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Safety Commission

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sûreté nucléaire

Public hearing

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

Commission Members present

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Ms Rumina Velshi  
Mr. Dan Tolgyesi

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M. Marc Leblanc

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Avocate générale :

Ms Lisa Thiele

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**TABLE OF CONTENTS**

	<b>PAGE</b>
Opening Remarks	1
CMD 17-H2.51 Oral presentation by Women in Nuclear (WiN) New Brunswick	4
CMD 17-H2.52 Oral presentation by the New Brunswick Emergency Measures Organization (NBEMO)	19
CMD 17-H2.93/17-H2.93A Oral Presentation by Canadian Environmental Law Association and Conservation Council of New Brunswick	66
CMD 17-H2.33 Oral presentation by Musquash Volunteer Fire Rescue Department	144
CMD 17-H2.13 Oral presentation by Sunny Corner Enterprises Inc.	164
CMD 17-H2.74 Oral presentation by Greenpeace Canada	171
CMD 17-H2.57 Oral presentation by SNC Lavalin, Robert Whalen	200
CMD 17-H2.45/17-H2.45A Oral presentation by Kristy Barnaby	209
CMD 17-H2.59/17-H2.59A Oral presentation by Corporate Research Associates Inc.	242
CMD 17-H2.94 Oral presentation by New Clear Free Solutions	253

**TABLE OF CONTENTS**

	<b>PAGE</b>
CMD 17-H2.79	300
Oral presentation by Saint John Region Chamber of Commerce (The Chamber)	
CMD 17-H2.65	306
Oral presentation by Joseph Valardo	
CMD 17-H2.63	312
Oral presentation by Black & McDonald Limited	
CMD 17-H2.61	319
Oral presentation by Jason McKay	
CMD 17-H2.40	328
Oral presentation by Centre for Nuclear Energy Research	
CMD 17-H2.96	335
Oral Presentation by RESD Inc.	

Saint John, N.B. / Saint-Jean (N.-B.)

--- Upon commencing on Wednesday, May 10, 2017  
at 9:00 a.m. / La réunion débute le  
mercredi 10 mai 2017 à 9 h 00

### **Opening Remarks**

**MR. LEBLANC:** Good morning. Bonjour, Mesdames et Messieurs. Welcome to the continuation of the public hearing on NB Power's application for the renewal of their operating licence for the Point Lepreau Nuclear Generating Station.

During today's business, we have simultaneous translation -- or interpretation. I always make that mistake.

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

I would ask that you please keep the pace of your speech relatively slow so that the interpreters have a chance to keep up.

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

Les transcriptions seront disponibles sur le site Web de la Commission dans environ deux semaines.

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

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

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

Mr. President...?

**LE PRÉSIDENT** : Merci, Marc.

Good morning and welcome to the continuation of the public hearing of the Canadian Nuclear Safety Commission. Welcome also to those joining us via webcast and teleconference.

Mon nom est Michael Binder. Je suis le président de la Commission canadienne de sûreté nucléaire.

For those of you who were not here yesterday, I will begin by introducing the Members of the Commission that are with us here today.

On my right is Monsieur Dan Tolgyesi; on my left, Dr. Sandy McEwan and Ms Rumina Velshi.

We just heard from Marc Leblanc, the

Secretary of the Commission, and we also have with us here today Ms Lisa Thiele, Senior General Counsel to the Commission.

Marc...?

**MR. LEBLANC:** Yesterday we heard the presentations by NB Power, CNSC staff and 13 oral presentations by intervenors, as well as 50-plus written submissions.

Sixteen intervenors are scheduled to present orally today. Ten minutes are allocated for each presentation, with the Commission Members having the opportunity to ask questions after each presentation. To help you in managing your time, a timer system is being used. The light will turn yellow when there is 1 minute left and then turn red at the 10-minute mark.

We have in attendance, available for questions from the Commission, representatives from different departments: Fisheries and Oceans, Health Canada, Natural Resources Canada, New Brunswick Emergency Measures Office, and Environment Canada and Climate Change.

Your key contact persons will be Ms Louise Levert and Johanne Villeneuve -- who are at the reception desk -- from the Secretariat staff and you will see them going around or at the back of the room if you need information regarding the timing of presentations,

availability of documents, et cetera.

There will be a break for lunch at approximately 12:30 today for an hour period and there will be short health breaks in mid-morning and the afternoon.

Mr. President...?

**THE PRESIDENT:** The first presentation today is by the Women in Nuclear New Brunswick, as outlined in CMD 17-H2.51.

I understand that Ms Clark will make the presentation. Please proceed.

**CMD 17-H2.51**

**Oral presentation by**

**Women in Nuclear (WiN) New Brunswick**

**MS CLARK:** Good morning, President Binder, Commission Members and members of the public. My name is Gail Clark and I am here today with Michelle Hawkes. We are both co-chairs of Women in Nuclear New Brunswick at the Chapter and that is WiN-NB for short.

My current position is Maintenance Training Supervisor at the Point Lepreau Nuclear Generating Station. We are here today to speak on behalf of the 70 members of WiN-NB who reside in the local communities near the Point Lepreau Nuclear Generating Station.

WiN-New Brunswick is part of WiN-Canada, an organization representing over 1,600 members of women and men across Canada. WiN-Canada's principal objectives are:

- to develop a dialogue with the public to promote awareness around factual contribution to people in society from nuclear technologies;

- to facilitate the exchange of knowledge and experience among our members and chapters;

- to promote career interest in nuclear engineering, science, technology, the trades and other nuclear-related professions, especially among women and young people.

Other industries have similar women's groups, but none of them as far reaching as Women in Nuclear. Women in Nuclear Global has over 35,000 members worldwide, all working to promote the interest in nuclear-related professions among women and young people. In the industry, made up of about 20 percent women, our organization works to showcase the vital contribution women are making as leaders.

WiN members devote a great deal of their volunteer time working and mentoring students, introducing them to non-traditional and rewarding careers in the science, technology and the skills trade sectors. Women

are strong leaders in our country and it is important for our voice to be heard, including the support of nuclear industry and of course the renewal of the Point Lepreau Generating Station licence.

The leadership and staff at Point Lepreau Generating Station have been very supportive of the WiN-NB Chapter with our programs, events and career advancement of women. Their support ranges from mentoring WiN-NB board members to sponsoring various events, including involving the students. Some of those include networking dinners, career events, annual conferences, our quarterly meetings of course and hosting the WiN-Canada conference here in Saint John back in 2012.

These opportunities to network with multiple organizations are important. The promotion of an educated shared learning environment is optimal for a growth mindset between diverse disciplines. It is important to WiN-NB to speak to school age students where the first ideas are being formed on career options.

The primary function of WiN events sponsored by Point Lepreau bring professional women who are well established in our industry to meet other women and young people who at the beginning of their careers can be influenced. Members of WiN-NB are role models who can show them the way.

**MS HAWKES:** Good morning, President Binder, Commission Members and members of the public. My name is Michelle Hawkes, Co-Chair of the Women in Nuclear New Brunswick Chapter and an Engineering Training Specialist at the Point Lepreau Nuclear Generating Station.

WiN-NB members participate in efforts to educate students about nuclear power and the variety of job opportunities available to them across the nuclear industry. We have been invited on many occasions to teach, share and provide mentoring to high school students across New Brunswick through the trades and tech galas which are organized by Skills New Brunswick and the Women's Issues Branch. We have reached out to elementary schools and middle schools during career fair days and science classes. Our children love to see their parents come and talk to their classmates and our members are happy to show their pride in working for NB Power nuclear.

In addition to our focus on education, WiN-NB members have participated in community outreach events such as Dragon Boat and United Way campaigns in partnership with station employees.

WiN-NB members have diverse backgrounds with respect to their work experience and education. They are involved at every level of the operation from generating electricity to protecting the environment and

range from maintenance workers to operators as well as including all levels of administration and senior management.

We work at nuclear generating stations by choice and live in the communities surrounding the station. We are highly skilled workers who could work in any industry but choose to work in nuclear because we know that we are helping to produce a clean, safe, reliable low-carbon baseload source of electricity, which is an important part of Canada's clean energy portfolio.

WiN-NB understands that nuclear power is one of the main sources of energy production in New Brunswick and provides baseload electricity which is responsible for providing power to our parents and our grandparents in care facilities, our family and friends when they require hospital care and for our daily use in our homes. Our busy lives depend on a reliable source of electricity and we are proud that the Province of New Brunswick receives over 30 percent of their electricity from our nuclear generating station.

We care about the legacy we are leaving our children and grandchildren. We know that nuclear-generated electricity produces virtually no greenhouse gas, therefore does not contribute to climate change. Point Lepreau is fundamental in achieving our goal

of having 75 percent of New Brunswick's power coming from clean, renewable or non-emitting sources by 2020.

We all understand our responsibility to work safely, not only to protect the safety of our coworkers but to protect the safety of our communities in which our families, our children and our friends reside. We do not take this responsibility lightly and put safety first each and every day at work. This strong culture of safety carries over to our activities outside of work at home and in our volunteer activities within the community.

Many of our members have raised their children within close proximity to the Point Lepreau nuclear site. Our members are mothers and fathers who care about many issues facing the safety and well-being of their children on a daily basis. As employees, we know that Canada's nuclear power operations have a proven track record of being among the safest in the world. The safety of our families, friends and communities comes first before our chosen careers.

WiN-NB also believes the focus of safety is not just about today but involves future generations who will continue to live and work in this community. Through strong oversight, regulatory and international peer reviews and audits, the nuclear safety culture will continue to grow and will in fact continue to strengthen through

continuous improvement and learning.

Because of our day-to-day interaction with the nuclear industry and our strong belief in the expertise of Lepreau's employees and their proven history of safe, reliable operation, WiN-NB supports Lepreau's application for a licence renewal.

Thank you for the opportunity to voice our support today.

**THE PRESIDENT:** Thank you.

Questions...? Ms Velshi...?

**MEMBER VELSHI:** Thank you for your submission this morning. I have a couple of questions for you.

We had a presentation yesterday from North American Young Generation in Nuclear group and their objectives or mission sounds extremely similar to yours. Do you folks collaborate in any way?

**MS HAWKES:** I actually had the opportunity to have a booth side-by-side at the CNS conference last year in Saint John and we did talk to a member of that organization who works at Lepreau and we did talk about getting together. We haven't as of yet, but it is one of our plans.

**MEMBER VELSHI:** Yes, that may be an opportunity worth pursuing.

As I look at the first item in your mission, which is the public's awareness around the factual contribution of nuclear technology, and you spoke a fair bit about what you do in the classroom, what is your assessment of how well the curriculum does in even covering that in any way? Does it even address nuclear technology in the classrooms you have attended?

**MS HAWKES:** So I had the opportunity to attend a science class with my son when he was in grade 6 last year. In a parent-teacher meeting the teacher told me that she teaches the students all about different sources of electricity and how power is generated and she said even though she had a relative working at Point Lepreau she struggled to explain how nuclear power is created, so I offered and she invited me into her science class in grade 6, both classes actually, to just explain how nuclear power works because I think teachers generally don't have a good understanding of how it works. They know a little bit of the theory, but I was invited to do that. So I know in grade 6 curriculum in New Brunswick they do talk about different ways of generating electricity. And when I did my presentation I talked about NB Power as a whole and the different ways.

**MEMBER VELSHI:** Maybe I will ask staff this question.

Do you see this as part of your role when it comes to dissemination of scientific knowledge, of helping schools develop their curriculum around nuclear technology?

**MR. FRAPPIER:** Gerry Frappier for the record. I will ask Aimee to come to the microphone and answer in a second.

We do have, as you mentioned, a mandate to disseminate objective scientific and technical information. We do have processes in place that do it, our CNSC 101 that goes out to communities. To take on the challenge of changing, you know, the entire school curriculum and that is not something we have really attempted, but maybe Aimee could give us a little bit more information on that.

**MS RUPERT:** Aimee Rupert, Senior Communications Advisor.

We do have educational resources on our website and, as Gerry alluded to, CNSC 101. We also have an outreach program to reach educators. They are one of our target audiences. So we are trying to get the message out and our educational resources out through that network.

**MEMBER VELSHI:** And what is your assessment of what their general knowledge of it is and how receptive they are to improving that?

**MS RUPERT:** We do find that there is a

need for science-based curriculum and the nuclear sector for sure. There is an interest.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Can I follow up on this because this is -- we came across this issue across all of Canada and the only way in my opinion to address this, you have to go to the Ministry of Education. It is interesting that Ontario gets 60 percent of their electricity from nuclear and yet it is not taught in high school. And I know that in Saskatchewan they don't teach about uranium mining.

So I wonder, for Point Lepreau, did you attempt to actually go to the Ministry of Education? You cannot do it teacher by teacher, you have to go through the curriculum to actually make sure that 30 percent of electricity in New Brunswick at least should be explained how it arrived there. Do you ever try to do this?

**MR. PLUMMER:** Brett Plummer for the record. Kathleen Duguay will speak to that.

**MS DUGUAY:** Kathleen Duguay for the record.

You are absolutely right. We work closely with the Department of Education on raising awareness about the importance of nuclear power in the Province of New Brunswick. About two years ago we partnered with Geopark,

which is an initiative in New Brunswick, and starting next September in the next school year it will be one of their books that will be introduced to grade 4 which will have the portfolio of nuclear inside the curriculum. So I would be happy to bring a copy of that book tomorrow to show you, but that was an initiative that we approached the Saint John communities as part of the unique place in Saint John about the only nuclear plant and so on, and they added to that curriculum about the nuclear file. So we are very pleased with that and that is going to be going in every grade for school in New Brunswick en français and in English.

**THE PRESIDENT:** I forgot to mention yesterday when CNS were here, I think CNS is starting a program of Geiger to school which will teach the kids what is a Geiger and how do you measure kind of radioactivity and that it's everywhere. I think that's not a bad device to get the interest in the subject.

**MS DUGUAY:** Kathleen Duguay for the record.

What we promote as well is that there is a lot of good educational material on the CNSC website in both official languages, which is the need for our province here, being a both official language province. And the Canadian Nuclear Association also and the CNS has really

good information on their website about how nuclear works. So we have referred teachers over and over to those websites and anytime any of our employees at Lepreau is invited, or sometimes we invite ourselves, to go to schools, we bring those materials with us and we also make sure that they are aware of this availability.

**THE PRESIDENT:** Thank you.

Dr. McEwan...?

**MEMBER VELSHI:** I'm sorry. Did you have anything to say?

**MR. POULET:** No. I was going to complete the CNSC staff answer with what Mr. Frappier and Ms Rupert stated, is that we have CNSC inspectors at site and they have also in the past been invited to go to local schools and they have done outreach to grade school level classes in the area surrounding Point Lepreau. That's the only thing I was going to add. Thank you.

**MEMBER MCEWAN:** Thank you.

So what percentage of the 800 workforce is women, women in sort of technical and engineering jobs, and how many women as a percentage of total senior management positions are there?

**MS HAWKES:** I'm not sure of the specific numbers, maybe someone else could answer that question, but I do know that we do have women represented in all levels,

I'm just not sure what the percentages are.

**MR. PLUMMER:** Brett Plummer for the record.

We can get you the specific numbers. Overall, 20 percent of our population is women. We can get you the specific numbers if you are interested.

**MEMBER MCEWAN:** I think that would be helpful to understand.

**MR. PLUMMER:** We will take that action.

**MEMBER MCEWAN:** I guess my second question is: Do you have any linkages with the broader women in science community, like WISEST or any of the groups trying to push them into women's education?

**MS HAWKES:** Michelle Hawkes for the record.

We haven't reached out within New Brunswick. Gail and I have been co-chair for a couple of years and we have reached out through the trades and tech. This has been our main venue and then schools in the local communities.

I know in Ontario there are five WiN chapters there and they are very active with getting together with the stem groups and doing activities together and we would like to do that as well. It is one of our future goals, but we are not quite there yet. I know UNB

Fredericton has a science and technology group that we would be interested in working with.

**MEMBER MCEWAN:** Again, I think that's important as you go forward, so good luck with that.

**THE PRESIDENT:** Monsieur Tolgyesi...?

**MEMBER TOLGYESI:** I just go back a little bit to education. In some jurisdictions it will be much easier if you go through the teachers of science. There are associations of science teachers. So if you meet them, they will introduce, because they do select what they are teaching, how they are teaching. So you will have much more success to do that.

**MS CLARK:** Gail Clark for the record. I just wanted to add to that.

We did an interview with a lot of teachers one year on one of their teacher days that they had off that they do learning and we spoke to them about nuclear in our jobs within -- we grabbed a panel from NB Power and spoke to the teachers and tried to outreach that way and that actually got us into a lot of the local schools here, just by having them introduce who we were, what we did as our job occupations and of course bringing the nuclear side to it.

**THE PRESIDENT:** Do you do any outreach to aboriginal communities?

**MS HAWKES:** Michelle Hawkes for the record.

Some of the trades and tech galas that we reach out to are for the aboriginal groups as well. They do have some specific ones for them and we have had members attend those in conjunction with Skills New Brunswick.

**THE PRESIDENT:** And do you get kind of interaction and feedback?

**MS HAWKES:** Yes. At our trades and tech galas, the way it works is we have groups of girls go around from booth to booth with a mentor, and our booth is just one of them, so we tell them -- Gail and I often have attended together and other members from Point Lepreau and we tell them about our jobs and we try to interact with the high school ladies and get them to tell us what their interests are and find out what their -- and I would say 50 percent or more of the girls that we talk to find it's a comfortable place to talk to us about their careers and ask us questions about careers they don't know.

**THE PRESIDENT:** But you don't go into the actual communities?

**MS HAWKES:** We do not, but we would certainly be open to that.

**THE PRESIDENT:** Okay.  
Anything else?

Okay, thank you. Any final thought?

Thank you.

**MS ALLEN:** Excuse me. Andrea Allen for the record. I am the Director of First Nation Affairs for NB Power and I would like to acknowledge that when Women in Nuclear attended one of the trade galas it was actually in a building that was on First Nations community, St. Mary's community in Fredericton. Thank you.

**THE PRESIDENT:** Thank you.

I would like to move on to the next submission, which is an oral presentation by the New Brunswick Emergency Measures Organization, as outlined in CMD 17-H2.52.

I understand that Mr. McCallum will make the presentation.

**CMD 17-H2.52**

**Oral presentation by the**

**New Brunswick Emergency Measures Organization (NBEMO)**

**MR. McCALLUM:** Good morning, Dr. Binder, Members of the Board, ladies and gentlemen.

My name is Greg McCallum. I'm the Director of New Brunswick Emergency Measures Organization, and I'm joined this morning by Roger Shepard on my far

right, who is the Manager of Nuclear Preparedness provincially, as well as Cathy Goodfellow, who's the Manager of Emergency Planning for the Department of Health.

The aim of my presentation this morning is spelled out in this slide, and it's really to describe the current arrangements that we have provincially and jointly with NB Power to prevent and mitigate off-site impacts and to ensure an effective response and recovery from any nuclear emergency.

I would highlight that this statement of my aim today covers virtually all phases and types of emergencies. Specifically, we talk about prevention and mitigation, we talk about preparedness, we talk about response and recovery.

I'll follow this outline in my presentation where I'll describe our provincial program, I'll mention how it's governed, some processes we follow, the infrastructure that's devoted to our operations, some discussion on training and exercises that we undertake, some post-Fukushima changes that we've made, public awareness and education, a critical component, and some concluding comments.

This slide showing an architecture really is to depict that, within New Brunswick, we maintain a nuclear emergency program. It is not simply a plan for

response.

And a program implies a thorough plan, properly resources, with the dedicated personnel and equipment necessary to undertake response. It implies qualified people. It implies a mindset of culture and culture of continuous improvement. It implies a continuous program of training and skills maintenance as well as consideration of the entire spectrum of emergency phases depicted in the bottom boxes on this slide.

Specifically on prevention and mitigation, that is enabled and accomplished by an active monitoring program and direct and ongoing communications with the facility regarding all threats, risks and hazards under consideration.

This close partnership characterizes virtually everything we do.

In terms of mitigation, measures such as pre-distribution of potassium iodide pills to all residents within the emergency planning zone, a good sensor system and decision support capabilities, a mobile mask decontamination capability and an active public information and education program.

Preparedness arrangements include, of course, policies and plans and, naturally, a dedicated staff in NBEMO to maintain our preparedness posture and our

equipment.

We maintain a 24 and 7, 365 duty roster in New Brunswick EMO, so we are always available, we are always aware, and certainly our notification systems are tested regularly.

We're very proud of our response capacity, which has been jointly maintained with the great support from NB Power at Point Lepreau and it is, of course, guided by a thoroughly prepared and validated concept of operations. It's a flexible and scaleable plan.

In the realm of emergency management, the guiding document is the Incident Command System, and we are all proficiently trained in that system.

The off-site plan has been pressure tested on a number of exercises, highly demanding exercises in detail which were deliberately time compressed and stressful in nature.

In terms of recovery, this phase of an operation we are paying particular attention to and is a focus for training that we're undertaking recently and will continue. Emphasis in that training is on the coordination of multi-jurisdictional roles and responsibilities and the management and coordination that goes with that.

Relocation, re-entry and, ultimately, return of the population and environmental monitoring,

hazardous waste storage are all matters in the recovery phase which are part of our discussions and our training and, of course, the implementation of the Ingestion Pathway Monitoring Plan.

Our planning is synchronized by federal partners, both with the national Emergency Response System from Public Safety Canada and the federal Nuclear Emergency Plan specific to Health Canada.

Sorry. I've got to get out of that.

So our program design is committed to improving, rigour, transparency and continual improvement in how we do our business. It conforms to international norms for program management and includes executive level accountability.

New Brunswick has made significant investments to build capacity and improve our competencies to manage any off-site emergency.

The governance framework in this particular program includes an executive component, a Deputy Minister's committee, an Assistant Deputy Minister's committee and a joint justice and public safety and NB Power steering committee which governs all matters, including policy, the current maintenance of planning and procedures, infrastructure matters, our training and exercise regime and public information.

Our governance is derived from statutory authority found in the New Brunswick *Emergency Measures Act*. The primary responsibility for that authority is the Minister of Justice and Public Safety.

Accountability to the government of New Brunswick executive is exercised through the Deputy Minister's and Assistant Deputy Minister's committees, and all the deliberations of those committees is communicated to the operational level by our steering committee through specific program managers.

We are conscious of and aware constantly of the importance of performance management and constantly undertaking internal and external evaluation as well as an ongoing improvement program.

The program standard we use is the nationally-recognized Canadian Standards Association standard on emergency and continuity management, and as I mentioned, a continuous improvement program is -- we use as a basis for critical assessment and corrective actions.

We do that in virtually every operation we conduct in emergency measures in New Brunswick to make sure we can install lessons learned for exercises, operations, any activities where we can continue to improve. And the AAR process is a rigorous one we follow.

We stay on top of and are aware of policy

changes by constantly reviewing, as indicated here, IAEA technical guidance, the regulator's guidance as well as Health Canada's.

Plans and procedures, of course, govern everything we do. And that includes emergency public information.

We've made some improvements in communications in our operating systems and our situational awareness, all in the name of decision support and effective communications, and we have a robust public warning system which is multi-layered.

Infrastructure. We have infrastructure for all levels of emergency operations centres with newly-fielded equipment for communications, and these are all well connected, with redundant capabilities.

We do have a robust, again, exercise regime. Exercise Intrepid in particular was a very successful exercise, and the next one is planned for next year, a very challenging exercise.

And as -- in terms of skills maintenance, exercises are fine, but training ongoing is a principal focus we have individually, collectively, and on validation drills and exercises. Everyone with a role in emergency is part of that training regime.

Severe accident management is incorporated

in our planning. We have evacuation time estimate tools and we are constantly working to improve transparency.

The KI distribution program has been an ongoing practice and will continue, as is our constant updating of our demographic information for the emergency planning zone.

We are very proud of and have operationalized our mobile decontamination capability, and it has been field tested on exercises recently.

As I mentioned, we use the Incident Command System to bring discipline to our processes and procedures, and this is a world standard process we follow.

Public awareness. We integrate our communications strategies throughout with NB Power Point Lepreau. We have the warden service, which is a great boon to that capability.

There is a number of mechanisms whereby we communicate constantly, including a web presence and social media.

KI distribution program is another way of effecting outreach.

So we are proud of our program. It is a world class program. It is characterized by excellent ongoing collaboration between NB Power and the government of New Brunswick through New Brunswick EMO.

We are confident that we are in compliance with international norms and the regulatory requirements of the CNSC. We have a continuous improvement program and we are dedicated to excellence.

Thank you, sir. If there are questions.

**THE PRESIDENT:** Thank you. Questions? Mr. Tolgyesi.

**MEMBER TOLGYESI:** You were saying that you do internal and external evaluation and reporting. From an external point of view, who is doing that and how often you are performing the evaluation? How do you integrate all those things to improve your planning?

**MR. MacCALLUM:** Greg MacCallum, for the record.

Anytime we have a significant event, such as one of our major exercises, a very deliberate process of conducting an after-action review is undertaken, not by ourselves but by contracted experts within the industry who have an objective look at how exercises are conducted, how the objectives are achieved.

There is also a considerable amount of cross consultation between provincial emergency measures organizations that may very well have nuclear power plants in their jurisdictions and the sharing of best practices. We also visit each others training events not simply just

to have a look at how things are done, but to provide our feedback and then, likewise, we invite others to come and provide their feedback on our program.

So it is lessons learned from our own perspective, from the perspective of evaluators that have the specific task, but also from peer organizations as well.

**MEMBER TOLGYESI:** There is not anything like public consultation or public hearings or that kind of approach?

**MR. MacCALLUM:** Greg MacCallum, for the record.

No, at this time, sir, we do not do that. Now, in terms of public consultations, we are open to public consultations and inquiries at all times, but it is not a formalized process we follow.

**THE PRESIDENT:** So let me follow-up on this. Unfortunately, you now had recently the opportunity to test your emergency plan in floods, in rain. I also noticed that the government actually asked for an audit of their affairs or their processes.

So what's your takeaway lesson? How did the emergency plan work for -- obviously for the flood you're still living it, but more for the ice storm?

**MR. MacCALLUM:** Greg MacCallum, for the

record.

We have a variety of plans, as you could imagine, in an organization such as this. We are really, in times of emergency, especially for a weather-related event, with a variety of types of impacts, the guiding plan for that is referred to as an all-hazards plan. It really is the framework which governs how we conduct operations no matter what the imperative might be, independent of specific contingency plans.

In the case of the ice storm this year, our response to that ice storm, preliminary reports I have received by way of back briefs from the folks conducting after-accident reports, is that the plan worked in accordance with the way it was supposed to.

Now, every emergency is different. Every emergency has its own characteristic challenges, and some of those are under our control and we can directly influence, some of them are influenced by others.

That ice storm, in many ways, was a challenge with regard to public safety, sheltering, providing for people, making sure that they had all they needed in terms of essential social services. Those operations were conducted by the whole of government, concurrently with what was a recovery operation conducted by NB Power for their infrastructure.

Did our plan work? I'm confident that it did.

**THE PRESIDENT:** The reason I'm asking is because I see some similarities in case of a severe accident that we are talking about in nuclear in terms of sheltering and worrying about people are not mobile and things of that nature.

So are there going to be some lessons learned I presume from this that are going to be shared? You know, we are always worried about what the public should know, needs to know.

**MR. MacCALLUM:** That is an ongoing concern and consideration we have. To be blunt, it would be irresponsible to not take advantage of the lessons learned and communicate them to the public as teachable moments, opportunities to become more resilient.

To that end, the after-action report and the final conclusions that are drawn from that will be a formal report to government by the end of June and it will be a public document, and I have no doubt that it'll be a topic for considerable discussion for all levels of emergency response, and it will institute some change. I'm confident and very hopeful that it'll be positive change to make this a more resilient province than it has been.

**THE PRESIDENT:** Thank you. Ms Velshi.

**MEMBER VELSHI:** Thank you. I have some questions on your slide on post-Fukushima. Sorry, the slides aren't numbered, but you know the one I mean. Your written submission on page 11 also called Post-Fukushima Initiatives. One is just the tense that you have used.

In the written submission it says, you know, you're going to be looking at severe accident management and the need to perhaps evacuate more than the 20 kilometre zone and so on. Whereas your slide starts off with, that we've incorporated that into your off-site plan.

So has that work been done then and you've completed your evaluation and updated your plans accordingly?

**MR. MacCALLUM:** Greg MacCallum, for the record.

The severe accident management reference in that particular bullet, we have been discussing -- I say we, by that I mean the steering committee that meets regularly with NB Power and NBEMO -- have been discussing severe accident scenarios in the course of exercise design and how they would be addressed in the off-site plan.

Now, I'm going to defer part of this response to Mr. Shepard who is the custodian of the details of that plan and he can speak to that, and NB Power may want to also wade in on that. Roger?

**MR. SHEPARD:** Roger Shepard, for the record.

So for the after-action report for Intrepid 2015, it was contracted out for the exercise design and the development of the exercise for international safety research. One of the Tier 1 objectives was to write a Tier 1 after-action report based on Tier 1 objectives. So that report was finalized in April of 2016, several months after Intrepid was completed.

So once we received those after-action items, their observations and recommendations, we formed through our working group and developed a corrective action plan. In other words, we reviewed all of the recommendations, we looked at the recommendations and decided what recommendations we would take, which department or agency would take that recommendation, and assigned a timeline to when that recommendation would be completed.

We set a date for later, the end of May, that we would come back and review the corrective action plan. Several of those after-action -- corrective action items you will see in the updated 2017 off-site emergency plan for Point Lepreau.

**MEMBER VELSHI:** Thank you. So let me ask a very specific question. So on page 11 of your written

submission you go:

"We will incorporate Severe Accident Management into the off-site emergency plan to address conjoined and complex threats beyond the current design based scenario. We are already developing a scenario which will require evacuation beyond 20 kilometres." (As Read)

So the question is, is your next exercise maybe looking at evacuation beyond 20 kilometres? Do you foresee an accident scenario that would require that?

**MR. SHEPARD:** Roger Shepard, for the record.

Severe accident management guidelines or severe accidents are already incorporated into the technical planning basis for our planning. Our 4 kilometre precautionary action zone is based on that document, our 12 kilometre protective action zone also -- and our longer-term protective action zone out to 20 kilometres.

So we set those zones in accordance with the planning document, our basis document from NB Power, and we added the longer term protective action zone to push the zones out to 20 kilometres based only on demographics. Because the population in that area and the structure of

the roadways allowed us to push it out to 20 kilometres and provide protective action measures and planning with very limited work.

We're talking less than 5,000, including transients, living inside that zone. So when we talk about evacuation for a radius of an event at Point Lepreau we plan for evacuation out to 20 kilometres.

We do not, in our planning, look at evacuation past 20 kilometres, but the accident or severity of the emergency would depend -- that call would be made if there's a requirement based on actual radiation readings and information coming in through surveys to the Technical Advisory Group who sits as part of our provincial nuclear group in the provincial operation centre. But we don't plan past 20 kilometres. Our protective measures are only out to 20 kilometres.

**MEMBER VELSHI:** So maybe I'm misreading your statement in your written submission, because it says you're going to be evaluating scenarios, including scenarios requiring evacuation beyond 20 kilometres.

**MR. SHEPARD:** I'm going to have to revert back to the Director of EMO.

**MR. MacCALLUM:** Greg MacCallum --

**MEMBER VELSHI:** I'm sorry, and the reason why I ask is, and I don't know if you were here yesterday

or you heard some of the interventions yesterday, but that was clearly one of the areas of discussion.

**MR. MacCALLUM:** Greg MacCallum, for the record.

We do not confine our plan to a 20 kilometre radius. I mean, as I mentioned I believe in my presentation, all plans, if they're truly actionable, have to be flexible and agile and adaptable to whatever circumstances arise. This is no exception.

If we're conducting or we're receiving information on the conducting of survey operations outside of 20 kilometres and we receive information that a threat potentially would be posed there and then we enlarge our evacuation radius by necessity.

And we have the mechanisms to be able to do that. It is a plan that can be adjusted. It's not bricks and mortar. It's mobile capacity, mobile capability and we can certainly adjust that.

You raised the question about whether this is something we are contemplating doing in the future. I know that there is an active discussion about the current requirements for the size of planning zones and based on the expert input that we receive and if there is any suggestion about a change to the technical planning basis and that we will take as direction and the plan will be

adjusted accordingly. But that's entirely up to an expert opinion that we will receive.

**THE PRESIDENT:** So I think it's time now to hear from the regulator, from staff. What is -- I think post-Fukushima there was the whole idea of coming up with a beyond design severe accident scenario, no matter how unlikely it might be, to allow for people to plan a doomsday scenario. So I think Ontario is heavily engaged in doing just that and coming up with a planning basis. So I thought that everybody should be doing that and I thought that's what this post-Fukushima initiative intended to do.

So staff, please let us know. Did you review and accept the plan as it's now articulated?

**MR. FRAPPIER:** Gerry Frappier for the record and I'll pass it on to Luc Sigouin in a minute.

But just to remind everyone that Point Lepreau as part of its refurbishment activity did go through a lot of design changes specifically to address the potential of severe accident and to mitigate its consequences to the point where any significant release of radioactive material in any accident scenario is practically eliminated. But having said that we also are deep believers in defence in-depth and the Level 5 defence in-depth is emergency management.

And I would ask Mr. Sigouin to explain

where we are with respect to New Brunswick Power.

**MR. SIGOUIN:** Thank you, Mr. Frappier.  
Luc Sigouin, CNSC Director of Emergency Management  
Programs.

Staff have reviewed the NBEMO offsite plans, the New Brunswick Power onsite plans as well as the New Brunswick technical planning basis for the offsite plans. We are satisfied that NBEMO has made adequate provision to protect the public in case of an emergency. The NB -- New Brunswick offsite plan is consistent with IEA guidance and concepts of operations and, as we heard from the chief of EMO, Mr. MacCallum, it is scalable.

The current planning basis that has been discussed does in fact consider severe accidents and that is consistent with international guidance and IEA recommendations.

We understand that NB Power and NBEMO have reviewed the planning, the technical planning basis on a periodic basis and although it hasn't been updated yet, we understand that they are working on an update and an update will come some time later this year. And as Mr. MacCallum has already stated they will adjust the plan based upon the outcome of that analysis.

Now, having said that, although it is possible that the zone sizes may change staff would be very

surprised if there would be substantive change in the size of the zones.

The requirements that are set out in IAE documentation are primarily focused on a process, first off, that zones must be established in advance and protective actions must be prepared to be undertaken in those zones. NBEMO has done that.

The IEA documentation at the very -- at the high level of requirement standard is silent on the size of the zone. It is clear that it is left to the authority having jurisdiction to make a determination on the size of the zone based on the hazard in the area that they are working on.

There has been reference to the IEA 5 and 30-kilometre zones and whether the current New Brunswick offsite plans zones of 4 and 20 are adequate.

I think it's important to put the IEA suggestion for zone sizes into perspective. They clearly state that those are suggestions and they are based on analysis of a severe accident from a 3,000 megawatt thermal TWR light-water reactor; very, very different technology than the CANDU-6 that we have here in New Brunswick and CANDUs that we have in Canada, a different size, different makeup of isotopes that affect the offsite consequences, different accident progressions. The net effect of that is

that the CANDU reactor when compared on an INES scale is effectively about three times smaller from an INES perspective than the PWR that IEA uses to size -- to provide suggestions of 5 and 30 kilometres.

So based on that we are confident that the approach that NBEMO is using of having a 4 and 20-kilometre zone is proportionally the right sizes. We are very confident that NBEMO, with the support from NB Power, is actually following the process as laid out by the IEA guidance and that they are implementing protective measures and preparedness activities as recommended by the IEA.

**THE PRESIDENT:** Thank you. That's very useful clarification.

Is it reasonable to expect that the next regulatory oversight report by Point Lepreau in August that we'll get a status of that particular plan that you're working on, the updated plan? Would it be ready by August or at least give us a status report as to where you are with it?

**MR. PLUMMER:** Brett Plummer for the record.

We can give you a status of where we are with it. We are just getting information now to NBEMO and NB Power and we need to evaluate it and determine what changes we are going to make.

**THE PRESIDENT:** Thank you.

Ms Velshi, I interrupted you.

**MEMBER VELSHI:** So it still leaves a few questions on where the Province is at today. You do have a plan, the technical planning basis has undergone some change and you are going to be assessing the impact of that. The regulator is not expecting a whole lot of change as a result of that but we won't know until you have assessed that.

Are you confident that in the interim you don't need to take any additional measures? That's one, and then I'll get to my second part after you have answered that.

**MR. MacCALLUM:** Greg MacCallum again for the record.

At this point in time, yes, I am confident that we are adequately provisioned and resourced and our plan is robust for what requirements might arise in this interim period. And we welcome whatever changes and we will adapt to whatever changes are necessitated.

**MEMBER VELSHI:** And the second one is the process for your change. I'm sure you have been in discussions with your colleagues in Ontario but they -- my understanding at least from their presentation at our hearings was they were going to have a lot of stakeholder

engagement in that and it was going to be a fairly public process.

So at least there was going to be a fair bit of transparency on how and what the plan was going to come up with. Are you planning on doing the same kind of stuff?

**MR. MacCALLUM:** Again, Greg MacCallum for the record.

I think that would be inevitably something we would undertake because if there was any adjustment to the size of the radius around the plant we would be considering that. There would be, to a much lesser extent Ontario, but still there would be a requirement to conduct some public consultations, speak with some community leadership and ensure that, you know, folks are well informed about the reasons why and what the implications are.

**MEMBER VELSHI:** Is your plan publically available right now?

**MR. MacCALLUM:** At this point it is not publically available but I thank you for the question because our intention is to make it publicly available and please allow me to elaborate a little bit. You know, the plan is written for practitioners and the format of the plan, the way it's presented, the way it reads is somewhat

prescriptive as a result and very structured for practitioners to use.

We will, and we have been in discussions with this for the last several days -- we will take that plan, specifically the concept of operations and the arrangements that are in place and how I respond that would be conducted, put it in a format that makes it much more user friendly and comprehensible and then we would then be posting that friendlier version, if you like, a more comprehensible version for public consumption and reference.

And we intend to do that. The plan, the current rewrite and annual revision of the plan will be completed later this month and then our next job of business will be then to adapt that to a package of information that will be of value to the public and informative, more so than we already are.

**MEMBER VELSHI:** And do you have a sense of timing for that?

**MR. MacCALLUM:** This summer certainly. I couldn't be more specific than that. I wouldn't want to put Mr. Shepard on the spot here for an exact date, but we'll be collaborating over that over the course of the summer for sure.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Dr. McEwan...?

**MEMBER MCEWAN:** Thank you, Mr. President.

So do you have the resources to deal with two events, so an ice storm and an event at the station?

