake is Passamaquoddy Bay, at least in southern
11 New Brunswick.

12 I would think that perhaps also equally
13 likely to get an earthquake of that size in the central
14 highlands, but in southern New Brunswick, close to
15 Lepreau, Passamaquoddy Bay is the place there could be a
16 magnitude 6 tomorrow, it could be 30 years ---

17 **THE CHAIRMAN:** But I thought that that --
18 but I thought that that's what Dr. Adams agreed with you
19 on this. Dr. Adams, can you share with us your views on
20 this?

21 **DR. ADAMS:** Right. Well, I would say, if
22 you need a definitive answer, you need a site-specific
23 seismic hazard assessment because then you can go into the
24 details that you really need. Where I came in was using
25 an extrapolation of the National Building Code model,

1 which is not an unreasonable model in this case because we
2 both agree that the main source is Passamaquoddy Bay
3 earthquakes. They're about 40 kilometres away.

4 We have a source zone that puts in a rate
5 of earthquakes, in that it has some of the right distance.
6 And most importantly the most recent time we ran the
7 model, 2010, we used the new ground motion prediction
8 equations.

9 Which show that back in the 1990s, that the
10 very conservative assumptions were being used for how fast
11 ground motions would change as you moved away from
12 earthquakes?

13 I'd just put a put a little background in
14 here. My sense is that in the U.S. the plants were not
15 designed to quite the high levels that they were in Canada
16 in the 1970s and '80s. And because of that, there's been
17 a remarkable amount of conservatism robustness built into
18 our designs, that as we realized that the estimates that
19 were made back then were actually too high.

20 That translates into an increasing
21 robustness for a probability -- for the probability of
22 having strong shaking. So we were kind of fortunate that
23 the design started off fairly high, and that buys us
24 probability in space and in time.

25 So I don't see -- you know, without doing

1 the analysis you don't know what's going to come out of
2 it. But the main features that would go into a site-
3 specific analysis are probably captured by the national
4 model, and the national model was only really being used
5 as a screening tool to see whether in fact the
6 probabilities that were being estimated and used in the
7 model for the .3g were about right or not. And we
8 concluded that there was no basis from the new model to
9 say that the assumptions made by New Brunswick Power were
10 inappropriate.

11 Thank you.

12 **THE CHAIRMAN:** New Brunswick, do you want
13 to add anything to this?

14 **MR. THOMPSON:** Yes. For the record, it's
15 Paul Thompson.

16 Again, we performed a PSA-based seismic
17 margin assessment which is a recognized and accepted
18 methodology. It is selected that way to avoid the exact
19 discussion that we're having over the precise probability
20 of the earthquakes, and needing to do more and more very
21 site-specific hazard analysis. So it's a recognized,
22 internationally approved approach.

23 We've used the values for the review level
24 earthquake of .3g, which is again in line with
25 international practice, and demonstrated through detailed

1 fragility analysis, using international experts that the
2 plant design is robust and where necessary we made the
3 changes.

4 We furthermore demonstrated that there was
5 additional margin built in, above and beyond that, by
6 which we've had to have a high confidence that we wouldn't
7 have a large release for an earthquake that would be as
8 large as resulting in a peak ground acceleration of 0.42g.

9 That is above and beyond what the
10 international practice would require us to do, so we do
11 not believe that we need to do any more, further,
12 analysis.

13 **THE CHAIRMAN:** Thank you.

14 **MR. ROUSE:** Excuse me? NRCan's official
15 stance is, get a professional site-specific one done.
16 It's all over their web site. It's not a super lot of
17 money, compared to what this has already cost. There's so
18 much history with earthquakes with Point Lepreau. Please
19 at least give us that, please. There's so much history
20 with this.

21 **THE CHAIRMAN:** Okay. Dr. McDill?

22 **MEMBER McDILL:** Thank you.

23 Two questions? At the beginning, the
24 intervenor raised again the issue of climate change not
25 having been included and I'd like you to explain to the

1 room. How climate change has or has not been included in
2 the assessments?

3 **DR. RZENTKOWSKI:** I would like to direct
4 this question to Karina Lange who is the technical
5 specialist in the Environmental Risk Assessment Division.
6 Thank you.

