

**Canadian Nuclear  
Safety Commission**

**Commission canadienne de  
sûreté nucléaire**

**Public hearing**

**Audience publique**

**May 12<sup>th</sup>, 2022**

**Le 12 mai 2022**

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39 King St.  
Saint John, New Brunswick

Hôtel Delta Saint John  
Salles de bal A, B et C  
39, rue King  
Saint John (Nouveau-Brunswick)

*also via videoconference*

*aussi par vidéoconférence*

**Commission Members present**

**Commissaires présents**

Ms. Rumina Velshi  
Dr. Sandor Demeter  
Dr. Timothy Berube  
Mr. Randall Kahgee

M<sup>me</sup> Rumina Velshi  
D<sup>r</sup> Sandor Demeter  
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**Registrar:**

**Greffier:**

Mr. Denis Saumure

M<sup>e</sup> Denis Saumure

**Senior General Counsel:**

**Avocate-générale principale :**

Ms. Lisa Thiele

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

--- Upon resuming on Thursday, May 12, 2022 at 9:00 a.m. /

L'audience reprend le jeudi 12 mai 2022 à 9 h 00

### **Opening Remarks**

**THE PRESIDENT:** Good morning and welcome to the continuation of the public hearing of the Canadian Nuclear Safety Commission. Welcome also to those joining us remotely.

My name is Rumina Velshi. I am the President of the Nuclear Safety Commission.

For those of you who were not here for the last two days, I will begin by introducing the Members of the Commission that are with us for this public hearing:

To my right, Dr. Sandor Demeter, and to my left are Mr. Randall Kahgee and Dr. Tim Berube.

Ms. Lisa Thiele, Senior General Counsel to the Commission, is joining us remotely, and Mr. Denis Saumure, Commission Registrar, is with us on the podium today.

I will turn the floor to Mr. Saumure for a few opening remarks.

Denis...?

**M. SAUMURE :** Bonjour, Mesdames et

Messieurs.

During today's business we have simultaneous interpretation. The English version is on channel 6. La version française est au poste 5. Please keep the pace of your speech relatively slow so that the interpreters have a chance to keep up.

L'audience est enregistrée et transcrite textuellement. Les transcriptions se font dans l'une ou l'autre des langues officielles, compte tenu de la langue utilisée par le participant à l'audience publique. The transcript of the hearing will be available on the CNSC website in about two weeks.

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

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.

As usual, the President will be coordinating the questions. For the participants joining on Zoom, to avoid having two people talking at the same time during the question period, please use the "Raise Hand" function if you wish to provide an answer or add a comment.

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

Also, please take a moment to note where the emergency exits are in the room. The bathrooms are located across the hall to your right.

As mentioned previously, we have in place health and safety measures to address the lingering COVID-19 pandemic. The health and safety of all participants and of our staff is our priority.

As such, and in accordance with the federal public health and safety directives, all participants in the public hearing room are required to wear a mask while in the hearing room, except when presenting. Masks are available at the back of the room.

We also urge you to practise physical distancing and wash your hands frequently. These measures are very effective to avoid getting or spreading COVID-19.

We appreciate and are thankful for everybody's cooperation.

Seven 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 today. The light will turn yellow when there is one minute left and turn red at the 10-minute mark.

Following the oral presentations by intervenors, the Commission will begin the final rounds of questions, including questions on the written submissions listed at the end of the agenda.

The break for lunch will be around 12:00 to 1:00 p.m. There will also be a health break in the morning.

Your key contact persons are Ms. Louise Levert and Ms. Julie Bouchard, who are seated at the back of the room.

Madame Velshi, présidente et première dirigeante de la CCSN, présidera cette audience.

Madame Velshi...?

**THE PRESIDENT:** Thank you.

The first presentation this morning is by the Rural Action and Voices for the Environment (RAVEN), as outlined in CMD 22-H2.197.

Ms. Susan O'Donnell will be making the presentation.

Good morning. The floor is yours.

**CMD 22-H2.197**

**Oral presentation by the**

**Rural Action and Voices for the Environment**

**(RAVEN)**

**MS. O'DONNELL:** Good morning.

For the record, Susan O'Donnell,  
University of New Brunswick.

Thank you for the opportunity to address  
the Commission.

To begin this last day of the hearing I  
want to acknowledge that we are on the unceded and  
unsurrendered territory of the Wolastoqey Nation, who,  
along with the Passamaquoddy and the Mi'kmaq, kept these  
lands we now call New Brunswick in balance with Mother  
Earth and all our relations for tens of thousands of years.  
I would like to thank Elder Harry Sappier who shared his  
opening statement with us to remind us of the importance of  
listening with an open mind.

My presentation will take only eight or  
nine minutes so I welcome questions and I am requesting  
time for brief concluding remarks after questions. Thank  
you.

I am a social scientist. For the past 18  
years I have been a researcher and Adjunct Professor in the

Department of Sociology at the University of New Brunswick in Fredericton, which is also on Wolastoqey territory, the land of the beautiful and bountiful river, also known as the Saint John River.

I am intervening for my UNB research project RAVEN, Rural Action and Voices for the Environment. We are recommending a five-year licence renewal for the Lepreau reactor.

Later this morning another UNB faculty member will be speaking about his work for the UNB Nuclear Energy Research Centre. Given the principle of academic freedom, the University of New Brunswick faculty has more than one voice, but when reading the written intervention from Dr. Cook I was pleased to note that we both support a five-year licence renewal for the Lepreau reactor.

Although the main focus of my research is technology adoption, I only began analyzing the socioeconomic aspects of nuclear technology about three years ago. I began to speak out and write about it after I concluded that NB Power was promoting a false solution to the climate crisis, so-called small modular nuclear reactors, SMRs or SMNRs. The climate crisis, along with the biodiversity crisis and the threat of nuclear war are the greatest challenges we face as humans.

As part of my research I analyze public

statements by Indigenous nations in New Brunswick and across Canada about nuclear technology. The biggest objection to nuclear reactors by Indigenous Nations is that they create radioactive waste. I have not found a statement by an Indigenous Nation welcoming the storage of radioactive waste on their territory. In fact, one First Nation in New Brunswick is promoting SMRs but stated to a CBC reporter that although they are promoting the technology, they do not want the radioactive waste stored in their community.

When I was doing my research on SMRs, I was asked to sign a public letter by women leaders opposing federal funding for SMRs, which I did sign. I asked a highly respected Wolastoqey Elder who was the former Elder in residence for the University of New Brunswick if she would also consider signing it. She responded immediately and thanked me for the opportunity to sign the public letter.

The Elder shared with me that she had been asked to translate the term "nuclear waste" into the Wolastoqey language. She consulted with her Wolastoqey Elders and found that the word for "nuclear waste" remains *Askomiw 'Sanaqot*, literally meaning "forever dangerous to life".