**MR. MacCALLUM:** Greg MacCallum for the record.

These are always anticipated problems. Now, the weather circumstances in New Brunswick are -- well, you're seeing a great example of it right now. Conjoined threats, weather events, in addition to an emergency at the plant, I certainly would see as a complex problem but in terms of resources, emergency management is a graduated response and it involves several layers of agencies. We would be taxed but I am confident that we can deal with two separate events at the same time.

Just by happenstance we did the very large Exercise Intrepid in 2012 concurrently with conducting again flood operations in the northwest portion of the province. Yes, it was taxing but we do have the capacity to be able to turn our attention to two events and, you know, compartmentalize the staff so that they -- that we can deal with these concurrently.

There are complications that come with a converging set of events like that and, to that end, we rely on preparedness activities and preliminary moves and

deployments of staff and equipment so that things are prepositioned in anticipation of cascading problem.

**MEMBER MCEWAN:** Thank you. And my second question is you have neighbours, I think, to the south about 75 kilometres in Nova Scotia?

**MR. MacCALLUM:** Yes, sir.

**MEMBER MCEWAN:** How much planning together with Nova Scotia do you do in the event of something happening and how likely is there to be a significant drift problem to the --

**MR. MacCALLUM:** Greg MacCallum for the record. We have a close relationship with our counterparts in Nova Scotia Emergency Measures as well as in the state of Maine, the Maine Emergency Management Agency. And, on our major exercises such as Intrepid where we're validating our plans and procedures, we invite and have had their participation during the exercises.

Collaboration in terms of planning, we share our plans with these jurisdictions. They're aware of the details of them. They have observed the execution of those plans in exercises. They have a familiarity.

Do we have a continual, ongoing discussion about things nuclear? Not always but during the workup, the preparatory phases for major exercises or any other major training events, they are part of the dialogue. They

are invited to participate in all of our activities as we are in theirs.

**MEMBER MCEWAN:** So, as a final question for staff, do you talk to Nova Scotia as these plans are put in place and as the licence is developed for that potential element of risk to that coast?

**MR. FRAPPIER:** Gerry Frappier for the record. I'll ask Luc Sigouin to answer that, please.

**MR. SIGOUIN:** Luc Sigouin for the record. We verify that New Brunswick EMO and New Brunswick Power have the appropriate communication linkages in place to ensure that they are informing any jurisdiction that there's an emergency going on and that there may be an impact.

As far as whether or not Nova Scotia takes preparatory action or preparedness activities for this, the likelihood that there would be an impact on Nova Scotia is incredibly small.

And, if by any chance in the unlikely event that there was an accident and a plume going in that direction, there would be very limited requirement for protective actions. For example, there would be no need for evacuation in Nova Scotia.

So we are confident that NBEMO would be notifying Nova Scotia of this. They would be providing

then the technical information they need for the Nova Scotia Emergency Measures organization to take protective action.

We also know that Nova Scotia does have some experience, actually quite a bit of experience, on the nuclear and radiological file. The City of Halifax has an extensive nuclear emergency preparedness program for visits of nuclear-powered navy vessels so the -- at the provincial level, they are familiar with that.

And they've also done extensive training in regards to CBRN so rad nuke terrorist events. And, just recently, they participated in a full-scale exercise involving improvised nuclear device detonation in the province of Nova Scotia and cooperating with provincial partners, U.S. partners and Canadian Federal partners. So they have some knowledge and expertise related to this.

**THE PRESIDENT:** I'm surprised you didn't mention the role of the federal level, Health Canada Nuclear Emergency Plan that's supposed to integrate all the provinces, of course, the whole country and interaction with the U.S., et cetera.

So go ahead. We'll hear from Health Canada then.

**MR. NSENGIYUMVA:** Thank you. My name is Dominique Nsengiyumva. I am the chief of the Nuclear

Emergency Preparedness and Response Division in the Radiation Protection Bureau at Health Canada.

Thank you for your question, Mr. Binder and the members of the Commission.

Yeah. I intervene for that aspect of the NEP, for the Nuclear Emergency Plan so Health Canada is the federal lead department of that plan.

So, with that respect, I'd like to probably take the opportunity to add a few comments from what NBEMO has said. That will probably answer some of the questions and complement what Luc just said.

First of all, Health Canada, again, as the lead of NEP, is a member of the provincial technical advisory group in New Brunswick so, from that perspective then, we do participate in all exercises that NBEMO plans and runs and physically present in Fredericton and also we -- so we have federal technical liaisons in New Brunswick making the link with our federal technical assessment group that would be built in Ottawa.

So recently then, for the series of exercises, Intrepid exercises, we did participate in those exercises and, from that, there was a question about what has been done post-Fukushima. Post-Fukushima, the Federal Nuclear Emergency Plan has been updated and, at the same time, through, again, the exercise Intrepid, we have also

finished the update of the Federal Nuclear Emergency Plan, NB, New Brunswick Annex.

So now, in that annex, I've taken into consideration the lessons learned from Fukushima and also the lessons learned from exercise Intrepid.

Now, the annex is at the level of being signed -- approved by our deputy minister and it will also be signed by a deputy minister in New Brunswick.

Also, I mention that Health Canada also reviews and I think did for the last series of times, we have participated in the review of the provincial plan and we are of the opinion that the plan is robust and would be able to efficiently and effectively respond to a nuclear emergency plan -- sorry, accident that would happen at Point Lepreau.

With respect to Nova Scotia, as Luc just mentioned, we did participate in Exercise Staunch Maple recently, at the end of April, and we've been also in discussion with them, again, from the perspective that they have a nuclear power -- they can berth nuclear powered vessels so the plan is also -- there has been an annex for the Nuclear Emergency Plan but also we are in the process of updating that plan.

And we are also, at the same time, in discussion with British Columbia so we want to update those

two plans because, again, there are similarities between those plans.

So active participation and a discussion with Nova Scotia, NBEMO, Nova Scotia EMO, and from our perspective, again, and as Luc said, the Halifax Municipality is -- we can see that it's ready. Still, there are activities to be done to make sure that they are ready. But, from the perspective that we've been discussing with them, I can say that the work is still going on but they can efficiently respond to an accident that would occur at Point Lepreau.

May I also add probably from, again, the fact that Health Canada is the lead department of NEP, recently, in collaboration with CNSC, with Ontario fire marshal and emergency management and NBEMO, Health Canada has made a request to the International Atomic Energy Agency to conduct what's called an EPHREM, Emergency Preparedness Review in Canada in about two years from now.

And what does it mean? The idea is to have international experts come here in Canada and do an appraisal of our preparedness to respond to a nuclear emergency.

And NBEMO is actively participating in that process so just to inform the Commission that that's an activity that we are engaging into and that will happen

in two years.

Now, someone would say why two years? Isn't it a too long period? There is a process that we have to follow in the communication with the agency so that's the reason why, to make sure that you go through the process in the right way and make sure that, at the end, we get to a conclusion that would show that, okay, yes, Canada is ready but, if there are any areas that would require improvement, so we are ready to have that discussion and hear from international experts that would tell us that. Thank you.

**THE PRESIDENT:** Thank you for this very useful information. When the new updated of the EPHREM, is Health Canada going to post it? Or they update the annexes of the provinces?

**MR. NSENGIYUMVA:** Yes, the EPHREM, the Federal Emergency Plan, the main plan is already on the website, the Health Canada website and the annexes, also, get posted on the website.

**THE PRESIDENT:** They will be posted --

**MR. NSENGIYUMVA:** The NB annex is going to be posted on website once signed.

**THE PRESIDENT:** Okay, thank you.

**MR. NSENGIYUMVA:** Thank you.

**THE PRESIDENT:** Further questions?

**MEMBER TOLGYESI:** I will just come at a little bit to do emergency plan, what you are saying that you have evacuation of 4 and 20 kilometres. You are saying that it's a plan, it's scalable, mobile, may be adjusted and what it means "may be adjusted" because normally emergency plan should be detailed, what you do if it happens.

For instance, what happens if is a partial or full level evacuation of Saint John. Are you ready for that or how you will act. You will act, I will see what happened and I will act or there is something which is precise?

**MR. MacCALLUM:** Greg MacCallum for the record. The -- a multifaceted question. When I speak about the concept of operations for our plan and get into the specific how an evacuation would be accomplished and the zones that are perceived as necessary to evacuate, Saint John isn't in that equation. You know, we are talking about distances well in excess of 20 kilometres.

There are other options. Even in a scenario where there may be a threat posed to public safety in some or all of the City of Saint John, that may not necessarily require an evacuation; it could require other interventions, it could require sheltering. There may be

some consideration to other direction from the Chief Medical Officer of Health, but it doesn't necessarily imply an evacuation of the City of Saint John.

So, for our planning purposes, we concern ourselves with, you know, what is the likeliest scenario in a very unlikely emergency and that has been, again, in consultation with NB Power and based on the technical planning basis, that is what has driven our plan to this point.

However, having said that, we are in the business of emergency management, which means that there are inherently surprise things that happen during emergencies or things take a turn that we didn't anticipate, and that's when I talk about agility and flexibility and, therefore, the ability to adjust to circumstances based on reliable decision support.

So, if we had a scenario develop that would impact beyond the anticipated distances, then we put in place those measures that need to be put in place to effect command, control, coordination and communications to have an orderly ability to protect the public.

I'll invite Mr. Shepard, if he wishes, to make any further comment on that, but that really encapsulates the approach we take to managing operations.

Roger...?

**MR. SHEPARD:** Roger Shepard, for the record.

So you understand our planning basis for evacuation, we have a plan to evacuate out to the 20-kilometre emergency planning zone. The plan encompasses that we have a mass notification system where we can call every resident inside that 20-kilometre zone, inform them that there is a radiation emergency at Point Lepreau, give them advice such as, listen to the radio, watch your TV station, listen to the warden service and be prepared to evacuate or shelter in place, but listen for further direction.

We have a warden system where we have 20 -- sorry, 15 warden zones inside the 20-kilometre emergency planning zone. So, we have a warden service who assists the RCMP with the evacuation.

We don't have that in existence past the 20-kilometre emergency planning zone. So, that's where we would have to re-evaluate notification by a different means to the residents through Alert Ready and other systems that are available, re-adjust our traffic control plan and our access control restricted area zones.

So, we only plan for the 20 kilometres, but we can adjust on-the-fly to anything, understanding that we don't have warden zones to assist us outside 20Ks,

we don't have a mass notification system that can call every resident past the 20-kilometre zone.

THE PRESIDENT: So, let me understand the governance more, though. I can see a province-wide approach for all emergency, I mean, nuclear and all those things which you are in control, but then, every community is in a different location and every community have schools and, I don't know, hospitals, children. Every community needs to have some sort of a plan in case a disaster happen of any kind.

So, we run into this also in Ontario, that there was an emergency plan near a nuclear facility, but it dealt in generic sense in emergency, never mentioned nuclear, never mentioned KI pills, et cetera.

So, I'm trying to understand. First of all, do you need to have a community-based plan and in that plan, you know, in Saint John you may want to mention nuclear just as an information piece that, stay tuned for further instruction, et cetera, et cetera, something like that because you heard the Chief from Saint John who has a concern from a community perspective.

**MR. MacCALLUM:** Greg MacCallum, for the record.

We don't just want to have community level plans, the law requires communities to have plans. The law

requires communities -- the *Emergency Measures Act* in the Province of New Brunswick requires every community, every municipality to have a safe -- or an emergency program with an identified, trained and qualified emergency operations manager, that is an EOC manager, and to have an ongoing program to ensure they have the trained capacity to be able to manage emergencies within their municipal boundaries. That is a requirement by law.

**THE PRESIDENT:** Which you manage or you oversee compliance with?

**MR. MacCALLUM:** We provide planning assistance if it is requested, and in many communities it is required. In some of our larger communities, they have more capacity, they have more experienced folks, they have the ability to do a lot of this planning on their own.

I had made the expression earlier known, we talk about all-hazards planning and if we're specifically referring to planning and evacuation, for example in the City of Saint John, a properly prepared evacuation plan is really independent in large part with what the impetus requiring the evacuation is.

You think about, you know, most recent history in Alberta, major evacuation because of fire. You think about some of our ice storm events or flooding events, you have evacuation of communities because of a

weather event inundation.

What causes the evacuation is a variable. The act of evacuating people requires a plan, again, that is flexible and adaptable to the circumstances.

The difference between evacuating a community because of a threat posed by a nuclear plume, it doesn't really require a whole lot of change in terms of behaviour of the evacuees. You want them to follow a route, you want them to meet timings, you want them to go to a specified safe destination.

There's no need to have a specific plan to evacuate because of a nuclear threat any more than a fire threat or any other threat. The act of having an evacuation plan is what's important and we expect that capacity.

And here in Saint John, which is heavily industrialized, they have made great progress in that regard in terms of identifying routes, assigning routes and informing the public about what they mean and what -- how this will be effected.

Now, I know that the Chief yesterday talked about how this is a few years old, they wish to re-visit it, they want to do that planning in more detail and they may wish to take into consideration in their planning process a specific set of directions regarding the

specific threat posed by, you know, a Point Lepreau incident. That's encouraged by us.

And, for the record, I would certainly want to tell the City of Saint John that NBEMO would very happily collaborate in the preparation and the modernization of whatever evacuation plans they currently have.

**THE PRESIDENT:** Thank you.

**MR. MacCALLUM:** Sir.

**THE PRESIDENT:** So...?

**MR. FRAPPIER:** Gerry Frappier, for the record. Sorry, sir.

I'd just like to, if I could, add a little bit because we have a conversation that's moving a lot towards evacuation and Saint John being one of the targets for discussion.

Saint John is over 40 kilometres away from Point Lepreau. We certainly don't see a situation where that would be the recommended thing to do.

As EMO has just mentioned, Saint John has lots of other reasons to have evacuation plans and I'm sure, as the Chief mentioned yesterday, do have evacuation plans, they'd like to improve on them.

But perhaps I could just for a moment ask Mr. Luc Sigouin to talk a little bit about the evacuation

and where that fits in the international view of actions after a nuclear accident.

**MR. SIGOUIN:** Luc Sigouin, for the record.

So, just to be clear, staff's view on this is that there is no need to have an evacuation plan in New Brunswick for nuclear beyond 20 kilometres. So, there's no need to have a nuclear-specific evacuation plan beyond what NBEMO already has in place.

And I'll give you kind of three supporting reasons for that. The first is, as Mr. Frappier has pointed out, there are no scenarios relating to the Point Lepreau Generating Station that could lead to requiring an evacuation at 40, 50, 60 kilometres away.

There may be an impact. Yes, the plume might -- in a very unlikely situation, the plume might make its way to Saint John, but the impacts of that would never justify undertaking an evacuation. There are other protective actions that could be required, for example sheltering, and that is something that the Emergency Measures Organizations can implement very easily.

The second point is in regards to international guidance. The IEA makes it very clear that nuclear preparedness arrangements should leverage existing all-hazard plans, ensure the void whenever possible having nuclear-specific plans.

So, as has been spoken about already, for example in Saint John, Saint John has -- we heard from the Chief yesterday, has an evacuation plan set up, it's not a nuclear-specific evacuation plan, and that's encouraged by international guidance from the IEA. You should not have a nuclear-specific plan, you should leverage your all-hazard capabilities.

And the third and final point I think is important for everyone to understand is, the latest international lessons learned and what is actually being applied and I think that, you know, the test case for this is what Japan is doing post-Fukushima.

And Japan, post-Fukushima, has gotten direct guidance from the IEA on how to modify their emergency plans and their offset arrangements.

And what Japan has done is, they've implemented a five-kilometre protective action zone versus the four here, which is reasonable given the different technologies they have, and a 30-kilometre urgent protective zone versus the 20 that we have here, again, proportionately reasonable.

But what's important to understand is their concept of operations.

In Japan when a general emergency is declared, they will evacuate only five kilometres. They

will not evacuate beyond five kilometres. They will shelter everyone in the 30-kilometre zone and they will wait for the plume to pass. And after the release they will do radiological surveys in the 30-kilometre zone and identify where there is contamination. And they will instruct people to leave immediately or to leave over the next few days or to tell them that in fact there is no radiation contamination and they can stay.

They've recognized the challenges and the risks that are associated with mass evacuation versus the health risks associated with maybe some very small exposures.

So based on the international guidance of leveraging all hazards, the actual practices that are in place, we're comfortable with the arrangements that are in place right now in New Brunswick.

**THE PRESIDENT:** Okay. We've got to move on.

**MEMBER TOLGYESI:** It's just you were talking about beyond 20 kilometres it's sheltering. Does it mean that there should be some provisions for KI pills farther than 20 kilometres or it's not necessary?

**MR. SIGOUIN:** Luc Sigouin. for the record. CNSC REGDOC 2.10.1 specifies requirements for potassium iodide for KI. What is specified in the CNSC

REGDOC is that potassium iodide needs to be predistributed in the designated plume exposure zone.

So here in New Brunswick that's the UPZ and in Ontario it's the Primary Zone.

And that KI needs to be prestocked for the ingestion planning zone so that it's available to people if it's needed, depending on the scenario.

In New Brunswick they prestock, I believe in the order of 50 or 60,000 doses of KI if it's needed beyond the 20 kilometres.

So I guess the short answer is it might be needed; it depends on the scenario. And NBEMO have followed the guidelines of REGDOC 2.10.1 and are meeting that.

Thank you.

**MEMBER VELSHI:** I have a couple of questions but I do want to thank you, Mr. Sigouin, for your response to the earlier question. It was extremely helpful.

Your third part of your response on what Japan is doing in consultation with the IAEA, how does that translate for Canada, whether it's the amendment to a CSA standard or the REGDOC about more focused evacuation if and when needed? Or is that already considered within the requirements?

**MR. SIGOUIN:** Luc Sigouin, for the record.

The Canadian regulatory framework, or requirements framework, whether it's CSA, is silent on the concept of operations. So the documentation that we have supports the IAEA guidance in requiring that these zones are set up and that arrangements are made in advance.

For example, KI may be predistributed or prestocked.

But as of yet they are silent on the concept of operations.

Maybe our colleague from Health Canada, Dominique Nsengiyumva, could talk about the updated Health Canada Intervention Guidelines which may actually touch on the concept of operations and how to implement these measures.

**MR. NSENGIYUMVA:** Dominique Nsengiyumva from Health Canada, for the record.

Yes, Health Canada has been updating the guidelines to respond to a nuclear emergency. I may say that the guidelines are going to actually be published somewhere probably in September. And there has been a round of consultations with a number of stakeholders.

So we are in the instances of finalizing the guidelines.

The updates again follow the incident from

Fukushima and the new knowledge that has come in the recent years from the international community. So it's making sure that those new knowledge are reflected in the guidelines.

With respect to a number of protective actions, evacuations, sheltering, KI distribution, ingestion, monitoring of food, etc., we are updating those so that again they reflect the international guidelines and standards.

So for evacuation, as Nick said, there are some suggestions in terms of first the zones. The zones are not fixed by IAEA. Again, there has to be some local knowledge in terms of taking into consideration the context of where we are at, and that's what NBEMO has done.

If we have to compare NBEMO and Ontario, for example, again it's different context so we have to take into consideration the local context.

And one of the things is that in terms of looking at okay, what are the dose? What are the dose that should be used to do or to implement certain actions?

There are minimal values where you can, again, to take into consideration all the elements. If you are to evacuate during a storm, would you decide to do so, because again you may have more negative impacts compared to what type would people get.

But there is a limit where you have to say okay, do I have to do it or do I have room where I will have to take this decision or not?

So there is taking into consideration space, taking into consideration the time, so evacuation. And that allows you to be able to consider those different elements.

And also be able to optimize or justify the actions that you are going to take.

So these new guidelines take into consideration all those elements. And, as I said, they are going to be published somewhere in September.

Thank you.

**THE PRESIDENT:** Okay. I would like to bring in the next conversation because we are going to continue with CELA on the same topic.

**MEMBER VELSHI:** I have a question. It's for New Brunswick EMO.

On page 11 of your submission under Governance, you've got a statement here and I just want clarification on that.

You said:

"We would welcome a program standard that includes performance measures and federal oversight."

Can you elaborate on what exactly you were seeking in there? It seemed like you were actually asking for something and I just wanted to make sure you had an opportunity to elaborate.

**MR. MacCALLUM:** Greg MacCallum for the record.

Really what I was saying there is that we always welcome that additional oversight. We are in the process, as has been described by Dominique, of an EPREV coming forward here. That increases the amount of dialogue that we have with Health Canada and the Canadian Nuclear Safety Commission going forward.

In terms of the reference to welcoming standards, we have adopted standards of emergency management. If there are additional standards or regulatory documentation, we welcome that so we can include it in our planning process.

That's all I was really getting at with the statement.

**MEMBER VELSHI:** So nothing more than what's already in the works or contemplated?

**MR. MacCALLUM:** That is correct.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Okay, thank you.

I would like you guys to stick around for

the next, for Health Canada also. Don't go away because the next presentation will be on the same topic.

I would like to hear an oral presentation by the Canadian Environmental Law Association and the Conservation Council of New Brunswick, as outlined in CMD 17-H2.93 and H2.93A.

I understand that Ms Blaise will make the presentation.

We'll just set you up here. We only have one port for slides.

I think we can do better than that, technology-wise; connect two tables with access to slides.

Technical people, are you taking notes?  
Okay.

**CMD 17-H2.93/17-H2.93A**

**Oral Presentation by**

**Canadian Environmental Law Association and**

**Conservation Council of New Brunswick**

**MS BLAISE:** Good morning.

My name is Kerrie Blaise and I am counsel at the Canadian Environmental Law Association.

We welcome this opportunity to speak to the Commission today about the proposed relicensing of the

Point Lepreau Nuclear Generating Station.

As you mentioned prior, CELA was a co-applicant with the Conservation Council of New Brunswick. And while Executive Director Lois Corbett cannot join us today, I would like to relay her message that she is in full agreement with CELA's submissions.

So while time doesn't allow for me today to review all aspects of our research, I have included the entirety of our findings in this presentation so that it may serve as a basis for discussion or review at a later time by either Commission or attendees here today.

Please note throughout my presentation I will periodically be skipping slides.

As I mentioned, I am from CELA. CELA is a non-profit public interest organization. We were founded in 1970 and continue to advocate for environmental protection and the safeguarding of human health.

CELA has previously appeared before the Commission and all of our prior submissions are publicly available on our website, and that includes today's submission and our full report.

The goal of CELA's involvement in this relicensing hearing is three-fold:

First, we sought to examine the emergency planning provisions relevant to the application.

Second, we sought to provide recommendations to the Commission in respect to the adequacy of these provisions.

And lastly we sought to comment on areas for improvement.

In total, we do have 36 recommendations in our report.

Our recommendations are geared to actions which can be incorporated into the licensee's Licence Condition Handbook, which will prevent or reduce radiation to the public in the event of an emergency.

There were three key documents that serve as the basis for CELA's review of Point Lepreau's emergency preparedness and response. These were the technical planning basis and on-site emergency response plan prepared by New Brunswick Power and the two-volume off-site emergency response plan provided by the province.

Unfortunately none of these crucial documents are publicly available. By contrast, they are available in the province of Ontario, which as you know is home to Bruce, Pickering and Darlington operational nuclear facilities.

Furthermore, CELA was almost unable to review the Point Lepreau off-site emergency response plan in time for the hearing because we had to go through a

formal Request for Information process.

For those of you who would like to review those documents in full, we included them in our submission, which is available either from the CNSC or on our website.

CELA submits that these documents, the technical planning basis and the on and off-site emergency response plans, must be made publicly available and open to the public through you. And until this has occurred, the Commission does not have sufficient information before it to ensure the public safety in the event of a major catastrophic accident or radiation release.

The off-site plan would undoubtedly benefit from a public review where the first-hand knowledge and experience which we have evidenced through the submissions received thus far to the Commission from the Point Lepreau Chief Warden, the Fire Chief of Saint John or the fisher community, this knowledge could be incorporated into the plan.

A lack of transparency is an issue of significant public importance. Confidence in the licensee and the regulator is crucially dependent upon open dialogue in a process which allows the public to be part of the decision-making process.

I would like to move into a discussion

about the Point Lepreau planning basis.

It's critical that the Commission, in deciding whether to grant this re-licence application, examines the planning basis which reflects the magnitude of the accident, which serves as a foundation for emergency planning.

The level of accident chosen as this planning basis will determine whether consequences from a large radiation release can be averted.

As we heard yesterday from CNSC staff, basic to learn from the "science of accidents". To this point, CELA reiterates a finding by the U.S. National Academy of Science from their Post-Fukushima Review, which found that the emergency plan operating at the time operating in Japan was "inadequate to deal with the magnitude of the accident".

During the course of our research CELA was in touch with the NBEMO and was informed that the province does not have its own planning basis or definition of type of release.

Instead, the province defers to New Brunswick Power and according to the classification they set for the emergency, the NBEMO sets its own notification procedure.

As NB Power only oversees emergency

planning to a radial distance of 12 kilometres, it's crucial that the province, whose zone extends to the 20-kilometre mark, delineate the planning basis which informs their response plan.

So as NB Power defines the planning basis, it's important to note what this is.

It's noted as being a design basis release, or DBR. CELA submits that this is not a level of accident which is sufficient in scale to ensure emergency response preparedness in the event of a catastrophic accident.

Throughout my presentation I will use the terms "severe" and "catastrophic". And by that I refer to an accident whose radiation release is on par or greater than that of a Fukushima nuclear accident.

Ultimately the acceptance of a less severe accident for the foundation of an emergency plan is a fundamental error in energy policy.

Because the planning basis is a design basis release, by extension the response plan is inadequate to guarantee the required level of preparedness and emergency response in the event of a catastrophic accident.

Throughout the hearing thus far we have repeatedly heard that the existing plan is robust and designed to the highest standard.

CELA would like to remind the Commission that following the Fukushima accident there was an IAEA regulators' conference in 2013, and Toshimitsu Homma of the Japan Atomic Energy Agency noted that -- and I quote:

"Before the Fukushima accident there was an implicit assumption that such a severe accident could not happen unless insufficient attention was paid to an accident by authorities."

(As read)

The existing planning basis is reflective of this assumption as it allows for a lower level of accident to serve as the basis for emergency response.

CELA submits that the planning basis for a potential off-site nuclear accident in New Brunswick must be increased with the public's input to account for a catastrophic off-site accident.

At this time and until such emergency plans are in place and proven to be effective, CELA submits the site should not be licensed for continued operation.

CELA recommends that the CNSC deny the Point Lepreau operating licence on the basis that a detailed robust emergency planning basis for catastrophic accidents has not been provided to the public, and furthermore that to the extent the provincial off-site

nuclear emergency plan has been revised, the public has been denied the opportunity to provide rigorous review and input.

CELA reminds the Commission that while it is the province's jurisdiction to provide for the safety of its citizens, it's ultimately the jurisdiction of the CNSC to ensure that sufficient protection is in place in the event of a nuclear emergency before granting an approval.

The CNSC's jurisdiction stems from sub-section 24(4) of the *Nuclear Safety Control Act*, and this requires the Commission to ensure that the licensee will, in carrying on the activity, make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security measures required to implement international obligations to which Canada has agreed.

While REGDOC 2.10.1, titled *Nuclear Emergency Preparedness and Response*, does set out the emergency preparedness requirements which flow from Section 24(4) of the *Nuclear Safety Control Act*, these requirements are not binding on the licence-holder unless they are included as a condition under the approved licence.

Therefore, in closing, CELA submits that the CNSC, because of its responsibilities under the *Nuclear Safety Control Act*, must review and report the sufficiency

of the planning basis, the response plan and the province's readiness for a large-scale release in New Brunswick.

Unfortunately, while I've only had time to ride a high level overview of our findings, I would like to note that CELA has outstanding concerns with regards to the currency of the existing plan, the size of the emergency planning zones, the public availability of emergency response information, the consideration of extreme weather events within emergency planning and specific emergency response measures, such as public alerting and sheltering in place, and crucially the need for other emergency response plans which may be specifically geared to the marine environment or other provinces and states neighbouring New Brunswick.

Thank you.

**THE PRESIDENT:** Thank you.

Questions? Who wants to start?

Dr. McEwan.

**MEMBER MCEWAN:** So let's start with the public availability.

When I read your submission I was a little surprised that it appeared to be quite so difficult to get the plans.

So EMO or staff, do you have comments on that?

**MR. MacCALLUM:** Greg MacCallum, for the record.

We were not trying to make it difficult to get the plans. However, the plan, the off-site plan specifically, is a Government of New Brunswick document.

There is a Government of New Brunswick policy which governs right to information, and many enquiries or requests for information from the private sector go through that process.

That was our immediate response. That's the process that was followed.

I can't speak to how much time it took because it's not done by me personally, obviously. But there was never any intention to deny anybody access to the information. It's simply a process that's followed no matter what is asked for.

**MEMBER MCEWAN:** So how long did it take you to get the plans from the initial request?

**MS BLAISE:** I can provide the exact dates to you. But I know Part 1 of the hearing occurred January 26<sup>th</sup>. I was informed on February 15<sup>th</sup> that I had to provide a formal Request for Information.

Interestingly, between January 26<sup>th</sup> and February 15<sup>th</sup> I had been requesting the off-site plan, but there was a snow storm. So all government offices were

closed down for a day. I believe that was February 13<sup>th</sup>.

That was the day I was calling and trying to get the plans. So I was delayed because of weather.

I was provided the plan on March 21<sup>st</sup>. So formally requested on February 15<sup>th</sup> and provided March 21<sup>st</sup>.

Our submissions to the Commission were due March 26<sup>th</sup>, which would have given me five days.

Thank you for granting an extension. I had until April 3<sup>rd</sup> to review the off-site plan and get this together.

**MEMBER MCEWAN:** You said that the Ontario plan is available on the website.

**MS BLAISE:** That is correct. The Ontario plan is fully publicly available, as is the medical plan as well, which has not been disclosed to me. I could not review that.

I also was not given the Severe Accident Management Guidelines. I'm not sure if I have to go through another Freedom of Information request for that. But those are not publicly available.

And the equivalents in Ontario are.

**MEMBER MCEWAN:** So this wasn't just a request. It was a Freedom of Information request.

**MS BLAISE:** This is Kerrie Blaise, for the record.

That is correct.

**THE PRESIDENT:** Does the EMO want to comment?

**MS GOODFELLOW:** For the record, Cathy Goodfellow, Director, Emergency Preparedness and Response, Department of Health.

Like the EMO, we do not publicize our health emergency nuclear plan as a matter of practice, but we did not receive a formal request for that document from the Agency.

**MEMBER MCEWAN:** Do staff have any comments on public availability?

**MR. FRAPPIER:** Gerry Frappier, for the record.

We do not have a requirement that says they must be making the documents public.

Obviously, there should be easier access than perhaps we're hearing right now.

But as far as our requirements go right now, we would not have such a requirement.

I think Mr. Jammal wants to add to that.

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

There is a difference between a requirement for or the responsibility of the proponent or other jurisdictions. However, as the policy of the

Commission states, documents referenced in the CMD will be available upon request. There is the posting element versus the request. So we make it very, very flexible and available to the requester if they come to the CNSC staff. Everything we reference in the CMD is publicly available upon request in order to -- for translation issues or any other difficulty we might run into on just publishing it on the governmental website due to the federal linguistic requirement. So everything that is referenced in the CMD is publicly available upon request and as far as I'm concerned, I do not -- I cannot confirm, but I do not know that CELA did request from staff the information associated with the CMD.

**THE PRESIDENT:** I think EMO wants to say something and then you will.

**MR. MacCALLUM:** Greg MacCallum for the record.

As I mentioned in my presentation earlier, our plans are written for the practitioners and there is a lot of detailed information with regard to contact information which would have a sensitivity in terms of privacy information. So if there was a delay in the provision of this plan to the request, in part that is explainable by the fact that it had to be adjusted in the interest of maintaining privacy of certain information. I

just wanted to be clear on that.

And one other final comment I would have is that that timeframe that was described by the intervenor wasn't a snowstorm, it was a very large ice storm that caused a number of office closures and tied up a lot of people with other operational imperatives that may have complexified the responding timeframe we had to work with. Thank you.

**MS BLAISE:** Thank you. Kerrie Blaise for the record.

We did -- when we reached out to the province, to the NBEMO, we did tell them that as a Commission Member Document its components must be made public and in the interest of time I tried to compel them to provide the document, but I was still redirected to a formal freedom of information request.

**THE PRESIDENT:** Coming back to requirement, I understand there is a technical inside list of people and contact, but I thought there would be a requirement to have some sort of an emergency plan on a Web or publicly available. I don't understand how you can have an emergency plan for the public which is not public.

**MR. FRAPPIER:** Gerry Frappier for the record.

I will ask Luc Sigouin to answer that in a

minute, but I do think it is important to differentiate between having the government plan and having communications with the public on what to do in an emergency.

Mr. Sigouin...?

**MR. SIGOUIN:** Thank you. Luc Sigouin for the record.

So although there is no specific requirement in our regulatory framework or others that says that the plan needs to be made public, I think the important message is what Mr. Frappier touched on, is that the public needs to have some information about what to do. As Mr. MacCallum has pointed out, their plan is written for the practitioner. I'm not sure how useful that might be for a member of the public, but what is important is for the public to understand what the risks are, what the hazards may be, how they may be asked to respond to those. And we have heard from NB Power and NBEMO how there has been outreach, for example the calendars, so everyone who is in the 20-kilometre zone has received the calendar, it is made available to others. And we have also heard from NBEMO that they intend on or they have made a commitment to make some part of the plan public. I think that would be in line with CNSC's expectations regarding outreach and informing the public about what actions they might have to

take.

**THE PRESIDENT:** I understand what you're saying, I am just surprised that there is no articulation of what a public plan should look like. I don't think the calendar is a public -- the calendar is a pamphlet about what to do, what to store, but you need to have some sort of a plan and I am surprised that CNSC does not have it built in as a minimum kind of requirement for a public available plan.

Mr. Tolgyesi...?

**MEMBER TOLGYESI:** According to Slide 25 of CELA and the REGDOC-2.10.1, Nuclear Emergency Preparedness, these requirements are not binding on the licence holder unless they are included in the conditions under approved licence. Could you comment on that?

**MR. FRAPPIER:** Gerry Frappier for the record. I think Mr. Jammal had wanted to make a comment on that.

**MR. JAMMAL:** It's Ramzi Jammal for the record.

As we went through the licence reform and established generic licence conditions, the licence clearly states that the licensee must establish a program with respect to the emergency preparedness response. With respect to the LCH itself and the inclusion of RD-2.10, the

staff will incorporate -- and we agree with CELA -- staff will incorporate RD-2.10 in the LCH, by which, that will be a clear indication with respect to the implementation. So that will be incorporated in the LCH. However, the licence condition does exist with respect to program and the LCH is the document in order to establish the requirements and the compliance verification criteria.

**MEMBER TOLGYESI:** So it becomes binding?

**MR. JAMMAL:** It's Ramzi Jammal for the record.

The LCH is the compliance of verification criteria that staff will use as requirements and part of the -- in specific for that RD there is an implementation plan and it is enforceable and it is binding in accordance with the regulatory requirements of the CNSC.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** Thank you, Mr. President.

Questions around the planning basis and I will start with staff and then maybe Point Lepreau can add to that and then we can get the intervenor's perspective on that.

So a number of questions. One is who should be developing it, the timing of the planning basis and why is it happening now as opposed to earlier? And the third part is what is the accident category that is most

appropriate for the planning basis? So maybe, staff, you can comment on those three things, please.

**MR. FRAPPIER:** Gerry Frappier for the record. Could you just re-say your second point there?

**MEMBER VELSHI:** Okay. So the first one was who develops it? The second one is why is it getting developed now as opposed to two years ago or whenever or is it something that gets revisited? I wasn't sure about the timing. And the third one is the accident category that should form the planning basis and the requirements around that.

**MR. FRAPPIER:** Thank you very much for that clarification.

Gerry Frappier for the record and I will ask Noredidine Mesmous to add to this.

But generally speaking, there is both a deterministic rationale for what the accident source term would be that looks at potential accidents and accident scenarios and in particular what that might mean to offsite circumstances, and then there's also probabilistic safety assessments where we sort of take a look at what are the release categories and what are their frequencies.

But perhaps, Noredidine, you could add to that, please.

**MR. MESMOUS:** Noredidine Mesmous, Director,

Reactor Behaviour Division CNSC.

The planning basis was prepared by NB Power in 2004 and it reflects the station as it was before refurbishments and before all the improvements that were done as part of the lessons learned from the Fukushima accident. So the results of that planning basis for the civil accidents considered the most conservative event, which is a power runaway, and that has led to the most severe and fast progression events. The Point Lepreau technical basis is currently being updated and it would reflect the current knowledge and the current design status of the plant.

I would mainly talk about the containment filter vents in the system and the passive autocatalytic recombiners. So this is an additional level of defence in depth. If taken into account in the planning basis, the impacts would be less than the 2004 event. Thank you.

**MR. FRAPPIER:** And I just asked Luc Sigouin to add to that from the emergency management perspective.

**MR. SIGOUIN:** Thank you. Luc Sigouin for the record.

So I think we have heard from my colleague in Reactor Behaviour Division about the severe accident, but I just want to clarify something in the intervention

that stated that the offsite plan is based on a design basis accident only.

I assume you have the CELA submission, but on page 370 of CELA's submission is section 3 of the technical planning basis and I will just read out from that where it says:

"Postulated accidents considered in this technical planning basis [I will skip over] ... cover a wide range of possible scenarios."

These include three types of scenarios: design-basis releases and accidents, beyond-design-basis releases from those types of accidents, and severe accident releases where fuel damage is extensive and the containment systems fail.

So the technical planning basis is indeed based on severe accidents, beyond-design-basis accidents, and design-basis accidents. Thank you.

**MR. FRAPPIER:** Gerry Frappier for the record. And if I could just add to sort of bring both of those pieces together, if you like.

So the important thing about what Noreddine was saying is the update that's happening now is to bring into consideration the very extensive improvements in safety that have been made to the plant, in particular a

containment filtered venting which will remove a lot of the radionuclides that would have been considered before. So while the planning is being updated -- or the analysis is being updated, this is in no way reflecting that we don't have conservative analysis right now based on the previous work that was done. In fact we would expect it to show that we were -- with the new design features we are probably overly conservative.

**MEMBER VELSHI:** Thank you.

So if I get to the intervenor concerns, the first one was the intervenor seemed -- well, was surprised or concerned that EMO was depending on New Brunswick Power or Point Lepreau to provide the technical basis, but from what you are saying that is the licensee's role to do so. Is that correct?

**MR. FRAPPIER:** Gerry Frappier for the record.

That's correct. They have the intimate knowledge of the plant and the analytical and engineering capabilities to undertake the analysis. We do review that analysis against what is expected to ensure that the analysis was done both correctly and that we agree with the assumptions that led to the conclusion that the release is a conservative estimate.