7 **MS. LANGE:** Yesterday, I briefly wanted to
8 -- or yesterday I said that we acknowledge that climate
9 change, you know -- there is strong evidence of climate
10 change and increasing temperatures can have an impact on,
11 for instance, as one of the intervenors brought up, sea
12 level rise and changing the weather patterns such as
13 increased precipitation from higher temperatures, other
14 effects including changes in frequency and intensity of
15 extreme weather events.

16 Although, as we are well aware, there is an
17 ongoing debate about the nature of these regional
18 variations, tropical storms moving further north, for
19 example, and what exactly the impacts are, and that's the
20 reason that there is a lot of research being done right
21 now on climate change across the world, including several
22 large international organizations that are based on
23 climate change.

24 And so CNSC, in its assessment of risk to
25 the environment, does consider climate change and new

1 research on climate change as it is relevant to the
2 environment.

3 And as I said, under lessons learned in
4 Japan, Point Lepreau, specifically with respect to
5 flooding, we are revisiting the safety assessment that was
6 conducted to specifically address the issue of climate
7 change, and as we continue to learn about climate change
8 from advanced research, we will apply that to as many
9 factors as it shows to affect.

10 **THE CHAIRMAN:** And what -- go ahead.

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

13 I just wish to clarify that in the 2003
14 environmental assessment, the scope of the environmental
15 assessment, as was indicated by staff -- two things -- it
16 did include the actual project itself, the outage itself
17 and the activities that would be undertaken during the
18 outage, but it also included as part of the guidelines
19 which were viewed in the public forum and as part of the
20 actual assessment, the effects of climate change on the
21 facility.

22 So climate change effects, so extreme
23 weather events and so on was addressed using the
24 information that was available at the time.

25 The one aspect of climate change that was

1 not included was the potential offsets, coming back to
2 your comment, Mr. President, with regards to is this a
3 zero -- is it a green energy or a non-green energy? That
4 was not addressed. But the effects of climate on the
5 facility were part of the scope of the environmental
6 assessment conducted in 2003.

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

8 **MEMBER McDILL:** Thank you. That was my
9 question.

10 I believe the intervenor wanted to say
11 something more.

12 **MR. ROUSE:** Again, I just want to reiterate
13 back to *The Canadian Nuclear Safety and Control Act*, the
14 objectiveness of this is, I guess, we're questioning and
15 we would really like to have an outside party's look at
16 these issues for us, please.

17 **MEMBER McDILL:** My second question -- thank
18 you -- my second question is to Dr. Adams again. In the
19 event that there is a .3g earthquake coming out of
20 Passamaquoddy Bay, what else is going to happen in this
21 area? We've dealt with the nuclear side, perhaps, but
22 what else is going to happen in this community, these
23 communities?

24 **DR. ADAMS:** A magnitude 6.2 earthquake
25 would be locally quite damaging, particularly for masonry,

1 older buildings, and so we're going to certainly see a
2 very large need for civil response, rescuing people,
3 hospitalizing people, transporting people. So that's the
4 -- it's the sort of event that would give Point Lepreau
5 the sort of design shaking or beyond, will actually be a
6 much broader civil event and there will be a, you know, a
7 very large need to react to it.

8 It's hard to say whether -- you know, I
9 won't translate that into either dollar losses or human
10 fatalities, but there are a large number of older brick
11 buildings which wouldn't behave very well during
12 earthquakes like that, and we would see some of the sort
13 of damage that came, for example, out of Christchurch that
14 was mentioned.

15 **MEMBER McDILL:** So refineries are designed
16 to the Building Code, but other industrial works -- maybe
17 I could move over to emergency measures for a bit of
18 addition.

19 **MR. MacGILLIVRAY:** Ernest MacGillivray, for
20 the record.

21 I can't speak to the specifics of major
22 infrastructure in the vicinity, in Saint John, and how
23 that would stand up to an earthquake. But we do conform
24 to Canadian Building Code, and indeed the refinery went
25 through a refurbishment about 10 years ago, so there would

1 have been code upgrades at that time.

2 Similarly, there is some additional work,
3 about a \$50 million project going on right now, and that
4 would be subject to whatever the latest standards are.