Nuclear waste is forever dangerous to

life. All of us have much to learn from Indigenous knowledge holders and Indigenous language speakers.

Our report submitted as our intervention is called "The Future of Point Lepreau: Option B". We conceived and wrote it in the spirit of the Peace and Friendship Treaties.

As outlined in the interventions to the Commission by the Passamaquoddy Recognition Group and Mi'gmawe'l Tplu'taqnn Inc. and Kopit Lodge, representing Elsipogtog First Nation, this land in the Atlantic region of Canada was never surrendered or ceded, but rather an agreement was made by the original peoples and the newcomers to share the territory in a relationship of mutual respect.

I and everyone and every institution in New Brunswick are also bound by these treaties. I decided to focus my presentation today on this aspect as a demonstration that non-Indigenous people also recognize the importance of this issue.

When writing our report, we aim to respectfully include information about Indigenous perspectives on relationships with the land and environment around Point Lepreau and the Bay of Fundy. In our report we argue that a sustainable future for Point Lepreau must take a path that respects Indigenous sovereignty and

knowledge, specifically the Passamaquoddy peoples who have lived on that unceded territory since time immemorial.

In our report you will see that the RAVEN Project has taken a clear position against continuing nuclear power generation in New Brunswick into the future. Our report advocates for a climate justice approach.

There are many options for a sustainable future for the land and waters at Point Lepreau. The RAVEN Project position is that the most responsible way forward for New Brunswick Power is to heed the voices of Indigenous leaders connected to the lands and waters and begin planning now to schedule a shutdown of the Lepreau Nuclear Plant.

The RAVEN project is recommending a five-year licence renewal today because of the need to respect Indigenous knowledge and desires related to future development of our shared territory covered by the Treaties of Peace and Friendship.

The two Indigenous organizations that presented on the first day of the hearing, the Passamaquoddy Recognition Group and Mi'gmawe'l Tplu'taqnn Inc., as well as a third Indigenous organization, Kopit Lodge, representing Elsipogtog First Nation, all reference the UN Declaration on the Rights of Indigenous Peoples and the need to recognize their rights under this declaration.

I note that the Commission reports to Parliament through the Minister of Natural Resources. The Minister's mandate letter from the Prime Minister includes a clear direction to implement the UN Declaration on the Rights of Indigenous Peoples and to work in partnership with Indigenous peoples to advance their rights.

Section 29(2) of the UN Declaration specifically addresses the issues before the CNSC, requiring that:

“States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of Indigenous peoples without their free, prior and informed consent.”

It is clear in the comment by the Passamaquoddy Recognition Group that NB Power does not have the consent of the Passamaquoddy to store radioactive waste on their territory, and further, that NB Power does not have their consent to generate and store more radioactive waste on their territory.

The Passamaquoddy Recognition Group also underlined that the Point Lepreau Nuclear Generating Station was established in their territory without consultation or consent of the Passamaquoddy, contrary to

the terms of our treaties.

The Passamaquoddy Recognition Group requested a three-year licence period for the Lepreau reactor. Mi'gmawe'l Tplu'taqnn Inc. requested a 5-to-10-year licence period. Kopit Lodge, representing Elsipogtog First Nation, recommended a 10-year period.

The Passamaquoddy Recognition Group stated that over the lifetime of the Lepreau reactor the average length of the licence for the Lepreau reactor was less than three years.

Our recommendation for a five-year licence period is in line with these requests by Indigenous Nations.

Thank you for your attention and I welcome any questions you may have.

**THE PRESIDENT:** Thank you very much, Ms. O'Donnell, for your presentation.

Let's start with Dr. Demeter, please.

**MEMBER DEMETER:** Thank you, Dr. O'Donnell, very much.

I read through your report, I found it really interesting. I think I looked at one particular point that talked about "The Future of Point Lepreau: Option B": "Our interest in the Point Lepreau Nuclear Generating Station, the health and safety", dealing with

New Brunswick Power's response to the climate crisis.

I think this may be a good time to ask Environment and Climate Change Canada about what the issues are with this site relative to sea level, changing risks of sea level, changing risks of tsunami, severe weather events, and then we can get NB Power and staff's response to preparedness for such.

If Environment and Climate Change Canada is online.

**MS. ALI:** Nardia Ali, Environment and Climate Change Canada, for the record.

So, Environment Canada has ongoing research in climate change, related effects on water resources, including the territorial marine waters of the Atlantic coast. There was a report published in 2019 called Canada's Changing Climate Report, which is the first in a series of reports which will discuss the results of the most recent national assessment of climate change completed between 2018 and 2021.

The assessment is based on regionally adapted modelling from the Fifth Intergovernmental Panel on Climate Change Assessment, which addresses global-scale climate change.

The scope of Canada's Changing Climate Report is limited to physical climate signs and focuses on

observed and projected changes in climate for Canada's land area and surrounding oceans.

Chapter 7 of that report discusses changes in the oceans surrounding Canada and covers ocean temperatures, salinity, density, windstorms, waves, sea levels and chemistry such as acidity, oxygen concentrations and nutrient supply.

This report outlines observed and predicted changes on a regional level for each coast of Canada as well as key areas in each region, including the Bay of Fundy and the Gulf of Maine.

We can provide a link to that report, but the report does have some key messages regarding sea surface temperature, sea level. Sea level is rising about 1.9 mm per year in Saint John. The report is on a larger scale, so you kind of have to bring it down to smaller regions.

According to the report, globally sea level has risen and is projected to continue to rise. The projected amount of global sea level rise in the 21st century could exceed 1 m. However, relative sea level in different parts of Canada is projected to rise or fall depending on local vertical land motion.

So to sort of bring some of this information, you know, to make it pertinent to what we are

discussing today, based on the information in this report, storm surges could have heights of 1 m or more above high tide levels, with wave run up further adding, but we noted that Point Lepreau is situated 30 m above sea level and if we were to account for the most extreme projections of the 1 m rise in sea level, with an additional 4 m wave height from the worst-case tsunami scenario from the Probabilistic Safety Assessment, Point Lepreau would still be 7 m above sea level.

Also, you know, we work closely with -- am I still on?

**THE PRESIDENT:** Yes, we can hear you.

**MS. ALI:** Okay. Because I felt like I got disconnected there for a minute.

Because we work closely with the CNSC and with Point Lepreau and we are constantly monitoring all the research being done on climate, we don't have -- I mean we feel that changes due to climate change can be effectively managed and mitigated over the life of the plant.

Does that answer your question?

**MEMBER DEMETER:** Thank you. It does, most of it.

Perhaps if you can, do you have any comment to make on geological stability and risks of tsunami? You talked about the 7 m of excess even if there

was a 1 m rise in sea level. Do you have any information on tsunami risk and if that is changing?