**MEMBER VELSHI:** So that was first. The

second one is the timing of the updated technical basis document. So originally done in 2004, the improvements, whether it's the emergency filtered air discharge or PEVs or EMEs or whatever it is, the doomsday scenario that you want your emergency planning to be based on, why is it in 2017, six years after Fukushima, that's happening as opposed to three years ago? Help me understand the timing of it.

**MR. FRAPPIER:** Gerry Frappier for the record.

So just one thing. The original one wasn't in 2004. This is something that has been done ever since the design was put together.

With respect to the detailed time for this one, to be honest, I don't have that. I don't know, Noreddine, if you have it, or perhaps New Brunswick Power can help us on that.

**MR. HICKMAN:** Charles Hickman for the record.

The simple answer is the existing planning basis includes severe accidents. The offsite plan reflects that. The operational decision-making by the offsite plan reflects the severe accident consequences. So at that time it felt it was adequate, it covers all the bases.

The updates, as indicated by CNSC staff,

will look at the upgrades that we have made to the station and we will see what the outcome is of the update when we do that.

**MEMBER VELSHI:** So the updates you have made to this station, you did that during your refurbishment; correct?

**MR. HICKMAN:** Some of the upgrades were done during refurbishment, so some of the physical engineered upgrades in terms of filtered vents, rupture disks, containment faults, makeup water, all done as part of the refurbishment activities. We continue to make upgrades to our emergency response capabilities. There were also upgrades done prior to refurbishment with regards to severe accident management guidelines which were in place and were exercised during both Intrepid 2012 and in 2015. So they have been implemented, exercised and validated.

**MEMBER VELSHI:** So the current provincial emergency plan, what technical basis document or what timing is that based on?

**MR. HICKMAN:** So the offsite plan is reflective of the 2004 technical basis document which incorporates severe accidents. The protective active zone and urgent protective zone identified in the provincial offsite plan and in the technical basis document are

reflective of the severe accident conditions that were modelled at the time.

Since then we have also expanded and worked with a provincial offsite EMO with regards to concepts of operations or improvements to the plan with regards to for example the monitoring and decontamination capabilities and we continue on a regular basis -- as in weekly, biweekly, monthly -- to make improvements to the offsite plans, helping NBEMO with their work. And we do this not just on the nuclear file but also on all other emergency files. We work very closely with both provincial EMO, both in anticipation of, during and in the after action reports. It is an all of government response, all of government is a participant in this.

**MEMBER VELSHI:** So help me understand on the unique technical basis document. That physical document, does that get updated on a regular basis or get reviewed on a regular basis? I understand there may be a whole lot of elements around that, but does the technical basis document -- to me it sounds like it's a major input into the offsite plan and I don't know if the intervenor even asked for the technical basis document, I'm not quite sure -- but that physical document that's getting updated, when was that last updated?

**MR. HICKMAN:** The date on the latest

version is 2004, but at that time I reiterate, it's an extremely conservative assessment at the time, it included severe accidents and is considered to be adequate at that stage and up until today.

The offsite plan -- just to add to it, the offsite plan is what I would describe as an evergreen document. It is updated every year. It is reviewed both in preparation and following exercises, both for exercises like Intrepid. It is also updated on a regular basis with demographic information and also reflecting both tabletop and communications exercises on an ongoing basis. So the offsite plan is current to, I want to say, today the technical basis. A very conservative technical basis document includes severe accidents, is dated 2004.

**MEMBER VELSHI:** Thank you.

Staff, is there a regulatory requirement around a technical basis document and formally updating it?

**MR. FRAPPIER:** Gerry Frappier for the record.

Just to put a couple of things in perspective. So there is the technical document, if you like, because what we are talking about here is really about the design of the plant and how it is going to respond under accident conditions. That is not something we would expect to change very often.

However, in the case of Point Lepreau, in 2008 to 2012 it took major refurbishments and in fact added major design features that do in fact change the basis of which we would expect to source under accident scenarios.

Further on, we then -- out of Fukushima, there was a requirement for more actions in the severe accident side, including undertaking severe accident management guides, provision of EMEs. There was a lot of activities happening around that.

Having said that, all of them were making the plant safer and safer, especially under severe accident conditions. So from the staff's perspective, the fact we were still using an old model if you like was conservative at the time, was even more conservative now. So there wasn't any impetus to direct them to update that in a more timely basis.

Having said that, the analysis reports around that, the safety report, the probabilistic safety assessment, those have been updated on a regular basis and they are required to be updated on a regular basis. That fundamental calculation we are talking about is not necessarily part of that update every five years.

**MEMBER VELSHI:** So I mean one of the key lessons from Fukushima was to be prepared for something totally unanticipated. That wasn't the thinking in 2004.

So I understand that, you know, the probabilistic, the deterministic analysis, it's just that complete shift in the mindset after that. I thought it was the technical basis document that is the key driver of the offsite emergency plan and maybe I have that wrong. I'm just wondering why it's not there already.

**MR. FRAPPIER:** Gerry Frappier for the record.

So the technical document we are talking about is one that takes an accident and looks at its progression. One of the things that was done after the Fukushima events, and in particular through the PSA, was to be looking at, as you mentioned, no matter what, what are some of the circumstances that could happen and what were the main contributors to any accident that would be even more severe or potentially more severe. And that effort with the PSA has resulted in a lot of other changes that have been done. So the focus of the regulator has been on reducing vulnerabilities in the plant, improving design of the plant, and that is where we have been putting our effort.

**MR. HICKMAN:** If I may, Mr. President. I don't know if it would add any value to the Commissioner's question. I can't take credit for it. I think we may have been ahead of our time in 2004.

The severe accident that was included in our 2004 severe accident basis -- and if I can take the liberty I'm going to read the words because I think when you hear the words they may ring a familiarity with what you saw in Fukushima. Give me a moment.

So the severe accident release that was included in our technical basis document, I am quoting from that document:

"The resulting pressure pulse damages the pressure tubes and the calandria, thereby incapacitating long-term cooling through the moderator. This results in extremely high fuel temperatures, generation of hydrogen through the zirconium-steam reaction and subsequent hydrogen deflagration."

The explosions we saw at Fukushima, they were anticipated as part of our technical basis document.

"The containment fails and the subsequent release of fission products to the environment is large and prompt. It is assumed that most of the release would occur in 30 minutes."

Which actually is worse than we saw in Fukushima.

So when we say that our technical basis document is conservative, 2004 is extremely conservative. Today we still think that it is reflective of a -- I will say a Fukushima-style accident of a massive failure of containment, fuel damage, hydrogen fires, explosions and so on. That is the basis for our technical -- that is our planning basis for the station.

Subsequent to this, we had -- reflecting this, we developed the severe accident management guidelines. They were done at the station, they exist. We have trained -- the operations folks have trained on it. The command system, they are built into our response capability at the station. This is the basis for the offsite plan. That severe accident release, modelled against onsite weather, where that release might end up reflecting the temperatures, the weather, local conditions is part of the model that goes into the technical basis document. Where that release goes, reflecting at that time, the complete fission product that would be released is looked at from the point of view of where the exposures would be, where the mobility would be, where the impacts on the population would be. That's what drives the definition of your protective action zone and your urgent protective

zone.

The zones we have today that are part of the offsite plan reflect that type of release. They reflect the demographics and the population spread and the road system in and around Point Lepreau. Our basis document, our onsite plan and our offsite plan address that type of event. They have done since basis documents since 2004.

We exercised our SAMG guidance documents as part of both Intrepid 2012 and 2015. We are continuing on a path of improvement, so we will look at the changes that we have made to the station, does it change this. We are continuing to look at lessons learned from Fukushima, continue to look at opportunities and guidance coming from IAEA. We are on the path to excellence. We don't claim to be there but we feel in this area we have a very conservative, very robust process that we work very closely with New Brunswick Department of Environment -- sorry, Emergency Measures as part of an all of government response and ability to respond to these events.

**THE PRESIDENT:** So is that -- I'm trying to compare this to the SARP study that was done by CNSC to try to assess a Fukushima-like source term and something which somebody mentioned, an INES scale. I don't know, nobody wants to give me a number on the INES scale. I

understand the apprehension about that. But where is that particular scenario you just described? Is it equivalent, in the same ballpark as a SARP? You have a one-plant facility, so it's not like a Fukushima. But nevertheless, is it comparable in relative terms to an INES scale 6 or 7, or in a SARP study, whatever... Because I understand that Ontario is going to use the SARP study like as the planning basis. One thing at a time. Do you want to answer that one and then I will pass it on.

**MR. HICKMAN:** I will ask Derek Mullin, our Technical Specialist, to respond to that.

**MR. MULLIN:** Derek Mullin for the record.

In the original planning technical basis for Point Lepreau for the radiation planning, that included about 40 percent of the reactor core inventory being released to the environment very early in the event. That assumed an early containment failure. That is a significant release. Exactly where that lands on the INES scale I can't really tell you that, but what I will say is that when we are looking at the updated or revising the radiation planning technical basis we are using the outputs of our severe accident analysis directly in that to determine what does the release look like. That's directly from the codes and directly from the outputs. So in some cases it may be greater than 40 percent. For example, for

noble gases it will be anywhere between 66 to 100 percent, depending on the cases that we are looking at. And it would vary for other types of fish and products that might be released, that possibly could be released under a highly unlikely severe accident. Thank you.

**THE PRESIDENT:** I think 40 percent, if memory serves, is pretty high.

Okay. CNSC?

**MR. FRAPPIER:** Thank you, sir.

From a regulator's perspective this conversation is good news. I just want to make sure that we are all getting that, right. So in 2004 the source term that was being discussed was very conservative. Point Lepreau has since then done significant improvements to the safety of the plant. The fundamental core is still the same. The inventory is still the same, it hasn't changed. So we would not expect any update to make that worse than it was determined in 2004. So from our perspective it's not a high priority to do that.

You mentioned about where it would lie compared to some of the SARP studies. So the one that is being used by Point Lepreau would be larger than that and so I think both Peter Elder and Mr. Jammal want to add to that. So perhaps Mr. Elder could go first.

**MR. JAMMAL:** It's Ramzi Jammal for the

record. Just a couple of things.

You asked the question with respect to regulatory requirements for updates. I would just like to remind the Commission and the public, everybody is focusing on the date of 2004, however, post-Fukushima I personally wrote an order for all of the nuclear power plants in Canada and as part of the Fukushima action plan we reviewed the safety case of every reactor. We imposed on the licensee to review the safety case. And in addition to the safety case review, we looked at the source term.

And you are correct with respect to the Severe Accident Management Guidelines, they became part of the existing operational bubble with respect to defence in depth. So post-Fukushima, the review did take place with respect to the available inventory for release. Then we reviewed the updated safety case of the reactors, we determined it is still valid, took into consideration the planning basis and we imposed the implementation of the Severe Action Management Guidelines. At the time it was optional. Now it becomes part of the regulatory requirement.

So all of this was reviewed and updated according to our orders we imposed post-Fukushima. So the regulatory requirement was triggered by Fukushima. It revalidated the assumptions that were done in 2004. As my

colleagues have been mentioning, the progression of the accident was taken into consideration.

Now, as Mr. Frappier mentioned, the EMEs, what we imposed with respect to the EMEs': makeup of water into the steam generators and to the calandria has again further mitigated the progression of the accident. I would like to confirm to you that post-9/11 a systematic review was conducted in accordance with the orders we issued to all of the NPPs and we presented the updates to the Commission on multiple occasions.

**MR. ELDER:** Peter Elder for the record.

I just want to confirm what he said, is the planning basis was reviewed post-Fukushima and was actually -- this was discussed at the last hearings in 2012 and it did confirm that that planning basis did cover off a Fukushima-like accident, which I think has been clear from what has been presented by NB Power this morning. So we did not -- it was determined that there was not an immediate need to update that planning basis.

**THE PRESIDENT:** Just to conclude, so if you accept the planning basis as it is now, then are you satisfied with the 20-kilometre zone, you know, and all the emergency that goes around that and are we suggesting that EMO will continue to work with these assumptions in updating their plan?

**MR. FRAPPIER:** Gerry Frappier for the record. So generally speaking, yes, but I will ask Mr. Luc Sigouin to add to that, please.

**MR. SIGOUIN:** Luc Sigouin for the record. So I guess to kind of wrap this up and talk about what is the impact on the plan, so the planning basis, the technical planning basis is a requirement under REGDOC-2.10.1. The licensees need to provide the province with that information so that they can adequately plan. They need to update it periodically. We have heard from NB Power that they will update it and we look forward to seeing that and staff can report back to the Commission at the ROR or monthly status reports on the progress on that.

The purpose of the planning basis is to ensure that the emergency planners have all the information they need about the magnitude of the release: when it could occur and what is the likelihood of it, what are the more likely, less likely ones, how big might they be, and so on. That information we have just heard exists and is conservative and staff believe that when it is updated it will not lead to -- it is very unlikely that it would lead to an increase in the size of the zones for the New Brunswick emergency plans. So we were satisfied that the arrangements that are in place offsite.

**THE PRESIDENT:** So please, what we are

going to do is give you a few minutes, then we are going to break and then come back, because I don't think we are going to finish with your intervention yet.

**MS BLAISE:** Thank you. Kerrie Blaise for the record.

First off, I think I would like to start with the planning basis and I will take everyone to a different quote. This is from the offsite plan, it's on page 227 of the offsite plan, page 295 of CELA's submissions, and it states:

"New Brunswick must be able to respond to a Design Basis Release from [Point Lepreau]..."

So I think we are seeing there's a lot of discrepancies in the text as to whether this is a design basis release or, if we go to page 370, it included the word "severe" design.

So I ask that the discussion that just happened regarding the scale of the accident be provided in writing to the Commission, just for clarity, if that could be provided.

Secondly, I would like to respond to the issue of updates to the plan. Particularly I would like to comment on updates to the offsite plan.

In our review of the offsite plan, which

is two volumes, CELA noted a number of items. I can quote just a few that could be updated that are not current to 2017.

For instance, in the offsite plan at page 192, the schools that they put within the existing plan is only dated until September 2014. Are there new schools? Have the schools changed in numbers? Are there more or less students?

The Point Lepreau Warden map that is in the offsite plan is only dated to March 2012. We would ask that this also be updated.

There is a chapter in the -- sorry, if I just turn to it. There is also a chapter in the offsite plan which is titled, "Ingestion Pathway Monitoring" and the chapter is called -- it's a subchapter called "Countermeasures" and it only contains the words, "To be completed later". So we ask that this chapter be completed before this licence be renewed.

That is just a few ideas of where the plan could be updated.

We also hear that the offsite plan is up to date with IAEA standards and I would take you to page 41 of our CMD where we do note that the offsite plan relies on IAEA GS-R-2. This document has actually been replaced by a contemporary document from 2016 I believe, and the current

document which is relied upon dates to 2011. I can double-check the dates. But we would request that the entire offsite plan be canvassed to make sure that the IAEA standards have been updated and we did that to make sure that they were contemporary.

Thank you.

**THE PRESIDENT:** So just to confirm, we are going to get an updated offsite plan very soon from what we heard this morning and hopefully we will hear all about this in the next Regulatory Oversight Report, or at least we get an update in August. So did I get this right?

**MR. SHEPARD:** Roger Shepard for the record.

First of all, thank you very much for the observations and I will handle them one at a time.

The first one is a map that is in the tab that deals with the education and early childhood development. It shows all the schools in the area, but in particular it shows the school, the only school that is in the 20-kilometre emergency planning zone as having 63 children and 12 staff. That is a planning basis for us to do the evacuation and because it is us as the practitioner who are using that information, we didn't update the map because the school population is always between 55 and 65, it always has a staff between 10 and 12. We plan for two

buses which would take 80, not counting the vehicles for the teachers. So it is misleading that the map is not updated and in the 2017 update we have asked the Education Department to provide us an updated map, but it changes nothing for us for planning.

The second point that was incorrect was the Warden Zone map that is in there that is dated 2012, it outlines the 15 Warden zones. Those 15 Warden zones haven't changed in 30 years. So the fact that the map is 2012, we will as well change that map in the future version, in 2017, to reflect it being updated, but it's just the date on the map that is being updated, the zones have never changed.

The next point was the reference to the design basis accident. When we took on the monitoring and decontamination, mass decontamination capability in the province, we had International Safety Research who validated our concept of operation for mass decontamination. So that reference to a design basis accident is out of that concept of operations that was issued by International Safety Research and we will ask them to amend that document because that is an incorrect statement. So thank you for that.

**THE PRESIDENT:** Okay. Thank you.

**MR. SHEPARD:** I will add that the plan for

issuing the updated plan for 2017, normally we issue the plan in March every year, but this year because of real world events and because of these hearings and because we got copies of the interventions, we pushed the release date to the 18th of May.

So many of the updates that you are referring to here, including the Health Canada recommendation for operation intervention levels, didn't come to us for review until after the 2016 plan was released, which is why you will not see it until we issue the new plan in 2017.

Similarly, you will see 40 updates to the plan in 2017 because the after action review for Intrepid 2015 didn't come to us for review and corrective action until after the 2016 plan was issued. So many of the observations from CELA have been corrected in the newer version that will be released on the 18th of May.

**THE PRESIDENT:** Okay. We are going to take a 15-minute break and we will resume this lively conversation. Thank you.

--- Upon recessing at 11:29 a.m. /

Suspension à 11 h 29

--- Upon resuming at 11:48 a.m. /

Reprise à 11 h 48

**MR. LEBLANC:** If you can please take your seats. Just in terms of timing, this break was taken a bit later than we had anticipated so, in that regard, we still will need to break for lunch. People need to eat.

--- Laughter / Rires

**MR. LEBLANC:** And if some of you are famished, we will bring some muffins and cake at the table right there. Some people have not had a chance to go and grab something.

And we will break for lunch at about 1:00. So if you have arrangements to make, please be forewarned. Thank you very much.

**THE PRESIDENT:** Okay. Thank you. So let's restart the questions. Who wants to start? Mr. Tolgyesi?

**MEMBER TOLGYESI:** You -- the question is to NB Power. You have electric system which is in a place for the area of Point Lepreau. What kind of testing are you doing? Are you doing periodic testing so once a year? Or how it works?

**MR. HICKMAN:** Charles Hickman here. I'll actually pass most of the question to NBEMO as they own and

operate that system but we do participate in regular communication links and checks with the province and internally within our own command system. But NBEMO is responsible for the learning system so they should answer the question.

**MR. MacCALLUM:** Greg MacCallum for the record. The public notification system we have is a -- it's specific to the residents within the emergency planning 20 kilometre zone and it's called an Everbridge Aware system. It's an automated telephone system which every residence with either a landline or a cell phone or a device that will receive text messages is registered in this system.

We conduct the test of that system annually to confirm it and, depending on the results of the testing, we, of course, reserve the right to retest it on a more frequent basis if we deem it necessary.

That is the first level of public notification we use specifically tailored for the entire populous that lives within the emergency planning zone.

**MEMBER TOLGYESI:** What do you when people, you know, they are working outside? They don't have a telephone with them. What is the success of alerting system when you do emergency call?

**MR. MacCALLUM:** It's a layered approach to

public notification so we also have the capability of, through the warden service, having literally face to face notification, door to door notification.

The other thing we do, of course, is make use of the omnipresent social media methods of communicating with people and the conventional media as well if we -- if we're going to be putting out any kind of information, we use virtually all available resources to conduct public information campaigning.

If I might just add one comment, I'm sorry. By way of clarification, when it comes to alerting the public, I described a specific set of circumstances where we can alert people who live within the emergency planning zone.

There is another capacity to issue public alerting which is known as Alert Ready. It's the national Public Alerting system that you're probably familiar with. We can use that as well and just I'm sure you're maybe already aware, a recent announcement by the CRTC is that that capability will be expanded within the next year to include wireless public alerting as well.

**MEMBER TOLGYESI:** I hope that it will work a little bit better because I remember last year, this national alerting system was testing in Quebec and there were some problems with understanding and messages.

**THE PRESIDENT:** Ms Velshi?

**MEMBER VELSHI:** Thank you, Mr. President. There are a few recommendations made by CELA that I'd like to get input and I'll start off with the one for New Brunswick EMO.

This is recommendation number 8 about a dedicated website for nuclear emergency response. Any thoughts on that?

**MR. MacCALLUM:** Greg MacCallum for the record. We are in complete agreement with that. As it stands right now, on the New Brunswick Emergency Measures Organization's website, there is a section devoted to nuclear safety.

Some of the information on there is dated. We intend to put more rigour into the content that'll be found on that site.

**MEMBER VELSHI:** It'll include your plan that you've made more user -- public friendly and --

**MR. MacCALLUM:** That is correct.

**MEMBER VELSHI:** -- any other information. Thank you. CELA, any comment on that?

**MS BLAISE:** This is Kerrie Blaise for the record. That is welcome news. I did a review of the NBEMO website and there was quite a lack of information on the site that would be helpful to any general member of the

public seeking to find more information.

And I would include that, in addition to having more information on the website, certain documents from the NBEMO could be updated to include nuclear so that would include their document titled 72 Hour Emergency Preparedness, Is Your Family Prepared? And, again, it urges citizens to know the risks but nuclear isn't included.

So it could be they might have existing documents that would work well but they have to add in a nuclear chapter and, within that chapter, they would mention what it means to shelter in place, how and when do you take KI pills so that type of information. Thank you.

**THE PRESIDENT:** And, just to follow-up on this, I'm coming back to my other comment. So you have on your own website. Our local communities, will they -- where would they go right away if there's an emergency? Will they go to your site or their own local emergency first responders?

So I'm trying to understand whether you need the two levels to -- do you need two levels or one will suffice?

**MR. MacCALLUM:** Greg MacCallum, again, for the record. There is a variance, sir. Some communities have their own websites and they populate it with what they

determine to be appropriate public safety information.

Other communities do not.

In the interest of ensuring that the information is available from an authoritative point of view, we direct people to our website and, in that way, there is no vagaries about where you can get the most useful and accurate information.

We also ensure we have links on our website to other sources of information such as the Nuclear Safety Commission, such as Health Canada, such as provincial health authorities as well.

**THE PRESIDENT:** But if there is a -- let me be really specific. If there is a school in some community, does the School Board or management in case of a local emergency of any kind, know what to do? Will they go to you or will they go locally or will they have emergency plans for that particular school?

**MR. MacCALLUM:** Greg MacCallum. Again, it varies. But we commend people to our website for the most up to date and authoritative information. And they are made aware of that.

And, in our provincial emergency operations centre, you've heard there would be reference to whole of government, we have education authorities as part of our Emergency Action Committee who would be

communicating the same information on their own networks as well.

**THE PRESIDENT:** Thank you. Ms Velshi?

**MR. HICKMAN:** Dr. Binder, if it might be useful, Charles Hickman for the record, we're in a unique and, I think, very strong position in New Brunswick, Point Lepreau. There's only two players with regards to the emergency planning zone, New Brunswick Power and NBEMO.

So there's no other municipalities, there's no other councils who are impacted by that 20 kilometre planning zone. So the only two people are NB Power and NBEMO.

And so that's why it's absolutely appropriate for NBEMO to be the source of that information.

**THE PRESIDENT:** Thank you.

**MEMBER VELSHI:** Recommendation number 28 on -- I don't have a page number. Recommendation 28. So this is for Point Lepreau staff. Just want confirmation about the automatic exchange of data between Lepreau and the regulator on gamma monitoring results. Does that exist?

**MR. HICKMAN:** So I think two or three of us could answer so it's Charles Hickman for the record. So there's, again, a layered approach to this. We have real-time boundary monitoring information gamma data that

comes back into our control room. So that gives us, at the boundary of the station, information.

We have real-time gamma monitoring and other monitoring within the station boundaries itself. That also comes back into our staff.

If any of that data shows an anomaly, it will get reported out to NBEMO as part of our reporting process.

Outside the station, there is -- and Health Canada can speak to this -- there is real-time monitoring facilities outside the station which are available through the web today. I think it's updated every 15 minutes. I'm sure Dominique can correct me if I'm wrong.

And, in the event of an emergency, the reporting rate on that is increased and, in an actual event, we end up with deployment of real-time monitoring equipment, gamma monitoring equipment that provides real-time data back both to the technical systems group, which includes representatives from both CNSC, from NBEMO, it's within the NBEMO structure, and to Health Canada as well though there's multiple layers of basically real-time data that comes back into all the regulators.

**MEMBER VELSHI:** Staff, any comments? I mean, I guess what you're saying is that this

recommendation, this is already in place, then?

**MR. FRAPPIER:** Gerry Frappier for the record. I'll ask Luc Sigouin to give you the details.

**MR. SIGOUIN:** Luc Sigouin, director of emergency management programs at CNSC.

So the recommendation by CELA is two part, one the automatic gamma monitoring and that system is, in fact, in place and it's been verified by CNSC staff that it's functional, available. It's available at the Point Lepreau site and at any NB Power location as well.

The other part is the exchange of data with the regulator and NB Power is implementing a system to give access to near real-time reactor information to the CNSC at our EOC in Ottawa. That project's under way and I believe the timeline for completion is in ahead of the 2018 exercise so that will be tested during the exercise.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Thank you.

**MEMBER MCEWAN:** Thank you, Mr. President.

In the slide 92, which is -- and I'm assuming there's a discussion on shadow evacuation -- it seems to me that that would be a lot more important in areas where you have high population densities rather than lower population densities. Is it likely to be a factor in an evacuation if you had to do that from the Point Lepreau area?

And what would increasing the zone from 30 to 40 kilometres do? And, I guess, what is the population? And you said 5,000 for the inner area.

**MR. SHEPARD:** Roger Shepard for the record. That's an excellent question and we'll put this in context. When we talk about population inside the 20 kilometre emergency planning zone, we're talking about 1,654 residents' dwellings. We're talking about 3,110 people.

With the transient population that 20 kilometre zone, we estimate, on the most popular day there, there would be less than 5,000 people inside that zone.

In the precautionary action zone, which is Warden Zone 1 and 2, there's only 551 personnel. That's the first four kilometres.

In the urgent protective action zone, out to 12 kilometres, there's only 1,621 personnel and out to the 20 kilometre, there's only 3,110.

So the warden service that we superimpose over the 20 kilometre emergency planning zone is divided into zones and each of the zone is assigned a warden.

That warden knows every individual that lives in that zone and, in many cases, the warden lives in that zone.

We do an eight-page demographic survey

with every household so we list and capture the name, contact information for that household for part of our notification system.

So we enter them and we enter them in groups for notification for radiation emergency. So we do a one on one with the wardens and every household for the completion of that demographic survey. We maintain that demographic survey by the warden's monitoring the warden zones on a daily basis. Someone passes away, we get a notice and we take that name out of the contact list. People are born or move in or move out of the area, our wardens monitor that and we maintain our contact list and update our Everbridge Mass Notification List.

So we have an intimate relationship through the wardens with everyone who lives inside the 20 kilometre emergency planning zone.

Also, the delivery of KI pills is a door to door delivery, not a mail service. We deliver the KI pills directly to the resident. We make sure that there's enough pills there for the residents so, again, it's a one on one, door to door delivery.

We just completed -- I should say NB Power just completed with KLD Engineering, an evacuation time estimate study on evacuation times during different times of day, different weather events on how long it would take

to evacuate the four kilometre, 12 kilometre and 20 kilometre zone and they included a shadow population out to 25 kilometres and the shadow population adds 20 percent of that population, which was 660 personnel.

So we have evacuation time estimates based on shadow population.

**MEMBER MCEWAN:** A colleague of me told me that his parents moved into the area and, when the welcome wagon came, they were given their KI pills as well. So the system works.

--- Laughter / Rires

**MR. SHEPARD:** Thank you.

**THE PRESIDENT:** You wanted to add something to this?

**MS BLAISE:** Kerrie Blaise for the record. I was just wondering if that language around shadow evacuations and it extended to 25 kilometres. We would submit that it should be up to 40 kilometres or beyond.

Could that be referenced or made in writing? Because that isn't referenced in the off-site plan as it currently stands. So perhaps the 2017 off-site plan could talk about shadow evacuations?

**MR. SHEPARD:** Roger Shepard for the record. The KLD Engineering evacuation time estimate study

is proprietary to NB Power. They contracted that organization. It is their document.

Our operations staff is scheduled to receive a briefing on the evacuation time estimate in the next couple of weeks so it's a fairly new document and it's not referenced in our off-site plan and we'll look at referencing it in the future but we contained that information in our operation centre and it's a KLD proprietary document. Sorry, NB Power proprietary document.

**THE PRESIDENT:** Okay. Please explain to me why a little research study is a proprietary document? Which you presumably paid for?

**MR. HICKMAN:** Charles Hickman for the record. Yes, we paid for it. It's proprietary because they have software that they use for doing the actual --

**THE PRESIDENT:** You don't have to disclose the software and just say the results.

**MR. HICKMAN:** I understand. So that's why it is, today, proprietary. What typically happens in this instance, and we will make it happen in this instance, is we will make sure that they are comfortable with that report being submitted and provided. Regardless as to whether the actual document is provided, the information will be incorporated into the off-site plan.

As Roger indicates, they have the information today. They're getting a briefing on it. The document, in all likelihood will become a public document. It's just, at this moment, we haven't got down that far.

So the recommendation from the intervention, I don't have any issue with the recommendation. It's a good recommendation. We'll go down that path.

There is a process that we follow and we'll follow that process.

**MEMBER MCEWAN:** So I guess this sits within a couple of the recommendations but just in guidances and guidelines for the populations. Perhaps you could just outline what your advice is at the time and then following the accident and how that would be incorporated into ongoing communications with the public? **MR. SHEPARD:** Roger Shepard for the record. Well, I'll state first of all, in the 2016 off-site emergency plan, the New Brunswick Radiological Ingestion Pathway Monitoring Plan does not state a distance that we would look after ingestion recommendations which means we would look at as far as we need to look at to impose any of those requirements to cover wells, to not eat crops, and bring animal's food in and those sort of ingestion pathway requirements.

We have noticed, in the last five years

since I've been working with New Brunswick Emergency Measures, that every time we do an exercise, it's always a response-type exercise. It's only a two-day exercise based on time constraints and, before the exercise is complete, it ends still in the response phase and we never reach the recovery phase.

So we've identified that we need to pay particular attention to the recovery phase and, specifically, the ingestion pathway monitoring plan.

So, in November of 2016, New Brunswick EMO held our first recovery exercise dealing with the ingestion pathway and it was a provincial exercise, brought all the provincial departments and agencies in and we discussed roles and responsibilities, capabilities, resources and training required for them to do what it says in the ingestion pathway monitoring plan.

There were 57 attendees and we came out of that exercise, tabletop exercise with a matrix of who does what, the capabilities they have, how many survey teams they can go out and deploy at one time.

That was step number one.

Step number two was the 17th of March, we held our second recovery tabletop exercise and we invited our federal partners to come in and talk to EMO and the rest of our provincial players, how federal departments

would come and assist us in the ingestion pathway, what resources come from Health Canada and how other federal resources would assist us in the recovery phase of a radiation emergency at Point Lepreau.

And thirdly scheduled for the 14th of September is our third recovery exercise and this will focus with our technical advisory group on the technical data, the operation intervention levels, the oils, and how sampling gets from the location to the lab, the sample gets analyzed and the technical data gets back to the tag and how the tag makes the recommendations based on the operation intervention levels.

So as we've done in the past, we don't like to do anything notionally. To say that you have an evacuation plan and never evacuate anyone means it's just words on paper.

So we want to put boots on the ground and deploy people to do sampling, bring the sampling where it needs to go, have the people who are required to sample it, sample it and send the technical data where it needs to go.

So we've never done that here in New Brunswick and that's where we're leaning now in 2018 is to hopefully do a recovery exercise which is day three to 12 of Intrepid 2015.

We have gone over and over and over the

response phase of an exercise and, in the last exercise, we completed an evacuation of residents for the first time and residents being evacuated and maintained at a reception centre for the first time.

So no more notional talking about how we would do it. We are actually going to go do it.

**MR. NSENGIYUMVA:** If I may add? Okay. This is Dominique Nsengiyumva for the record. Just to emphasize on that recovery -- those recovery exercises, with support from Health Canada and the federal partners, again, in the response and later in the recovery, the reason why -- one of the reasons why we are supporting that type of exercise is to look at who does what, when, and where, so that we can have a complete picture of the activities that would be done during an emergency itself and then after in the recovery and see, do we cover everything that we need?

If there is something -- an area that we don't have everything that we need, then collectively see how do we get that?

So, that's kind of what -- from the federal perspective supporting those activities here in New Brunswick and also in Ontario to be able to say, okay, we have everything that we need to be able to respond and, after the response to be able to recover.

Thank you.

**THE PRESIDENT:** So, that's a good segue to recommendation No. 13 about a marine-based off-site emergency plan.

So, your situation is you're right on the -- I think within the 20 zone you've got a lot of fishing going on. So, what is the marine emergency plan, particularly on a recovery?

The fishers, it sounds to me like they're very supportive of you, you don't want for them not to understand what needs to be done.

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

I'll have New Brunswick EMO if you would like to respond in detail, but I just want to clarify one thing very clearly.

The New Brunswick Power is responsible for the on-site response. So, we do everything that's required to be done inside the fence line. Once it's outside the fence line, we support NBEMO. EMO is the lead agency outside the fence line.

I think earlier on there was a slight misunderstanding that way. So, in this respect I'd draw -- the fence line goes right along the beach and so, the province, through NBEMO, with federal assistance, looks

after the marine side.

Roger can explain in detail what the off-site plan -- how the off-site plan addresses the marine.

**MR. SHEPARD:** Roger Shepard, for the record.

It is in our plan for Department of Agriculture, Aquaculture and Fisheries that they're responsible to keep a database of what fisheries are available in those locations, what resources are there, how many boats are there.

And we do a summary in the 2017 plan of exactly what is located there that we need to be aware of and what fisheries are in place.

When we talk about agriculture, we have Northern Harvesting, Cook Agriculture located in the area. We have a listing of when the lobster seasons are, both of them. We are aware there's 176 lobster licences in the region. We are aware when a boat goes out has two to four personnel on it, there may be as many as 50 vessels going lobster season in the harbours at one time. We know about McKay's Harvesting of blueberries and have a list of farm animals and so on that are located. We even know the address and the phone number to call to the person who owns the horses. We have that detail.

As far as notification for evacuation of at-sea areas, we only talked earlier about the warden zones. There are 15 of them. There are two at-sea evacuation areas as well.

So, the precautionary action zone, the four kilometres, it involves warden zone 1 and 2 and at-sea area 1 that needs to be evacuated.

It would be evacuated on a request from us through Public Safety Canada to the Coast Guard and Department of Fisheries and Oceans that they need to put out a notice to mariners and a notice to shippers that they need to evacuate that area.

They will clear that area on a request from us and they will direct vessels to the Port of Blacks Harbour or the Port of Saint John where they'll be met by radiation monitoring teams and they'll be determined -- the people that are on the vessels will be isolated, or the vessel will be docked and isolated and the personnel will be checked to see if they're contaminated or not and they'll be dealt with accordingly.

**THE PRESIDENT:** I'm more interested not necessarily in the evacuation, but more in case of a real Doomsday scenario and there's contamination into the water. Who has the data about, don't eat the clams and the lobsters we heard about here yesterday?

**MR. SHEPARD:** The Department of -- Roger Shepard, for the record.

The Department of Agriculture, Aquaculture and Fisheries has a complete database and they have a representative who sits as a member of the Provincial Action Committee in the Provincial Emergency Operations Centre.

**THE PRESIDENT:** So, is it the same number that Health Canada also monitor? You remember, we do not want a different numbers from Health Canada and Agriculture New Brunswick and CFIA. There's a lot of players here. Are we all agreeing in when the threshold for --

**MR. SHEPARD:** I'm referring -- Roger Shepard, for the record.

I'm referring for provincial Department of Agriculture, Aquaculture and Fisheries. Of course, we have and we'll correspond with the federal partners and they have, I'm sure, additional information or the same information.

**MR. NSENGIYUMVA:** Dominique Nsengiyumva, for the record.

From Health Canada, again, leading for the nuclear emergency plan and having partners like Agriculture Canada, CFIA, those would be part of the federal -- the assessment group and through the years on that we have the

NBEMO.

Those -- any exchange would be done. So that, again, there is a coordination in terms of the data that's being collected and analysis.

Thank you.

**MR. HICKMAN:** Charles Hickman, if I may just add one other item, for the record.

This is an issue that was exercised during Intrepid 2015. We actually had a scenario at the request of one of the participating organizations which involved a fisher who was concerned about his catch and whether it was contaminated and what he should do with it.

So, it was exercised part of, you know, towards this point. In light of actually do these things in reality, we exercised that during Intrepid 2015.

**THE PRESIDENT:** Thank you.

Mr. Tolgyesi?

**MEMBER TOLGYESI:** I would like to talk about a little bit this KI pills, but just before, you were saying that your public alert system testing is regular, but do you publish the results of those testings? Do you make them public, or you don't?

**MR. SHEPARD:** Roger Shepard, for the record.

When we do a mass notification with the

residents in the 20-kilometre zone of Point Lepreau, we send them a letter two to three weeks in advance notifying them that we're going to do this test, the date, the time the test will occur and the actions, they're to acknowledge receipt of the message.

So, we do this annually. We did not do it in 2016 based on real world events and, to be honest, after 2015 the residents were getting tired of listening to us because we went there for KI pills, asked them to volunteer for the exercise, to deliver this, to deliver that, updating our databases. So, we just stood back from the residents, we were getting a little too familiar, so we turned that one off.

So, the next one is scheduled for the 19th of June this year and we keep the records, but I can tell you the most successful mass notification tests we've had where people acknowledged back and we can see the results is 51 per cent, but that is because a lot of the people that live in the 20-kilometre emergency planning zone don't read the instructions, they don't hit 1 to acknowledge the message, they just think it's a prank call and hang up.

But when we talk to them and test it as part of the exercise, those numbers are not reflective. And social media would take over down in southwestern New Brunswick, once you tell someone on the street that they

need to evacuate, they're all leaving.

So, we depend on the social media aspect as well, as well as the warden service to back up that notification system of an emergency. So, it's a three-tiered event.

**MEMBER TOLGYESI:** This is, to some extent, apply. So, the KI pills. One is, you were mentioning that there are institutions where these KI pills are free distributed.

Do you have a list? Because I think one of the questions of CELA was that they don't know who is the receiver of free distribution of these pills?

**MR. SHEPARD:** Roger Shepard, for the record.

In the plan there is a list of everywhere we distribute KI pills, including 1,654 dwellings or residences inside the 20-kilometre emergency planning zone. That constitutes 55,000 pills delivered, and we list 13 alternate locations, mostly health locations, RCMP locations, off-site EOC and we hold monitoring and -- or sorry, KI pills at the monitoring and decontamination centres as well and we have a large surplus at the off-site EOC.