5 Generally, for major industrial projects --
6 and I'll just refer to the example of the recent
7 development of a liquefied natural gas facility -- we have
8 subjected those proponents to an environmental assessment
9 process, a screening process. That includes provisions
10 for their emergency management program and we've asked, in
11 recent years, that industrial or private sector concerns
12 undertaking these major industrial projects use the CSA-16
13 program standard as a reference standard, and we've had
14 good compliance in that regard.

15 So industry is keeping up with developments
16 in the standards on an ongoing basis. It's in their best
17 interests to do so and provincial regulatory authorities
18 like our Department of Environment pay close attention to
19 them.

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

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

22 **MEMBER BARRIAULT:** Just one brief question
23 for Dr. Burke.

24 If I'm hearing correctly, by doing a site-
25 specific seismic analysis, Fukushima, Daiichi could have

1 been prevented? Am I correct in assuming this?

2 **DR. BURKE:** No, not really.

3 **MEMBER BARRIAULT:** So ---

4 **DR. BURKE:** But they did ignore information
5 in the literature about the threat from a tsunami. They
6 could have built the tsunami wall a little bit higher if
7 they'd taken into account the study that had been made of
8 the historical seismicity.

9 **MEMBER BARRIAULT:** But what I'm hearing is
10 that by doing a site-specific seismic analysis you can
11 actually predict the amplitude of an earthquake. Am I
12 correct?

13 **DR. BURKE:** You can say that -- for
14 example, if you could map the faults in detail around the
15 plant, you could say what they are capable of. You need a
16 fault of a certain size to create an earthquake of a
17 certain magnitude, and if it's a small fault you're not
18 going to get a magnitude 6 from a little, you know ---

19 **MEMBER BARRIAULT:** Sure.

20 **DR. BURKE:** --- or one that's a kilometre
21 long.

22 **MEMBER BARRIAULT:** Now, what area would you
23 have to do your seismic exploration to determine that, I
24 mean, a mile, 20 miles, 30 miles -- or kilometres?

25 **DR. BURKE:** Around Lepreau or, you know,

1 around the site, it was discussed in 1973 because I was
2 involved in that, but the technology wasn't available
3 then.

4 **MEMBER BARRIAULT:** At that time.

5 **DR. BURKE:** The rocks have bent and folded
6 in that area. The technology we had then couldn't handle
7 that. We can today. We're doing that in the rest of the
8 province.

9 **MEMBER BARRIAULT:** Well, it's the same
10 thing you do for oil exploration, if I understand ---

11 **DR. BURKE:** Yes.

12 **MEMBER BARRIAULT:** --- and shell gasses?
13 Yeah. So the technology has been there for 20 years,
14 roughly?

15 **DR. BURKE:** Well, getting ---

16 **MEMBER BARRIAULT:** In Alberta it has.

17 **DR. BURKE:** Yeah, for about 15 years.

18 **MEMBER BARRIAULT:** Yeah.

19 **DR. BURKE:** I'm just trying to think back.
20 And the ability to do the tomography is the important
21 thing.

22 **MEMBER BARRIAULT:** Exactly.

23 **DR. BURKE:** We can do 3D studies. Before
24 we were confined to one -- 2D studies.

25 **MEMBER BARRIAULT:** Right.

1 **DR. BURKE:** You know, in medicine you can
2 now do a CAT scan and get things from all different ---

3 **MEMBER BARRIAULT:** CAT scan, MRI, PET scan,
4 whatever, yeah, sure.

5 **DR. BURKE:** And in the old days I remember
6 you get a chest x-ray ---

7 **MEMBER BARRIAULT:** Chest x-ray, ultrasound,
8 that was it.

9 **DR. BURKE:** It was flat. So that's the ---

10 **THE CHAIRMAN:** But I'm still struggling.
11 Give me a -- what new information you will find that will
12 then result in a different safety case for their -- the
13 nuclear power plant? That's what I'm trying to come to
14 grips with because I thought we've allowed for -- we asked
15 the hypothetical question even if it is going to be a
16 magnitude 7, I ask the question will it be shut down
17 safely, which is the bottom line that we are looking for?

18 What will a site-specific give you that
19 will reach to a different conclusion? What kind of a
20 different conclusion can it reach?

21 **MR. BURKE:** It would give you confidence
22 that you cannot get a magnitude 7 close to the plant there
23 because you ---

24 **THE CHAIRMAN:** But I don't want this
25 comfort. I want to plan for the worst-case scenario, not

1 the best-case scenario.