**MS. ALI:** So that would more be related to the seismic aspects, which is usually covered by Natural Resources Canada, but I mean I could pass to Duck Kim to see if he has anything he wants to add on that.

**MR. KIM:** Good morning. My name is Duck Kim, for the record. I am the Senior Nuclear Coordinator for Environment and Climate Change Canada.

Ms. Ali is correct that that is a seismic-related event, the tsunami that you are talking about. So I think -- I am not sure if NRCan is available, a representative from NRCan is available, but I believe that the study that we saw, the Probabilistic Safety Assessment was a report that NB Power has done and so they may be also able to comment on that.

But our understanding is the worst-case tsunami event is a 4 m, maximum 4 m wave height arriving at the site. That is from a catastrophic event across the ocean, as I understand it. Local seismic events, what we know from the study, are of less magnitude.

But maybe passing on to the other experts in the room might be useful.

**THE PRESIDENT:** Is Dr. Adams on the line from NRCan?

--- Pause

**THE PRESIDENT:** Well, maybe not, in which case let's turn to New Brunswick Power and see if they have anything to add.

**MR. NOUWENS:** Thank you. Jason Nouwens, for the record.

I will turn this over to Derek Mullin to provide some comments on our external hazard assessment, but I will just highlight that we do have a corporate Climate Change Adaptation Committee. Climate change is obviously one of the factors that we need to consider in our long-term operation, but Derek Mullin would have some more detailed information specifically around the tsunami question that was asked.

So Derek, over to you, please.

**MR. MULLIN:** Thank you. Derek Mullin, for the record.

I will step back a little bit on my response to this. Climate change is important to NB Power, as is any external hazard to which the plant is susceptible. Maury Burton mentioned on Monday about PSAs being updated every five years and we look at, you know, potential hazards and what can happen then.

So we have -- basically when we perform a Probabilistic Safety Assessment, just to give a little more

detail, we look at every possible hazard, whether natural-induced or human-induced, et cetera, and those hazards are then screened to determine what are their significance, what are their magnitudes, does it warrant any further detailed analysis and inclusion in the PSA for more information. We need to estimate the risks, et cetera.

It is a worldwide approach to do hazard screening to determine what we are susceptible to. Once we have that information, then we can determine what we are going to do with it.

So bearing that in mind, the Probabilistic Safety Assessment, all of those hazards are rescreened every five years. We take a look at the actual events that have occurred, is there anything that would change our opinion on whether or not we need to do further detailed analysis, whether or not there is a risk to the station.

Another technique that we have is that we do have three specific science-based external hazard assessments. One of them is on a Seismic Hazard Assessment, as was mentioned, another one is the Probabilistic Tsunami Hazard Assessment, and another is on high winds, so looking at all potential forms of winds and whether or not that would pose any kind of significant hazard to the station.

In the context of the Probabilistic Safety Assessment, all hazards -- except for seismic, all hazards were screened out from further detailed analysis because the risk to the station is low.

When we did that screening we also looked at all potential hazard combinations. So we look at those, could they happen coincidentally, could one hazard lead to another, are they correlated in some way or could they be consequential. Even with the combined hazards they were screened out from any further consideration as well because the risk to the station for those events is very low.

The third way we look at climate is in terms -- oh, just let me say that the external hazard assessments, we also update those every 10 years to make sure that we are reflecting the latest knowledge base, any experience and also any changes to methodology. So we do update those, they are in our business plan, they are something that we are going to do and they are due for an update soon.

Once we update those, they will be screened again for inclusion in the Probabilistic Safety Assessment if we need to. If the current experience and climate change reflect that we need to do so, it will go in.

The third way is a site-wide environmental

risk assessment in accordance with Canadian standards. We update that every five years. As Nick had mentioned, Mr. Reicker had mentioned, that is an assessment that also gets updated every five years and it will reflect the climate experience up until that point in time.

Now, in terms of tsunami hazards, let me just say, when we do an external hazard assessment, what that looks at are all the possible magnitudes of the hazard over a variety of potential what we call annual frequency, the frequencies of exceedance, or we can call it a return period.

For example, an annual frequency of exceedance might be one in 10,000 years. So what's the magnitude that we would predict that would be associated with that? As a return period, we would just say that is a 10,000-year return period, sort of one over the annual frequency of exceedance.

The tsunami hazard assessment, so as you imagine, if we screen those for probabilistic safety assessments to determine do we have any risk to the station, those are including hazards' magnitudes that are much larger than anything that we would experience from climate change. So when we factor in the potential effects of climate change into that work, what we're looking for is would it change the conclusions to the outcomes.

And what we're looking for is, is there any impact on the station for a one-in-10,000-year tsunami. Would climate change cause us to realize that we might need to do something with the design basis of the plant? Or do we need to include it in the probabilistic safety assessment for further analysis and risk evaluation?

We have looked at the International Panel on Climate Change AR5 report, looking at the predicted sea level rise, for example, up 'til 2050, which is beyond what we've requested for our licence renewal period. We have looked at that. We have included the increased potential uncertainties from the Antarctic icesheet melt and the additional -- what that would result in.

And the conclusions of the tsunami hazard assessment remain the same. A tsunami height, no matter where it comes from, what generates the tsunami across the Atlantic -- whether it be the Cumbre Vieja volcano in Las Palmas in the Canary Islands, whether it be an earthquake at the Puerto Rican Trench, whether it be a submarine landslide along the continental shelf -- none of those events, even with sea level rise, from what we can see from the predictions, would result in the plant being contacted. And that is not just looking at the plant main grade at 13.7 metres, but it's also considering whether or not the frequency of that event would contact the condenser cooling

water or CCW pumphouse, which is at a lower elevation.

So we do not have a concern from a safety perspective in terms of tsunamis, even considering climate change.

And we will continue to look at climate change as we go forward. It's a part of our having a strong safety analysis program. We continually re-evaluate those hazards on a periodic basis. Thank you.

**THE PRESIDENT:** Thank you, Mr. Mullin.

Mr. Adams from NRCan, if you wish to add anything to the discussion, please.

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

I don't think I have anything to add to the landslide tsunami water level story. My expertise is in earthquake hazards. Thank you.

**THE PRESIDENT:** Thank you very much.

Dr. Demeter, did you have any follow-up questions?

**MEMBER DEMETER:** No, that's good.

**THE PRESIDENT:** Thank you.

Mr. Kahgee?

**MEMBER KAHGEE:** I believe, Ms. O'Donnell, you had a question first.

**MS. O'DONNELL:** Yes. If it's okay, I'd

just like to respond to the climate change piece. Is that okay?