**MEMBER TOLGYESI:** And who has the responsibility to maintain the tracking, expiration date of

these pills, because there are expiration dates, so they should be replaced.

**MR. SHEPARD:** Roger Shepard, for the record.

I maintain it, I maintain the list. The expiration date, the pills were just issued in the summer of 2015, the expiration date of the current stock of pills is October, 2021.

**MEMBER TOLGYESI:** And my last, this is regarding part of the check, but you were saying just a few minutes ago that the people sometimes is tired to listen to your communication.

So, what about these KI pills, do you have any kind of verification that they still have them and they know what to do with them because you renew the pills, I think it's every five years. So, do the people know how to manipulate, how to use them?

**MR. SHEPARD:** Roger Shepard, for the record.

Yes. We are at a 96 per cent delivery rate for KI pills. I can tell you what address on what street do not have KI pills.

Of the 49 residents who do not have KI pills, 44 of those are seasonal residents and we haven't captured them yet because they haven't come back to the

residence. Some of them absolutely refuse to take KI pills, and we have the addresses of those folks as well.

So, we have the detailed information and I can tell you right to each household how many KI pills are in that house and the warden service monitor it. If someone told the warden service that they can't find their KI pills, they have a surplus to top them up; and if anyone moves into the area, the warden services are monitoring it and they'll deliver KI pills and a demographic survey to that home.

**MEMBER TOLGYESI:** What I hope that you know at each address how many pills they have, but if they know how many pills they have?

**MR. SHEPARD:** They do. Roger Shepard, for the record.

When the KI pills are delivered, inside the package there is not only the manufacturer iOSAT which has instructions on how they would take those KI pills and the dosage, there's also an NBEMO instruction card which duplicates what it says inside the package. If they don't want to open it, ours is available inside a sealed packet that you see right here, and the instructions on how to take, administer KI pills are there and also the warning that they're only to take KI tablets when ordered by the Chief Medical Officer of Health in the Province of New

Brunswick.

**MS GOODFELLOW:** May I -- it's Kathy Goodfellow, for the record, from Department of Health.

There's also a Public Health brochure that's been issued to every resident with further information on KI.

**THE PRESIDENT:** Ms Velshi?

**MEMBER VELSHI:** A suggestion for Health Canada. This whole area of emergency management is very much a key part of all our public hearings when it comes to licence application renewals, and so I was very pleased to hear that you have planned an international peer review using the IAEA in a couple of years' time.

And I don't know what your plans are for sharing the outcome of that review, but I think it would go a long ways in providing assurance to many of the intervenors and members of the public associated around these facilities to hear that.

So just if you hadn't thought about that, something for you to think about and how you can share it at a future meeting or a hearing.

**MR. NSENGIYUMVA:** Thank you. Dominique Nsengiyumva, for the record.

We have already thought about that. While the process itself is not a public process, at the end

there's going to be a report by the international experts from the IAEA and the plan is to have that report public.

IAEA suggest, recommends that the report be public to be posted at the IAEA website and then we see locally how we are also to post that report. So, the report is going to be public.

Even if the process itself, the international expert don't meet with the public, but report is going to be. So, that already considered.

Thank you.

**MEMBER VELSHI:** Yes, thank you. And both what the recommendations are and Health Canada's response to it would also -- because I think it would leave it dangling otherwise, so what happens next?

But anyways, I'm glad that that the recommendations are going to be public.

**MR. NSENGIYUMVA:** Dominique Nsengiyumva, for the record.

It's more than Health Canada recommendation, it's Canada's response -- preparedness to nuclear emergency. So, it's all those organizations, federal organizations, provincial organizations and even municipal organizations and nuclear power plants who are going to participate in the process, so that report is going to cover all of those.

Thank you.

**MEMBER VELSHI:** Thank you. So, is there going to be one coordinating body looking after implementing the recommendations.

**MR. NSENGIYUMVA:** Health Canada in collaboration with CNSC, OFMM in Ontario and NBEMO. So, we have the steering committee, those organizations being part of -- members of.

Dominique Nsengiyumva, for the record. So, those four organizations, Health Canada, CNSC, OFMM and NB Power and the nuclear power plants are part of a steering committee.

There's going to be a planning committee composed of all organizations who are going to participate in the review and so, the report is going to reflect the contributions of all those organizations and when the IAEA mission comes, they are going to have site visits, interview people and it's all these that's going to be in that final report which will be made public.

**MEMBER VELSHI:** Thank you. And, Mr. President, just one last question on this area, on this submission is recommendation 33 and it's a question to staff around the IAEA's GSR Part 7 versus Part 2 -- I'm sorry, GSR 2.

So, I'll hear your comments on that, and

what implications does this new revision have on the regulatory requirements, please?

**MR. FRAPPIER:** Gerry Frappier, for the record.

I'll pass to Mr. Sigouin in a minute. But just to be clear on the IAEA, that they are recommendations as opposed to requirements.

And with respect to precautionary action zones, their recommendation is three to five kilometres, so us at four kilometres is appropriate, and the UPZ of 15 to 30 kilometres.

So, just I know that in the report it makes it sound like you're supposed to be at the extremes. I think, as Mr. Sigouin mentioned, there's actually a variability there and, furthermore, the planning behind that was with a reactor much larger than us.

But coming to your specific question, if I could pass it to Mr. Sigouin.

**MR. SIGOUIN:** Luc Sigouin, for the record.

I think it's a valid discussion to ask about GSR 2 versus GSR Part 7. To put it into context, GSR 2 was published by the IAEA in 2002, GSR Part 7 is the post-Fukushima, it was in the works for a while before, but it was published in 2015.

GSR Part 7 is being deployed, if you will,

internationally by the IAEA, encouraging member states to adopt it and, in fact, is part of the preparation for the EPHREM mission that my colleague from Health Canada was talking about.

The IAEA will be in Canada doing a workshop on transitioning from GSR 2 to GSR Part 7. They'll be doing that in July, this summer.

Having said that, it's important to understand what changed in GSR Part 7. And to summarize it, GSR Part 7 has improved the structure and the usability of the document. It is essentially the same requirements with a few more that I'll touch on.

But the GSR Part 2 was a document that was not very usable, it made frequent external reference, so it was not a stand-alone document. It's now structured in alignment with how the IAEA has revised their document structure, it's more stand-alone, it's more easily used.

Some key concepts were added to it. However, there's no mention of dose thresholds or distances in GSR Part 7 or GSR 2, so there's no change to dose intervention limits or to distances, it's all about concepts and what systems you have to have in place.

So things that they have added to consider, in addition to protecting nuclear emergency workers, to consider how you protect helpers during an

emergency. How to manage radiation waste. Significant lesson learned from Fukushima, how do you manage rad waste during an emergency?

The termination of the emergency, how that is undertaken and how do you transition to recovery? And a change in the concept of how you protect the public.

In GSR Part 2 it was very focused on, if they -- on justifying a specific action, So, if you could save a certain amount of dose, avert a certain amount of dose by taking a specific protective action, you could do that. So, if you could save 50 mSv by sheltering or evacuating, then you evacuate.

They've completely changed the concept now and they're looking at it more holistically to see with a group of protective actions what will the remaining actual dose be to the individual. And if that remaining dose or projected or received dose is too high, then you need to be taking more actions.

In the end it doesn't change the interventions that you will be taking in the field, but it provides a more holistic view of how you should protect the public instead of looking at one action individually.

So, there's no change in dose, there's some additional concepts that have been added. Will it lead to some changes in the New Brunswick plan? It might.

And, you know, we've already heard from Mr. Shepard, they're working on the recovery aspect, for example, the concept of how to manage waste and so on.

So, yes, it will lead to some changes. Will it lead to how urgent protective actions are put into place for the public and how the zones are sized? I don't expect it will. GSR 2 and GSR Part 7 have remained consistent on those aspects.

**MEMBER VELSHI:** And will it lead to any change to any regulatory document?

**MR. SIGOUIN:** Luc Sigouin, for the record. The recent -- the most recent regulatory document at CNSC for emergency preparedness is REGDOC-210.1. When we wrote REGDOC-210.1 we took into consideration GSR Part 7 which was in draft at that time and have incorporated all of the upcoming or expected changes in REGDOC-210.1. So, the current framework is consistent with GSR Part 7.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Dr. McEwan

**MEMBER MCEWAN:** So, final question. Recommendation 31, and again, this is for staff. We discussed on a number of occasions the guidances and regulations for emergency workers in an emergency situation, and I thought it would be a good opportunity

just to outline what is in place to ensure that there is appropriate recognition of risk for those individuals?

**MR. FRAPPIER:** Gerry Frappier, for the record.

And I'd ask Caroline Purvis to respond to that, please.

**MS PURVIS:** Good morning. Caroline Purvis, the Director of the Radiation Protection Division, for the record.

So, certainly in the radiation protection regulations currently there are dose limits for emergencies and as they're currently written it's 500 mSv effective dose would be the upper limit, the upper bound and 5,000 mSv for the upper bound for skin dose.

As you're aware, there has been a discussion paper that's been circulated and we're in the process of seeking to revise those dose limits to ensure that they're more consistent with international guidance and recommendations. Those dose limits would be consistent with the IAEA and would be an order of 10-fold less. So, we're seeking to align with 50 mSv effective dose and 500 skin dose, with the exception of certain tasks during exceptional circumstances.

I can elaborate more if you need more information.

**MEMBER MCEWAN:** And, presumably, everybody on-site would be aware of the risks and the requirements for ALARA in an unusual situation?

**MS PURVIS:** Certainly, the -- yes, absolutely. So, we have to distinguish between different emergency workers, of course. So, those on-site would be captured and they'd be trained and have information provided to them about the risks associated with exposure to radiation and those risks associated with the emergency actions they may have to undertake.

Health Canada in their -- and perhaps they'd like to share more about this. In the revision of their documentation, they are also looking at the protection of emergency workers in the off-site realm and our proposals for workers captured under the licensee's emergency program with respect to dose limits is consistent with what Health Canada is also seeking.

**MR. NSENGIYUMVA:** Dominique Nsengiyumva, for the record.

I can confirm.

**THE PRESIDENT:** M. Tolgyesi?

**MEMBER TOLGYESI:** This is my last question, M. Président.

Recommendation 11, CELA's recommending that NBEMO is re-drafting off-site plan, off-site emergency

plan, using a thematic approach.

Is there some reason and what's the perception of the New Brunswick EMO?

**MR. MacCALLUM:** Greg MacCallum, for the record, from NBEMO.

It's an interesting observation but I would want some clarification on what is envisioned as a thematic approach to producing the plan.

**THE PRESIDENT:** Go ahead.

**MS BLAISE:** Thank you.

This is Kerrie Blaise, for the record.

As you have previously noted, directed to the NBEMO, the off-site plan and the on-site plan are both very technical documents. I will limit my comments just to the off-site plan because that is within the scope of the NBEMO.

I get it wasn't a plan that was intended for the public. So as a member of the public reviewing it, it was very cumbersome.

We just found it was largely disorganized and it was a piecemeal approach to finding information. The volume of pages, it did revert to like a Control F to find certain key words, if it was marine or ocean or fish. And based on that we would compile information to try and put together a picture of what does a marine response look

like or what does public alerting look like.

So we would recommend like a thematic approach and maybe a chapter on public alerting and a chapter on sheltering place, just so when this is made publicly available it's easier to digest.

I would also wonder at this point if I could get some clarification regarding when this updated Offsite Plan was going to be made available.

I heard May 18<sup>th</sup> but if I could get that confirmed. Thank you.

**MR. MacCALLUM:** Greg MacCallum, for the record.

Again, the plan in its current form is written for the practitioners. We've already mentioned that we will take that document and make it into a format which is more comprehensible and user friendly for public consumption. In that way we'll avoid any further indigestion.

--- Laughter / Rires

**MR. MacCALLUM:** If that's what thematic means, I get it.

I will ask the custodian of the plan if he wishes to make any further comment.

**MR. SHEPARD:** Roger Shepard, for the record.

The plan is to have the 2017 version of the off-site plan ready for distribution on the 18<sup>th</sup> of May, but that is not public distribution.

We are looking at, as the Director mentioned, putting a format together for public consumption that sometime later in the summer will be upon the website and available for public viewing.

**THE PRESIDENT:** Thank you.

Okay, you have the final say. I think we've covered most of your stuff here.

**MS BLAISE:** Thank you for the time and the questions. They were very insightful.

I would just like to close and just remind everyone here today that emergency planning preparedness and readiness is a crucial fundamental issue which must be addressed by the CNSC in deciding the outcome of this application.

Catastrophic accidents must be considered possible in the event that New Brunswick Power's probabilistic calculations err, that there is missing information or the defence in-depth or redundancies fail.

The ultimate test that the CNSC must apply in deciding whether or not to renew Point Lepreau's operating licence is whether an off-site large release of a catastrophic accident currently serves as the planning

basis for the Point Lepreau Emergency Response Plan.

CELA maintains that this currently still does not appear to be the case. But to that end I would request that the CNSC and NB Power provide a description of the planning basis, in writing, for the record. It takes approximately one month for transcripts to be made available, so if that could be made available in writing for the record, that would be appreciated.

Thank you.

**THE PRESIDENT:** Okay, thank you.

Thank you very much.

I would like to move on to the next presentation, which is an oral presentation by the Musquash Volunteer Fire Rescue Department, as outlined in CMD 17-H2.33.

I understand that Chief Pollock will make the presentation.

Over to you, sir.

**CMD 17-H2.33**

**Oral presentation by**

**Musquash Volunteer Fire Rescue Department**

**MR. POLLOCK:** Thank you very much for the opportunity to present today, Mr. President and Members of

the Commission.

I expect you're all in good spirits after the Senators' victory last night and moving on to the playoffs.

**THE PRESIDENT:** Yes, we are.

--- Laughter / Rires

**MR. POLLOCK:** For the record, my name is Wayne Pollock.

I am the Chief of the Musquash Volunteer Fire Rescue Department. I am also the co-Chair of the Point Lepreau Nuclear Generating Station Community Relations Committee.

I have been chief for 30 years and a resident in this area for more than 45 years. Today I'm going to speak to you in both of these capacities.

First I will talk about my experience as chief, working with the Point Lepreau emergency preparedness team and my knowledge of the station's commitment to safety and community engagement.

Then I will share with you my experience working as part of the Community Relations Committee.

Our volunteer fire department is located in Parish of Musquash. It serves seven communities covering 1,100 households. And those seven communities have bonded together because of the fact that Point Lepreau

is in that area.

I want to make mention of that.

We have more than 65 members who provide volunteer service. All of the volunteers live in the seven communities we serve and some of them are part of the emergency response team at the nuclear station.

The ten members of the ERT team who serve as volunteers further strengthen the partnership between the two forces.

The fire department provides fire and rescue service to the area. We also support the New Brunswick Emergency Measures Organization Warden service by assisting with the demographic survey and the distribution of the KI pills.

The Musquash Volunteer Fire Rescue Department has committed to a number of proactive activities.

For example, the fire department has built a database which provides a list of people who require special assistance. This database is regularly maintained and ensures specific attention is provided to those individuals during an emergency situation.

The Musquash Fire Department has gained tremendous knowledge and experience throughout our partnership, training in the prevention and preparedness

programs we have built together with the Point Lepreau employees.

We have incorporated some of the best practice in the industry. We have learned from Point Lepreau, such as using our three-way communication when transmitting information, and we also work together as a unified command.

In return, we are able to bring our own experience and knowledge both of fire protection and of the community to the Point Lepreau staff.

This is true collaboration.

Our teams act as one cohesive unit when we are together. This is crucial for the success of providing fire protection and response.

The World Association of Nuclear Operators recently recognized the co-operation and partnership between the Point Lepreau Emergency Response Team and the Musquash Fire Department as an industry best practice.

The department's Station No. 2 is located only five kilometres from the station, which is important due to the remote location of the plant. It is a key asset upon which to build and develop the partnership.

The two teams hold weekly joint training sessions where the members work side-by-side at the station. The majority of the Musquash Fire Department

members have become qualified radiation workers, attaining radiation protection and training at the Orange Badge level. This enhances our response capabilities.

We participate in mutual aid drills with Saint John's Fire and Point Lepreau Emergency Response Team. It was recognized by the CNSC staff as one of the best drills to date, the last one we just completed.

Another example of this partnership is the interest shown by NB Power's leadership in attending our weekly training workshops, including ice rescue, auto extrication and wilderness rescue.

NB Power's commitment to safety, we commend NB Power for the importance they place on fire safety and fire protection systems.

Through our participation in the firefighting exercises and training drills we can attest to NB Power's culture of safety, not only when it comes to fire safety but in all respects.

Their commitment extends to everyone's safety: their employees, visitors, general public and the surrounding environment.

At this point I would like to comment on my role as chair of the Point Lepreau Nuclear Generating Station's Liaison Committee.

I have the privilege of working closely

with Kathleen Duguay, Manager of Community Affairs and Nuclear Regulatory Protocol. She is a valued member of our committee who provides leadership and commitment to information sharing.

She is generous with her time and always available to answer questions and meet with us.

I also wish to applaud Brett Plummer, Site Vice-President and Chief Nuclear Officer, and his team for being available to provide subject matter expertise and updates to our committee.

He has demonstrated he has a deep knowledge of plant operations and openly shares plant status reports with us.

We meet on a quarterly basis, or as needed. The members represent a cross-section of station and community interests, including business, environment, health, municipal government, safety, emergency response, station neighbours and the general public.

These members reside from Black's Harbour to Saint John.

NB Power's model for this commitment has been emulated by other companies in the province, such as Emera Pipelines, who are also regulated by the National Energy Board.

The committee serves as a formal mechanism

through which to interact and receive information, feedback or concerns relating to the station. It provides a means for in-person interaction to inform the community of matters of general interest relating to the station, with particular emphasis on issues relating to health, safety, environment and emergency preparedness planning.

It provides a mechanism to provide suggestions directly to station management on how to continuously improve the information exchange with the community.

In addition to our regular meetings, communication with the station and the committee is ongoing in a number of forms. Communication works both ways and is shared openly and transparently.

This has created confidence and trust between the community and the station.

As I note in my letter, I would like to take a moment to acknowledge one of our past community members that appeared before this Board on many occasions, my dear friend Lyman Spear, who passed away in December of 2015. Lyman has a special place in our hearts, just as the station had a special place in his.

For ten years Lyman was the co-ordinator of the Remembrance Day ceremonies at Musquash Fire, which is now recognized as an official Canadian memorial site.

He was also chief of the Point Lepreau Warden system. He gave much of himself to our community and to this committee.

NB Power participates in the Remembrance Day ceremony at the fire station every year and lays wreaths. When we recognize Remembrance Day and remember those who made the ultimate sacrifice in the wars for peace and for Canada, we also think of Lyman.

As our dear friend Lyman would surely say if he was still here with us, let me tell you, Mr. Binder, we certainly appreciate that you came to our community today and we look forward to seeing you again when we start to build Unit No. 2.

--- Laughter / Rires

**MR. POLLOCK:** In closing, the Point Lepreau Nuclear Generating Station Community Liaison Committee can confirm NB Power's commitment to operate the station in a safe, reliable and efficient manner. We see it in everything they do. It's part of their culture and we know this is their number one priority.

The Community Liaison Committee and the Musquash Volunteer Fire Department support NB Power's renewal of the Point Lepreau operating licence.

Thank you.

**THE PRESIDENT:** Thank you. And thank you

for the invitation.

Questions? Mr. Tolgyesi.

**MEMBER TOLGYESI:** You are the co-chair of the Community Liaison Committee.

Could you tell us who and how many public participants are there? How do you select them and is there a membership timeframe; that you are there for a limited time and you are replaced?

**MR. POLLOCK:** For the record, Wayne Pollock.

I believe your question was how long are the members --

**MEMBER TOLGYESI:** Who they are. There are so many members from the public. Who they are.

**MR. POLLOCK:** Okay. For the record, Wayne Pollock.

The members consist of myself representing the Fire Department. We have the fisheries community represented. We have the education.

I've got some more here. I can tell you.

We have our local community LSD. It's our local form of government that we have in the community that's represented.

We have representation from the Lepreau Warden Service on the committee.

Recreation. Our recreation committee is also on that.

I've covered education, along with various members of the plant that always attend, such as the vice-president and Kathleen Duguay.

**MEMBER TOLGYESI:** The majority is a public representation. I understand you have six or seven of the public, the general public, and you are two or three from NB Power.

How do you select them if somebody wants to become a member?

**MR. POLLOCK:** For the record, Wayne Pollock.

My understanding the way we work on that is what we like to do is -- the whole purpose of getting together is sharing information.

So we're looking for members that have access to -- when they leave the meetings, that they can go back and share that information with their groups.

It could be -- and I don't think I mentioned this one.

The seniors group is now represented on our committee. When they go back they share their information with all the members of the seniors.

When I go back, as the fire chief I share

all the information with my 65 members that are on the Fire Department.

The school individual goes back and shares that information.

So we're looking for people, I guess, that can help get the information and share it throughout the community.

**MEMBER TOLGYESI:** My last question was is there a timeframe? You are there for two years or you could stay as long as you wish?

**MR. POLLOCK:** For the record, Wayne Pollock.

I've been there since for the form of the committee, since day one, and there are others that are in the same boat.

I think anybody that is on that committee is welcome to stay as long as they would like to.

**MEMBER TOLGYESI:** Thank you.

Ms Velshi?

**MEMBER VELSHI:** Thank you.

Let me just follow up on that committee membership. I don't know if you heard some of the interventions we got around that yesterday. That perhaps is an opportunity to bring in other stakeholders -- maybe they are environmental groups -- that may want to come.

Maybe Aboriginal groups need to be represented on that.

So again, something for you folks to consider on broadening the membership on the committee.

And I suspect the folks at Lepreau have made a note of that.

Another comment that came up was how widely distributed the minutes of your meetings are.

Right now I gather each member goes -- like you said, you go and speak to your 65 firefighters and tell them what was discussed. Maybe those minutes should get posted on Point Lepreau's website so that all the public can get access to it.

Do you have any thoughts around that?

**MR. POLLOCK:** First of all, as far as expanding the size of the committee, I'll certainly take that back to the committee and we will review that and take that into consideration. I think there could be some opportunity there to expand.

Thank you very much for the thought on that.

Your second question, I believe, was...?

**MEMBER VELSHI:** Around the minutes of the meeting and having those posted on the Point Lepreau website to make them more accessible.

**MR. POLLOCK:** And again we will certainly

take that into consideration too.

I think the whole purpose of that committee is to share information and we are trying our very best to keep the community informed as to what's going on at the plant. I know the committee is being well informed. I guess we've got to make sure as a committee that we're doing our job to keep the public informed.

**MEMBER VELSHI:** Thank you.

And then as far as the firefighter side of things, how many fires would you go and attend to at Lepreau in any year?

**MR. POLLOCK:** As far as actual fires at the station, very, very few.

I can recall I guess in my 30 years as fire chief, three. And they all were of a minor nature. But it was three.

**MEMBER VELSHI:** Thank you.

And a question for Lepreau.

How many ERT members do you have?

**MR. PLUMMER:** Brett Plummer, for the record.

Approximately 50.

But I would also like to comment on the community liaison.

Typically there's around ten members total

in like full representation, as the chief said. There's more than just myself and Kathy typically at the meeting.

We have a representation of others across the station; station directors typically, our health physicist is there, and so forth.

So we give a lot more information of what's going on across the site to the committee, as well as the committee also sharing with us their concerns and issues that are going on in the community as well.

But we have a full complement of ERT folks on site, approximately 50.

**THE PRESIDENT:** Dr. McEwan?

**MEMBER MCEWAN:** Thank you, Mr. President.

You said you have 65 firefighters. So these are predominantly volunteers.

How much turnover do you have and how long is the training period when new members join you? How long does it take to integrate them into the intricacies of Point Lepreau?

**MR. POLLOCK:** For the record, Wayne Pollock.

Yes, we do have about 65 firefighters. The training period to be a front-line firefighter takes at least a year. We have to have the Fire One training program that the Province of New Brunswick has laid out to

be a firefighter in New Brunswick. And that takes approximately about a year to go through in the volunteer world.

It's not as if they've gone to the academy. We've got to do that based on the hours that they're available.

But once they have completed that program and become a full-fledged volunteer Firefighter One firefighter, we can integrate them into our firefighting, whether it's at the nuclear plant or whether it's in the community.

**MEMBER MCEWAN:** So is there any specific additional training before they would go into Lepreau to be aware of, additional risks or radiation hazard?

**MR. POLLOCK:** One of the things we do -- and I don't know if I touched on it in my letter that I sent in or not -- we send a team of firefighters every training week down to Point Lepreau and they work hand-in-hand with the response team at the plant.

They get a presentation on the high challenge fires that could happen at that plant, the equipment that's used to lay it out, the strategies that are used to fight it. And they're not only getting that but they're also getting to know the plant.

The majority of our members are trained,

as I mentioned, at the Orange Badge level. They are able to go in. They don't need to be escorted unless it's a Zone 3 area. They can know their way around the plant. And we build that up and they get more and more knowledge as to how to fight fires at the nuclear plant.

**THE PRESIDENT:** So just to follow up, is your territory all covered by the 20-kilometre zone around Point Lepreau or is it larger than that?

**MR. POLLOCK:** No. Our area covers seven communities, which takes in the majority of the 20-kilometre radius but not all of it.

**THE PRESIDENT:** So are you trained and aware of the emergency plans of the New Brunswick Emergency Office? Are you integrated in the plan in case of an emergency?

**MR. POLLOCK:** Yes. For the record, Wayne Pollock.

We work very closely with Emergency Measures, our fire department. We assist, as I say, with the KI pill delivery, the demographic survey and we are aware of the plans and we are part of the plan.

In Exercise Intrepid, we were there I guess in an observing capacity in that one. But we did get trained and experience in setting up the decon equipment and tearing it down.

So we work very closely with the EMO and know exactly what the plans are.

**THE PRESIDENT:** And how do you relate to the warden system?

**MR. POLLOCK:** The interesting part, we do have some members on our Fire Department that wear another hat, which is a warden hat. So we work very closely with the wardens.

We actually take advantage of the wardens sometimes out in the highway when we have a motor vehicle accident and we need some individuals to help with traffic control and stuff like that. They have radios that are compatible to the radios that we use in the Fire Department and we'll call upon them to do it.

If we bring mutual aid in from another community, such as Black's Harbour, that may not know our area, we'll take advantage of the wardens to meet them en route and bring them to wherever the scene is.

So it's a very close-knit working relationship that we have with the EMO, the warden service and obviously the response team at Lepreau.

**THE PRSIDENT:** So it sounds like you are very comfortable with the emergency planning of this whole area.

**MR. POLLOCK:** I'm very comfortable with

it. I've had the opportunity to work with it and help build it.

**THE PRESIDENT:** So CELA, while you are still here, I'm going to ask you a question.

When you do the allowances on emergency planning, do you differentiate between one plant in a rural community rather than a Pickering, because they are completely different?

Yet I think you are using the same kind of requirements for both, as if they are equal.

**MS BLAISE:** Kerrie Blaise, for the record. Thank you for the question.

I think public awareness and preparedness applies across the board.

If it's in Pickering, which again is a very densely populated area, versus Point Lepreau, which is more rural and sparsely populated, public awareness and having that knowledge in advance, ahead of time, and publicly available, and having people such as the volunteer chief involved in that decision-making so they are involved in the public off-site plan, I think it's paramount.

It doesn't matter on the size of the reactor or the number of people involved.

**THE PRESIDENT:** And the chief is quite heavily involved.

I think communication with the public.  
Obviously we always agree on that.

I am just talking about the whole planning  
process.

Chief, do you want to add anything to  
that?

Any comments on that, Chief?

**MR. POLLOCK:** I didn't quite catch that.

**THE PRESIDENT:** She was debating whether  
you are part of the planning process of emergency planning  
for this particular region.

**MR. POLLOCK:** For the record, Wayne  
Pollock.

Whether we are part of that planning  
process?

**THE PRESIDENT:** Yes. Do you contribute?  
Do you get involved when they put the plan together?

**MR. POLLOCK:** We met with the NB Power  
people, we met with the EMO people while those plans were  
being put together. And we were basically part of it.

I don't know if that answers your  
question.

**THE PRESIDENT:** No, that's fine. I think  
I've got it.

--- Laughter / Rires

**THE PRESIDENT:** Any other questions?

Okay, thank you very much.

It's 1 o'clock and we promised to break  
for lunch.

So we are breaking for lunch, coming back  
at 2 o'clock.

Thank you.

--- Upon recessing at 1:00 p.m. /  
Suspension à 13 h 00

--- Upon resuming at 2:02 p.m. /  
Reprise à 14 h 02

**MR. LEBLANC:** Please take your seats.

Merci.

**THE PRESIDENT:** Okay. We are ready to go  
to the next submission, which is an oral presentation by  
Sunny Corner Enterprises Inc., as outlined in CMD 17-H2.13.

I understand Mr. Lavoie will make the  
presentation. The floor is yours.

**CMD 17-H2.13**

**Oral presentation by**

**Sunny Corner Enterprises Inc.**

**MR. LAVOIE:** Thank you, Mr. Binder.

For the record, my name is Gordie Lavoie.  
I am President of Sunny Corner Enterprises.

We are an MPEI contractor. That's mechanical, piping, electrical and instrumentation. We have worked with many world-class companies across Canada and internationally. Our priority is the safety of our people, encompassing both their personal safety and that of the premises they work within. We have developed significant safety procedures and training to ensure familiarity and competence in regard to any work to be executed. For our company, this is not just a slogan, it is part of our values.

In 2005 we received our N285 certification, which is required to perform work on nuclear class equipment and facilities. Since 2007 we have been working at the site at NB Power Point Lepreau.

We have full confidence in the safe operation of Point Lepreau Nuclear Generating Station and commend NB Power's strong commitment to a safe work environment. It is with our highest respect that we

request the Canadian Nuclear Safety Commission grant the renewal of Point Lepreau's reactor operating licence.

NB Power was named the 2016 Corporate Champion by New Brunswick Mentor Apprenticeship Program, which recognizes their efforts at building strong workplace learning cultures and becoming champions of mentorship in the construction trades. As an employer that relies heavily on the skills of the construction trades, we commend them for these achievements.

Their commitment to expand the skilled trades is exemplary, given the impending trade shortage predicted for Canada. We enjoy a positive working relationship with the station staff and they work diligently with us to provide a safe work environment for our people. This is very important to us and their commitment to safety and planning is among the best we have experienced and rank as one of our most respected clients.

As a business partner, NB Power has an accountability process that is very transparent and effective in reviewing our performance as a supplier and encourages continuous improvement to our processes and results.

**THE PRESIDENT:** Thank you.

Questions...? Dr. McEwan...?

**MEMBER MCEWAN:** Thank you.

Thank you for the submission. So when your contractors go onsite, they are working in presumably a relatively unfamiliar environment compared with most of the other sites they would be working on. How much training and how much involvement do you have with the training they get from Point Lepreau in terms of appropriate safety in the different areas of the plant?

**MR. LAVOIE:** Thank you. Good question. We have the good fortune that we have been onsite with many of our team for almost 10 years now, so there is an accumulated experience that happens there. But in all of the sites and all the clients that we have worked with, NB Power has the most thorough program of initiating to the site.

For example, we just recently completed some work on the outage that was there and it's very typical that all of the folks will come in and have an orientation period where NB Power specifically will orient them to their site, around anything specific to any of the nuclear operations. There is heavy security clearance. There is also some training that is required if they are working in nuclear-sensitive areas of course. Some of the folks referred to earlier the orange badge and green badge training. And in addition, we have our own corporate orientation that everybody goes through.

So over the years many, many of the tradespeople in New Brunswick and surrounding areas have gained exposure to the facility because it has been here for a number of years now, but there is always a special focus on any new people that come in to orient them to a nuclear operation because it is very different than most other places you will work. And the procedures and processes and the necessary clearances before work can start or continue is very, very rigorous there and all are trained specifically to that before work commences.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** Do you work at any other nuclear facilities?

**MR. LAVOIE:** Yes. We also currently have a team of people that are preparing to do work at the Bruce Nuclear Power Plant as well.

**MEMBER VELSHI:** And from a safety perspective, do you -- and it's not just with the Bruce Power facilities, but are there big differences on the level of safety that's demanded by Point Lepreau?

**MR. LAVOIE:** In our world that we -- we work heavily in the oil and gas industry as well, which is probably the closest in comparison to the nuclear industry in terms of rigour around the risk associated with working with some of their plants. The nuclear industry is by far

and above superior to any of the other industries that we typically participate in. There is much more rigour around the understanding of the overall process as well as the risks that are associated with each area, and the planning prior to any work engagement is much more rigorous than any other areas that we typically will work in.

**THE PRESIDENT:** Mr. Tolgyesi...?

**MEMBER TOLGYESI:** How do you compare your working relationship with NB Power and other industries or sectors or other enterprises?

**MR. LAVOIE:** The working relationship with NB Power, as I noted in my comments, is one of the ones we model after. There is a high level of accountability, especially at Point Lepreau, that is unequalled in most of the other areas that we work. It is one of the few areas where we have quarterly meetings and performance reviews with all the leadership team, right up to and including Mr. Plummer.

So I personally, as well as our site people, attend on a quarterly basis and we are rated and reviewed on all of the work that we have performed during that period of time and there is lessons learned, there are corrective actions that are initiated, and there is continuous learning and accountability to ensuring that we don't have the same issues a second time around. That

learning culture, both from a safety and a performance standpoint, is quite unique.

**THE PRESIDENT:** A very quick question. So who does the certification, the N285? How difficult is it to get and what do you have to do to maintain it?

**MR. LAVOIE:** N285 is a national standard, but it is typically governed by the local jurisdiction, so the authorized inspector for the various provinces where you are going to carry out this work. So that is the requirement as you go to each province. Your program is on a national level, but you are approved for each province you go into by their authorized inspector within that unit. And your certification is subject to constant and regular auditing to ensure that it maintains the regulations that are set out and also is compliant with the various provinces where you are working. So it is quite a rigorous program.

There is a very, very significant manual and documentation that goes with that, so you must really live your manual, you have to understand all the processes in there, all of your people have to be compliant with that, and usually you are audited by -- as you are going to each new nuclear facility, they will have their own team come and audit your manual as well.

Once you are approved and on their vendor

list, then you can proceed with work, but it is an ongoing enhancement and audit process consistently, similar to an ISO program or any of those but much more specific and higher level.

**THE PRESIDENT:** So does the company as a whole get certified or individual employees and how long does it take them to get that and what do they have to do to maintain it?

**MR. LAVOIE:** It's an organizational registration, but it does apply to different facets of your organization. For example, in our company we are certified for both our field construction unit and also for our fabrication facility, so we can also manufacture for the nuclear. But each of those has to qualify under your program and your major qualifier for that is around your overall quality programs in your organization. So we have a very specific group of people that are responsible for maintaining the manual and ensuring that our people are properly trained in all the procedures and requirements that are in there.

And as I mentioned previously, as you go to each different province, for example when we went to Ontario we had to be recertified by their authorized inspector that our manual met the specifics for there as well. So each jurisdiction has their own oversight on it,

but it is typically a national program.

**THE PRESIDENT:** Okay. Thank you. Thank you very much.

**THE PRESIDENT:** The next submission is an oral presentation by Greenpeace, as outlined in CMD 17-H2.74.

Let's check technology here. I understand that Mr. Stensil is online by teleconference.

Mr. Stensil, can you hear well?

**MR. STENSIL:** Yes, I am.

Yes.

**THE PRESIDENT:** Okay. Go ahead, please.

**CMD 17-H2.74**

**Oral presentation by Greenpeace Canada**

**MR. STENSIL:** Hello. Bonjour.

Thank you for this opportunity for Greenpeace to present by telephone.

To begin, a disclaimer. Greenpeace's participation in this process should not be considered an endorsement of the CNSC's hearing process, credibility or independence. Greenpeace has attempted to constructively participate in licensing hearings in recent years but has increasingly found such hearings are staged to keep

inconvenient information off the record. Until such a time that there have been changes to the CNSC's senior management and to the Commission's *Rules of Procedure* to allow for cross-examination and testing of evidence, Greenpeace can't consider these proceedings as an adequately reliable and trustworthy system for watchdogging nuclear risks in Canada. We continue to communicate this to the federal government and opposition parties.

With that said, I will now turn to two issues -- hello?

**THE PRESIDENT:** We are having difficulty making -- I don't know, are you using our regular line? We are having difficulties in understanding what you are saying.

**MR. STENSIL:** Yes, I am using a landline.

**THE PRESIDENT:** Let's try again.

**MR. STENSIL:** Okay. Technology.

To begin, a disclaimer. Greenpeace's participation in this process should not be considered an endorsement of the CNSC's hearing process. Greenpeace has attempted to constructively participate in licensing reviews but has increasingly found such hearings are staged to keep inconvenient information off the record. Until such a time that there have been changes in the CNSC's senior management and to the Commission's *Rules of*

*Procedure* to allow for cross-examination and the testing of evidence, Greenpeace can't consider these proceedings as an adequately reliable and trustworthy system for watchdogging nuclear risks in Canada. We continue to communicate this to the federal government and opposition parties.

With that said, I will now turn to two issues that I believe deserve attention and action from the Commission as well as New Brunswickers.

Specifically, there is insufficient information on the adequacy of offsite emergency response in New Brunswick Power's plans for the long-term management of radioactive waste.

In light of this lack of information, Greenpeace recommends a shorter licence and conditions requiring New Brunswick Power to address these information gaps.

I would like to suggest to the Commissioners to consider the issues I'm raising today in this way. As Commissioners, your responsibility is not merely to judge relicensing applications against a checklist of licence requirements. Your job is also to ask whether regulatory requirements and conditions are sufficient and consequential.

Here's why.

The Fukushima reactors met licensing

requirements. Indeed, Japan's nuclear regulator had just one month before the accident approved the life extension of the station. They treated licensing as a checklist. They didn't ask whether those standards were sufficient or should be changed based on available information.

In my assessment, the CNSC's regulatory guidance for long-term radioactive waste management isn't sufficient. New Brunswick Power and CNSC staff are able to say they meet regulatory requirements but, in Greenpeace's view, real world experience shows these requirements aren't suited to adequately address the problem.

With the passage of the *Nuclear Safety and Control Act* in 2000, licensees were finally required to provide plans and financial guarantees for the long-term management of radioactive waste. The financial guarantee and plan are of course linked.

For over a decade now, I have been highlighting the fact that neither New Brunswick Power nor Hydro-Québec have a reliable long-term proposal for managing its long-lived non-fuel radioactive waste.