2 **MR. BURKE:** The operator should want that
3 comfort. **THE CHAIRMAN:** No, but what we are trying

4 to do is we are trying to plan and be ready for the worst-
5 case scenario. You see, what I'm trying to say, I'm
6 trying to assume -- so if I were the regulator in Japan
7 and somebody said it could be -- if a Dr. Adams equivalent
8 in Japan could say it could be 9 or 10, I would ask the
9 question, well are we ready for a 10?

10 **MR. BURKE:** Yes.

11 **THE CHAIRMAN:** That is what I am trying to
12 struggle as to what kind of a site-specific update do you
13 study? The original study will give us new information.

14 **MR. BURKE:** The study that I did of the
15 historical period didn't indicate magnitude 7, but up to 6
16 is involved in that study. There is no magnitude 7 in the
17 last 200 years, but we haven't looked back further than
18 that because we haven't had the right kind of situation to
19 look back that far.

20 **THE CHAIRMAN:** Okay. Look, I think we got
21 enough information in all of this.

22 **MR. ROUSE:** Can I just mention one more
23 thing? They said a 7 would cause core meltdown. They
24 would have to use their emergency supply. That water
25 would have to be pumped out of the reactor and into the

1 Bay of Fundy. Probably there is no place to put that
2 water.

3 **MEMBER McDILL:** Where would the water go?

4 **MEMBER ROUSE:** They did say that there
5 would be release ---

6 **THE CHAIRMAN:** Well, they said that they
7 could use ocean water into the core?

8 **MR. ROUSE:** Yes, but where does the water
9 go? You've got to keep putting new water in.

10 **THE CHAIRMAN:** The idea was it will cool --
11 why am I talking?

12 **MR. KENNEDY:** Yes, okay, let's go through
13 that again. I'll ask Paul Thompson to go through it
14 again.

15 **MR. THOMPSON:** For the record, my name is
16 Paul Thompson.

17 Again, if we were to get an earthquake that
18 would have to exceed the 0.3g, because for just an
19 earthquake that would result in a peak ground acceleration
20 of 0.3, we wouldn't even have severe core damage. So it
21 has got to be larger than that.

22 So for ones up to -- which is what we have
23 gotten our assessment of up to .42g, we know that there
24 would not be a large release from the facility.

25 But if we had to, when we have to add

1 water, the water is added to the Calandria vault makeup
2 line and that water evaporates and it is released through
3 the emergency containment filtered vent system. So it is
4 filtered. So effectively what is released is the vapour,
5 water vapour, back up through the air. So you effectively
6 set up a steady state type situation, but the
7 radioactivity is filtered before being released.

8 **THE CHAIRMAN:** Okay.

9 **MR. ROUSE:** That would only be if the
10 containment didn't crack.

11 **THE CHAIRMAN:** Okay. I think we have had
12 enough feedback in there.

13 The last item is I understand some CNSC
14 staff attended yesterday the hydro-fracking presentation.
15 Can you share with us ---

16 **MR. BLAHOIANU:** Andrei Blahoianu.

17 **THE CHAIRMAN:** One minute.

18 **MEMBER BLAHOIANU:** Andrei Blahoianu, for
19 the record.

20 I attempted to attend the meeting because
21 it finished here the hearing around 7:00. Until I arrived
22 there, it was almost 8:00. I just caught the last 15
23 minutes of the presentation. Because a lot of people over
24 there attended this, the room itself, the conference room
25 was very, very crowded. So what I understood from what I

1 saw, it was no presentation available even to take with
2 me. There were just some flyers from Sierra, so some
3 environmental groups which are against using this
4 methodology in New Brunswick. So this is what I saw. The
5 present ---

6 **THE CHAIRMAN:** There was no scientific
7 presentation? There was no ---

8 **MR. BLAHOIANU:** No, there was no copy
9 available to see the presentation itself, but when I
10 arrived there -- it's not incorrect -- when I arrived
11 there, I looked at the table and there was nothing
12 available except flyers.

13 **UNIDENTIFIED SPEAKER:** (Off mic)

14 **MR. BLAHOIANU:** I was in the hall. I did
15 not -- no, sorry, please don't talk to me this way. I'm
16 just relating honestly what I saw and what I found.