**THE PRESIDENT:** Perhaps you want to do that in your closing comments, please. Thank you.

**MS. O'DONNELL:** Oh, okay. Thank you.

**MEMBER KAHGEE:** Well, thank you very much for your intervention.

I don't have a lot of questions, but I just want to make sure -- I read your report, and it was very thorough. Thank you for that.

In terms of the Indigenous perspective, I want to make sure I have this correct. When I read it, where I got to was essentially what the report is saying that Indigenous peoples must not only be engaged but be part of shaping the future on energy matters and climate change initiatives in their homelands. Am I correct?

**MS. O'DONNELL:** Yes. Susan O'Donnell, for the record. Yeah.

**MEMBER KAHGEE:** Okay. Thank you.

So my question, then, goes to NB Power and perhaps I'll ask CNSC staff to follow up.

Over the last couple of days I've asked some questions specific to engagement, to some extent around reconciliation, but I think there's been a consistent theme with respect to the Indigenous

interventions in terms of kind of the historical and ongoing concerns with the operations and what their role will be in the future with respect to the site.

And so my question then becomes -- and I have to add that that's not unusual. That's a fairly consistent message across different sectors from Indigenous communities right across the country.

So my question then becomes what efforts are being made to reconcile those historical concerns in ongoing operations in ensuring that Indigenous communities have a role to play in shaping the future with respect to that site?

**MR. NOUWENS:** Jason Nouwens, for the record.

Thank you for that question. That is definitely one we talked a little bit at this year already, but it is very important to us.

I will ask Austin Paul to talk a little bit about our educational aspects of that and then ask Jesse Perley to talk about reconciliation and elaborate on some of the more corporate aspects of how, not just Point Lepreau, but at NB Power within the province, how we engage First Nations groups in many, many projects across the province.

So Austin, if we could start with

educational aspects and then turn that over to Jesse, please.

**MR. PAUL:** Austin Paul, for the record, NB Power First Nations Affairs.

Thank you very much. I appreciate the opportunity to speak to this, and I appreciate the sentiments brought up through the interventions and the sentiments expressed by the Commissioners.

When we talk about reconciliation, first off, our Department of First Nations Affairs has built our work upon the pillars of a strategic approach. And this was brought into effect back in 2013, prior to the Truth and Reconciliation Commission's Calls to Actions. However, we're in direct alignment with them, which is a very great thing.

And we've talked a lot about the engagement. We've talked about the employment side of things. But we see these pillars that we work on as interdependent pillars. And education is a big part of that, and the education is really what we need to enable the conversations, to enable the deeper engagement and enable meaningful employment.

So you know, really it is at the end of the game we're trying to have -- at the end of the day, we're trying to have respectful relationships. And in

order to get to respect, it is part of a continuum. It is through education that we gain understanding, and it is through understanding that we gain respect. And respect is the backdrop that we need to have to have these conversations around reconciliation.

So to that end, we have a very robust cultural orientation program at NB Power. And I came into the fray in 2015. And at that point in time, there was already a robust program developed. I analyzed that from my perspective as a land user. I should back up and say as a Wolastoqey individual, you know, I've spent my youth growing up around elders, around artisans, craftspeople, philosophers, gathering up that traditional knowledge. And I'm a student of history. I find history absolutely fascinating.

And in furthering your own knowledge -- see, back when I grew up, education, that sort of education wasn't immediately at your fingertips. It was well -- it was dispersed. It was hard to kind of bring together.

And so through the learning, I found that you could only get back to 1604 when it came to writing. So I wanted a deeper learning than that, so I delved into the archaeological record, which takes us back nearly 14,000 years and undoubtedly will go back even further than that. And through those 14,000 years, climate has

fluctuated greatly. And what we see through the archaeological record is technology has adapted to meet those changing climatic events. So it's interesting. It provides a great depth of perspective.

And in looking at the orientations that we offered back in the day, I thought, you know, there's so much more meat we could add to the bones here. And so we started to take a deeper dive into the history of First Nations people, but also the pre-contact history. And that is very important to me because it shows a wider perspective of how First Nations peoples lived with the land -- not living off the land like we talk about now when we go out to the camp or whatever and we say we're going to go live off the land. We lived with the land. It is a harmonious, a symbiotic relationship. So we took a deep dive into that.

And since then, we've also created -- the uptake for our orientations within the company was tremendous. So we ended up making a computer-based training module. And this was very handy for us during the COVID-19 pandemic that limited in-person interaction. But we've since got back out into doing these facilitative sessions.

We're also working with the government of New Brunswick, the University of New Brunswick, and College

of Extended Learning on a comprehensive six-module orientation program that takes a very deep dive into very important topics centred around Indigenous issues.

And we have supplementary presentations. Like I said, you know, you'll get to know, if you spend any amount of time with me, that my passion for history and archeology is more than that. It's a bit of an obsession. So I have presentations that I take deeper dives into these topics.

And our outreach doesn't just extend within the company. It goes outward, out into the province. And we go and talk with many educational institutes, interest groups. We heard from Mr. Boutin yesterday about some of the work that we've done in the community there.

And what's really impressive to me is when I came to work at Point Lepreau and started to teach them -- started to relay my teachings to them, how receptive they were to it. It really took off like wildfire. We've made quite an impact. And it was really interesting to see that the environmental sustainability that is really important to me is reflected there in various ways, and I was always happy to see the care that they took in the monarch butterfly program, and the juxtapositioning of having something like a power plant

there, and having these beautiful monarch butterfly sanctuaries right out in front of it, and a bird observation sanctuary down at the point. It is a juxtapositioning that's really fascinating to me.

And that is the importance of a lot of the work that we do. You know, everything that we do now requires what we call a two-eyed seeing approach. We need to factor in the Indigenous knowledge side of things and meld that in with the scientific knowledge. If we're going to make this work as an industry, we need to have both of those perspectives there.

So this is a journey. That's what we're trying to do. And we all try to make a difference, not just in our workplace but elsewhere. And like I said, I'm an avid land user. Years back, I did a whole bunch of training and white-water canoeing out on the Harricanaw River with Outward Bound. And one of their mottos is "Ignite, Invite, and Inspire." And I try to take that with me everywhere I go. We try to ignite the spark of curiosity within people, get them interested. And then you invite them into your safe space to learn, and then you inspire them to take that learning further and out into the community to go make a difference.

And so this is what we try to do every day. We're very committed to it, and we believe that

providing that foundation to our staff enables those other pillars of engagement and employment to function far more effectively.

**MEMBER KAHGEE:** Thank you. That's very helpful. And you're correct that having that foundation and that understanding is a first place to start as we move forward.

In terms of the next part of the question I asked, how does that then translate into ensuring that Indigenous communities are part of shaping decisions around NB Power's operations, not only at this site, but I guess throughout the province.