For this submission, I compared New Brunswick Power's 2002 and 2015 decommissioning plans. As I noted in my written submission, the end point or final management facility has changed over the past decade. The current plan assumes the wastes will go to a Deep

Geological Repository in Ontario. I think this assumption should be scrutinized and not taken at face value.

It is fair to ask for instance whether NB Power is assuming it will store its non-fuel waste in the DGR currently being planned for fuel waste by the NWMO, but as we have learned from OPG's proposal for the DGR for its non-fuel waste, the acceptance and construction of such facilities in Ontario is by no means a given.

This shows a weakness in current CNSC requirements we think. In Greenpeace's view, the CNSC should upgrade requirements to consider the challenges of siting, assessing alternatives and identifying long-term storage options that are both technically and socially acceptable. I suspect such requirements would impact costs, but it would be relatively minor.

So in sum, I think the Commission should enact new requirements both for reporting and public consultation that examine these challenges and uncertainties related to the long-term radioactive waste management of Lepreau's non-fuel wastes. In Greenpeace's view, these challenges and uncertainties aren't properly reflected in current CNSC guidance.

I will now turn to emergency planning and I will start with an anecdote that reflects my concern that current standards don't adequately reflect the hazard.

At the 2013 hearings on Pickering it became quite apparent that Ontario's nuclear emergency plans were inadequate. A Commissioner asked staff at the time: How can you recommend a licence renewal when it's clear emergency plans are inadequate? I'm paraphrasing here, but a CNSC staffer, as a good bureaucrat would, responded: The requirement is only that there be a plan. There is such a plan, so I can recommend renewal.

He was following a checklist approach to regulation. That's what I'm advising against here.

There were a few examples of gaps in transparency requirements that came up this morning during CELA's presentation this morning.

Without going into details, it's clear New Brunswick, like Ontario, has been lagging in the modernization of its emergency plans since Fukushima, including the addition of more transparency and public involvement which is expected post-Fukushima.

Two examples of gaps coming out of this morning's discussions.

One is the lack of a secondary zone or ingestion control zone in New Brunswick beyond the 20 kilometres. This is called for in IAEA guidance and is quite important because we know there could be impacts far offsite.

Belgium, for example, this year updated its emergency plan and that includes a requirement that KI be available to everyone within 100 kilometres of a plant. I'm also told there is a requirement that authorities have a responsibility to inform people within 100 kilometres of its availability and desirability.

A second issue that we heard was the update to the emergency plan. There was a statement by provincial staffers this morning that it would be made public. What is unclear, however, is will there be a consultation on its adequacy for outside input or is it simply just CNSC and industry stakeholders?

We expect finally this summer a public review of emergency planning in Ontario. It has been a fight to get that, but it should be the expectation going forward and that includes New Brunswick.

So here is my suggestion. The Commission has required CNSC staff to track and regularly update the Commission on Ontario's review and status of emergency response. You should do the same for New Brunswick. The fact that offsite plans haven't been properly updated six years after Fukushima highlights there is a complacency problem.

In Greenpeace's view, New Brunswick Power shouldn't be rewarded for complacency with a five-year

licence. Greenpeace recommends a shorter licence.

We also recommend a condition to publicly track New Brunswick's review and updates to its offsite nuclear emergency plans.

And with that, I will conclude my presentation. Thank you.

**THE PRESIDENT:** Thank you.

Questions...? Dr. McEwan...?

**MEMBER MCEWAN:** Thank you.

And thank you, Mr. Stensil. It was a little difficult to hear you, so forgive me if I end up asking you to repeat something.

**MR. STENSIL:** That's fine.

**MEMBER MCEWAN:** It's a shame you couldn't be here.

So if I understood both your submission and what you have just presented with respect to the nuclear waste, I think that you said there is heavy reliance on what will be happening in Ontario; if what is happening in Ontario, what is planned to happen in Ontario doesn't happen, therefore there is no real plan in New Brunswick. Was that sort of the very simplified note of what you said?

**MR. STENSIL:** Generally. I think it's implied in the submission, in New Brunswick Power's

decommissioning plan that they hope to send their waste to Ontario. It is unclear whether that will be for an additional new facility, Deep Geological Repository --

**MEMBER MCEWAN:** Yes.

**MR. STENSIL:** -- just for New Brunswick Power's waste or if it would be for another existing facility where there is no basis for that assertion.

What I am getting at is there needs -- we need some more places to review those assumptions because they are very important as they reflect on the financial guarantee. As well, we have learned from the DGR experience in Ontario such facilities may not get built. There is an expectation that alternatives be considered and we should be probably planning much farther in advance.

And so both Hydro-Québec and New Brunswick Power don't have plans for their non-fuel waste. Hydro-Québec said at the 2011 CNSC hearing they had applied to the NWMO to send its waste there. There is no basis in law for that.

But what I am suggesting here is, one, we should both ask New Brunswick Power for clarification today, but moving forward in the licence, I think you could put down some requirements for reporting back, whether it be at the annual August meeting of the status of that, but also some expectations in terms of consulting the public,

informing the public and, frankly, talking to the Ontario government about it.

**MEMBER MCEWAN:** Thank you.

So I guess NB Power.

**MR. HICKMAN:** Charles Hickman for the record.

So New Brunswick Power's preliminary decommissioning plan does not make any assumptions about the nature of the disposal facility that would be used -- or the disposal techniques that would be used for our low- or intermediate-level waste. There are assumptions reflected in the decommissioning plan for our fuel wastes and for the purposes of calculating a cost estimate we have made some assumptions in the decommissioning plan with regards to the fact that low-and intermediate-level waste would be disposed of outside of the province.

We have a distance identified, but it is not contingent on the Ontario DGR or co-location with the NWMO disposal facilities. It is purely a planning assumption at this time. We are quite comfortable with that because we have lots of time. There is no rush to have anything happen or be defined today. Anything that was defined today realistically in the 30 or 40 years before we would even consider using it would probably get revised by contractual evolutions, technological changes

and so on.

So at the moment our plan has a fully costed set of assumptions for our low- and intermediate-level waste and we feel that is quite appropriate given where we are in the operating life and the history of the station.

**MEMBER MCEWAN:** Staff, do you have any comments?

**MR. FRAPPIER:** Gerry Frappier for the record.

I will get Karine Glenn to add to this, but basically we are satisfied that New Brunswick Power has met the planning objectives for this phase. We have a preliminary decommissioning plan and, most importantly, all the waste is stored onsite right now in the waste facility and is in a safe condition that can go on for quite a long time.

I would ask Karine Glenn, who is back in Ottawa, if she could add to that, please.

**MS GLENN:** Karine Glenn for the record. I am the Director of the Waste and Decommissioning Division.

I will check technology. Can you hear me clearly?

**MR. FRAPPIER:** We can hear you pretty good, so go ahead.

**MS GLENN:** Thank you.

It's really important to note that a decommissioning plan at this stage of the lifecycle of the NPP for New Brunswick Power is at a very early stage. It is a preliminary decommissioning plan and it is meant to be a living plan. It is a planning tool to help us assess that the financial guarantees are adequate. And New Brunswick Power is required to revise this decommissioning plan at a minimum every five years and that allows them to take into account any changes in economic assumptions such as interest rates, inflation, and also to, if they so decide, change the ultimate final end space or disposal options for the waste and to readjust those costs. It also takes into account any of the volumes of waste that are generated or forecasted to be generated. So at a minimum every five years this plan gets revised.

CNSC staff have reviewed both the plan and the decommissioning cost estimates and we have comparisons to the other cost estimates that we see from the other licensees and they are in line for a third-party disposal type facility and they are really quite not that much different than for the facilities that are assuming construction of their own facility as well.

**MEMBER MCEWAN:** Thank you.

So, Mr. Stensil, I mean it makes sense to

me that there would be a living plan for a decommissioning plan that will be required in the future. What constraints would you like to see around that that would give you some confidence that there is a genuine evolution of the plan as it moves from year to year or from two-year period to two-year period?

**MR. STENSIL:** Yes. Thank you for the question. As they said, they update this every five years. There is an opportunity there for goal posting to potentially report back that are more explicit. I know while it was said that there is no endpoint, it states in the plan -- I quoted in my submission with a facility within 2,500 kilometres of Ontario. I am also mixing that with what Quebec has said.

I think the Commission needs to look at -- I mentioned real-world experience -- look at the experience with Ontario's DGR for low- and intermediate-level waste. They have had a hard time building it. They have had a hard time getting acceptance for it. It may be completely abandoned. And what I am suggesting here is this should not just be some paper process where the CNSC approves the plan once every five years, there should be additional scrutiny of those assumptions. And if they are saying we are going to send it to Ontario, that's based on what? I'm not sure if Ontario would accept such waste.

So I guess what I'm getting at here is -- what I said is do not just -- because it meets CNSC's requirements for the guide, which just says you must have an abstract plan, I'm saying that experience with the DGR in Ontario shows that this deserves more scrutiny on an ongoing basis, about how they are coming up with those assumptions and what their expectations are.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** Thank you.

Before we leave this, maybe I will ask Lepreau, what percentage of your financial guarantee is associated with the long-term disposal or management of low- and intermediate-level waste?

**MR. HICKMAN:** Charles Hickman for the record.

We will have to get some additional information, but I can provide the first level, which is that we have segregated funds actually as a funded bank account. We can actually go and get the statement of the account up to date. The account is segregated. One has -- it's for used fuel, and that is a dedicated account for used fuel. The second is the general decommissioning fund. I don't know off the top of my head what the percentage is, but we will get that information for you and bring it back.

**MEMBER VELSHI:** Thank you. I think that

will be helpful, just to get a feel for that.

Mr. Stensil, I am going to ask you a question on something you didn't cover in the oral presentation but it's in your written submission and it's to do with -- it's the section on transparency, under the probabilistic safety assessment. And you have attached the document that you got from New Brunswick Power, but you make no comments on it and I wanted to give you an opportunity to express any comments you may have had on that.

**MR. STENSIL:** Yes. Thank you, Commissioner Velshi, for that question.

I actually decided not to delve into the probabilistic risk assessment assumptions this time around. New Brunswick Power did provide the information requested and it is notable -- I think this is something for the Commission to be aware of -- is while there is a requirement to release the PRAs under the guide, or summaries of them, it doesn't say what should be released in there, and what happened with the New Brunswick Power summary is it didn't mention any of the information that has been controversial at past hearings. So I asked for that and they did provide that, so very good on the part of New Brunswick Power.

I will say this because it is a looming

issue for next year's Pickering hearing, is I have seen a reduction in what will be released by Access to Information on staff reviews of the probabilistic risk assessment and other submissions, and this time around -- I couldn't find the exact rejection letters this morning -- I decided not to focus on that because there was difficulty getting that information through Access to Information. There seems to have been a policy change on what is released by the CNSC through Access to Information on evaluation of licensee submissions. A lot of my past submissions have been based on those discussions and they are no longer available. This will be a big problem at Pickering next year, but for that reason I decided not to address it in my submission but will flag it as an issue for next year.

**MEMBER VELSHI:** Thank you.

**LE PRÉSIDENT :** Monsieur Tolgyesi...?

**MEMBER TOLGYESI:** May I go back a little bit to the long-term storage. This is for NB Power. You were saying that in your assumptions you were considering that there is 2,400 kilometres distance or 2,500 kilometres somewhere, wherever it is. Now, not knowing where you will eventually store, which is the distance, what kind of assumptions were you using for long-term storage? Because that will be another cost and up to now you are talking just about the distance. But how will it be stored, et

cetera? I don't know if you have a clue or how you will do that and what it may cost.

**MR. HICKMAN:** Charles Hickman for the record. I will address the cost of part of it in a moment.

To start with, we have existing onsite storage facilities for our low- and intermediate-level waste. The existing facilities have been approved by the CNSC. We actually have approval from our 2000 -- for refurbishment-related work for additional storage facilities onsite. So the facilities we have today, they are inspected and maintained and are safe for long-term storage.

As we go through the life of the station, we can expand that if we need to, we can continue adding capacity if we need to. And if one goes back to the very early stages of the station design, the design actually anticipated that we would store the long-term decommissioning waste on our waste site as well. That's in the back of our thoughts from back in the 1970s.

The reality is today that technologies are evolving, opportunities are being developed, companies and industries are being developed that are dealing with low- and intermediate-level waste in many different ways. So for the purposes of a preliminary decommissioning plan -- and we are just in the preliminary stages -- we have built

some assumptions around costs. We have assumed some costs in terms of distance, we have assumed some costs in terms of actual disposal cost, we have made assumptions in terms of trade costs, licensing costs, and so on for decommissioning activities. All of that is built into our cost decommissioning estimate and that is a funded estimate.

As we evolve through the life of the station and we start approaching end of life of the station, we would be expected to provide a more detailed decommissioning plan and that would go into the fine detail of exactly what disposal options or technologies that were going to be used would actually be planned for. Even then, we would still be many years short of entering into any contracts for actual disposal. The cost side of it is still ill-defined, I would say, but it's appropriate for the level of detail we are at at the moment.

I said I would come back to the cost question and I apologize, I forget the exact nature of your question on the cost side.

**MEMBER TOLGYESI:** It was what kind of assumptions you are doing for storing and what kind of costs you were expecting.

**MR. HICKMAN:** Again, on the top of my head I cannot tell you what the assumptions are in terms of cost

for ongoing onsite storage. We can bring some of that information back to you in terms of what we have assumed for ongoing cost.

It is worth mentioning we have a segregation program where we do try to minimize the amount of waste that we have to store and we are doing what we can to reduce the volume of waste storage to minimize our future costs for the management of that waste. And much of the waste that is currently in storage at sites has been there for many, many years and it has undergone a significant amount of natural decay, so that is to our benefit as well with the long-term storage onsite.

**MEMBER TOLGYESI:** So if licensing is necessary for extension of storages in the future, you will have eventually a capacity to store your waste for the whole life of the station?

**MR. HICKMAN:** Charles Hickman for the record.

That's correct. We have capacity onsite and we have additional space that we could apply for licences for if we needed to. The above ground storage is a well-known, well-defined, very robust approach to storage of the waste. It allows very active monitoring. It is checked on a regular basis by CNSC staff. It is, I would say, very visible, very approachable, easy to monitor, easy

to basically revisit if we need to. So it is a very manageable approach, it works very well and is viable for the long term.

**MEMBER TOLGYESI:** Staff, could you tell us how it's progressing, this long-term storage evolution?

**MR. FRAPPIER:** Gerry Frappier for the record. I would ask Karine Glenn to add to that and whatever else you might have on the costing model.

**MS GLENN:** Karine Glenn for the record.

I will begin with the cost question that was asked previously. When we factor in the packaging, any transportation and the actual cost of the waste disposal, it factors about 25 percent of the total decommissioning costs, and that is excluding the spent fuel which is -- those costs are managed through a fund that is separate and that is determined by the Nuclear Waste Management Organization, which is the organization mandated for the long-term management of Canada's spent fuel. So we are looking at about 25 percent of the decommissioning costs associated with the station or associated with waste disposal. So it is actually a very large proportion and that is a better standard for all facilities that we encounter. Waste management is the biggest cost associated with decommissioning.

With respect to long-term management, the

facilities that -- the waste management facilities that are included onsite are suitable for the intermediate-term storage of the waste and they undergo regular inspections as well as they are subject to an aging management program to ensure that the structures continue to be suitable and safe for the storage of the waste onsite. And the waste management facility is included in the overall site monitoring program in terms of dose and any environmental monitoring that is maintained. So the facility can be maintained for the entire life of the NPP right through to the end of the decommissioning.

At this point in time, based -- for financial planning assumption, and it was presented yesterday by CNSC staff in their presentation, we are looking at end of decommissioning to be around 2080 -- pardon me, I will just double-check that number -- yes, 2081. So we are 60 years away from the end of life and so there is suitable time for New Brunswick Power to find a long-term disposal solution for their low and intermediate waste.

I would like also to point out that New Brunswick waste inventories and their storage practices are reported every three years as part of Canada's report to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. The

next report is to be presented to the Joint Convention in October of this year and will be available to the public in May of 2018.

**THE PRESIDENT:** Thank you.

**MR. STENSIL:** May I make a quick clarification?

**THE PRESIDENT:** Go ahead.

**MR. STENSIL:** Thank you.

First of all, I just wanted to point out, I think there was a comment made earlier that there had been no decision in the decommissioning plan about what the final management facility would be, but I quoted from Figure 2.1 and in it, it says low- and intermediate-level waste repository available by April 2050. Repository will be available throughout decommissioning. So that is a good 30 years before the date of final decommissioning that was just mentioned. So it is a repository. The geography points to one in Ontario. So that is the first clarification.

Second, you can hear from both NB Power and CNSC staff, you know, an appeal to the fact that we have time, we have 50 years to figure this out, and part of, I think, what I'm getting at today is that that is not an acceptable argument. As I mentioned in my presentation, it was only in 2000 I believe that we started requiring

licensees to put forward decommissioning plans and financial guarantees. And the intent in that I think is important.

Like, one, we shouldn't have put off that requirement until 40 years of nuclear operation in the first place. That was a mistake that we made as a society. But the intent of requiring these plans is not so that we can put off the discussion but so that people or companies today take responsibility for those plans and have discussions about it.

So I think my view is quite the opposite of what the staff are saying of we have time, there is no urgency. Thirty years is not a long time for the Canadian nuclear industry. Frankly, they have been trying to build a repository since the 1970s for fuel waste and it hasn't happened yet. So this is a discussion we should be moving forward. How it's done I think can be discussed, but for example what has been just said on the table is, well, we could always keep it onsite. The decommissioning plan then should perhaps include scenarios and not simply an argument that it will go to a repository.

So these are the types -- that's where you can start to get into a discussion of alternatives and ensuring that we are ready for what may not happen.

**THE PRESIDENT:** Okay. Thank you.

Final question.

**MEMBER MCEWAN:** Final question.

So, Mr. Stensil, we had a long conversation, discussion this morning about the offsite emergency response. My sense is that, if I take your first two paragraphs in particular but the other paragraphs in that section number two, is that many of your questions and concerns have been answered. Would I be right in thinking that and if I am right in thinking that, what elements haven't?

**MR. STENSIL:** Thank you for the question.

The short answer is no, our concerns haven't been answered, as was acknowledged this morning by New Brunswick Power staff and provincial staff, is they are not going to produce a revised emergency plan until this summer. We haven't seen that plan, so we can't say that we are satisfied.

I also noted in my oral presentation two factors that stuck out.

One is the lack of an ingestion control plan or zone, which is required by IAEA guidance, and there is one in Ontario. So that hasn't been brought into view.

But the second piece is how New Brunswick Power -- or how New Brunswick moving forward consults the public in civil society on the adequacy of these plans.

There is no process right now for that. They have been doing it behind closed doors, like Ontario. Our position is that that has to change in light of Fukushima, that these emergency plans, we see clear complacency, and to change that from a cultural point of view is to make the provincial authorities regularly review and consult the public on those to test the adequacy of it. So until that happens, I can't say that we find it acceptable.

The recommendation I'm making to you today is similar to what you've done with Ontario is you direct CNSC staff to regularly report on the progress on updating these plans.

That's what's been done with Ontario now for several years because they've been lagging behind. The same thing should happen with New Brunswick and that can include things that, frankly, the CNSC also has to, you know, the federal government has to get its ducks in a row in a few issues. One of those was pointed out by the Convention of Nuclear Safety as there is yet to be Canadian guidance on recovery from nuclear accidents. Well, that eventually has to be integrated into provincial plans as well.

So that's something that could be tracked in that ongoing process of determining where the province is at in the upgrade of its plan.

So that's what I'm suggesting moving forward is that the CNSC keep a closer eye on the process so that, you know, there is a momentum there for the province to do something and then we have to have a clear conversation about what is New Brunswick's policy on consulting the public on emergency response plans? Right now, I don't see one.

**MEMBER MCEWAN:** Thank you. NB Power?

**MR. HICKMAN:** Charles Hickman for the record. Just one point of clarification is there is an ingestion pathway launching plan. It is passed and written into the off-site plan today and I think the province mentioned earlier today we have done tabletop exercises before Christmas, another one following Christmas in March on that ingestion pathway and the recovery plans associated with it.

So, from a clarification, that does exist. It is written. It is being exercised.

With regards to the discussion about the publication and the public facing documentation, I'll take the liberty and I'll speak for EMO. I'm fairly sure I heard EMO speak very clearly this morning that they would prepare that.

And, with regards to the existing plan, the existing plan is current so the existing off-site plan

is revised on an annual basis. There was a 2016 version. The 2017 version will be coming out on May 18th so this is not a historic or old document. This is an Evergreen document that's updated on a regular basis.

We're part of that process and we ensure that happens.

**THE PRESIDENT:** Okay. Need to move on. Mr. Stensil, any final thoughts?

**MR. STENSIL:** Thank you for the opportunity to present today. I would conclude by saying, again, do not view this application as simply judging it by -- against a checklist.

In the case of non-fuel radioactive waste, the intent of requiring decommissioning plans is so that we have the conversation today, not tomorrow about how those wastes are managed. We can see, from other jurisdictions there is a need for more upfront discussion about how that is managed.

So I'm recommending there that the CNSC require increased reporting and perhaps scenarios of how they'll manage that waste in their decommissioning planning.

Second, on emergency management, New Brunswick -- this has been a blind spot of the Commission and provincial government since Fukushima. Six years has

been too long for this kind of update. When NB Power staff just commented, they said, "We'll do public facing information." What we're talking about is actually public consultation on the plan and that should be formalized and regular. That's not included in the plans right now. It's not included in Ontario's plans, either, but there is a political commitment to start doing it going forward.

That has not happened yet in New Brunswick so we cannot recommend renewing this licence for five years. Thank you very much.

**THE PRESIDENT:** Okay. Thank you.

**MR. HICKMAN:** Mr. President? I have taken an action to give you an update on the percentage of decommissioning and used fuel costs. Just very quickly, essentially -- so we have two different funds.

One's for decommissioning, one is for used fuel management. Used fuel management cost is approximately one-third of the decommissioning so it's about two-thirds for decommissioning and one-third for used fuel so the decommissioning cost is approximately twice what we have for used fuel. They're both funded from segregated funds, fully funded.

The information is submitted to CNSC staff on a regular basis for their review and comment so it was submitted in 2016.

**MEMBER VELSHI:** My question on that was, off the decommissioning fund, how much of it is associated with low and intermediate waste management?

**MR. HICKMAN:** So just give me a moment. Charles Hickman for the record. So the decommissioning fund is broken out into a whole series of cost centres. So it is both the cost for labour, there's financial costs in there. There's costs for utilities and there's the actual cost for the disposal of the actual material.

I do not have that information at my fingertips. It will take me a little while to dig that information out but it's a -- the actual waste disposal cost is one of a whole series of elements of costs that go to make up the overall decommissioning fund.

**THE PRESIDENT:** Okay. We got to move on. Marc?

**MR. LEBLANC:** So there's a bit of changes to the agenda. The next presentation was to be by WorleyParsons and they have informed us that they were withdrawing their intervention.

So, in its stead, we had agreed to allow MTI to present instead but we are not being able to locate Ms Barnaby, Mr. Gorber, and Ms Narvie. They were a bit earlier but we don't see them in the room at the moment so we're going to go with the next item on the agenda, Mr.

President, that would be the presentation by SNC Lavalin.

**THE PRESIDENT:** Okay. So we will look forward to the SNC Lavalin and I understand Mr. Whalen will make the presentation. Over to you.

**CMD 17-H2.57**

**Oral presentation by SNC Lavalin, Robert Whalen**

**MR. WHALEN:** Good afternoon, President Binder, Commission members and members of the public.

SNC Lavalin is here today to speak in support of the renewal of New Brunswick Power Corporation's Power Reactor Operating Licence for the Point Lepreau Nuclear Generating Station.

My name is Rob Whalen and I'm the senior vice-president of engineering, intellectual property and technology. With me today is Navid Badie, our vice-president for nuclear steam plant engineering and design authority for the CANDU technology.

Well, a short explanation of the background to our written submission, I will be making remarks about our confidence in New Brunswick Power as a licensed operator for the Point Lepreau site.

SNC Lavalin is the steward of CANDU

technology. We provide nuclear power reactors and services to customers around the world based on proven CANDU technology developed over the past 50 plus years.

Heavy water moderated reactors based on the CANDU design are in operation or under refurbishment on four continents. CANDU technology comprises about 10 percent of the nuclear power plants worldwide.

In Canada, CANDU reactors are an important contributor to our country's carbon footprint reduction, economy and competitiveness.

In 2015, CANDU nuclear reactors supplied approximately 16 percent of Canada's electricity. The reactor at Point Lepreau, which has operated safely and reliably for decades, provided approximately 33 percent of New Brunswick's electricity in that same year competitively and with essentially no carbon dioxide emissions.

CANDU reactors have an impressive safety record spanning approximately 800 combined reactor years of operation. This is an enviable track record when compared to other energy sources.

CANDU reactors like that operated by New Brunswick Power have many robust design features and capabilities. Some of these features include numerous methods by which cooling water, electrical power and other services can be supplied; a significant pool of staffing

resources, maintenance facilities and equipment; availability of parts and spares and a spent fuel bay with a large inventory of water for removal of heat from the spent fuel.

Following the Fukushima Dai-Ichi event, all sectors of the nuclear industry were vigilant in reviewing the lessons learned. CANDU energy participated in both the Canadian and International responses to this event and we observed New Brunswick Power's significant commitment to addressing these important lessons learned.

Working closely with the rest of the Canadian industry, NB Power has made significant activities. They have made modifications to ensure core cooling is maintained, including procurement of portable uninterruptable power supplies, small generators and such to ensure essential fuel cooling in a nimble and flexible manner; They have established training and drills to teach their staff and coordinate with local emergency responders to demonstrate capability to effectively respond to beyond design basis events; they've completed a major nuclear emergency response exercise in 2015. This was discussed at some length earlier. They have procured emergency water pumping and electrical power equipment and stored it safely on the site; they have trained and exercised emergency response

crews in the deployment of emergency equipment. They have a well-developed suite of emergency response procedures and guides.

In fact, even before the Fukushima event occurred, New Brunswick Power had already installed passive autocatalytic recombiners at the Point Lepreau station as well as an emergency filtered containment venting system and portable water make-up to the Calandria vault during their refurbishment.

Next, I would like to make a few general remarks about New Brunswick Power's Point Lepreau's team as an experienced and successful operator.

Over the last many years, our company and the team at NB Power have built a strong working relationship. We have witnessed the Point Lepreau team displaying the following critical characteristics of nuclear excellence. These are well stated in their navigating for excellence plan and the focus on safety excellence, leadership excellence, operational excellence, process excellence, and equipment excellence.

NB Power is a member of the World Association of Nuclear Operators or WANO. The approximately 130 WANO members are committed to strive for the highest standards of safety and reliability.

WANO's overriding priority is the assurance of nuclear safety and excellence in all aspects of operational performance.

Point Lepreau's strong focus on equipment reliability program activities has demonstrated their commitment to continuous improvement.

It is also quite clear that NB Power has put a strong nuclear safety culture and leadership foundation in place at their site.

The nuclear safety culture is evidenced by their daily emphasis of the WANO and INPO nuclear safety culture principles. Their engineering staff is using the technical conscience principles to drive safe and conservative technical leadership decisions.

And, finally, observation of NB Power's sustained drive performance also clearly shows they have focused on leadership. They have clearly established key leaders in their organization to engage their staff in this commitment to excellence.

We have found New Brunswick Power to be a capable, experience and responsible plant operator with highly trained and competent staff at Point Lepreau.

The site has the organizational effectiveness required to implement continuous improvements based on experience gained from the shared nuclear

community experience.

The CANDU plant operating philosophy is based on continuous improvement where the experienced gained from the nuclear industry is shared and used to make improvements. This approach is embedded in the plant management system and is driven by benchmarking self-assessment and operating experience.

This is a process that captures best practices, assists in lessons learned and drives improvements. The operating experience sources include a comprehensive, industry-wide WANO programs, a CANDU owners group, regulatory positions and international nuclear organizations as well as direct support from our company.

The collaboration amongst CANDU operating stations promotes a culture of learning to achieve industry-leading performance as demonstrated by continuous performance improvements at NB Power.

Our long relationship with NB Power's Point Lepreau team has strengthened during all stages of the plant lifecycle. Our recent support and interaction has been through direct technical support to the Point Lepreau organization. We have partnered on work including engineering support for design changes, support for equipment reliability and aging management programs, support of inspection and maintenance activities and supply

of replacement parts.

Also, updating plant safety analyses to fully meet CNSC's latest regulatory expectations for both deterministic and probabilistic safety analyses.

Through our various project interactions, we have found NB Power to be a knowledgeable, highly responsible and qualified nuclear operator. They have taken great care to inspect its major pressure boundary components at the Point Lepreau site and to analyze information obtained to characterize the condition of these components accurately.

In addition, NB Power has partnered with other industry stakeholders to engage in extensive multi-year research and development programs to gain a deeper understanding of long-term behaviour of their fuel channels.

This provides them with a wealth of information to operate safely during the operating period of a renewed licence.

In closing, New Brunswick Power has operated the Point Lepreau station safely and with high standards. That, combined with their strong commitment to safety and environmental protection as well as consistent high performance, gives us assurance that continued operation of the Point Lepreau station will be safe and

high performing.

SNC Lavalin strongly supports New Brunswick Power's application to renew their power reactor operating licence for the Point Lepreau site and encourages the CNSC to approve their request. Thank you sincerely for the opportunity to speak before the Commission.

**THE PRESIDENT:** Thank you. Questions? Ms Velshi?

**MEMBER VELSHI:** Thank you. From your perspective as the designer and the technical service provider, what do you see as the top challenges that New Brunswick Power or Point Lepreau is likely to see in the next five, 10, 15 years in operating this plant?

**MR. WHALEN:** They are focused quite rightly in investing in long-term equipment reliability and that is showing in the performance indicators in their plant, their operating performance and we can see that they have a very detailed, comprehensive plan for continuous improvement.

**MEMBER VELSHI:** And do you see obsolescence as a big issue for them?

**MR. WHALEN:** That is something that is a challenge for all nuclear plants, not just CANDU sites. And that is something that we are positioned to help them

with as we continue with our efforts to support other similar plants worldwide. We can provide them with sources or products and parts that they need.

**MEMBER VELSHI:** Thank you. So you don't see that as a big challenge? It's something easily manageable?

**MR. WHALEN:** It's an ongoing thing to focus on, yes.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Just -- maybe it's not the time to ask but, you know, Korea had a problem with restarting their Wolseong and I know that the refurbishment in Korea, they came to Point Lepreau to take a look how they do it. And, in many ways, I thought they mimicked the procedures.

So are you aware as to somebody said that they did not really follow Point Lepreau procedures? Do you know what's going on over there?

**MR. WHALEN:** So in terms of the refurbishment process, the procedures were quite similar and there was extensive benchmarking done, lessons learned, shared by both utilities.

So I think the sharing amongst the C6 plants is quite extensive.

**THE PRESIDENT:** So, obviously, the Koreans

were using the expertise that Point Lepreau had in their refurbishment of their own facilities.

**MR. WHALEN:** That's correct.

**THE PRESIDENT:** So it'll be interesting to see what happens over there because there's an argument whether it was done properly or not. I just thought that, by now, you can shed the light as to where it's going.

**MR. WHALEN:** So we will have to keep you updated on those issues. But, in terms of the actual process for refurbishment, the sharing is quite open and there's a lot of good industry lessons learned there passed back and forth amongst all the C6 plants.

**THE PRESIDENT:** Thank you. Anything else? Any other? Thank you for the intervention.

**MR. WHALEN:** Thank you, sir.

**MR. LEBLANC:** So, Louise, have you found our -- the MTI? Thank you. So we are moving to the next oral presentation by the MTI's outline seen in CMD 17-H2.45 and 2.45A. I understand that Ms Barnaby will make the presentation. Over to you.

**CMD 17-H2.45/17-H2.45A**

**Oral presentation by Kristy Barnaby**

**MS BARNABY:** Thank you, Mr. Chairman. I

have with me today Don Gorber from IEC and Karen Narvie from MTI.

(Indigenous language spoken)

Hello, good afternoon. For the record, my name is Kristy Barnaby and I'm here on behalf of Mi'gmawe'l Tplu'taqnn. I would like to welcome you all to Mi'gmawe'l.

I would like to begin by acknowledging that this panel hearing is convening on traditional Mi'gmaq territory. We would also like to acknowledge that the Bay of Fundy area was a traditional meeting place for harvesting and trade for the Maliseet Mi'gmaq in Passamaquoddy.

In my time here with you today, I would like to outline our unique historical connection to Mi'gma'qi. I will then present a high level overview of the concerns of the Mi'gmaq to date regarding Point Lepreau followed by recommendations as outlined by Mi'gmawe'l Tplu'taqnn.

The Mi'gmaq are the original inhabitants of Mi'gma'qi, which consists of Nova Scotia, New Brunswick, PEI, the Gaspé region of Quebec, southern parts of Newfoundland and eastern Maine.

Oral history affirms that Mi'gmaq have occupied and cared for our lands and waters since time immemorial. Archaeological finds throughout Mi'gma'qi have corroborated this oral history and can be dated back between 3,000 to over 13,500 years.

Local archaeological finds within Saint John date back to 3,400 years. These several finds in that particular location long occupied and relied upon -- they demonstrate that they long occupied and relied upon the Saint John region.

In fact, Saint John was known to the original people of the dawn as (indigenous language spoken), meaning "Where they all live", a translation that emphasizes the sheer mass occupancy of this village which was documented by Champlain in 1604.

This encounter was referenced in two interventions that we had heard from yesterday.

Because of our geographical position, Mi'gma'qi was a first area in North America to encounter Europeans. Colonial records and documentations from the 15 and 1600s illustrate Mi'gmaq land use and occupancy. These records come in the form of journals, reports and memoirs from early explorers, fishers and religious parties such as Champlain, Lescarbot, Byard, Leclerc and Dennis.

We currently rely on secondary literature-based analysis of these historical records pertaining to this era as discussed by Dr. Greg Marquis, Bruce Bourque, and Bernard Hoffman. Commonly referenced documents from this time discuss Mi'gmaq -- of why they celebrated Mi'gmaq Chief, Chief Membertou, who travelled

from Port Royale, which is directly across the Bay of Fundy from us now, to live here in Saint John with his family.

Specifically speaking to other areas of southern New Brunswick, such as the Bay of Fundy, Fundy Isles and Point Lepreau, there are many primary sources, including the works of Dr. Bernard Hoffman and Greg Marquis that outline Mi'gmaq shared land use and occupancy prior to the 1600s.

In 2010 a New Brunswick Provincial Court judge accepted the summary of historical records by Dr. Marquis that affirm the presence of the Mi'gmaq along this coast prior to contact.

Mi'gmaq have always known themselves to come directly from Mi'gmaqi. It is affirmed within our ancient conceptualizations such as *wegi sqalia'tiek*, which translates to 'We sprouted from this land'.

It is further affirmed in our creation story. In some of the more respectful and accurate bodies of literature, we are referenced as custodians who belong to the earth.

The Mi'gmaq have inherent rights and Aboriginal title and treaty rights. These treaties were signed, they're called the Peace and Friendship Treaties. They were signed around 1726. The treaties have been upheld and our rights have been affirmed repeatedly, proven

by the Supreme Court of Canada and the courts of New Brunswick.

The Mi'gmaq have never ceded their Aboriginal title of ownership or stewardship over the lands and waters to the Crown.

As previously stated, I'm here on behalf of MTI which translates to how we govern ourselves. It is a not-for-profit rights-based organization which was established in November, 2015 to advance the interests of its nine Mi'gmaq member communities.

MTI wishes to make clear that the Indian Reserves are a product of a colonial system and assimilative legislation. MTI members continue to exercise their Aboriginal and treaty rights throughout New Brunswick and beyond and not just near their communities. As such, environmental and archaeological and cultural monitoring must take place, not only when projects exist close to the communities, but anywhere that they might impact one's ability to exercise their rights.

Indigenous knowledge studies are an important part of determining those potential impacts to rights.

MTI has significant concerns regarding consultation and accommodation when it comes to Lepreau. The Crown has a duty to consult and accommodate the Mi'gmaq

when their actions are likely to impact Aboriginal and treaty rights. Given our proven court-affirmed rights, the Crown must either seek consent or justify the infringement which includes taking steps to minimize the infringement.

MTI is party to an interim Consultation Protocol Agreement which outlines the process for the Government of Canada and New Brunswick to assist in discharging their constitutional duty to consult and accommodate the Mi'gmaq in decisions affecting Mi'gmaq rights and title. This agreement applies to all Crown agents, including regulatory bodies and Crown corporations.

MTI notes that the Point Lepreau facility was established in our territory without consultation or consent of the Mi'gmaq contrary to the terms of our treaties.

MTI is concerned that the ongoing operation of the facility impacts the lands and waters and, therefore, the Aboriginal and treaty rights. Possible impacts identified by MTI's technical review team include the storage and transportation of nuclear waste, the risk of contamination and a risk of a catastrophic event.

In yesterday's hearing we heard Ms Velshi had asked NB Power for their thoughts regarding why First Nations communities were dissatisfied, despite all of their disclosed efforts.

While MTI acknowledges and is grateful for the individual efforts of NB Power, including the participant funding from CNSC that enabled MTI to participate in stage 2 of the hearings, we feel that the available existing system and methodologies that are intended to invite First Nations' engagement and contributions contain barriers.

For example, the available participant funding is not guaranteed nor long term. This does not allow for meaningful engagement.

The Commission asked a local bird observer yesterday what his opinions were on the reduction of bird populations observed in various migration patterns. This is an exact example of the type of inquiry that Indigenous knowledge studies, in particular, the Indigenous epistemologies of ecology would inform. We have an ancient sophisticated knowledge system as demonstrated within our language, our concepts and our land use lifestyle and, in an ideal relationship with NB Power, we would utilize a two-eyed seeing approach where our Mi'gmaq Indigenous knowledge would inform science and vice versa for the betterment of both parties.

MTI recommends that Mi'gmaq Indigenous knowledge, culture, different uses of land, air and water be considered when designing monitoring stations, research

studies and analyzing data and that these differences be noted within their reports.

Indigenous perspectives need to be fully considered in the development of the annual environmental monitoring program on an annual basis where there are unique and important elements of the diet to be assessed and that MTI should be directly involved in this monitoring process.

Mi'gmaq collective experience is encapsulated within the living body of knowledge known as Indigenous knowledge. It is an evolving knowledge system that is scrutinized and tested in accordance to the techniques that have been passed down by our Elders, as well as in conjunction with new systems of information and knowledge gathering.