17 So in the hall there, there was no
18 presentation on this. I look on the tables and the
19 tables, as I said, it was nothing. I didn't see it.

20 **THE CHAIRMAN:** Okay. Let me ask you ---

21 **MR. BLAHOIANU:** But this means that
22 probably the interest of the public was very high. As I
23 said, by the time I arrived, I did not find it.

24 **THE CHAIRMAN:** Okay. I just found out --
25 I've just been told that we have a copy of the CD.

1 **MR. BLAHOIANU:** Okay.

2 **THE CHAIRMAN:** So we will watch that with
3 great interest.

4 **MR. BLAHOIANU:** Okay.

5 **THE CHAIRMAN:** Thank you. Thank you for
6 that.

7 **MR. BLAHOIANU:** But the interesting
8 comments is exactly related to what was said. So the end
9 of the presentation, it was the difference between myth
10 and reality, and one of them was related to if procedure
11 itself is technically sound and how to say, if it has
12 history behind it? The answer was yes. The reality is
13 that a technique which has enough background behind in
14 history, more than 60 years.

15 The other one was the fact that it is a
16 clean energy, exactly what you mentioned, and the answer
17 was that it is not true to say it is clean. You could say
18 it is clean if you compare with other sources of energy
19 ---

20 **THE CHAIRMAN:** Okay. Andrei, this is not
21 the time for us to get into the detail. We will read this
22 and we will decide whether there is any impact
23 particularly to the operation of the plant.

24 Commissioners, any other questions?

25 **MR. ROUSE:** What about the French question

1 I had?

2 **THE CHAIRMAN:** We will reply. We did a --
3 we can tell you -- do you want to address this?

4 We have a procedure on all of this.
5 Anybody who asks for a document in French gets it in
6 French.

7 **MR. LEBLANC:** I'll provide some
8 clarifications on this. As Commission Secretary, I am
9 responsible for receiving those requests. We did receive
10 a request to provide all the documentations that we
11 receive in both official languages just a few days prior
12 to the hearing, way too late for us to be able to
13 translate and revise documents.

14 And secondly, we would not have translated
15 the documents that were coming from participants other
16 than federal participants. The requirements under the
17 Official Languages Act is for the documents that are
18 published to be in both official languages, but that those
19 that are produced by federal officials that are subject to
20 the Act. So we would not have translated the documents
21 from the intervenors or other participants. There is no
22 such requirements.

23 Also, when asked in the past, with
24 sufficient deadline, we have translated all of our
25 documents. The decision that the Commission will issue

1 will be in both official languages, as were the notices.
2 For example, the notice was published in French in
3 l'Acadie Nouvelles and other publications and on our web
4 site. Because it was published, it was translated. We
5 would not publish a document from a federal entity such as
6 ourselves if that document was not translated.

7 So I don't know if that clarifies a little
8 bit, but it would have been our pleasure given that New
9 Brunswick is the only bilingual province, officially
10 bilingual province, to have those documents, had they been
11 requested even though there was no such legal requirement.

12 **THE CHAIRMAN:** Very last comment of Public
13 Safety?

14 **MR. MacGILLIVRAY:** Earnest MacGillivray,
15 for the record. Thank you, Mr. President.

16 We also, as a provincial government and
17 representing a provincial department, have to conform with
18 our own official languages policy, and so our written
19 submission and the slide presentation in fact have gone to
20 translation and will be available in both official
21 languages from our offices.

22 But if it pleases the Commission, we would
23 be very comfortable with your posting the French version
24 of our documents along with the English ones, if that was
25 convenient.

1 **THE CHAIRMAN:** Okay. Thank you. Thank you
2 very much.

3 So do you want to shut us down officially?

4 **MR. LEBLANC:** Thank you.

5 So this concludes the hearing. Thank you
6 all for your participation.

7 With respect to this matter, I propose that
8 the Commission confer with regards to the information that
9 has been considered in this hearing and in all the written
10 submissions, and then determine if further information is
11 needed or if the Commission is ready to proceed with a
12 decision.

13 We will advise all participants
14 accordingly.

15 Thank you.

16 --- Upon adjourning at 3:42 p.m./

17 L'audience est ajournée à 15h42

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