**MR. NOUWENS:** Jason Nouwens, for the record.

For that aspect, we'll ask Jesse Perley to provide some additional comments.

**MR. PERLEY:** Good morning. For the record, Jesse Perley.

So as I said yesterday with our story, I want to continue that with our journey as well at NB Power, which was started in 2011 with a team of three, as I stated, just to reiterate. And our department structure was what got us underway.

In 2013, we reached an agreement with Eel River Bar First Nation with the decommissioning of

Dalhousie. So that was one of our very first agreements that we had. I shared our strategic approach in 2013 as well in how Austin exemplified our three Es, as we call them, Engage, Educate, and Employ. These are three valuables that we have taken over a lot of conversations with our Indigenous leaders here in the province. And the biggest thing is, you know, they -- our bottom line was to help them get people out of their offices as well, which is a very important thing here at NB Power.

So going ahead, this really evolved to us taking on our first consultation and capacity funding agreement in 2017 with the Wolastoqey Nation. So we then went ahead and had some discussions with the Mi'kmaq. And the Mi'kmaq eventually signed one in 2018 with us as well. In 2021, December 2021, we have signed on the Peskotomuhkati. So with that, we since extended the Wolastoqey Nation one, which had a five-year expiration date to it just last month for a one-year extension so to continue to work with them as well.

But with all of this, it allows for us to bring them into the conversations. And we go that on a regular monthly basis and then as aggressively as a biweekly, if need be, on really hot topics that they bring forth to share with us. And not only that, but as to hear their story and to continue that journey.

We certainly -- you know, with that formation, we've been striving for the meaningful engagement, you know, that has been asked, you know, and for the consultation -- the consent of moving things along. And with those number of relationships, it really has us working towards, you know, a lot of things like these agreements, we worked with them and not for them, you know. So it exemplified a strong message there which evolves us to continuously move ahead with them.

And also along this journey as well, Mr. Kahgee, is we brought the chiefs to the table as well to hear -- to share our integrated resource plan first hand. So we had one of our executive directors that owned this integrated resource plan speak fulsomely with them. And it was a wholehearted conversation to hear, you know, that our leaders understand that, you know, we have that 25-year plan and we look at it every five years to make sure that, you know, it is aligning with everything here in New Brunswick, including the nations.

**MEMBER KAHGEE:** Thank you for that.

CNSC staff, do you have any comment or follow-up?

**DR. VIKTOROV:** Alex Viktorov, for the record.

And before I pass the mic to Adam Levine,

I would like to add for myself that our interaction with Indigenous communities is also evolving. And we have maintained a relationship and dialogue for a long time, but now we strive to actually learn and reflect what we learn in our activities. That's something I think is an indication of how dialogue can enrich and help us in execution of regulatory activities.

But I'll ask Adam to elaborate on the subject.

**MR. LEVINE:** Good morning, everyone. Sorry I'm speaking to you virtually today, but thank you very much for the question and this important dialogue.

So similar to NB Power and I'd say most government departments and agencies and industry, we've all been on a journey for the last number of decades to first understand and fully appreciate the history in this country and come to terms with that and then look how we can do better moving forward.

And the CNSC, we've been on that journey for well over a decade now. And every year as we come before the Commission and the work we're doing out there across the country, we're always improving upon the work we're doing and where we're at on the journey right now is really at the beginning of that phase of how do we incorporate Indigenous voices directly into our work,

ensuring their knowledge, perspectives, values, and cultures are put forward to the Commission and to the public in an inclusive, respectful way that's done collaboratively.

So it's no longer us, just the staff, to do our own assessments, and then having communities provide comments and feedback in public comment periods, but it's actually working together and actually inputting their thoughts and their beliefs and values and knowledge directly into the work we're doing. And we feel that is really improving the work that we're doing and advancing our path to reconciliation.

And so we have a number of great examples of that and how we're ensuring that CNSC staff are collaborating, are learning, are becoming more aware of the history and our important role in ensuring that communities are involved and setting the standard for industry as well.

And we're very lucky that NB Power and many of the industry partners are doing a great job, but we need to ensure they are doing that. And we do have a number of mechanisms to ensure they are doing their best to advance reconciliation and meaningful engagement.

And so a number of our team members I can also add in, in terms of some of the direct work we're doing at NB Power in terms of our oversight at Point

Lepreau and the team there. So I just want to pass over to Heather Davis to provide some of her perspectives on some of the awareness training and work on engagement that we've been doing. Thank you.

**MS. DAVIS:** Good morning. Thank you, Adam.

For the record, my name is Heather Davis.

In terms of CNSC staff, the power reactor regulation directorate, we have routine workshops which have included information sharing and presentations on Indigenous consultation, and engagement awareness. We also have training through the Canada School of Public Service which staff are encouraged to participate in. We've also taken some training in awareness through private vendors.

In terms of the Point Lepreau division, we were very lucky to be able to participate in an Indigenous archeological presentation about the area of New Brunswick.

In addition to this, due to COVID-19, site staff are also able to participate in sampling as part of the independent environmental monitoring program. Due to travel restrictions, we were asked to do some of the CNSC independent samples.

And as part of that, in June of 2021, we were able to do some of these collections with First Nations environmental monitors that work for NB Power --

that with work NB Power. And these First Nations environmental monitors helped determine the items of significance that we should collect and also helped with the collection. And this included showing us how to do the harvesting, explaining what the item is used for, why it was so significant. And we also got to learn about some of the areas around New Brunswick. And for us, the site inspectors, this was a very valuable learning experience.

And in doing so, you know, these conversations and the knowledge-sharing that occurs in the engagement meetings twice a year or more we like to meet with the various representative bodies for the First Nations and we learn a lot of information. A lot of information is shared with us.

And that information is carried with us as we do our inspections. And it's in the back of your head when you're out doing your inspections and doing your work. And as you do your inspection, you may ask an extra question or think of an extra item to look at based on the knowledge that has been shared by the Indigenous nations. And it just gives us a different perspective and something to keep with us as we do our work of how important it is what we do and how we do it. Thank you.

**MEMBER KAHGEE:** Thank you for that.

Those are my questions, Madam Velshi.

**THE PRESIDENT:** Thank you.

Dr. Berube?

**MEMBER BERUBE:** Well, thank you, Dr. O'Donnell, for your report. I thought it was quite interesting, actually, and engaging. So I know it's a lot of work to pull something together like that, so I want to thank you on behalf of the Commission.

The question I have for you -- and I want to take this back to a broader -- you're a trained sociologist; is that correct? Yeah, okay. So I want to pull this back to a broader macro sociological standpoint. You're recommending a five-year licence, whereas the ask here is for much, much, much more and the recommendation is for much, much more than that.