To the best of MTI's knowledge, no Mi'gmaq Indigenous knowledge and land use and occupancy study has been conducted with respect to the Point Lepreau facility and certainly not one that adheres to the standards of the New Brunswick Mi'gmaq Indigenous Knowledge Guide.

We recommend that such a study be conducted as a condition of the licence renewal. MTI is prepared to present a proposal and budget to the CNSC and NB Power regarding the same.

MTI has noted that New Brunswick Power has

CNSC's submissions to complete after the expiration of their licence. MTI recommends that either awarding the new licence be delayed or additional funding be provided to MTI to allow them to review and provide input of these documents.

MTI is of the view that this is a multi-year effort and will require technical experts and members of the communities with Indigenous knowledge participating in both the design and analysis of results.

The current effort by the NB Power is a good start, but it requires supplementation of Mi'gmaq land users' perspectives.

MTI notes that the CNSC states that NB Power is also in the process of discussing a *Fisheries Act* authorization for operation on Lepreau. This will take into consideration the impingement and entrainment of fish, eggs and larvae associated with the cooling water intake and thermal emissions on discharge. However, as noted above, we are informed that the environmental assessment related to such authorization will be undertaken through the CNSC process and not through DFO.

MTI feels that the current process to provide input every five years is insufficient. We recommend an ongoing integrative involvement with provision of funding. Funding should be focused on building an

environmental monitoring program, ecological risks assessments and engagement with Indigenous knowledge studies. We feel that this level of engagement and accommodation would demonstrate a shared commitment to protect the Lepreau and north shore Bay of Fundy ecosystem and its Indigenous peoples.

With that in mind, MTI seriously hopes that NB Power and CNSC takes into consideration their recommendations and implements them in the near future.

Thank you.

**THE PRESIDENT:** Thank you.

Okay, questions? M. Tolgyesi?

**MEMBER TOLGYESI:** Did you visit the Point Lepreau Station?

**MS BARNABY:** Staff members of MTI did visit the Point Lepreau Station. I myself was not in attendance during that tour.

**MEMBER TOLGYESI:** To NB Power. What kind of communications or consultations do you have with the nine Mi'gmaq communities?

**MR. HICKMAN:** Charles Hickman. I'll ask Andrea to fill in some details, but just for some past context, we've been working and I think all have been learning a great deal over the past, I'll say 10 to 15 years. When we went through our refurbishment

environmental assessment work is when we first, I think, reached out to all First Nations, to the representative groups at the time, we've met with them on an ongoing basis since then.

But I think Andrea can talk in a lot more detail about current engagement activities, discussions and, where appropriate, consultation.

Andrea...?

**MS ALLEN:** Thank you. Andrea Allen, for the record.

First of all, I would like to say that NB Power is very pleased about the relationship that we've established with MTI, Mi'gmawe'l Tplu'taqnn Incorporated, and the dialogue that is underway and the momentum that we have at present.

As the submission states, MTI is a fairly recent organization, it was only created about a year and a half ago. The staff have changed a little bit and we right now have monthly meetings established with MTI.

Now, those meetings are established to discuss various projects that do trigger the duty to consult for NB Power. We also use those meetings to bring areas of interest from either MTI to us, or we also provide updates on other areas of NB Power, like Point Lepreau, for example, is a standing item on those monthly meetings.

Other areas that we have interacted with with respect the communities in Mi'gmaq territory would include: during the ice storm, for example, the President and CEO, as well as Kathleen Duguay from Point Lepreau, were present in the Acadian Peninsula and present in various First Nation communities to reach out.

We've also attended various pow-wows and sponsored pow-wows in Mi'gmaq territory, as well as had attended job opportunity plenaries through other organizations such as the Joint Economic Development Initiative in Mi'gmaq territory.

We've been invited to various community meetings in the various communities in Mi'gmaq territory which we always attend and are grateful to be able to do so.

Thank you.

**MEMBER TOLGYESI:** Do you have any feedback from these presentations, what just Ms Kathleen was talking about?

**MS BARNABY:** Certainly. We do acknowledge and appreciate the relationships that MTI does have currently standing with NB Power. However, what we've seen, you know, was the need to progress further than that level of engagement. There's things that need to happen in order to advance and to feel like the Mi'gmaq are actively

contributing to the safety of the area, the safety of the individuals.

And as we heard before, you know, it helps to reduce that anxiety as well for Indigenous people and they come out of dark in these areas and be involved. And we do have the capacity at MTI, we do have the people, we do have the environmental monitors that are available, we just need a new system, a new way to access, to contribute, and that's what we're trying to achieve here today.

**MEMBER TOLGYESI:** No Mi'gmaq Nation members working at Point Lepreau or NB Power?

**MR. HICKMAN:** Andrea Allen can answer the question.

**MS ALLEN:** Andrea Allen, for the record.

NB Power has a voluntary disclosure for employees to declare whether or not they come from Aboriginal ancestry.

We know that we do have many good, capable, skilled Mi'gmaq and Maliseet employees at NB Power. We know some of the locations where they work just because of the personal relationships and daily dealings that I've had with them.

The exact number of Mi'gmaq or Maliseet employees that are at Point Lepreau I cannot access through any kind of report because the reports don't facilitate

that kind of detail.

**THE PRESIDENT:** Go ahead.

**MS BARNABY:** I think it's important to clarify as well, when we're talking about employment opportunities and environmental monitoring, we're not talking about simply having increased employment within the site itself, we would like to see our stream and our knowledge come in through that program, so to develop an environmental program in itself, an educational program where they utilize Indigenous knowledge.

And there's a program through the New Brunswick Community College, NBCC, and it was targeted towards Aboriginal participants, students, and they had a different curriculum outlined. And so, we were interested in seeing something in that regard, rather than increasing the employment within the facility itself.

**THE PRESIDENT:** So, let me maybe -- you want to say something before I start? Go ahead.

**MR. PLUMMER:** Brett Plummer, for the record.

Just as we indicated with the Maliseet First Nation group, we are willing to sit down and work through some kind of partnership through environmental monitoring.

**THE PRESIDENT:** You're reading my mind

because I am thinking the same way. I'm going to try to hear from staff.

You know, we talked about a while that you need a structure and, in fact, they're recommending an MOU and I assume some arrangement with the CNSC to at least structurally, periodically well-defined time to meet, discuss and participate in some of the activities.

One other thing I'd like to make comment, that the Participant Funding Program that CNSC has does not get triggered only for licence renewal. So, you know that the next licence renewal will be five years from now, you know that now. It doesn't prevent you from going to CNSC and ask for some support now starting for five years.

Now, somebody can jump in and tell me if I'm speaking on your behalf, but I think there's a long-term relationship that can be developed with Point Lepreau and the regulator to get you involved in environmental monitoring in fishes, the fish; I think we can come to agree about fish and whether they're endangered or not endangered.

We heard from some fisher here that it's never been as good as it's now. So, your concern about impact on the fish, there's a thing to be discussed and share information.

So, let me start with staff here.

**MR. FRAPPIER:** Thank you, Mr. President. I think there's a couple of things involved here that we'd like to get an opportunity to talk about.

One, we've mentioned about the environmental monitoring program. I'm going to ask Mike Rinker to talk about that.

And then, we'll have Kim Noble talk a little bit about our engagement and the participant funding approach that's available perhaps in the longer term as opposed to just at the few months before re-licensing.

But, first, perhaps on environmental monitoring, Mr. Rinker...?

**MR. RINKER:** Mike Rinker, for the record. I'm the Director General for the Directorate of Environmental and Radiation Protection and Assessment.

So, I certainly appreciate the opportunity to discuss potential engagement activities and how we can best structure that.

I see certainly a number of opportunities. We have had one meeting back in September, 2016 to discuss briefly the CNSC's independent environmental monitoring program, but where we've been successful in the past in other locations is that participant funding can be made available to help obtain traditional knowledge to best determine what should be sampled and where should it be

sampled and where should we get that information. So, that's certainly one aspect.

Another aspect is in relationship building as opposed to waiting every five years is there's regulatory oversight reports which are the report card on industry that happen annually. So, there's an annual opportunity to access funding and be before the Commission and to discuss concerns and particularly about environment is very important to us.

And I'm happy to hear that Point Lepreau is open to engagement for environmental monitoring, and I think from the environmental risk assessment, we very much value environmental risk assessments that come to us that have included Indigenous information to understand, again, which valued ecosystem components, which species of fish as an example, are included in that assessment.

So, I see I think a number of different areas for which we could better engage in an ongoing relationship as opposed to every five years.

**THE PRESIDENT:** Point Lepreau?

**MR. FRAPPIER:** I'd now like --

**THE PRESIDENT:** Go ahead.

**MR. FRAPPIER:** I'm just going to change it to Kim Noble. She can talk a little bit about some of the engagement we have had with MTI and what -- some of the

rules around participant funding.

**MS NOBLE:** Thank you. This is Kim Noble. I'm team leader for the Aboriginal Consultation and the Participant Funding Program here at CNSC.

First, I just want to give context into the Aboriginal consultation approach with the Mi'gmaq First Nations and as well as the Maliseet who we were speaking with yesterday.

Since the last hearing in 2011, there used to be a single window approach, a protocol between Canada and New Brunswick and the First Nations of New Brunswick and over the last five years, as MTI has explained, there was a significant change and now our engagement and consultation is more directly with the communities through MTI, the organization representing those First Nations of the Mi'gmaq and then the Maliseet, to have their MOU in place.

So, when we approached last year with the licence renewal we had a much more, greater interest coming directly from the communities and so, that was a significant change than when we saw five years ago. And so, we were happy to see that.

During that time we've been able to supply a lot of information to the First Nations about who we are and there's been a big learning curve and we've had a

number of teleconferences since we first sent the application and tried to provide a lot of information, including trying to clarify information which we saw in their interventions.

And throughout that time we've been trying to ensure that we are committed to continued engagement with the communities and we're really happy to see that the interest is there to do so.

And the ways we can do that through our participant funding where we have -- are really good, flexible. So, as you know, obviously we open for licence renewals and reviews.

We open participant funding for participation in our annual reports, our regulatory oversight reports. So, that helps communities come forward to the Commission annually.

We also have funding available just to meet with our staff to talk about our regulated facilities, so that they're not having to pay for that. So, they can apply for up to \$10,000 and our staff can meet with them and go over topics of interest.

And then, of course, we have the long-term research. So, our list of regulatory interests. So, there's two-fold.

So, there is a way that we can help fund

participation in our independent environmental monitoring program, but if they want to -- say, for example, if they want to hire a consultant to review our results. So, we're more than willing to share our results and explain our results, but if they would like to have a consultant with expertise on hand to have that conversation, then the funding is available for that.

If they wanted something outside the program itself, then they can come forward with an application to the CNSC to conduct their own traditional use studies or Indigenous knowledge studies.

And the way our funding program works is that we're looking for that kind of information that will bring value to the Commission's future decisions, and our funding program is there to support that kind of research to be done.

**THE PRESIDENT:** Anything else?

Point Lepreau, anything you want to add to that?

**MR. PLUMMER:** Brett Plummer, for the record.

There's been a lot of hard work done by NB Power Andrea Allen specifically and her group to try to move the relationship with respect forward between NB Power and the First Nations and, to be quite frank, to get Point

Lepreau involved.

So we are willing to move forward to build that relationship with First Nations.

**THE PRESIDENT:** Thank you.

Ms Velshi.

**MEMBER VELSHI:** A couple of quick questions, one for you and one for Point Lepreau.

In point No. 27 in your submission you talked about meeting with your community members and the kinds of questions and concerns they raised about Point Lepreau.

Any thoughts on how best to address those?

I know we've talked a lot about your recommendations specifically to deal with important environmental monitoring. What about addressing some of their fundamental concerns about the station and its impact and how best to address those?

**MS BARNABY:** Kristy Barnaby, for the record.

I think if we look at the larger picture, we've heard from other people yesterday talking about how do we address concerns and how do we feel welcome to contribute and how do we create access to contribute.

Outside of environmental monitoring, that's when we're talking about indigenous knowledge

research.

Having these IK studies is invaluable to create, to give space for indigenous people to go in and to exercise their way of knowing and exercise their sciences.

A fish for us isn't just a fish. It's livelihood. There's a respect. There's a connection and it's ancient. And it goes back thousands of years.

So to have our people in there to demonstrate that science, to teach how a fish remembers where it goes. It remembers and goes right back to the exact same place that it was spawned. That kind of knowledge and that kind of respect, we would like to contribute that back and then have it reflected and create that reflectivity within these organizations, within NB Power.

It makes the content and the science relatable and it affirms people when they see that.

It's moving towards reconciliation of research, moving towards reconciliation of partnerships like we've seen. We have been moving in a positive direction with NB Power.

But we don't want to just get left behind with monitoring itself. We want to create reflectivity within the research that comes out so that our concerns that people have had, we can address them both.

Like we were saying, with a two-eyed seeing approach is the best approach. We utilize western science and indigenous science and amalgamate the two and be able to present that back and to utilize the benefits of both sciences.

I think, you know, it might be a mechanism that's not existent yet, so we have to figure that out, what it's going to look like. So that's why we need to have community engagement first to talk about: ask our elders, ask our community. What does that look like for you?

And then work with NB Power hopefully to design those mechanisms and to create that access for our communities to be reflective within these programs.

**MEMBER VELSHI:** Thank you.

My next one is a very short question and it's really to Point Lepreau.

Point No. 29 about unexplained fish kills in November or December 2016.

Did you have any comments on that?

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

I could be corrected but I think the fish kills that are being referenced there that were reported in the media occurred on the far side, if I could put it that

way, of the Bay of Fundy.

I have spoken with DFO very briefly and followed the media as well. There was no cause assigned to it but there was certainly nothing we were doing at the time which would imply a linkage between Point Lepreau and the fish kills.

The media coverage and my discussions with DFO would indicate they're not sure what the cause of the fish kills was. There was reference to it having happened previously. I think the main species in question was herring. But beyond that there didn't seem to be any linkage, that I'm aware of, to Point Lepreau.

**MEMBER VELSHI:** Thank you.

Staff, did you have anything to add to that?

**MR. FRAPPIER:** I would ask Mr. Andrew McAllister to add to that, please.

**MR. McALLISTER:** Andrew McAllister, Director of the Environmental Risk Assessment Division.

Just to confirm NB Power's understanding, when we first saw this section in the CMD we likewise did our own research and derived information from the Fisheries and Oceans Canada website, as well as through some personal communications, which indicated there was no obvious cause.

What we would indicate is that in doing

so, we also checked back to see okay, during Point Lepreau's performance during that time was there any reports of releases and those sorts of things.

So there was none of that.

So I just want to provide assurances that if there are things that are attributable to the plant, we have the mechanisms in place through our regulatory oversight to take the appropriate actions, to be before you to report on them and to determine the path forward.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Dr. McEwan?

**MEMBER MCEWAN:** Thank you, Mr. President.

So if I understand, MTI is about two years old as a collective organization?

**MS BARNABY:** Yes.

**MEMBER MCEWAN:** Yes. And the study process guide that you've given us, a ton of work put into making that. That's four months' old, four and a bit months' old.

So you are really starting on a journey, starting on a process and starting on a collaboration with these two initiatives.

In five years' time what would success look like in the narrow constraints of a licensing hearing and the broader constraints of the communities?

**MS BARNABY:** Kristy Barnaby, for the record.

I think we have a broader range of goals. But in terms of today and our context here today, we've been looking at extending, to creating partnerships to create these indigenous knowledge research initiatives.

We've submitted in the past grand proposals to NB Power about negotiating what that would look like, because there's a number of different projects that could use and implement an indigenous knowledge research study.

Also MTI is hoping to have an environmental monitoring program that they would have themselves and to be able to teach their own and be able to create that curriculum as well.

So in terms of today, the goals associated involve an indigenous knowledge study with NB Power and an environmental monitoring program.

**MEMBER MCEWAN:** An important part of all of this is knowledge translation.

**MS BARNABY:** Yes.

**MEMBER MCEWAN:** And knowledge translation within your own communities, knowledge translation without your communities.

Do you have an idea how that could develop

and build going forward?

**MS BARNABY:** Kristy Barnaby, for the record.

One of the initiatives that were discussed recently with our staff, it looked like oftentimes people offer indigenous organizations funding to hire an expert as well, which is always appreciated. But in an indigenous knowledge researcher expert would need to also be present within these organizations to be able to absorb and to translate that knowledge internally on their behalf in order to make that integrative approach more meaningful.

**THE PRESIDENT:** I think it's a great opportunity because, you know, there's a saying if you want to get the message out, teach the teachers. Right?

**MS BARNABY:** M'hmm.

**THE PRESIDENT:** So if you develop your own capacity to explain to your own people exactly some of those issues, the message would be a lot better received if you explain it or we try to explain it.

So I think it's a great opportunity for you to be a translator, a teacher, any research of your own rather than get a consultant.

So I'm still a fan of you getting some funding to do some of the research you need to do for both organizations, maybe even collectively with your

organizations.

I don't know. I will leave the details for both organizations to decide. But I think it's an opportunity to try to bring the indigenous knowledge into it.

When I said a fish is a fish, I didn't mean all fish are created equal.

--- Laughter / Rires

**THE PRESIDENT:** But I can tell you when scientists decide which fish I'm going to monitor for contamination, there's a lot of to and fro about selecting which fish is a proper proxy. And that's where I think you can be very helpful in choosing the kind of fish that you would like to see tested.

They all have different characteristics, different impacts. And I think again it would be very useful to all the environmental assessment that CNSC is doing.

Go ahead.

**MEMBER MCEWAN:** A quick follow-up question.

Are you working with any of the local universities as you build this research capacity and teaching?

**MS BARNABY:** Kristy Barnaby, for the

record.

At Mi'gmawe'l Tplu'taqnn we have quite a large team. We are governed in traditional hierarchy with our elders and our executive of chiefs. Then we have a technical team consisting of various technicians, biologists, and a separate research department as well that has a social scientist.

Myself, I'm one of the science researchers there.

We also do a lot of partnerships with different universities. UNB is one and looking around at other universities, extending to environmental assessments.

So there is capacity.

We've been doing this work for a while. It's only been two years and you can see the work we've done in four months manifests pretty quick.

We've done indigenous knowledge on a large scale as well. We've done research. We have a partnership with Maritime Electric. And it looked amazing after they've done that indigenous knowledge research. And the partnership worked really well. It was very respectfully done and we are really appreciative of that.

We've also done indigenous knowledge on a large scale. Looking at the Energy East file was one of our largest files. And that research was quite big and the

results were amazing to see. The data was good.

So we do have the capacity. We have the team. We just need the access to create a space for us in our knowledge systems.

And the work. The work is important too, the environmental monitoring, the research. That's what we're looking for.

**THE PRESIDENT:** Mr. Tolgyesi.

**MEMBER TOLGYESI:** I have one for Point Lepreau.

Your monitoring stations, environmental monitoring stations, are close to Point Lepreau Station.

Do you consider that is sufficient? They demonstrate performances but I would say that a further 15 to 20 kilometres spacing of monitoring stations would further confirm Point Lepreau's performances and assure communities, because questions were that it's close to the station.

What about performances 20 kilometres from there?

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

So it's a good observation to have background and more distant sampling sites is beneficial to put things in perspective.

And we do have actually many sampling sites that are some distance away from the station itself.

For example, some of our monitoring stations might actually be Fredericton.

So we actually have a number of samples collected from quite a ways away from the station. They are included in the Environmental Monitoring Report.

You are correct, though. Most of the sampling sites are closer to the station. There is a certain amount of logic to that.

The amounts that we're measuring are very, very, very low amounts. We want to make sure that we are sampling close enough to the station that we would pick up any early indications of issues. So that's part of the reason that some of the sampling is focused close to the station.

But we do have background sites that are much farther away.

**MEMBER TOLGYESI:** As you said, performance is closer to the station you control. But farther, it's kind of in relation to the communities that demonstrates that there is no pollution, no emissions, no releases.

**MR. PLUMMER:** President Binder, can we say one last word?

I'd like Andrea Allen to close, please.

**MS ALLEN:** Thank you, Brett.

I really want to appreciate MTI for coming to this hearing. They've been here for both days and have travelled a distance from other corners of the province, left their families, stayed overnight. And it's always a pleasure to take any opportunity for engagement with our First Nations partners. Wela'lin.

**THE PRESIDENT:** Okay, thank you.

**MR. NSENGIYUMVA:** I have something to add, some precision on the monitoring stations.

Health Canada has a set of monitoring stations farther away from Point Lepreau, so the Canadian Radiological Monitoring Network, and there is a station in Digby, a station in Greenwood, a station in Halifax, in Saint John, in Charlottetown and actually in Moncton.

So for those stations the number of samples that get collected, air samples, precipitation, water vapour, milk samples and also the drinking water samples.

So there are stations away from the Point Lepreau Station that are monitored by Health Canada. And then if there is any data that would indicate any concern, those would be related to the public.

Thank you.

**THE PRESIDENT:** Thank you.

You have the final word.

**MS BARNABY:** Kristy Barnaby, for the record.

Just in response to Health Canada, indigenous people did not have a say in where the samples were taken. And indigenous people didn't and don't traditionally pick tomatoes.

If we had studies that looked at our traditional foods, our traditional medicines that we actually consume on a large scale, given the poverty rates in New Brunswick for indigenous populations, we heavily rely on our local food source; various types of fish, moose.

They are handed out in community food banks. They are stocked in people's freezers who don't even live on First Nations communities.

They are dependent upon it and we need to make sure that indigenous knowledge is reflected within our sampling, reflected in all sampling.

That's why the need for that study is so pertinent.

In closing, I want to thank you all, thank you guys for the opportunity to be here today and to discuss our concerns and reviewing our submission.

I thank NB Power as well for the ongoing

partnerships that we have. And I look forward to see how this is going to manifest.

I appreciate your hearing and reiterating our concerns.

Again, our main goals are the opportunity to participate within IK studies with NB Power and CNSC; the environmental monitoring programs, as well, to have our people hired and to start discussions around programs and environmental risks assessments.

We would greatly appreciate for those initiatives and discussions to happen sooner than later.

**THE PRESIDENT:** Okay, thank you.

Thank you very much.

I would like to move on to the next submission, which is an oral presentation by Corporate Research Associates Inc., as outlined in CMD 17-H2.59 and 2.59A.

Mr. Wight will make the presentation.

**CMD 17-H2.59/17-H2.59A**

**Oral presentation by**

**Corporate Research Associates Inc.**

**MR. WIGHT:** Thank you very much and good afternoon.

For the record, my name is Craig Wight and I am the Vice-President of Research in New Brunswick for Corporate Research Associates.

Corporate Research is a Canadian marketing and public research firm. It was founded in 1978.

We are a Gold Seal member of the MRIA, which is the Marketing Research and Intelligence Association.

I'm here before the Commission today to present a summary of highlights from a public opinion survey that was commissioned by NB Power.

The highlights are on the screen to my right.

These results are based on a random sample of 600 telephone interviews that were conducted between March 10<sup>th</sup> and March 26<sup>th</sup>, 2017.

Corporate Research also conducted this research in 2011 and 2015 using the same methodology.

I'll start with the numbers and figures across the top of the slide.

Respondents were asked: How important is it to you personally that the Point Lepreau Generating Station is operational?

Thirty per cent said it was critically important and 51 per cent said it was important but not

critical, which makes up the 82 per cent that you see on the slide saying that it was important.

In that question 16 per cent said that it was not very or not at all important.

Almost everybody, 97 per cent, said that it was very or somewhat important that the public be kept closely informed about the Point Lepreau Generating Station. Only 3 per cent said it was unimportant.

The next question gave a choice of two statements and asked respondents which was closer to their own opinion.

In this case 61 per cent said that NB Power should undertake an information campaign to ensure the public is kept well informed about the Point Lepreau Generating Station. And 34 per cent said there was no need to use ratepayers' funds for a public information campaign.

The final point at the top of the slide asked how useful a number of sources would be in providing information about Point Lepreau.

In this case respondents rated a number of sources using a 10-point scale where 10 meant it was very useful and one meant not useful at all.

The 55 per cent that you see there is those who gave a rating of eight or higher for the NB Power website. The website had the highest level of A-plus

ratings but there were several other options, such as bill inserts and social media sites, that had over 40 per cent giving an eight or higher.

Let me direct your attention to the centre bottom of the slide.

For these statements respondents were asked to indicate their level of agreement with each statement. Their choices were to strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree or strongly disagree.

And as well, respondents could say that they didn't know.

So I will start from the top and they go in descending order, based on agreement.

Seventy-four per cent agreed with the statement: New Brunswick will be generating nuclear power in 20 years.

Fifteen per cent disagreed and 10 per cent said they did not know.

Seventy-three per cent agreed that Point Lepreau was closely regulated; 4 per cent disagreed in this case and 21 per cent said they did not know.

Seventy-two percent agreed that Point Lepreau operates safely, 8 percent disagreed, and 18 percent said they did not know.

Seventy-two percent also agreed that New Brunswick needs Point Lepreau to ensure an adequate supply of electricity, 15 percent disagreed, and 13 percent said they did not know.

Sixty-eight percent agreed that Point Lepreau operates in an environmentally responsible manner, 14 percent disagreed, and 16 percent said they did not know.

And the final statement at the bottom, 58 percent agreed that Point Lepreau operates efficiently, 17 percent disagreed, and 21 percent said they didn't know.

The green arrows on the side of those statements show the change from the 2015 survey. So they are all increasing, although in some cases by small amounts.

The final statement at the bottom right of the page is an assessment of NB Power and not only of Point Lepreau. The question was: Do you have a strongly favourable, somewhat favourable, somewhat unfavourable or strongly unfavourable overall opinion of NB Power? 79 percent were favourable in this case, 16 percent were unfavourable, and 3 percent were neutral, and finally 1 percent said they did not know.

So thank you.

**THE PRESIDENT:** You packed a lot of

information on one page.

**MR. WIGHT:** On one page.

--- Laughter / Rires

**THE PRESIDENT:** Okay. Who wants to start?  
Monsieur Tolgyesi...?

**MEMBER TOLGYESI:** One question. Is there a correlation between the location of Point Lepreau and the distance of the person interviewed, which means that the closer you are, you are more favourable or unfavourable, against, compared to somebody who is much further?

**MR. WIGHT:** Sure. So the survey covered the whole province, the 600 sample, and was randomly selected from the whole province. We did look at the results by region and the Southwest, where the Lepreau facility is, tended to be a little higher on most questions, a little more favourable on many of the questions.

**MEMBER TOLGYESI:** Just a little or was it predominant?

**MR. WIGHT:** I'm going a little by memory here. 5 percent, you know, maybe 10 percent higher than other places in the province.

**MEMBER TOLGYESI:** Somewhere there was this type of survey and they demonstrated that close to the operation the difference was quite higher, not 5 percent

but maybe 15 to 20 percent.

**MR. WIGHT:** Yes. I would be happy to check that for more accuracy than just my memory and would be happy to provide that.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** So a question for Point Lepreau. What do you take away from these results and what would you do with it?

**MR. PLUMMER:** Brett Plummer for Point Lepreau.

I think it's a reference point. It's good to see most of the areas are continuously improving. I think the thing that sticks out from a continuous improvement standpoint is people still want more information. So we know we need to put some effort into our webpage. So that's probably the most significant thing for us, is we will put an effort into that.

**MEMBER VELSHI:** I was also curious about the questions that were asked, and I don't know if this was the complete set of questions that they were asked, but certainly for Point Lepreau, the focus, at least on the top half, seemed very much around information or how well are you informed as opposed to, I don't know, would you know what to do in the case of an emergency or something like that. I just wondered, do you change that from year to

year on areas that you think may be of greater importance or you want to test the public on?

**MR. PLUMMER:** I think that's a good insight and a good comment. We will take a look at it as we update the webpage.

I do believe there is an opportunity to put more information that we have on our calendar to put on the webpage, so obviously it goes beyond what we are doing now across the province.

**THE PRESIDENT:** Mr. McEwan...?

**MEMBER MCEWAN:** So perhaps I could ask Mr. Wight, what is your takeaway from this?

**MR. WIGHT:** I felt the results are and have been what I would consider positive results. You know, in many of those statements 70 percent or more agreed with the statement that was made. And I just point out that that doesn't mean that 30 percent disagreed, in fact at times 15 percent or so didn't provide an answer. So not to suggest that the disagreement is unimportant, of course it is important, but the agreement compared to the disagreement on many of these is a factor of 3 or 4 to 1, so I think they are quite positive results for the facility.

**MEMBER MCEWAN:** You said this is the same set of questions but different populations, randomly

selected populations?

**MR. WIGHT:** Correct. That's correct, yes.

**THE PRESIDENT:** So the 79 percent bottom line says NB Power, it doesn't say Point Lepreau. Where is the Point Lepreau bottom line?

**MR. WIGHT:** There were sets of questions on the survey that dealt with NB Power and the one question that I have on the slide that is specific to NB Power is that one, the 79 percent. I focused on Point Lepreau for this. I'm not sure that we have an equivalent question, but I would be happy to check to make --

**THE PRESIDENT:** This is kind of a general feel, what do you feel against this entity. It would have been nice to see whether they can separate between NB Power and Point Lepreau.

The other thing that I found a bit -- it's a question to you. There was a couple of times a very reasonably large number of didn't know, which this is a surprise. How do you live in New Brunswick and don't know about a nuclear power plant? Is that something unexpected?

**MR. WIGHT:** We typically get a -- usually it depends on the question of course, but we will typically get 10 percent, 20 percent expressing "don't know." It might be that they don't feel that they have enough knowledge to say, but that's not unusual to get that high a

"don't know" on a question.

**THE PRESIDENT:** It's not yet another indicator that more information is required in the public?

**MR. WIGHT:** You could certainly interpret it that way as well.

**THE PRESIDENT:** Yes. Okay, thank you.  
Anybody...?

**MR. WIGHT:** Thank you very much.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** I just have one last question, I mean because it sort of hits you between the eyes. It's that 58 percent about the facility operating efficiently. And you shared your operation results where your last year and a half has been exceptionally good, and I don't know what 2015 was like, I can't remember, but it wasn't quite as good. Were you surprised with that number?

**MR. PLUMMER:** Brett Plummer for the record.

No, 2015 wasn't as good. It's in the power history that we gave you as well. The force loss rate was up around, you know, between -- or 17 percent, somewhere in that area, and we are down to, you know, 2.74. But people have a long mindset and it takes a while to sit there and -- and we want to make sure it's sustainable as well, right. So the word will get out in time as we make

sure that our improvement is sustainable. We believe it is.

**THE PRESIDENT:** Just a final. Are these results posted? Are they on your website?

**MS DUGUAY:** Kathleen Duguay for the record.

Currently, those results just came in last week and we are looking at posting some information about those results at some point.

**THE PRESIDENT:** I thought they were good results, you would want to put them in flashing lights.

**MR. PLUMMER:** Brett Plummer for the record. We will put them on our website.

--- Laughter / Rires

**THE PRESIDENT:** Thank you. Thank you very much.

We are going to take a break and return at 4:30. Thank you.

--- Upon recessing at 4:10 p.m. /  
Suspension à 16 h 10

--- Upon resuming at 4:31 p.m. /  
Reprise à 16 h 31

**THE PRESIDENT:** Okay. We are back and we

will continue with the next submission, which is an oral presentation by New Clear Free Solutions, as outlined in CMD 17-H2.94.

I understand, Mr. Rouse, you will make the presentation. Over to you.

**CMD 17-H2.94**

**Oral presentation by New Clear Free Solutions**

**MR. ROUSE:** Good afternoon, Commission Members. Chris Rouse representing New Clear Free Solutions for the record.

First, New Clear Free Solutions would like to acknowledge that we are on unceded First Nations land and we also acknowledge and honour the Peace and Friendship Treaty signed with them.

Secondly, we would like to thank the Commission Members for taking the time to consider our intervention on the licence renewal for Point Lepreau Nuclear Generating Station and the five requests that we have made within our intervention.

Our intervention's main concern is related to seismic issues and the transparency around these issues not only from NB Power but from CNSC staff as well.

Request number one is around the change in

the large release safety margin, seismic safety margin assessment safety limit downward from .4g to .344g. Our request is that the Commission not approve this change from .4 to .344. We request that NB Power be ordered to provide upgrades until the .4g limit is met. At a minimum, we request that the Commission approve in writing in its reasons for decisions that they approve the change from .4 to .344g.

We ask the Commission to do this with the knowledge of three previously unknown earthquakes found during the paleoseismic study that the Commission Members ordered in 2011 at my request. If the limit has changed so that the facility is safe, it needs to be done transparently. We can't just move the safety goal and say that it's safe. Well, I guess you can do that, but I would like it to be done transparently and by the Commission Members.

To put this in the context a little bit more, because I think there is only one Commission Member that was here in the 2011 hearings, at that licence renewal NB Power in its licence application committed to a .4g safety goal limit. There has been some talk in day one about whether it's a limit or a target and I detail in my intervention that the *Nuclear Safety and Control Act* provides for limits, the limitation to a reasonable level

in the purpose of the *Nuclear Safety and Control Act*.

But also to point out that the current licensing basis, not what you are asked to approve but what is happening right today, what is the current safety limit was defined in the licensing basis which was part of the 2011 licensing application by NB Power in which they committed to .4g. It's my understanding in all the reading that I have done that only the Commission Members can change the licensing basis. It is not within the staff's purview to change that licensing basis, except for moving safety standards up. There are some provisions that they can increase the safety, but definitely not moving it down, that's your responsibility. If there is going to be a safety limit moved down, that is, in my opinion, the Commission Members' responsibility.

The seismic hazard assessment that was ordered by the Commission Members in 2011, part of it was a paleoseismic study and what this study did was, there was a lady, Dr. Tuttle, which NB Power brought in -- and I met with her, she's very, very knowledgeable, she's a world-class scientist -- and she looked at all the riverbanks and stuff around Point Lepreau and she can tell by the soil that she found that large earthquakes create these patterns and stuff and she can determine whether there had been large earthquakes in the past. She has

found not one, not two, but three quite significant earthquakes near Point Lepreau. Her best guess is that these were in the range of 6.5 to 7 magnitude. These are approximately 20 times larger than what was previously known. This is significant. So we request that NB Power, instead of changing the safety limit to remain safe, that we actually make them do upgrades.

The second request is regarding the seismic hazard assessments to be made public. The President himself has asked several times for these to be made public and put on NB Power's website. There was even an action item from the 2011 hearings in which they were requested to do that. These documents are not on NB Power's website, despite the President's request to do so. That is our third request -- or our second request.

The third request is regarding my co-application for participant funding to hire Dr. Kennedy from RPK Structural Mechanics to review the seismic safety assessments done by Point Lepreau. We were granted participant funding to hire him, but we were not given the documents for him to review.

What was made available to him, Mr.

Kennedy stated:

"I have reviewed Section 6.4 of Point  
Lepreau Nuclear Generating Station

Probabilistic Safety Assessment -  
Summary ... Insufficient information  
is presented in this summary report  
to enable any meaningful review..."

Dr. Kennedy actually practically invented the seismic margin analysis. He is named in all of the methodology documents used. We did not want to receive these documents ourselves and we tried to get so he could sign a confidentiality agreement so he could review these documents, but we were not given them.

So we would like the Commission to obtain the services of Dr. Kennedy to perform the third-party review originally requested by PEACE-NB and New Clear Free Solutions in our funding application. We request that he be given all the documents he needs to do his review and we request him to answer a list of questions that we provided him. We request that his review be made public and we request this review receive public, written and oral comments at this year's annual public meeting and that Dr. Kennedy attend this public meeting as well.

Our fourth request is that the seismic methodology be publicly released. This document is where the safety limits are actually defined and we were not -- NB Power has refused to give us this document even though the previous versions of this document have been publicly

released and similar documents from other nuclear generating stations have been released.

Our fifth request is that an independent reporting audit be performed around the issues identified in our letter to Minister Carr as well as the whistleblower letter. There was a technical review of the whistleblower letter, but it was about information and the core safety and control area that should have been examined was around reporting requirements.

Reporting requirements are essential to transparency and public safety. This is the public's window into any issues with nuclear power plants. I think an audit of these reporting requirements from inside of the nuclear industry would be very, very useful.

Anyways, these are my five requests and I hope that the Commission will grant them. Thank you.

**THE PRESIDENT:** Thank you.

Who wants to start? Ms Velshi...?

**MEMBER VELSHI:** Thank you for your submission. So why don't we go with the first recommendation around -- or the first issue raised around seismic hazard assessment and the safety goal limit being changed. Maybe I will start with staff and you can walk us through that, please.

**MR. FRAPPIER:** Gerry Frappier for the

record. Thank you.

And with us today we have Dr. John Adams from NRCan as well.

So I think when it comes to the earthquake situation, first I would ask Chris Cole, who is our Director of EDAD, to talk a bit about the limit of .4, where that comes from and how that has evolved, along with Yolande Akl from our PSARD Division.

**MR. COLE:** For the record, I'm Christopher Cole, I'm the Director of the Engineering, Design and Assessment Division.

I would like to start by saying emphatically that there have been no changes to the licensing basis whatsoever. The licensing basis for seismic capacity of a nuclear power plant is the design basis earthquake which is set at 0.2g. Point Lepreau meets all requirements of CSA 289 with respect to the design basis earthquake.

With respect to the PSA requirement, again, there has been no change in the requirements. The requirements are clearly stated as core damage frequency and large release frequency.

What is causing some issues here is the misunderstanding of the review level earthquake. A review level earthquake is an earthquake that is used to show or

assess capacity above the design basis earthquake. I want to state clearly that the review level earthquake is not a licensing requirement, nor is it a safety goal limit.

Now, the review level earthquake is used in two ways. It's used as an input into the seismic margin assessment and it is also used as an input to the seismic PSA. It can be calculated in accordance with CSA 289 in two ways. It can either be 1.5 times the design basis earthquake, which gives you 0.3g, which was the value used by New Brunswick Power in the 2008 assessment. As well, a probabilistic seismic hazard assessment can be used for an earthquake with a 1-in-10,000 review period. This is what has been used in the most recent assessment and that gives a value of 0.344g.

Where the confusion is arising is the number of 0.4g that appears in the CMD in 2008 by New Brunswick Power. There are not two review level earthquakes, there is only one review level earthquake. Point Lepreau demonstrated in 2008 additional capacity above that review level earthquake when they made reference to the 0.4g.

So I just want to emphasize, there has been no change to the licensing basis. Point Lepreau in terms of the seismic capacity is well designed, it's well built, it's well maintained, it is safe to operate and it

is fully licensable.

I would like to ask if Point Lepreau could add some comments to that since we are referring to their CMD in 2008.

**MR. PLUMMER:** Brett Plummer for the record. Derek Mullin will speak to that.

**MR. MULLIN:** Derek Mullin for the record.

Please allow me to preface my response with a summary and that is, through all of the analysis work that NB Power has performed, particularly on the seismic file, we concluded that Point Lepreau is strong, it is safe. Safety analysis has been performed following accepted methodology and that analysis demonstrates that we meet all safety requirements.