From a sociological -- and I mean broad spectrum -- do you have any rationale to support your reasoning for a five-year licence? Could you offer us that thinking?

**MS. O'DONNELL:** Susan O'Donnell, for the record.

Thank you very much for that question. I've been here for the three days. And one of the issues that keeps coming up is public trust. And I think from a sociological perspective, that's a very important element, and it's a very important concept. How do you build trust?

And one of the things -- and I noted that President Velshi mentioned this yesterday -- that builds trust is the opportunity to engage in public forums like this, where you have the media, where people feel free to bring forward their concerns. And so eliminating the possibility of having these on a regular basis does not build trust. It actually builds the opposite. It builds the perception that either the CNSC or NB Power has something to hide.

Unfortunately, I think that's just going to increase if there's a longer period of extension on the licence.

So, I would say from a sociological point of view, to build public trust you would want to go for as short a licence period as possible. Thank you.

**MEMBER BERUBE:** Thank you for your feedback. That's all I have to ask.

**THE PRESIDENT:** Thank you.

I will turn it over to you, Ms. O'Donnell, for your comments and your closing remarks, please.

**MS. O'DONNELL:** Okay, thank you.

I just want to comment first on the climate change discussion, which was very illuminating, and I would like to thank everyone who participated in that.

I just want to note that just last week

the CNSC put out a tender for a comprehensive study of climate change on nuclear plants in Canada, and the tender document flags temperature, humidity, precipitation, wind, waves and tides as potential contributors to concrete degradation. And the tender study notes that when climate(sic) dioxide meets the calcium hydroxide in cement paste, they make a damage-prone combination, and that the long-term cumulative effect of these processes can reduce the service life of concrete structures and impair safety.

I just have a recommendation based on that; that when the CNSC study results are published, to build trust with the public NB Power should address all the climate-related concerns identified in the CNSC report for its Lepreau Plant and publish its own report.

I think that would really help to build trust.

Okay, I'm going to just go to my closing remarks.

First of all, I just want to thank the attention you displayed to the public intervenors, especially the Indigenous intervenors. This is my first CNSC hearing, and frankly I wasn't expecting it. So, thank you very much.

I want to recommend that you read two documents, not part of the record, but to add to your no

doubt long general reading list. With your permission, I will send the references to Louise and ask her to distribute them to you.

The first is a chapter in a new book published in April, called "Corporate Rules: the Real World of Business Regulation in Canada: How Government Regulators are Failing the Public Interest".

The chapter I'm recommending is by Theresa McClenaghan, Executive Director and Counsel of the Canadian Environmental Law Association, about how the CNSC is failing the public interest.

I think of most interest, it explains why many people working on this file have lost trust in the CNSC.

So, I think that would really help understand what the issues are here.

The second is a document published in March, called "An Alternative Policy for Canada on Radioactive Waste Management and Decommissioning", which was prepared and supported by a broad coalition of civil society groups across the country.

There is a section in there on the Regulator, which outlines the duties and responsibilities that civil society would like to see the Regulator, which is you, the duties that you have related -- we would like

to see what you have related to radioactive waste management.

So, thank you for your time and I truly wish you good heart and mind in your deliberations. Thank you.

**THE PRESIDENT:** Thank you very much, Ms. O'Donnell. And thank you for the recommendations as well.

We will move to our next presentation, which is by the International Brotherhood of Electrical Workers, the IBEW, Local 37, as outlined in CMD 22-H2.209.

Mr. Claude Richard, you are here to make the presentation, and I understand there are a couple of people also available via Zoom.

Mr. Richard, over to you, please.

**CMD 22-H2.209**

**Oral presentation by the**

**International Brotherhood of Electrical Workers**

**(IBEW), Local 37**

**MR. RICHARD:** Thank you and good morning, President Velshi and Members of the Commission.

My name is Claude Richard. I'm the Business Manager of Local 37 of the International Brotherhood of Electrical Workers. I'm thankful that I can

participate virtually in this process this morning.

Attending in person at the hearing in Saint John is Mike Goddard, a member of my staff. Mr. Goddard worked at Point Lepreau for many years and has served on the Joint Health and Safety Committee and Chair of the Point Lepreau IBEW Unit.

We are here today because we conditionally support NB Power's application for a lengthy renewal of its operating licence for the Point Lepreau Generating Station.

Permit me to provide you with a little background on why I have come forward to comment on operations at Lepreau and the licence renewal.

IBEW is the largest union of electrical workers in the world, with over 700,000 members. Recognized as one of the most progressive unions today, the safety of our members and the public remain our number one priority.

Our international union has extensive experience representing workers in North America's nuclear industry. Approximately 15,000 IBEW members are directly employed to operate, maintain and provide support at 69 operating nuclear reactors in the United States and in Canada.

In addition, 70,000 IBEW members are regularly involved as temporary contractors or specialty

crews to provide service and maintenance to the North American fleet of reactors.

The IBEW has staff devoted to nuclear matters and each year hosts a nuclear conference so that IBEW members in the nuclear industry can share operating experience and best practices.

In New Brunswick, IBEW Local 37 represents 93 percent of NB Power's 2,700 employees, and they are engaged in all aspects of the utility's operation. IBEW has been representing members at the Point Lepreau Nuclear Generating Station since the plant began operating in 1983.

Work in the nuclear industry is extremely complex, requiring significant skillsets. Our members working at the Point Lepreau Generating Station are highly skilled and experienced and have a significant impact on ensuring safe and effective operation of the station.

In addition, NB Power consistently places the safety of the public and their employees first. The company has invested in a high level of education and training for their employees to ensure that the plant operates safely and reliably. Many of them live with their families in the community near the station, which demonstrates their confidence in the safety of the facility.

Our support for the licence renewal is

based on the following: the CNSC staff conclusion that NB Power is qualified to carry out the activities authorized by the licence; the CNSC staff conclusion that NB Power has adequate provisions for protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed; the CNSC staff recommendations for the Commission to accept CNSC staff conclusions and recommendations presented, exercises authority under the NSCA to renew the licence to authorize NB Power to continue to operate the Point Lepreau Nuclear Generating Station.

We believe that the plant has a strong focus on equipment reliability which ensures the long-term operation of the station.

The Point Lepreau Nuclear Generating Station consistently meets or exceeds the CNSC's licence conditions and all safety requirements.

The Point Lepreau Nuclear Generating Station was recognized in 2019 for improved performance by the World Association of Nuclear Operators. Its current rating is consistent with strong performance stations throughout the nuclear industry.

NB Power has dedicated considerable time, effort and resources into understanding the nuclear

industry and have implemented a number of programs to ensure employees and the public that the plant operates safely. These programs include enhanced standby generation, continued work on severe accident management guidelines and improvements to the fire protection program; also, feedback and work experience of IBEW members who participate in the operations and maintenance of the facility on a day-to-day basis.

Our members have the required skills to operate and maintain the station, and they work constantly to improve their education and training.

Nuclear energy is a practical, low carbon and economic baseload source of electricity that does not pollute the air, nor produce carbon dioxide. And the positive working relationship that we have forged with NB Power over the past four decades.

I would like to share Local 37's observation of how some key initiatives and cooperative efforts have been put into action to protect and support the health and safety of workers and surrounding communities, and how assurances are made to the public that the Point Lepreau Generating Station is reliable and operating safely.

Local 37 developed and implemented a peer-delivered training program back in 2017 for all

members, the IBEW Code of Excellence Program. The Code of Excellence Program is committed to work hard with integrity, that sets our members apart at the workplace. At its core are five shared values that we describe with the acronym SPARQ: safety, professionalism, accountability, relationship and quality.

We engage our members in multiple focus groups and they describe the shared values as follows.

Safety: we are committed to have the safe as possible workplace.

Professionalism: we take pride in our work.

Accountability: we are accountable to one another to support each other's success at work.

Relationships: we are committed to building positive working relationships, because they are key to support a respectable workplace.

Quality: we are committed to bring our best to work every day in order to deliver the highest quality work possible.

NB Power fully supports the Code of Excellence Program and has indicated in our Collective Agreement where they have agreed to allow time during working hours to deliver the Code of Excellence training to all unionized employees.

Another initiative is our shared commitment to safety.

Local 37's long history of working with NB Power has led to a strong, positive working relationship where we share a commitment to safety.

In 2013 the leadership of both IBEW and NB Power formally renewed our shared commitment to safety by developing the shared safety commitment document. In 2021, as part of a regular review process, the document was updated by an IBEW-NB Power committee that worked together to look for opportunities, to help focus on being proactive and preventive. Following are the six key responsibilities of the revised shared document.

We will always plan safety into our work. We will always follow the rules. We will always be a leader in safety. We will always report so we can all get better. And we will always have courage to speak up. We will always say no to unsafe work.

We are very proud that efforts with NB Power continue to support the safe operation on the station and the health and safety of employees, the public and the environment.

As well, many of our NB Power workplaces, including the station, have achieved significant milestones of operations without incurring a lost-time injury. Its

decades long safety record clearly demonstrates that the station continues to operate at the highest level of safety and environmental protection.

I'm very pleased that in addition to conventional safety, radiological safety is incorporated into all areas of planning and is repeatedly emphasized during plan of the day, workgroup meetings and pre-job briefings.

There is a high level of radiation protection training provided to contractors and station staff, with many trained to advanced levels.

Radiation doses remain well below regulatory limits.

Protection assistants and protection companions work with supervisors, contractors and employees to ensure safety practices are followed. Our on-site Emergency Response Team and nuclear preparedness is part of the culture at the Point Lepreau Nuclear Generating Station. It includes conducting preventive activities and practise drills on a regular basis.

The ERT, or Emergency Response Team, is comprised of IBEW members who are involved in the continuance training program to maintain and enhance their ability to respond to emergencies. In addition, emergency response preparedness and response plans are tested

regularly, including fullscale multi-jurisdiction exercises.

The most recent exercise was held in October 2021. This two-day event, with over 1,000 participants, tested the preparedness of the Point Lepreau Nuclear Generating Station. This successful exercise demonstrated the ability to respond to a highly unlikely nuclear emergency.

Our Joint Health and Safety Committee and Labour Management Committee has many IBEW members participating in monthly meetings on-site. These committees have been very effective in ensure that any issues, whether related to health, safety or otherwise, are identified and handled quickly and effectively.

IBEW Local 37 and NB Power have also been holding monthly corporate safety meetings for over 25 years. These meetings are primarily focused on addressing issues and ways to improve safety culture.

In addition, the leadership teams of both IBEW and NB Power meet quarterly to bring up labour and safety issues.

Looking outside of the worksite, many members working at the Point Lepreau Nuclear Generating Station support a variety of NB Power activities that engage communities, the public and Aboriginal rights

holders. The activities help improve lives, protect the environment, celebrate culture and encourage education and build healthy communities in the area adjacent to the station.

**THE PRESIDENT:** Mr. Richard, can I ask you to wrap it up? You are already way above your ten-minute limit. And we have all read your written submission.

**MR. RICHARD:** Thank you.

I will go right to the conclusion in our final notes here.

IBEW 37 believes that NB Power has established and continues to promote a positive health and safety culture, and we are pleased to be a part of that culture. Our members are always able to provide input for enhanced safety measures that ensure continued improvements of the safe operation of the Point Lepreau Nuclear Generating Station.

It is our opinion that the station will continue to operate in a safe manner that is in full compliance with NB Power's Nuclear Power Reactor Operating Licence and with great care for the environment and surrounding communities.

NB Power consistently places safety of the public and their employees first. They have invested in a high level of training for their employees to ensure that

the station operates safely and reliably.

In conclusion, Local 37 has no concern from a safety, technical or equipment standpoint for a lengthy renewal period. And although we support NB Power's application for the renewal of its licence for the station, we do wish to share our concern that the length requested would not allow for the regular opportunity for our members to engage in a formal process to provide comments to the CNSC.

We recognize that the Union currently has regular meetings with NB Power. However, we would like to maintain the formal opportunity to interact with the CNSC since we cannot predict the future.

Therefore, our support for a lengthy renewal period is conditional on having the assurances in place that there will be provisions to allow for a three-party review and consultation process with the Union, the licensee and the CNSC, and that it would occur on a regular basis.

President Velshi and Members of the Commission, thank you for this opportunity today to present our submission and to address any concerns you may have.

**THE PRESIDENT:** Thank you very much, Mr. Richard.

We will start with Mr. Kahgee, please.

**MEMBER KAHGEE:** Thank you very much for your presentation.

I just want to focus on the conditions that you've raised with respect to the licensing term.

Would you anticipate that that process you spoke of would take place prior to a licence being issued or afterwards?

**MR. RICHARD:** On an ongoing basis.

**MEMBER KAHGEE:** Can you help me understand a bit more? Can you elaborate a bit on the conditions that you've raised?

**MR. RICHARD:** Certainly. We would like to look at bringing all parties together instead of working in silos, and every two to three years we would convene a meeting on-site with the CNSC and high-level management to discuss our successes and any issues that we may have, together instead of in silos.

**MEMBER KAHGEE:** Thank you.

**THE PRESIDENT:** Maybe as a follow-up to that, Mr. Richard, or Mr. Goddard, do you interact with CNSC site inspectors on a regular basis?

**MR. RICHARD:** I would invite Mr. Goddard to answer that.

We recently established an office on-site, and we are hoping to increase our interactions with the

CNSC.