NB Power believes that the best way to respond to the question regarding seismic safety goals is to step back and to provide context.

There are a couple of primary techniques to evaluate the consequences of seismic hazards.

Seismic margin assessment or PSA-based seismic margin assessment is one of those methods -- or two of those methods. These types of assessment provide an estimate of the plant's strength to withstand an earthquake. The hazard to which the site is susceptible plays a large role in determining what is the appropriate

safety goal for that work. However, a seismic margin assessment does not provide an estimate of risk.

The other type of assessment, what we have already heard about, is the seismic probabilistic safety assessment, or seismic PSA. This type of assessment provides an estimate of risk in terms of severe core damage frequency or large release frequency that can be aggregated with other potential risk sources and compared to internationally accepted safety goals. Just to clarify, when we talk about seismic strength estimates from a seismic margin type assessment, the higher the value expressed in gravities, or "g", the higher the strength. As an example, when we are talking about a component, talking about something at 0.4g is better than something at 0.3g; 0.4g will be stronger.

The old safety limit of 0.4g for large release was established for our 2008 PSA-based seismic margin assessment that was prepared in support of the plant refurbishment outage. This safety limit was considered a stretch goal that NB Power applied given the unique opportunity provided by plant refurbishment to make significant design modifications to the plant. There was no international guidance or regulatory requirement to have a large release safety goal that was higher than the safety goal for severe core damage.

The most recent methodology for selection of appropriate safety goals for our seismic work was aligned to international guidelines. This was done prior to the safety assessment work being performed and was not arbitrarily adjusted after the work was completed. NB Power is consistent with international and national guidelines and standards in the performance of its seismic assessment work.

The methodologies applied by NB Power in the course of its seismic work underwent regulatory review and acceptance. NB Power reviewed its licensing basis to confirm, in our opinion, that there were no reportability issues. CNSC staff have been well informed throughout the course of this work on methodology, applied safety goals and results.

It is important to note that international trends for operating nuclear power plants is to move away from seismic margin type assessments in favour of seismic probabilistic safety assessment, or seismic PSA. Now that NB Power has performed a full seismic PSA, it essentially supersedes the seismic margin assessment and fully complies with regulatory document REGDOC-2.4.2, which will be included in the 2017 operating licence.

As I mentioned earlier, the seismic PSA was done because it not only provides additional insights,

it also estimates plant risk. That can be considered in the context of other risk sources. Seismic margin assessments resulted in estimate of plant strength, not risk, and while it is maybe nice to do, it is no longer essential to the plant's safety case as we move forward. The seismic PSA shows that all internationally accepted safety goals are met even when aggregated with other risk sources. As a result, we can conclude that the plant is safe and robust. Thank you.

**MEMBER VELSHI:** So thank you for that. I think it helps explain where the .40 came from, but as I look at the results of your probabilistic safety assessment, and I'm looking at Slide 23 from staff's CMD where you have your safety goal limit and your safety goal target for seismic and then the aggregate. You meet the limit, but you are above target. Am I correct in that?

So the target is 1 to 10 to the -6 and your seismic result is 5 times 10 to the -6, 5.63, and the aggregate is 6.27. Most of your risk seems to be from seismic risk anyways. So you are above the target, lower than the limit; is that correct?

**MR. MULLIN:** Derek Mullin for the record. Yes, that is correct.

**MEMBER VELSHI:** And so I think, I'm not sure the intervenor is saying the same thing, but even as I

look at what your policy is that was in the Greenpeace submission, it says if the safety goal is met but the safety goal target is exceeded, then you are expected to review some opportunities for strengthening and mitigating that risk. Is that understanding correct?

**MR. MULLIN:** Derek Mullin for the record.

In our governance at Point Lepreau, the way we manage risk values relative to the internationally accepted safety goals is that if a safety limit or the safety goal, as you were, is exceeded, then we take that situation seriously and we will put in place corrective actions to bring that number down. Now, that could be any number of things. It could be a compensatory measure, it could be updating the models, relooking for conservatisms. There are all kinds of different things that we would look at.

When a risk number comes between the safety goal or the limit and the target, then we would look at potential recommendations that come from the vendors who are doing the work to see are there some practical ways that we could reduce that number further. Ultimately, we would love to be below the target, but there are cost-benefit considerations to consider. That's pretty much the way that we deal with it. If we are below the target, we are good. We will still look at is there

anything else that we can do.

**MEMBER VELSHI:** And you will get a chance to speak to that, but I think that's what I'm getting at, is that given that you are in that in between range, according to your policy you need to look and see if there are opportunities to get to target or below.

And maybe a question to staff then is: Does that get reflected in the LCH, that there is an expectation that the licensee will do that and report back to the regulator that, look, here are the things that we have looked at, this makes sense, this doesn't? Anyway, what was the regulator's expectations if you are in that zone?

**MR. FRAPPIER:** I will ask Yolande Akl to respond to that, please.

**MS AKL:** Good afternoon. My name is Yolande Akl, I am the Director of the Probabilistic Safety Assessment and Reliability Division.

Your question is if the LCH includes any reflection of if the number falls between limits and target. Yes, it does, because the LCH refers to a program for the licensee through the 242, Reg. 242, and this program would reflect the way they maintain and they improve their PSA, how they maintain the PSA and how they implement it. And in this document it is clearly described

what happens when it falls between the limit and the target. So there are actions. They have to look into improvements. Of course they also balance with cost-benefit. So they definitely have to do something about it.

**MEMBER VELSHI:** Thank you.

Do you have any comments given what you have heard?

**MR. ROUSE:** Yes. Yes, I do.

Again, back to -- you know, it's the very first licence condition of the current licence, licence condition 1.1. It says:

"...unless otherwise approved in writing by the Canadian Nuclear Safety Commission Tribunal (hereinafter the 'Commission') or a person authorized..."

And the licensing basis does include the licence application and I would like to point to page 6 of my intervention from the licence application of the 2011 hearings.

And it says:

"For the PSA-Based Seismic Margin Assessment, the limit corresponds to the Review Level Earthquake (RLE),

and is a pass or fail threshold against which the resulting plant seismic capacity is compared. In this case, a HCLPF value higher than then the one listed below is satisfactory."

And then it lists the limit of .4g. This is part of the licensing basis. It cannot be changed unless it is approved in writing by the Commission. If it was a mistake or whatever, the Commission Members need to change this. This is not within the realm of -- this is a licence renewal, not a new licence. Once something becomes part of the licensing basis, only you, the Commission Members, can change it.

And if we find out that there are new earthquakes, bigger ones we didn't know about and we just simply -- the limits changed, that's not acceptable. And if you guys are okay with changing the limit you can do so in your reasons for decisions, but from my point of view right now there is a safety limit being broken. There hasn't been a change in writing by the Commission Members yet. So from my point of view there is a limit that has been exceeded and it hasn't been reported.

The other thing about the limit changing is nobody told you guys, the Commission Members, that it

did change. Even if there was the ability for the staff to change it, you should have been made aware of it. This again is not a new licence application, this is a licence renewal. Any changes from the previous licence should have been noted. It's a huge transparency concern.

The other problem with having the Level 1 and Level 2 safety limit being the same is that it doesn't provide for any defence in depth if there is a core -- you know, the core damage and the large release are the same, so there is no defence in depth.

The PSA results themselves away from the seismic margin assessment show there is a huge cliff edge effect. There is a new requirement in the new PSA document about cliff edge effects and we are right on the line as far as the -- like we are over the limit but just barely, like within the realm of uncertainty in these PSAs, it could very easily be limit exceeded in the PSAs, as far as I am concerned.

So that's my concerns with that.

**MEMBER VELSHI:** So as I read your page 6, I don't see .4g being described as a limit anywhere. I know it's mentioned in the decision document, in the Commission's Reasons for Decision, but I don't see them referring to it as a limit.

**MR. ROUSE:** See the table below the part

that I had highlighted, that is actually from their document as well, and the column that says, "Limit" -- on the PSA, it says limit, Level 2, .4g.

**MEMBER VELSHI:** Sorry, it's on my page 5, okay.

**MR. ROUSE:** Oh sorry, yes.

**MEMBER VELSHI:** Staff...?

**MR. FRAPPIER:** Gerry Frappier for the record.

So I think we are delving into a little bit of complexity here that we are going to have to talk about to get our way out of. So as was mentioned a little bit earlier, there are different techniques that can be used. The licensing environment allows for that, our REGDOC allows for it.

In the case of a seismic margin assessment, as was mentioned, you put a -- I think somebody mentioned a stretch goal, but I would have called it a stress level, if you like, that you use to undertake the assessment. That's how that methodology works.

There is also the seismic PSA methodology which does not use that approach and that is the approach that is being used now by New Brunswick Power, well within the requirements of our REGDOC to be able to choose whichever method that you want. And at that point in time

it's not the same kind of stress testing that you are doing as far as seeing how the plant performs. What you now want to be doing is using a probabilistic approach, a PSA approach with an input of an appropriate size earthquake.

So that is what they have done and that is what they have shown, that based on that they meet the limit. The target, they do not, and our expectation, as Madam Akl said, is that they are looking into that and they are going to be -- now, the great thing about the PSA is it's showing them where is it that the plant is a little bit more vulnerable. So we would be expecting them to do that analysis and to then take a look at what can be done as far as a safety improvement opportunity.

**MEMBER VELSHI:** So I won't debate on, you know, whether the PSA is better or the seismic margin assessment. I guess the issue is that of transparency and the fact, according to the intervenor, the .40 was not met. Should the regulator have actually stated that and given the rationale and been public about it?

**MR. FRAPPIER:** I will ask Mr. Poulet to add to that.

**MR. POULET:** Thank you.

Ben Poulet for the record.

The item brought to light here by the intervenor, he is not incorrect when he states that in the

application NB Power provided the information it provided, but that is not the sole extent of the licensing basis.

There is also the Commission decision. CNSC staff reviews the complete Commission decision and in that decision the Commission can actually request something that is different than what was submitted in the application, and this is what happened in this case.

The Commission requested NB Power conduct a site-specific seismic margin assessment and it involved many different programs or pieces of work that were conducted. Throughout the whole exercise the NB Power has come to the Commission on occasion to provide updates, they have produced reports that they have posted on their website, and the final results were reviewed by CNSC staff as they were being submitted.

So it is not a question of lack of transparency, it is a question that the licensing basis includes the Commission decision and not only what's in the application. So CNSC staff is required to verify that the licensee is complying with what the Commission requested and this is what was done in this case. Thank you.

**THE PRESIDENT:** Dr. McEwan...?

**MR. ROUSE:** Could I just speak to that real quickly?

In the Reasons for Decision, the

Commission Members -- you did acknowledge the .4g limit.

You say:

"Based on the above information, the Commission is satisfied that the PLNGS meets the required safety goals."

And then you go on to say:

"...and that a large release of fission products from containment would be prevented for an earthquake with a horizontal ground acceleration of as high as 0.4g."

So even though you ordered a hazard assessment, you didn't order a new seismic margin analysis or PSA. As a result of those results from the hazard assessment, these were redone. You did not order those and again the Commission Members, you did acknowledge this .4g safety goal in your Reasons for Decision from the 2011 hearings.

**MEMBER MCEWAN:** Yes. Can I just try and bring this conversation back to an understanding of English. This is dangerous.

So I mean as I follow this conversation and read the original CMD, and Mr. Rouse's CMD, for which thank you, it strikes me there are four or five issues that

are present.

The first is the paleoseismic study which shows probably three earthquakes. I'm not sure how easy it is to characterize in the archaeological record how -- where towards the surface or what the g-force of an earthquake would be. But I think you said 7.3 was the most powerful on the Richter scale.

The second is the change in the licensing.

The third is several intervenors have peripherally made comment to tsunami and I think earthquake and tsunami after Fukushima is linked in the public's minds.

Fourthly, there is the upgrade pathway that was followed during the refurbishment.

What I haven't heard anybody clearly state is if one of those archaeological earthquakes was repeated say at 7.5 and it was under the worst possible circumstances for creating g-force that could create damage, would (a) there be a risk of a tsunami given the fact that we are in a channel that I think is about 60 kilometres wide and (b) with the current refurbishment, would the plant be safe?

Because I think there were two quite separate questions. The first is the transparency issue and how is the calculation done, but the second, which I

think is what the public would want to know, is it safe if we took the worst possible characteristic from those ancient --

**THE PRESIDENT:** Before you -- we have read your submission. I would like to bring some other players. I would like to bring Dr. Adams into the equation here. And I don't know if somebody from Environment Canada and Climate Change has any views in all of this and probabilities of tsunamis and all this. If you do, now is the time to come in. Otherwise, we'll save you for the next time. But let me hear first from Dr. Adams about the kind of earthquakes that were uncovered here and the impact with respect to safety for Point Lepreau.

**DR. ADAMS:** Dr. John Adams for the record.

I may be a little bit longer than you expect, but cut me off if I'm a little long.

I think there are two things to address here that are new in this cycle. There is the probabilistic seismic hazard assessment which is new, done in 2015, and then the second thing is the new data from the paleo-earthquakes. So I would like to just tackle those in that order.

So NRCan performed a thorough review of the 2015 probabilistic seismic hazard assessment that was done for New Brunswick Power. It found that it was a

well-done assessment and considered it gave a good estimate of the seismic hazard and therefore it would be a good basis for a risk assessment. So in other words, we are saying that we think that the shaking, irrespective of whether there were any plant there or not, is reasonably well assessed.

NRCan has no objection to the release of our review of that report if CNSC agrees. The problem that we have is that we were given the probabilistic seismic hazard assessment report as a protected document. So at best, we could redact our document to take out all of the protected information, but we think that there should probably be some attempt to release the probabilistic seismic hazard assessment. But the responsibility for that would be CNSC.

The second thing I will move on to is the paleo-earthquakes and I want to just tell you a little bit about how we decide about paleo-earthquakes. We record modern earthquakes using seismometers and the seismometer record goes back to about 1920 or so. For about 150 years before that we have a written record in newspapers of people feeling earthquakes. Prior to that there might be oral records from the native inhabitants.

However, if we want to go even further back, and when we are trying to estimate very low

probability we have to really look for fossil earthquakes, or paleo-earthquakes in the geological record. When an earthquake happens, it causes considerable shaking and the sediments that are susceptible to shaking can be deformed and they leave the fingerprint of an earthquake in them.

The typical work that Tish Tuttle uncovered was the injection of a sand layer which liquefied at depth into the sediments above. These are features which are recognized in other places of the world as fingerprints for earthquakes and if you know the age of the material that was fractured you then get an idea of the age of the earthquake.

The difficulty is that in the Point Lepreau area there is not a very long record of sediment. Some of the exposures that Tish Tuttle looked at were only about 1000 years old and so you are only getting one 10th of the history since the ice left. Ideally we would like a complete record for about 10,000 years.

And the second thing is that for these earthquake fingerprints to be recorded you have to have the right sort of sediment with the right degree of saturation. And then you have to be able to go out and do the study and actually look for the exposures in the field. And we all know that riverbanks are often overgrown with vegetation.

We would say that Dr. Tish Tuttle is the

leader in her field for this. She is incredibly industrious and thorough and we think that the work that she did is probably as good as could be done. However, she is limited by what is available to be seen. So the task is very difficult.

Now, the AMEK report included the paleo-earthquake, so they have already been taken into account by the seismic hazard assessment. It included the paleo-earthquakes in three ways. I'm sorry, I just need to turn to the right page.

Firstly, the paleo-earthquakes occurred at a little bit to the north of the Point Lepreau Generating Station -- sorry, the record of them. The problem is we don't know exactly where the earthquakes are, but we know where the record of them was. And on the basis of that, the geometry of the Passamaquoddy Saucer(ph), which is an important one for the shaking hazard at Point Lepreau, was adjusted. It was made a little bit further to the north to include the areas that had been shaken by the paleo-earthquakes.

Secondly, the size of the biggest earthquake in the seismic hazard assessment was adjusted so that it was bigger than the expected size of the paleo-earthquake. Now, it is quite a black art to determine from an earthquake, paleo-earthquake fingerprint

the size of the earthquake unless you have lots of records of it in many places. So, in general, you're fishing around. You don't know whether it was a very big earthquake a long way away or a very close one nearby and so there's a trade-off there.

But there was an attempt, in the Probability Seismic Hazard Assessment to at least change Mx. They basically increased Mx and said that it had to be at least this big.

The third thing was that there was an adjustment for the probability that the Oak Bay fault, which is a fairly major geological feature in Passamaquoddy Bay and thought to be perhaps the reason for a lot of the earthquakes. There was an adjustment to increase the probability of the Oak Bay fault being seismogenic.

Now, NRCan looked at Tish Tunnel's results and we accepted them on face value. We considered that they represented something like one earthquake every 3,000 years of about magnitude 6.4. We were kind of taking the middle route there.

And we basically added those three earthquakes in the last 10,000 years onto our magnitude recurrence curve for the Passamaquoddy base force.

What we did was we took the historical activity and then we matched the paleo earthquakes to it

and what we found was that the earthquakes, the way we took them, the rate of those earthquakes was just about what had been predicted ahead of time by the statistical analysis.

Now, that could be coincidental but it's at least going in the right direction. It's not as if those earthquakes were happening, shall we say, 30 times more often than we were using.

And so, on that basis, we think that the paleo earthquakes are probably just representing the expected ones that would come out of our statistical model for what would happen over, say, a 10,000 year history.

As a detail, when we actually ran the model with the paleo earthquakes, the seismic hazard in our model dropped by 15 percent, which is pretty much the noise level.

So I hope I've addressed the issue of the paleo earthquakes and the Probability Seismic Hazard Assessment.

Dr. McEwan mentioned the issue of tsunami and there is certainly -- there is a tsunami report which I have barely had a chance to look at and I was not a reviewer on but, if a large-ish earthquake, and we're talking magnitude six and a half or possibly seven on the Oak Bay fault happened underwater, it would probably generate a tsunami and it would then propagate towards

Point Lepreau.

That is one of the inputs in the Probabilistic Tsunami Hazard Assessment and I think I would leave it for other people to talk about that report. Thank you.

**THE PRESIDENT:** We see somebody from Environment Canada helping us on this but while she's setting up -- so did you -- having all this new earthquake and analysis and all that, you were still satisfied that the study, the PSA study, was a good one and I'm -- for the first time, I hear that it's all CNSC, that their ability to release it.

According to Dr. Adams, they said he's quite happy to release it if CNSC agrees. What am I missing here?

**MR. FRAPPIER:** Gerry Frappier for the record. So just to put what we just heard in perspective a little bit. So I think, as Dr. Adams said, he's satisfied that the Probabilistic Seismic Hazard Assessment, okay, so there's a few words here that are all going to sort of come together.

So this is assessing the earth, if you like, as I like to say, it was done well and included the paleo -- the new paleo information in the assessment and came out with the sort of numbers that he mentioned which

are the numbers that are used by New Brunswick Power in their analysis.

So if you -- we sort of stopped there and sort of said, okay, I guess we know what the earth is going to do now with respect to the new information that's been gathered from the study from the good professor.

Because then we'll move on from that as we go through this the way Dr. McEwan suggested.

On the particular part you're talking about with respect to information release, so the information we have is not completely under our control but we were the ones who supplied the information to NRCan to help us do our assessment.

So while technically Dr. Adams is correct that CNSC could tell them go ahead and release it, we would not be allowed to do that right now because it's not our information, either, and the party that has submitted that to us, NB Power, has, in fact, they've some confidentialities around it with respect to some of the methodologies involved in it.

So we can certainly talk about that subject if you want but perhaps we should continue with our analysis here and come back to that or, if you want, we can talk about it now.

**THE PRESIDENT:** Well, since you raise it,

I'm just not buying it -- you don't have to disclose this software in the methodology but I'm sure you can release the results so, unless there is absolute things I don't understand, I don't see how a study of earth is confidential. Ever.

**MR. FRAPPIER:** So Gerry Frappier for the record and I'll ask our friends from New Brunswick Power to talk about what has been released because I think, as you mentioned, the results themselves should be available.

**MR. PLUMMER:** Brett Plummer from NB Power. Derek Mullins will talk to what can be released and what can't.

**MR. MULLIN:** Derek Mullin for the record. NB Power has followed the guidance in Reg doc 2.4.2 in producing a PSA summary that we placed on the NB Power website. We made that publicly available.

In that PSA summary, we also included summaries of all of the external hazard assessments that we performed, the Seismic Hazard Assessment, the Tsunami Hazard Assessment, and the High Wind Hazard Assessment.

The NB Power approach has been that the PSA summary was written in a way for a typical member of the public. If there are special interest groups or anyone else who would like further detailed information, we would release those hazard assessments and we have. When they

are requested, we provide them. Thank you.

**THE PRESIDENT:** Okay. So did you get copies of the study?

**MR. ROUSE:** Yes, I did. I did not receive a copy of Dr. Adams' review of it, though. So -- there's a piece there and I think -- I don't want to be the only one looking at this stuff. I think, if it's out in the public knowledge, I think --

**THE PRESIDENT:** Deal with one fish at a time. First of all, whether you got whatever you asked for and I'm trying to understand Dr. Adams, your review, was that available? Is that a problem with you, your assessment being available?

**DR. ADAMS:** Dr. John Adams, for the record. If CNSC has no objections, I have -- NRCan has no objections, either.

**THE PRESIDENT:** CNSC staff, you are still answering. Now back to Dr. McEwan, hierarchy of issues.

**MR. FRAPPIER:** Okay. I think we --

**THE PRESIDENT:** Sorry, Ms Ali, you wanted to add something to this?

**MS ALI:** Yeah. I just wanted to let you know what we did with respect to the Probabilistic Risk Assessment. So Nardia Ali, Environment and Climate Change, Canada.

We had one of the meteorologists from our meteorological service review just the High Wind Assessment. We were generally satisfied with the models used and the methodology presented by Point Lepreau.

For the wind speeds considered, we were in agreement with the probabilities of occurrence as well as the probabilities of accident that were generated in the study.

We are in agreement with all the wind speeds Spectra presented in the study. The range of wind intervals used in the missile fragility analysis was correct. But overall we felt that Point Lepreau covered all the possible high wind scenarios for the site and we have no recommendations for any additional work at this time.

**THE PRESIDENT:** Thank you.

**MR. MCALLISTER:** President Binder, just to follow-up on Dr. McEwan, Andrew McAllister, Director of the Environmental Risk Assessment Division. CNSC staff did look at the Probabilistic Tsunami Hazard Assessment. We noted it was done by qualified consultants using the latest methodologies.

We heard Dr. Adams make mention of the Oak Bay fault in the Bay of Fundy. That was one plausible tsunamigenic mechanism that was looked at in the study as

were other zones further away from the site in the south Atlantic and stuff that could generate or potential for quite large earthquakes.

The results of that analysis indicated that the plant remained protected. When you took the tsunami generated and overlaid that on top of high tide, they weren't getting to the elevation of concern.

So CNSC staff was satisfied with the assessment that was done.

**THE PRESIDENT:** Go ahead.

**MR. FRAPPIER:** Thank you. Gerry Frappier for the record. So I think now we're sort of getting to step one of we know how the hazard is demonstrating itself and we have everybody in agreement that the assessment that was done was the correct assessment with respect to hazards.

You'll recall, in part one, we did have a presentation from New Brunswick Power that showed how these different things fit together and not that we're going to go through all that again but, again, just to remind you that the key thing we're talking about here is that they have done the extra effort that was requested by the Commission to do, a more complete and modern hazard assessment for both seismic and tsunami and wind.

And they also chose to do a seismic PSA

which is a totally accepted methodology, doesn't require any approval from the Commission, it's not change to the licensing basis. It is the method that was decided and, in fact, we would be encouraging that. We think it's a better method and that is how the international community is going.

And so, based on that assessment then, you see the results that we're talking about. The results do indicate that, from a seismic perspective, they're between the limit and the target and we are expecting them to analyze that and see what their safety improvement opportunities are.

**THE PRESIDENT:** Thank you. Doctor? Mr. Tolgyesi?

**MR. ROUSE:** I never got to respond to --

**THE PRESIDENT:** Oh, you'll get -- there's lots of time to respond. I just want to get as many questions in as possible. Mr. Tolgyesi?

**MR. TOLGYESI:** The intervenor was talking about two studies to be released publicly. One is the seismic hazard assessment. The other one was seismic margin assessment.

Where do we stand about that?

**MR. FRAPPIER:** Gerry Frappier, for the record.

So there's one study which is the seismic hazard assessment, so probabilistic seismic hazard assessment, and that's the study that just -- that Dr. Adams was just talking about where you take a look at what is the probabilities of having various seismic events. And that's where there was an independent third party using, as we've just talked about, some very high qualified people who did that.

The other one, the seismic margin assessment, an engineering assessment of the plant, which is what was used for -- by New Brunswick Power and is now being replaced by the seismic probability safety -- probabilistic safety assessment.

So I know all those words sort of come together and it's a bit of a challenge, but if you just work through the wording carefully, you'll see one's got the word "hazard" in it, so that's talking about what the hazard is, and the other one is doing the PSA but using seismic input.

And that is the results that are now being used by New Brunswick Power.

**MEMBER TOLGYESI:** It will be rendered public.

**MR. FRAPPIER:** So the results are --

**THE PRESIDENT:** We just discussed what is

going to be public.

**MR. FRAPPIER:** Yeah.

**THE PRESIDENT:** Dr. Adam will be public. The other one, the thing -- anybody who wants it can get a copy of it.

Over to you.

**MR. ROUSE:** Back to a couple of things, step back to Mr. McEwan's question about what happens if we had one of these big large earthquakes.

I'd like to point out that the 2011 hearings, Dr. Giancowski said that there would -- he was quoted as saying there would definitely be a core meltdown with an earthquake approaching the size of Fukushima. The results of this probabilistic safety hazard assessment show that an earthquake with the magnitude of one in 10,000 years or occurrence of one in 10,000 year was approximately .54 gees, which is approximately the gee level that Fukushima reactor was found, so it is on the record that it can't handle that.

There was some additional work done that moved the .54 gee down to .34, I believe, or something.

This, I -- again, I trust the hazard assessment that was done. I met Fish Tuttle. I agree with Dr. Adams about the quality and that assessment. I've no issues with that.

The risk assessment end of it and the moving from .54 to .34 was my reason for asking Dr. Kennedy's review of this. I'm not comfortable with that piece already.

I'd also like to point out from the 2011 hearings Dr. Ken Burke said that the next significant earthquake was going to be near in the Passamaquoddy Bay area. Again, with the recurrence levels of these earthquakes, it's -- we're -- I wouldn't say we're due, but we're within the realm of high possibility of the probability of another one of these going on.

There's also some talk about the replacement of the seismic margin analysis with the PSA, and that's not true. The PSA -- or the seismic margin analysis is still referenced in the licence. It's still -- still part of the licence. It's not a "this or that"; it's a "this and that".

If you look through the licence, it -- we didn't get rid of the -- they redid the seismic margin analysis, so it's still part of the licence.

You can't get rid of that unless you guys decide -- accept that. It's your responsibility.

So I'm not confident that the worst-case scenario the plant can withstand that, and so that's why I'm asking for Dr. Kennedy's review.

For him not to be able to get these documents -- he's done probably 80 percent or more of the seismic hazard assessments globally in all reactors. He's not by any means anti-nuclear or whatever.

The CNSC has used him. I have used him. NB Power has used him. I picked him because it was something -- someone that I thought everyone would be comfortable with.

And without his review and him answering my questions, I don't have confidence that the plant can withstand one of these seismic events.

**THE PRESIDENT:** You got me confused now. I thought you got a copy when you asked for it. You got all the documents that you asked for.

**MR. ROUSE:** No. No, I did not. I got --

**THE PRESIDENT:** Which --

**MR. ROUSE:** I got a copy of the hazard assessment, not the risk assessments. They were refused.

I even asked the -- Mr. -- I did not personally get them, that Mr. Kennedy sign a confidentiality agreement so there was any security issues. I was flatly refused.

**THE PRESIDENT:** Well, a detailed PSA of a plant are known to be kind of confidential document, but I thought on some aspect of them could be shared. Am I wrong

here, staff?

**MR. FRAPPIER:** Gerry Frappier, for the record.

So just to be clear on a couple of things. There's nothing in this study that -- hazard assessment study that suggests there's going to be an earthquake of the magnitude that was seen at Fukushima, so just so we don't have that anywhere.

I think what the intervenor is making reference to is the gee level, so what is the shaking that is going to be seen by the building. And the analysis done does not show that it's going to be anywhere near the shaking that was seen in Japan after the effect of the earthquake.

I think the other thing with respect to having -- and we certainly know Mr. Kennedy and, as mentioned, we've certainly used him many, many times ourselves and he's been to each one of the nuclear plants under our direction with respect to doing assessments for seismic, so there's certainly not an issue with Dr. Kennedy.

However, there is an issue with some -- the contracting process if -- because we can have a confidential arrangement with Mr. Kennedy. It's more difficult to have that through the intervenor to Mr.

Kennedy, and so there's a complexity there that would have to be dealt with.

Having said that, I think it's important to realize but the reviews have been done, and so the conclusions are the conclusions that we have come up with.

And then just before I leave, I think Mr. Jammal had wanted to add something to the conversation.

**THE PRESIDENT:** But I'm still trying to trace, who has control of the document? Is it up to Point Lepreau?

**MR. PLUMMER:** Brett Plummer, for the record.

So just to be clear, I mean, we've had the appropriate experts involved all the way along. A PSA does have security sensitive information in it, so it can't be just released to the public by law. But we have met with individuals, with experts, SMEs, subject matter experts, to sit there and try to resolve or answer some of the questions or address the concerns.

So we are also having an independent -- we've already had the reviews, but we're also having an independent third party review. We're already doing that.

So for us to sit there and -- we don't have a process by which we can have an NDA with somebody that's not under contract through an intervenor to sit

there and do an additional third party review.

As far as the aspect of between the goal and the limit, we have a PSA program document. We have a process in place to sit there and address the issue of not meeting that limit, so we have to go through. We have to analyze, as Mr. Mullin was talking about, what is the best path to sit there and regain that margin, and then we'll determine whether it's a modification, which we have to make a design change which takes time.

We'll put it into basically a cost-benefit and we'll implement the change, most likely.

So that's addressed as well.

**THE PRESIDENT:** Thank you.

Anybody else? Ms Velshi?

**MEMBER VELSHI:** So about this third party review that is under way, I must have missed it in all this material that has been sent. Is it looking at the seismic margin assessment or is it looking at the probabilistic safety assessment just for the seismic hazard?

**MR. PLUMMER:** Brett Plummer, for the record.

Derek Mullin will speak to that.

**MR. MULLIN:** Derek Mullin, for the record.

It's my understanding that the third party review is looking at the remainder of the seismic PSA work

and we presented that during Part 1.

**MEMBER VELSHI:** So refresh my memory.  
What's the remainder of the seismic PSA work?

I want to know what kind of impact is it going to have or may have on what's already presented here.

**MR. MULLIN:** Derek Mullin, for the record.  
We've already subjected the seismic hazard assessment to third party review. The seismic site response analysis, which is another piece of work, was subjected to third party review.

The remainder of the work, which includes something called low response analysis, the seismic PSA itself and the outcomes and how that work was carried out is going -- undergoing third party review as well to see if there's any improvements that we might need to make.

We're confident based on the -- you know, the comments that we received on prior work that we don't believe that that will result in any significant change to what we've already submitted.

**MR. PLUMMER:** So Brett Plummer, for the record.

Again, that work has already been done, reviewed, submitted and the CNSC has reviewed it, so we're talking about another -- a third party review.

**THE PRESIDENT:** Okay. I have one last

question here.

So let's assume -- forget about all this PSA and statistics and the doomsday scenario come here and we do have a Level 7 earthquake. What will happen to the plant?

And remember, we're not interested in saving the integrity of the plant. What we want to know, will the plant down -- be shut down after all the EME and all the improvement that were put in place.

Who can give me an answer to that?

Why don't we start with Point Lepreau?

**MR. MULLIN:** Derek Mullin, for the record.

I just want to clarify a statement that was made earlier that even though we would have in our seismic margin assessment a value of 0.35 gee as a number, that number does not represent an absolute failure point that the plant will fail there.

Remember, it is a margin assessment, and that's what we care about. So it's a value stating that the probability of a large release or core damage at that stated gee value is five percent or less.

The actual strength of the plant, which is -- there's no methodologies worldwide that I'm aware of that how do you actually estimate where that is, is much, much higher than that.

We are confident that even with a magnitude 7 earthquake that the plant can be shut down, cooled and the public will remain safe.

Thank you.

**THE PRESIDENT:** Okay. You have the final say.

**MR. ROUSE:** Chris Rouse, for the record.

Back to my request number one, there's a safety limit. It's part of the current licensing basis. It's changed. I request that you guys make the change. It's your job.

Request two, seismic hazard assessments. There's an action item from last year's meeting that this is -- these hazard assessments be made on the public. NB Power ignored you. They didn't do it. They should be made public.

Participant funding. I have a lot of issues, technical issues. I didn't get into it as much as I did in 2011. I trust Dr. Kennedy.

I would like to -- I'd like him to review this, be part of a third party review and present it at the annual public meeting.

There will be a big hazy cloud over whether Lepreau can handle this kind of earthquake without his review in the public's mind. There's been -- seismic

issues been a really big concern since day one of building the plant when Dr. -- when the lead seismic engineer resigned his position. He didn't quit his job, but he resigned his position as the lead seismic engineer.

There's a whole history, sort of history, there.

Without Dr. Kennedy's review, it'll be hazy at best.

As far as the methodology being reviewed, I haven't received that document. I did -- the other ones have been released. The PSA seismic margin is part of the current licensing basis as well as the licence renewal. It's again not a this or a that. It's a this and that. And we want that methodology to be publicly released.

This is where the safety goal limits for the seismic PSA are in. I object strongly, very strongly, to a methodology document that has a limit reference in it not being accessible to the public. That's unacceptable.

I've been trying for five years to get limits put into a Reg Doc, and I've been stonewalled a bunch of times. I can't believe that safety limits is even an issue in this hearing. It's been an issue at every hearing that I've been involved into.

This document needs to be released publicly.

And again, we didn't talk about my letter to Minister Carr.

The reporting around all of this is very serious, you know. We were told that this isn't a limit, but NB Power reported several months ago that there was a limit that might be exceeded.

I don't see how it's a limit, but they reported it anyways.

You don't need to have a nuclear expert to review reporting requirements. It's -- any kind of an auditor can go in and look at this and give us confidence that the transparency around all of these issues is being done correctly because I, personally, don't agree with what's going on.

There's limits that are exceeded and you guys are not getting all the proper information that you need to make your decisions.

In closing, I hope you will take my five requests and put them in your reasons for decision and, at the very least, if you are going to move the safety limits, take responsibility for it, please.

Thank you.

**THE PRESIDENT:** Okay. Thank you.

**MR. PLUMMER:** President Binder, could we just set the record straight on one thing?

It was implied that we ignored the Commission's recommendation with regard to releasing information on the PSA, probabilistic safety analysis. We were told to evaluate but to release results.

We did do a summary on the results and we did put that on our web page.

**THE PRESIDENT:** Okay. Thank you.

I'd like to move on to the next oral presentation by the Saint John Region Chamber of Commerce, as outlined in CMD 17-H2.79.

I understand that Mr. Duplisea -- I don't know how to pronounce it right -- will make the presentation.

Over to you, sir.

**CMD 17-H2.79**

**Oral presentation by**

**Saint John Region Chamber of Commerce (The Chamber)**

**MR. DUPLISEA:** Thank you very much.

Good evening, President Binder and Members of the Commission. My name is David Duplisea, and I am the CEO of the Saint John Region Chamber of Commerce.

I would like to begin by thanking the Commission for allowing the Chamber of Commerce and our

membership to speak at this very important hearing.

I would also like to thank all of the people in the organizations who have given their time and efforts in order to participate and share their views. We are confident in this Commission and in the processes that you have put in place to arrive at a final recommendation after considering all points of view.

We are the Saint John Region Chamber of Commerce, and we've been advocating on behalf of our membership since 1819. We are one of the first business associations or Chambers of Commerce in the whole country, and we were created through the merger of four Chambers of Commerce and business associations.

We represent close to 800 companies, with upwards of 35,000 employees, and our membership is 85 percent small to medium-sized businesses. And through our surveys, they have indicated that advocacy on topics such as this is the top reason for membership.

The sources for the data and the economic analysis that I will present today are the New Brunswick Building Trades Unions, Statistics Canada, the International Brotherhood of Electrical Workers and NB Power.

Now, although I will speak primarily on the economic impacts of the Point Lepreau nuclear

generating station on our community and our region. I would like to start, however, by commenting on the importance that the public and the business community places on the ongoing safe operations of the power plant.

Nuclear safety is paramount.

Assessments by NB Power continue to demonstrate that the plant has sufficient barriers and processes in place to protect the public and the environment as well as the workers at the plant itself. And I am quoting the NB Power presentation when I say that periodic evaluations identify opportunities for enhancements and improvements and to continue to conclude that a strong nuclear safety culture exists at the station.

Conventional safety performance remains strong. Recent achievements include six million person hours without a lost time accident, with continuing focus on improving safety.

In addition, as stated, the total radiation dose to the public over 30 years of operation is less than half of a single chest x-ray and amounts to less than one percent of the regulatory limits.

Hand in hand with the safety of the public and the workers is safety for the environment. And again, according to NB Power, the station's environmental record and performance has been reviewed numerous times either

through environmental assessments or ecological and health risk assessments.

All of these reviews concluded that the station has minimal impact.

NB Power and Point Lepreau are an integral part of our community and of our economic landscape. Approximately 800 employees work on the site full-time. These are highly technical and well-paying jobs, and many of them in high demand in the industry. And they attract workers and families to our region.

These jobs include power engineers, industrial mechanics, technicians such as electrical control, chemical and mechanical, professional engineers, administrative staff, emergency response teams such as industrial fire brigades and emergency and medical services.

The annual salary for these direct jobs is \$100 million.

Using Statistics Canada data, we can estimate that the indirect and induced job effects associated with the industry, the in-province job multiplier for this industry is 2.12, which means that every direct job is supported by the industry, there's another 1.12 jobs associated with it indirectly through the supply chain, which is the labour income spent throughout

the economy.

Again, using this methodology, we estimate that approximately 1,700 jobs are supported across New Brunswick by Point Lepreau, many of these in the Saint John region.

During planned maintenance outages, over 600 contractors join the Point Lepreau team. Various trades, including boilermakers, pipefitters, labourers and electricians work for an average of 10 weeks. This valuable employment keeps our trades employed locally and present an opportunity for apprentices to continue their training.

If Point Lepreau closed and NB Power replaced it with another form of in-province power generation, it is highly unlikely that the replacement would be anywhere near as job intensive and, therefore, would have less economic activity.

The economic health of our region and our province has been identified as a top issue for our membership. Our membership is supportive because they recognize and they understand the benefits that come to our region because of Point Lepreau.

In a region that is very hard hit by unemployment and a large portion of our workforce is forced to travel to other provinces for work, the Point Lepreau

generating station has a tremendous effect on the employment and, therefore, the economics of our region.

Our New Brunswick building trades unions represent 18 local unions with approximately 8,700 members province-wide, and that includes approximately 7,000 journeypersons and 1,700 apprentices. This economic activity contributes to government tax revenues, which support our local programs, social programs and the social safety net upon which we have come to rely.

I thank the Commission for the opportunity to speak to you today to present our members' views, and I thank NB Power. They're a very valuable member of the Chamber of Commerce.

Kathleen Duguay and all of her team at NB Power are great to work with. They're very responsive, and we fully support NB Power and Point Lepreau in their endeavours.

Thank you.

**THE PRESIDENT:** Thank you.

Questions?

Monsieur Tolgyesi?

No questions. Thank you very much.

The next presentation -- go ahead, Marc.

**MR. LEBLANC:** Yes, there's been a switch, two of the intervenors have agreed to switch places. So I

think the next one is Mr. Valardo.

**THE PRESIDENT:** So the next presentation is Mr. Valardo, as outlined in CMD 17-H2.65.

**CMD 17-H2.65**

**Oral presentation by Joseph Valardo**

**MR. VALARDO:** For the record, Joseph Valardo. Good afternoon, President Binder, Members of the Commission.

I am a Senior Safeguards Officer and a Senior Nuclear Field Accountant and the Point Lepreau Nuclear Generating Station. In this position, I am responsible for the Nuclear Safeguards program, which is directly tied to the station operating licence.

The Safeguards program is a series of controls and nuclear substance accounting activities that meet and/or exceed international non-proliferation treaty obligations, general nuclear safety control regulations, the *Integrated Safeguards Act* for Canada, and all other associated regulatory documents and nuclear treaties that Canada is a signatory to.

As outlined in the letter I submitted, I fully support a five-year licence for the Point Lepreau station. This is based on my confidence in the safeguards

in place because of my role and because of my familiarity with a commitment to safe operation by the station's management, employees and contract partners.

In my time with you today, I will speak to my own role in keeping the plant safe through the work I do as a Safeguards Officer. It is a responsibility I take very seriously in support of Canada's obligations to nuclear safety and to our community at large.

One of the many duties of my position is the track and the recording of all nuclear substances on site such as the fuel bundles we fuel the reactor with. I track and record these bundles from the moment they arrive on site to when they are placed in the reactor and, finally, to their short and long-term storage positions.

Meticulously accurate records are kept, recording all nuclear material down to the microgram. These records are subject to inspection by the CNSC and the International Atomic Energy Agency at anytime. They must be accurate and beyond reproach.

I'm proud to say we have never received a failing grade in any of our regulatory inspections for safeguards at Point Lepreau.

My background has well prepared me for this position. I was originally hired for a particular expertise and skill set such as when training in the

military, in the nuclear security, and nuclear response force at Lepreau, and the high-level radiation protection training at Point Lepreau have all led to my present role as Senior Safeguards Officer.

I have also been fortunate to have been involved in the development and implementation of several regulatory documents that govern safeguards in Canada: RD-336, for example; the *Integrated Safeguards Act* for Canada; and present, Regulatory Document 2.13.1 the Safeguards and Nuclear Material Accountancy.

Working with the CNSC and the IAEA and the rest of the industry to develop these regulations in order to ensure the nuclear program in Canada is the safest in the world.

We also have a succession planning and mentorship program that we have developed. So in addition to the various levels of safeguards reporting and recording, we at Point Lepreau have developed this training program for safeguards back-up, it's for the times I may be away from the station, Defence in Depth.

The program I have developed and oversee goes into deep detail in all areas of study regarding safeguards activities and responsibilities, and also includes components that familiarize one with the duties and responsibilities to fuel the reactor itself. This

program has been evaluated and approved by the CNSC for training future Safeguards Officers.

The CNSC and the IAEA have a stringent inspection and oversight program in place to validate documentation and reporting processes for safeguards. I'm required to provide a variety of reports that include monthly fissionable and fertile substance reports, weekly reports on movements of spent fuel, annual and quarterly operational program reports, and any other informational reports requested by the CNSC or the IAEA.

We are subject to numerous types of inspections by the CNSC and the IAEA as well. I must be prepared at all times for an unannounced inspection, short-notice random inspections, complimentary inspections, design information inspections, and any others.

As I've stated before, Point Lepreau has always passed its inspections with accommodation for compliance and management of records.

Thank you.

**THE PRESIDENT:** Thank you. Questions?

**MEMBER MCEWAN:** Thank you for your presentation. So you're obviously part of a complex program. This is not I'm sure as simple as you said, keeping record of things. I mean, how big a team do you work with and how much time is taken in the verification

and the documentation and in the subsequent reporting?

**MR. VALARDO:** Joseph Valardo, for the record.

My team -- primarily, I am the team for Safeguards, but I do work with every other department on site to gather the information I require. I work very closely with the Fuel Handling Department, in particular, as they are responsible for the fuelling of the reactor. All my documentation is gathered through, as I said, from the moment we receive fuel on site I begin recording data on the initial weights and elements associated with the fuel bundles.

When they are fuelled, I have a specialized program, it's called an SPT accounting program, and the Fuel Handling Department uses it, records all serial numbers of all the bundles so we know where they're at at all times; in position in the core, when they're ejected. So there's not a part of my day that we're not recording or verifying fuel or any other elements associated to that position.

**THE PRESIDENT:** Very quickly. So you're the guardian of the good relationship with the IAEA, is that correct? Is it done electronically?

**MR. VALARDO:** Joseph Valardo, for the record.

No, I am the boots on the ground in the relationship with the IEA, and I'm proud to say we have a very close relationship and a very good relationship with them, I'm very well-known to them.

**THE PRESIDENT:** But have you now gone online, electronically, so you can collect the data and push a button to us and them?

**MR. VALARDO:** I assume you're referring to the NMAR program?

**THE PRESIDENT:** Yeah.

**MR. VALARDO:** We have not gone there yet, as we're still dealing with the new regulatory document governing that.

**THE PRESIDENT:** Oh, you guys are supposed to be high-tech organization.

--- Laughter / Rires

**THE PRESIDENT:** Collecting data manually is not a good image.

**MR. VALARDO:** Excuse me, sir. My data is collected electronically, it's not pushed to you with your system yet. I use encryption --

**THE PRESIDENT:** It's CNSC's fault?

--- Laughter / Rires

**MR. VALARDO:** I'm not blaming anybody. There is no blame to be put on anyone.

**THE PRESIDENT:** Okay. Thank you for the presentation.

So the next presentation is an oral presentation by Black & McDonald Limited as outlined in CMD 17-H2.63. I understand that Mr. Arseneault will make the presentation. Please proceed.

**CMD 17-H2.63**

**Oral presentation by Black & McDonald Limited**

**MR. ARSENEAULT:** Thank you. My name is Marcel Arseneault, I'm a Project Manager for Black & McDonald, I've done work over the years at the station since 2001, on and off, on various capital projects and also through refurbishment. Today I'm speaking on my behalf and Black & McDonald's behalf.

About Black & McDonald. So Black & McDonald operates across Canada and the United States. The company has over 5,500 employees working out of a network of 25 Canadian offices. I'd like to add, out of those 5,500 employees we have 700 who work in the nuclear industry.

For the past nine years Black & McDonald have been proud to be a supplier of products and services for the Point Lepreau Nuclear Generating Station. Black & McDonald strives to be a good corporate citizen and to be a

good neighbour through our community responsibility program with widespread employee participation from our offices in New Brunswick, Moncton and Bathurst.

Black & McDonald's vision and mission for the nuclear service. Our vision is to be the leading construction and maintenance contractor delivering safe and flawless execution for the Canadian nuclear industry. Our mission is to deliver flawless efficient services to ensure nuclear clients success in a value-guided dynamic environment where the safety, people, facilities, and protection of the environment take precedence over all other business metrics.

Some of the services that we've provided at Point Lepreau in the past include upgrade and refurbishment of pressure boundary systems and related work, installation of main control room heating and ventilation systems, removal and replacement of RSW and RCW piping and valves. One of our last projects at the station was refurbishment of the PA system, the installation of a new PA system.

Safety. Black & McDonald employees and managers have made safety our utmost priority. The program continues to evolve every and has produced a safety culture where all workers live the program through their daily tasks where nobody gets hurt today or tomorrow. We have

over 15 million hours that we've worked since our last lost time injury in 2001.

Our focus on injury and event prevention using industry standard prevention methods. We benchmark and adopt best practices from nuclear operations, from refineries, mineral processing, the oil and gas industry. Our safety program has been recognized and accredited by Certificate of Recognition (COR) since 1994.

Quality. Black & McDonald implements a rigorous quality program in our work to meet nuclear industry standards and our customers' specifications. Black & McDonald's first quality program was established in 1978 to satisfy Ontario Hydro requirements. Since the initial establishment of our quality program, its matured significantly and now meets industry codes and standards that include CSA N286-05/-12, CSA Z299.1, CSA N285.0, and the ASME codes as well.

Black & McDonald hold various certificates of authorization for pressure boundary work and non-nuclear and nuclear applications. Our quality programs have been accepted by all nuclear utilities in Canada.

Quality is a cornerstone of our business and we strive to continuously improve the effectiveness of our program to meet our customers' needs.

Oversight. Our customer, NB Power, hold

themselves and their suppliers accountable to the highest standards of safety and quality. NB Power oversees our safety quality programs through observation, verification, monitoring and auditing of our performance. NB Power participates in proactive safety measures which include site training, mentoring and identification of best practices.

In addition, Black & McDonald has a Nuclear Safety Review Board which conducts independent assessments of our performance and reports directly to senior management.

In conclusion, Point Lepreau provides significant benefit to our employees, the community, the Province of New Brunswick, and to Canada with safe and reliable electricity generation, protection of people and the environment, support for local communities and contribution to the provincial economy.

Black & McDonald supports the continued operation of the Point Lepreau Nuclear Generating Station and recommends that the Canadian Nuclear Safety Commission renew their operating licence to June 2022. Thank you.

**THE PRESIDENT:** Thank you. Questions? Ms Velshi.

**MEMBER VELSHI:** On slide 5 on your safety program where you talk about certification by national

standard, COR --

**MR. ARSENEAULT:** Yes?

**MEMBER VELSHI:** -- tell me a bit more.

I've never heard of them. Is this a Canadian organization?

**MR. ARSENEAULT:** Well it's, again, because of the fluidity between provinces, we have workers that move from province to province, this system has been put in place to try to standardize a lot of the training and the qualifications. So when you have this type of qualification, it allows you to not to go for requalification every time you're moving from one province to the next.

So I don't know when the COR system actually was created, but it's relatively new, to my understanding, because it's not something that we hear about very often. Within the last few years it's something that we see.

**MEMBER VELSHI:** Maybe I'll ask Point Lepreau. When your contractors come on site, do you expect a certified safety program that they have or do you review their safety program?

**MR. PLUMMER:** Brett Plummer, for the record.

When contractors come on site, we make a determination whether they work to their safety program or

ours. But we do an evaluation to determine if it's comparable. To be honest, I mean, I didn't know that Black & McDonald had 15.2 million hours without a lost time accident. If anything, I think maybe we can learn something from them. So I'm definitely going to go send somebody to benchmark and take a look at what they're doing.

**MEMBER VELSHI:** My second comment to you, again it's on slide 7 that you have a Nuclear Safety Review Board. I mean, I've heard of nuclear power plants having that. I wasn't aware of any other contractors having that. So is this, again, a common practice in industry?

**MR. ARSENEAULT:** Not to my knowledge. This is in Ontario, we've established this in Ontario. Again, we're trying to raise the bar and safety for us, for Black & McDonald, and I think all of our customers, it's highest priority. So this is a good method to communicate and just be better in that particular area.

If I can comment on your question to NB Power, NB CSA, which is a requirement for us to do some work at the station, is part of this COR certification. So this is in New Brunswick, we do have the New Brunswick Construction Association, you can have COR certification.

**THE PRESIDENT:** Questions?

**MEMBER TOLGYESI:** You were mentioning that your quality programs are well-accepted at all nuclear

utilities in Canada. Which other nuclear utility sites are you present?

**MR. ARSENEAULT:** Currently, when I mentioned that we have 700 workers in the nuclear industry, we're currently in Pickering and Darlington, both of those sites. So we're providing maintenance services and also some project work there.

**MEMBER TOLGYESI:** In the United States?

**MR. ARSENEAULT:** We do not, to my knowledge, unless something recent has occurred, we are not doing any business in the nuclear industry in the United States.

**THE PRESIDENT:** Okay, thank you. Thank you very much.

At this time we're going to take a 10-minute break.

--- Upon recessing at 6:06 p.m. /

Suspension à 18 h 06

--- Upon resuming at 6:19 p.m. /

Reprise à 18 h 19

**THE PRESIDENT:** Okay, we're back. I think we're into the home stretch, as they say.

The next presentation is an oral

presentation by Mr. McKay, as outlined in CMD 17-H2.61.

Where is Mr. McKay?

**CMD 17-H2.61**

**Oral presentation by Jason McKay**

**MR. MCKAY:** Good evening, Mr. President and Commission Members.

For the record, my name is Jason McKay. I'm a mechanical maintenance trainer at Point Lepreau and I'm also a member of the Performance Committee and Standards Committee.

I submitted a letter to the Commission in support of a five-year licence for Lepreau.

Today I would like to expand on the reasons for this support and share with you my own journey at Point Lepreau. As well, I will share what I have seen my co-workers accomplish in their professional development skills and human performance at the station.

I started at Lepreau almost ten years ago as a student in the mechanical technician program. As I noted in my letter, from the first summer I came to Lepreau I felt the very strong connection to the values and the culture of the station. I enjoyed the strong focus on safety and the clean and welcoming environment I found at

work.

Over the years I have come to understand my own experience is not unique. When you provide people an environment with the knowledge and tools to work safely, they embrace that opportunity and perform beyond what they thought to be possible.

When you perform beyond your own expectations, it is exciting. It instills a sense of pride and confidence. It builds self-esteem, pride in work and ultimately it builds a better nuclear safety program.

What I have also seen is how it fosters a sense camaraderie between employees at the plant and with our contract partners.

We have recently been in a maintenance outage at the plant. For those of you who know the plant environment, an outage is a period of intense work focus and also a time where teams of people come together to achieve a common purpose.

As a trainer, what I have observed in the past weeks has made me proud of the women and men who I have worked with through their training period. Behaviours I have observed are group pre-job briefs done with quality and detail, people focusing on safety, effective communications, staff and contract employees helping one another and coaching to high standards.

The people I train are mechanical maintainers. These are skilled workers who bring expertise to the jobs they perform, and in training we strengthen the technical skills and teach the human performance tools that can be integrated into every job that is part of our daily business.

The integration of human performance in the work training is consistent through all departments, from facilities to mechanical, ERT to engineering, electrical to operations. Every employee contributes to the safety and every employee can benefit from human performance.

When I close off a job, it is in my human performance tools such as the validation of instruction, the peer checks, the supervisory oversight and others that give me comfort because I know the next person to touch the equipment is going to be safe in doing so.

This is peace of mind and contributes significantly to my job satisfaction.

The pride I felt watching my colleagues during the outage is directly related to my own convictions around the value of human performance.

My passion for the subject has become well-known within the station through my role in training, as well as my work on the Human Performance Committee and

on the Standards Committee.

Recently I was offered the position of Human Performance Manager. It was a great honour to be recognized for my work in this way.

However, after long consideration I declined the role to remain in the mechanical maintenance group. My decision was based on a desire to continue to play a grassroots role in working directly with maintainers in a way that integrates technical expertise with human performance knowledge.

I feel I am making a valuable contribution to Point Lepreau's mission to excellence in my work.

Before I conclude, I would like to speak a bit about our supplemental staff.

In addition to training Point Lepreau employees, I also train supplemental staff to work at the site. This means ensuring they understand the expectations and the reasons behind those expectations.

We want everyone to leave their shift safely at the end of the day. We want to protect our co-workers and we know we must ensure environmental and public safety.

We do this because we care about each other, our community and the people of New Brunswick who we serve with safe and clean electricity generation.

When contractors join the station, their past experience may not be consistent with the expectations and values we hold so strongly in our culture at Point Lepreau.

One of the most rewarding things I hear in my work is when a supplemental staff member saying the station is the safest place they have ever worked and how happy they are to be part of this workplace environment.

Even more impactful is when I observe supplemental staff taking the time to coach or mentor one of the other supplemental staff members and that person saying thank you. They appreciate the advice and they take the correct action upon the advice.

One day not long ago I overheard a contractor reminding a co-worker to hold the handrail on the stairs. When people think of safety in a nuclear plant this may not be what they think of. Yet safe behaviours in parking lots and on stairs reflects the mentality and culture that crosses over to the work itself.

At Lepreau we are all partners in safety. It is our top priority and it is top of mind.

I am grateful to have a job that pays well, that contributes to society and allows me to continually learn and help others to learn as well every day.

These are just some of the reasons why I am a strong supporter of a five-year licence renewal for Point Lepreau.

Thank you for your time.

**THE PRESIDENT:** Thank you.

Comments? Questions?

Dr. McEwan.

**MEMBER MCEWAN:** Thank you.

How did you make the shift to building what was effectively a new career, training in the broader area of human performance? What training did you have to do? What educational opportunities did you get, did you have to grasp, did you have to go out and look for?

MR. MCKAY: It wasn't something I had to go out and look for. As far as training opportunities for enlightenment with regard to human performance, it was something I was very interested in myself. It was something I had a tendency to pursue and it kind of came towards me as well.

It was a way that we wanted to do business. It's something that I have a tendency to own myself. It's in my natural way of doing work.

When given the opportunity to start providing that training, that mentorship to other individuals, it was a wonderful experience for me. It was

something that I really looked forward to.

**MEMBER MCEWAN:** Is there a formal skillset or formal training requirement that you have to do as you sort of progress up?

Obviously is you were offered the manager's position, you have a reputation that you're pretty good at what you do.

**MR. MCKAY:** So human performance is an ever-evolving thing. It's not something that you have a full comprehension of every possible aspect of how to integrate performance into work.

We constantly strive to do better. We constantly strive to have a deeper comprehension.

The human performance tools themselves are something that I've held very dear. It's something that when they were exposed to me, just upon initial exposure, that I saw a lot of value in; that I wanted to pursue myself to a much greater extent.

When I would complete a job, utilizing human performance tools, utilizing good procedural place-keeping, utilizing good verification, validation, concurrent and independent peer checks in appropriate ways, it gave me a strong sense of satisfaction and confidence that the job I had executed was done properly.

I have wanted other people to experience

that same feeling. I want other people to have that same confidence in the work that they execute.

That's where my advocacy comes from.

That's where my passion comes from. I want other people to leave at the end of the day with that same sort of conviction, understanding that I've done what I need to do today and I have done the right thing.

I hope that answers your question.

**MR. PLUMMER:** Brett Plummer, for the record.

Maybe I could add a little bit to the context.

On the aspect of human performance, when the site was putting a focus on that to improve human performance, we had contractors come in with specialized training program in human performance to train the staff and train the trainers. And then we picked it up and now we do the training on human performance. And we also have dynamic learning activities to reinforce human performance.

When it comes to whether somebody takes a leadership role in the station, there's all kinds of management development courses actually run through corporate.

We also have a leadership boot camp on site and we have a succession plan.

So there's all kinds of processes for employees to make sure somebody is ready to step up.

**THE PRESIDENT:** So you've been training. So where do you see the next five years the kind of training that will be most effective or appropriate for the new generation that we heard are being massively recruited.

**MR. MCKAY:** So over the next five years, I can see us continually developing the program, integrating the human performance training into everyday activities.

If we can make it practical, if we can make it easy for people to recognize how to integrate human performance into the day-to-day activities, making those regular tools the same as any tool that they would use in the field -- the hammer, screwdriver and verification.

If we can make that natural for them and if we can integrate into good training programs, good hands-on training programs that allow individuals to get out and execute training in the same manner that we work, we work in the same manner that we train, that's where I would like to see us continue to go in the next five years.

We are continuously improving. We are continuously putting more effort into our training programs. We want to be the best and we will be the best.

**THE PRESIDENT:** Okay, thank you.

**MR. MCKAY:** Thank you very much.

**THE PRESIDENT:** So we've done this.

The next submission is an oral presentation by the Centre for Nuclear Energy Research, as outlined in CMD 17-H2.40.

I understand that Dr. Cook will make the presentation. Over to you.

**CMD 17-H2.40**

**Oral presentation by**

**Centre for Nuclear Energy Research**

**DR. COOK:** Yes. Thank you very much, Mr. President.

For the record, my name is William Cook and I'm very pleased to offer this intervention in support of the licence renewal for Point Lepreau for the next five years on behalf of the Centre for Nuclear Energy Research, which is a research institute at the University of New Brunswick, on the Fredericton Campus.

While really issuing this intervention for CNER, I can also speak to the value and the necessity of continued operation for the Point Lepreau Generating Station from the perspective of an engineering professor and the Department of Chemical Engineering also at the University of New Brunswick.

For well over a decade now I've taught under-graduate and graduate students in the chemical engineering program, things such as: chemistry in corrosion of power plant systems, both nuclear and fossil; energy in the environment, focusing on sustainable energy technologies, low carbon energy emitters and production; nuclear engineering, as well as engineering design.

All of these educational experiences, electricity production from nuclear power is seen as highly needed and highly beneficial. And it's a necessary component for the provinces, the countries and the world's energy mix.

So Point Lepreau from this aspect provides more value to New Brunswick than just the electricity it puts onto the grid, about 30 per cent or so of the province's electrical capacity.

It's also, as we've heard, a valuable community stakeholder, employing at times over 800 employees or bringing in contractors at other times, many of whom have graduated from New Brunswick universities, community colleges and other things.

Personally I've visited the station on numerous occasions and have run into former students who are now fully employed as engineers or process system engineers directly at the plant. And it's very rewarding

to see those students pursuing their career, which is one of the real value-added aspects of keeping Point Lepreau in operation, providing high tech, well paid quality jobs for New Brunswick residents and graduates of our universities.

So not only do we have employment opportunities for New Brunswickers and UNB graduates, Point Lepreau provides significant research and development opportunities as well for New Brunswick companies as well as the New Brunswick universities.

CNER and other departments at UNB, we've collaborated with NB Power and the Point Lepreau Nuclear Generating Station on numerous R&D projects over the years.

In 2006 we partnered on a successful installation of a unique one-of-a-kind corrosion monitor to assess the feeder pipe corrosion. This was developed, constructed, designed and deployed in collaboration with CNER, the Research Productivity Council and New Brunswick; completely home-grown technology deployed for the benefit of Point Lepreau and the nuclear industry in Canada and abroad.

We are currently commercializing this type of technology and taking this to the broader community.

Other interactions between UNB, CNER and Point Lepreau include R&D collaborations surrounding other process systems within the overall reactor system itself,

activities surrounding station chemistry, control and corrosion protection, as well as engaging senior undergraduate design reports and projects which are full gear design projects these students undertake as part of their engineering curriculum.

We partner with Point Lepreau to provide ideas for these projects, and the students come back and give paper-based solutions, another valuable aspect for interactions.

Point Lepreau provides more than just electricity for the grid. Through all these interactions with the station and UNB, young minds are opened to opportunities and job prospects within the nuclear sector, as well as staying in New Brunswick, as opposed to being shipped off to other locations.

Research and development opportunities may flourish for local universities and local companies. Home-grown technology can be commercialized and deployed, and Point Lepreau is a very valuable asset which I fully support and CNER fully supports the licence extension for the next five years.

Thank you for your time and hearing this intervention.

**THE PRESIDENT:** Thank you.

Questions? M. Tolgyesi...?

**MEMBER TOLGYESI:** You are teaching at the university. Tell me, what's the perception of nuclear energy and nuclear industry in the university community, especially between students besides to be lucky in having research grants from the nuclear industry?

**DR. COOK:** It's a really good question, and generally in the engineering program, and this surprises me every time I start teaching a class which has a nuclear component to it, students are not very up to speed or aware of exactly what nuclear technology is. So, quite often it is a first indication and a first education for them in how a nuclear power plant, or even a general power plant actually works.

So, misconceptions are easily guided towards scientific fact and reality and students see the benefit of nuclear technology, but there is a shift in the early days because they come in quite unaware of how things work.

**THE PRESIDENT:** So, did you ever -- we spoke about this -- did you ever consider going to the Ministry of Education because it starts at the high school level and if they know it's one of the requirements to get into the engineering program, at least know where the power is coming from.

**DR. COOK:** Yeah, I agree fully and we do

assume that there is a basic knowledge of electricity production and generation, but it seems to be, and students coming to University of New Brunswick anyway, there is a bit of lack of knowledge onto how the nuclear plant, in particular, actually works.

**MEMBER TOLGYESI:** Just to complement. Does it apply also to the teaching staff at the university level?

**DR. COOK:** At one time at UNB there was a fairly large contingent of teaching faculty that had backgrounds in nuclear science or nuclear engineering.

Over the years that has been whittled down to some degree due to retirements and professors moving to new jobs and to new locations, but overall, I think there is a keen awareness of nuclear power and how it plays an important role through the teaching faculty.

So, there is support, although there are not a large number of teaching faculty within this particular area.

**THE PRESIDENT:** Ms Velshi?

**MEMBER VELSHI:** Do you do any work with COG on any of the research projects?

**DR. COOK:** With who?

**MEMBER VELSHI:** CANDU Owners Group.

**DR. COOK:** CANDU Owners Group. Yes, I am

integrated with COG and we do collaborative research through mostly the government funding agencies and the CANDU Owners Group as well. So, yes.

**THE PRESIDENT:** So, explain to me -- so again, I'm trying to -- I read your, this HEPro stuff that is now -- you're trying to commercialize globally, but what does it really do in measuring and monitoring corrosion rate.

So, could it tell us a little bit about the life of the tubes, things like this, at aging facilities?

**DR. COOK:** Well, yes. This has to do with plant aging and one of the things that the refurbishment actually aimed at providing significant benefit for.

Back 15 years ago, or so, Point Lepreau was identified with having a feeder thinning issue on their outlet feeder pipes and a lot of R&D had gone into evaluating what the mechanisms were for that and how to mitigate it.

The HEPro Tool was actually one of these devices which came out of that R&D which allowed Point Lepreau, and those of us that were monitoring the technology, to evaluate in real time in-situ what the corrosion rate of those feeder pipes were.

I can say right now, after the

refurbishment outage and the material has been somewhat upgraded for those feeder pipes, the feeder thinning has been decreased significantly as was expected through all those R&D programs that were undertaken over the past decade or more.

So, it's an online tool, an online device which provides direct value for the station.

**THE PRESIDENT:** So, it would be applicable to all aging plants, not only CANDU types or...?

**DR. COOK:** To some degree, yes, and this is part of our commercialization and marketing strategy.

**THE PRESIDENT:** Okay, thank you.

Thank you very much.

**DR. COOK:** Thank you.

**THE PRESIDENT:** The next presentation is from Mr. Sedran from RESD Inc. as outlined in CMD 17-H2.96. And I understand he's joining us via teleconference.

Mr. Sedran, can you hear us?

**MR. SEDRAN:** Good afternoon. I'm here.

**THE PRESIDENT:** Okay. Please proceed.

**CMD 17-H2.96**

**Oral Presentation by RESD Inc.**

**MR. SEDRAN:** Very good. Okay.

So, for the record, my name is Paul Sedran. I'm an independent consultant to the industry specializing in fuel channel fitness-for-service and I've been working with Point Lepreau staff in different capacities since 1990.

So, I want to thank the CNSC for the opportunity to present this afternoon. And it's getting late, so I plan to keep the presentation to about 10 minutes, considering that I already have provided a written summary to the Board.

So, my topic is the structural integrity or fitness-for-service of the Point Lepreau fuel channels which are critical to reactor safety.

So, I've broken the presentation into three parts. The first is the main point, or conclusion of the presentation; then I'll provide some of the background that led to the conclusion; and, lastly, I'll state the impact of my findings on the hearing.

So, the main point to my presentation is that over the years I have made some observations that indicate that the first set of Point Lepreau fuel channels were more robust than determined in the official fuel channel assessment and I think this should apply to the new fuel channels as well.

So, this appears to be due to some small

differences which I've called unrealized effects between the actual fuel channel and the various fuel channel models. Therefore, based on these findings, the overall safety of the reactor is suspected to be greater than determined in the current reactor safety assessment.

So, the background is as follows:

I started working on fuel channels in 1989 at ACL and I contributed to the pressure tube fitness-for-service guidelines which were presented to the CNSC in 1991.

So, for the next 15 years I worked on fuel channel issues for all CANDU stations with emphasis on Point Lepreau fuel channels. I got to know Point Lepreau very well and worked closely with NB Power nuclear staff.

In 2004 I left ACL to work as a consultant and NB Power contracted me to perform most of the assessments required for them to operate the shutdown for refurbishment. So, for these contracts I was given access to new raw inspection data and plenty of time to examine the data, which I did not have in my previous employment.

So, I found some new information and new trends and these are covered under Item 1 in the write-up that I provided to the Board.

In the write-up, I refer to the new information as unrealized effects. So, these are that the

lateral stiffness measured for the fuel channel is higher than predicted, that the calandria tube has higher ovality than predicted and that the pressure tube sag rate, this is the sag rate of the pressure tube between the spacer location, is non-linear and is decreasing with time, as this is shown in Reference 1 for the write-up which I provided. Reference 1 is a paper which I wrote for the CNSC in 2015.

Therefore, it is expected that should these effects be included in the fuel channel sag deformation model, the current predictions of the time for pressure tube to calandria tube contact for Point Lepreau would be improved. So, that would actually increase the lifetime of the fuel channel.

So, in addition, I've identified three other unrealized effects that relate to the formation of blisters in the pressure tube to the initiation of cracks in the pressure tube and also related to deterministic and probabilistic leak-before-break model for the pressure tube.

So, I'm just going to paraphrase -- for these three items, I'm just going to paraphrase from the write-up that I provided.

So, for blister formation. In the current model it is assumed that the blister will crack upon

reaching a critical size and this is equated to pressure tube rupture. The assumption is based on the rupture of the pressure tube in lattice site G16 in Pickering Unit 2 in 1983. For other cases of predicted contact, it can be demonstrated that the cracked blister can remain stable and grow through the wall without a spontaneous pressure tube rupture. So, this scenario provides for the possibility of shutting down and cooling down the reactor without a pressure tube rupture should a critical blister form. Therefore, it is expected that the actual pressure tube rupture frequency for Point Lepreau will be lower than that predicted with the current model. So this, again, is a possible improvement.

For cracking initiation, the model that's used is the process zone model for DHC initiation at blunt flaws in the pressure tube and this model is well regarded, but it appears that the actual predicted frequencies using this model overestimates the actual frequencies of crack initiation as inferred from reactor operating history.

Now, it is possible that the test conditions and the test matrices used to develop the model were too severe to simulate in-reactor condition and this led to an exaggerated overestimation of the frequencies of crack initiation. Therefore, again, the actual frequency of cracking initiation in the Point Lepreau reactor is

expected to be lower than that predicted with the current model.

And lastly, for probabilistic and deterministic leak-before-breaks, a leak-before-break is a vital defence-in-depth strategy for the prevention of tube rupture.

In the current deterministic and probabilistic models, the leaking pressure tube incident is assumed to start with a crack penetration while the reactor is at full power conditions. As indicated in Reference 2, which is Reference 2 in the information -- written information I've provided, it is more likely that crack penetration would occur during a reactor shutdown or cooldown than at full power conditions.

Leak-Before-Break is more readily achievable should crack penetration occur during a shutdown or cooldown rather than at full power conditions. Therefore, the actual probability of pressure tube rupture in the Point Lepreau reactor is expected to be lower than that predicted with the current model, which assumes -- always assumes crack penetration at full power conditions.

So in conclusion, the refinements to the various fuel channel models to include the unrealized effects will produce improved predictions for: (a) time-to-pressure tube-to-calandria tube contact; (b) the

frequency of crack initiation in the pressure tubes, and (c) the frequencies of pressure tube rupture due to blister and through-wall crack growth in the pressure tubes, which essentially means that the Point Lepreau fuel channels are more robust than indicated by the current fitness-for-service assessments produced by the industry.

Okay. Now we're onto the last part, which is a statement of the impacts.

So these findings will actually have little impact on the licence extension of Point Lepreau since the fuel channels are already considered to be fit for service, so no further improvement is required.

However, the CNSC might benefit from knowing that the fuel channels are actually more robust than determined using the current fuel channel models. And the main impact of this submission might be that it could provide Point Lepreau with a future strategy for dealing with a marginal fuel channel. In the future, if the integrity of a pressure tube is at risk, the tube could be reassessed with a modified fuel channel model that accounts for the unrealized effects that I've told you about here.

Thank you. I think I'm done.

**THE PRESIDENT:** Thank you.

Who wants to go first?

Ms Velshi.

**MEMBER VELSHI:** Thank you for the presentation. I guess this is good news for the industry.

We had someone from CANDU Owners Group yesterday saying that, in fact, their priority project was around fuel channels or where the bulk of their effort was, so are they using this information and refining the model? And then I'll ask the staff to comment on it as well.

**MR. SEDRAN:** Okay. These models were developed -- or these observations were developed under a private contract, I guess, between myself and Hydro Quebec, and also New Brunswick Power Nuclear, so I have tried to let people know what my findings were by writing papers.

So they -- if they've read the papers, they have some idea of what I'm proposing. If they haven't read the papers, then they don't know.

Unfortunately, this work was all done outside the work -- any work done for COG, so there have been -- to my knowledge, there hasn't been any wide publication of these results.

**MEMBER VELSHI:** Thank you.

Staff, were you aware of this?

**MR. FRAPPIER:** Gerry Frappier, for the record.

So the -- as you mentioned, research in the fuel channels is a very important topic for industry,

but it is industry led and we're following closely and understanding what they are doing and where they are putting their emphasis.

Somebody from New Brunswick Power might want to talk about this specific case, but perhaps while they're setting it up I could ask Dr. John Jin, who's back in Ottawa, to comment whether you're aware of the findings or the papers that are being discussed here.

**DR. JIN:** John Jin, for the record. I'm the Director of the Engineering Assessment Division at the CNSC.

Yes, we are aware of the intervention. He mentioned several technical aspects.

If it is about the engineering assessment and the (indiscernible) variation of the pressure tubes, then I appreciate the intervenor's presentation providing his opinion, but if it's the position of the specialist that the CNSC who wants to make sure that there is enough safety margins or conservatism involved in the engineering assessment, so that (indiscernible) or consider based on the consideration of the importance of the --

**THE PRESIDENT:** Can you either get closer -- I don't know what device you're using, but we can't make out what you're saying.

**DR. JIN:** Okay. Can you hear me clearly?

**THE PRESIDENT:** We can hear you, but it's -- you know, it's -- are you using a wireless device?

**DR. JIN:** No, I am using the online, so let me repeat. I'm closer to the mic.

**THE PRESIDENT:** Go ahead. Try it out.

**DR. JIN:** So this is about the engineering (inaudible - feedback) assessment of the pressure tubes. And I appreciate the intervenor's presentation providing an expert opinion. However, our technical specialists at the CNSC are very aware of this subject and very familiar with because their subject are the ongoing long-standing subject for technical debating between technical specialists at the CNSC and the industry experts.

We want to make sure that the engineering assessments for pressure tube (indiscernible) should have enough safety margin (indiscernible) and to consider the importance of the components.

We are talking about the pressure tubes (indiscernible) primary pressure boundaries and, at the same time, containing the fuel and supporting that (indiscernible), so we weren't a hundred percent sure that the engineering methodology used for the evaluation should be validated and (indiscernible).

So (indiscernible) information or correcting initiation probabilistic, all those things our

specialists take the conservative position and they are requesting more, more evidence demonstrating that those arguments are valid and supported by experiments or operating experience. (indiscernible) technical specialists (indiscernible) but we will be content to review (indiscernible) supported by strong evidence.

**MR. FRAPPIER:** I think John's conclusion is probably the key statement here.

We're aware of it, we're tracking it, but given the importance of pressure tubes, we're going to be very conservative. And I would add that it would be more up to industry to bring it forward as being an improvement to their modelling if they found that was appropriate and whether they felt they had enough scientific data to support it.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** So Point Lepreau, you want to add something to that?

**MR. PLUMMER:** Brett Plummer, for the record.

I'll just mention, I mean, as you can tell, the present fuel channel model is conservative, so we're always -- we're always constantly re-looking at our safety analysis, including fuel channel analysis.

So it's always good to know that there's

options out there and, again, we have a 10-year plan going forward looking at our safety analysis, but when we change an analysis, as was mentioned by the staff, it'll go through the appropriate rigour and through the CNSC for approval.

So it's good to know that it's out there but, as mentioned, the present model is conservative and safe.

**THE PRESIDENT:** Question?

Dr. McEwan?

**MEMBER MCEWAN:** So this is purely modeled. There's no experimental data supporting it.

**MR. PLUMMER:** Brett Plummer, for the record.

I don't know the answer to that question.

**MEMBER MCEWAN:** Mr. Sedran, this is just a model. You have no experimental data. Is that right?

**MR. SEDRAN:** No. The -- we have a series from Part 1, which is the information, are observed phenomena within each section data, so essentially, what we -- what I've found is that section data is showing trends which are not captured in the existing models.

**MEMBER MCEWAN:** Thank you.

**THE PRESIDENT:** Questions? No?

Thank you very much for this intervention.

I did forget to give you the last word.  
Do you want to add any last thought?

**MR. SEDRAN:** It's fine. I've heard the comments. I'm well aware of what the research setup is and I thought that I would just point out some good news for CNSC and for the industry if they wanted to pursue that further.

**THE PRESIDENT:** Okay. Look, you're breaking up on us. We can't make out what you're saying. But thank you anyhow.

**MR. SEDRAN:** Okay. Very good. Thank you.

**THE PRESIDENT:** Thank you.

So this brings us to the close of the hearing for today. The hearing will resume tomorrow morning at 9 o'clock.

Thank you for your participation, and we'll see you tomorrow.

--- Whereupon the hearing adjourned at 7:00 p.m., to resume on Thursday, May 11, 2017 at 9:00 a.m.. /  
L'audience est ajournée à 19 h 00 pour reprendre le jeudi 11 mai 2017 à 9 h 00