**MR. GODDARD:** Michael Goddard, for the record. Thank you for the question.

Yes, we have started to have regular meetings with the CNSC staff on-site. We've met two or three times now in the last year, and we are trying to keep that up going forward; that whenever we can, like once every three months, we would get together and meet and discuss any issues or concerns that we may have.

**THE PRESIDENT:** Thank you very much. Staff, did you wish to add anything to this?

**DR. VIKTOROV:** Alex Victorov, for the record.

Our doors are open. We always welcome licensee employees coming in and having a chat with us. It's a standing invitation. Moreover, we do have regular meetings that we schedule and that allows us to discuss. Admittedly, the pandemic brought some disruption in our previously established flow of meetings.

I will ask Ms. Davis to maybe provide details on how it has happened and will be happening at the Point Lepreau site.

**MS. DAVIS:** Good morning. For the record, my name is Heather Davis.

Yes, indeed, we have been having routine meetings with the IBEW. We have met formally twice in the last year or so. As part of those meetings, we have committed to continuing having these routine meetings, maybe every six months or so.

As well, as Mr. Viktorov said, we do have an open-door policy at the CNSC site office. So, if any members of the IBEW or workers at the site would like to drop in and chat with any of the CNSC site staff, our door is always open. We always like to hear from people. Thank you.

**THE PRESIDENT:** Thank you.

Dr. Berube.

**MEMBER BERUBE:** Well, thank you for your presentation. While I have no direct questions to address, I have a related question for NB Power, and that has to do with the condition of cable aging management. IBEW of course is intimate with this because they're pulling these cables all the time.

But fundamentally, if you can run me through, because of the ask on the length of the licence period, this will become an issue over this period of time. So if you could run me through how you actually manage cable aging and what testing you do, frequency of testing, this kind of thing?

**MR. NOUWENS:** Jason Nouwens, for the record. I'll ask Pierre Michaud, he's our Manager of Strategic Engineering, to give you an overview of specifically the cable management program.

I will assure you that cable management is one aspect of our station that we look for long-term health on. But we look at every aspect of our station, whether it's motors, piping, cables, and we have long-term plans in place to ensure the health and safety of all those components. So cable aging is one particular aspect, but we do have a comprehensive program.

But I will ask Pierre to provide some more specific details on cable aging management please.

**MR. MICHAUD:** Pierre Michaud, I'm the Manager for Strategic Engineering at NB Power, for the record.

We do have a formal cable aging management program at Point Lepreau, and part of that program includes both field walk downs, so visual walk downs, and we do look at the condition of those cables.

We also do regular testing that's called indenter testing, and that's specifically to look for aging and degradation over time.

**MEMBER BERUBE:** So what are you doing with the cables? What are you doing to actually verify that the

installation is intact?

**MR. MICHAUD:** Yeah, so the indenter testing, the process is looking at the sheath and hardness of that, and changing over time.

And we also do additional testing in the space around meggering. And there's a couple different other technologies called -- we basically test -- refractory testing is kind of general terminology where we look for damage over the length of the cables.

**MEMBER BERUBE:** And while I'm on this topic, let's just drill into something else that's related, not identical, and that is the maintenance of your digital control systems, control computers, in fact that regulate the reactor core itself.

I'm under the impression that you've actually upgraded these things in the last little while. Could you tell me what was specifically done and whether you're optically isolated the DCSs?

**MR. NOUWENS:** Jason Nouwens, for the record. I'll ask Herb Thompson to speak about that. You heard from him yesterday on IT issues, but he's actually the Supervisor for the Computer Group. And, yes, we have done significant upgrades to those computers over time.

So, Herb, if you could provide some more details and specifics on our upgrades please?

**MR. THOMPSON:** Good morning. For the record, Herb Thompson.

So if I understand the question correctly, it relates to upgrades pertaining to plant control computers and whatnot. So, if that's the case, coming out of the retube outage a few years ago we did a complete replacement on the reactor control computers, those have all been refreshed.

Maintenance and life extension of digital computers throughout the plant is an ongoing program. In fact, as recently as the present outage that we are in, we've actually implemented some major upgrades to some of our data acquisition computer systems.

So not sure if that's your key question or not.

**MEMBER BERUBE:** Yeah, it gives me an idea. I'm just trying to understand the architecture and what you're actually doing to actually manage that over the long-term. Well, you're asking for a 25-year licence, so by the time this is done you're going to have to upgrade those computers a few times yet.

So I'm trying to understand the nature of your process by which you actually decide okay, well, it's time to upgrade these things. What are we going to do to basically make sure they're -- and they're isolated, so

that basically you're...

Are you still using PID control or are you using DCS, or what have you done here as a direct result? I'm trying to understand the nature of those systems, they're critical of course.

**MR. THOMPSON:** Right, okay. So there's great diversity throughout the power plant in various vintages and generations of control systems. The key reactor control and overall plant control, boiler pressure control, all that sort of stuff is all centralized control.

There are a lot of single loop PID controllers throughout the plant as well, some of that is analogue, a lot of that is digital, some of it's going analogue to digital, and some of it's now even going digital to digital as life evolves.

So if your question is about is there kind of one overarching central architecture, it's really sort of a more wholistic situation. Some parts are clearly centralized, some parts are more distributed.

**MEMBER BERUBE:** So over the next 25 years, the licensing ask period, you obviously have a long-term plan in terms of where you intend to go.

**MR. THOMPSON:** Yeah.

**MEMBER BERUBE:** Where is that in terms of the control systems?

**MR. THOMPSON:** Right, it's a really good question. So going back even prior to refurbishment, one of the things that we did actually before even getting into retube was, as a station, we identified a lot of the digital equipment that was outside the scope of refurb because it was not yet necessary to replace it.

So we actually have a rolling multi-year capital program that spans out a decade or more into the future where we have identified system by system what end of life is and what we need to replace when. And, for example, the systems that I referred to that are being replaced now during this outage are just one more item on that multi-year plan that really stretches out well beyond 10 years into the future.

**MEMBER BERUBE:** Just so I understand fully. Basically you're planning end of life and basically -- and Next Gen and then you're probably evaluating Next Gen technologies for security type applications, and then

**MR. THOMPSON:** Yeah, so there's a couple of things that go on there. So if you look at what happens in industrial computing, it's not like in the IT world where you've got to refresh your laptop every three or four years. Typically when we deploy systems we're actually designing for a 25 to 30-year life.

So if you think about it that way, you're not going to have all of the technology in lockstep synchronization as you go through time. So when we get to a particular replacement project we look at what is the right technology at that point in time to deploy, and we know that it's not realistic that that will be the same technology that we would use five years or 10 years down the road, and we know that it's going to be different than the legacy equipment that's already in place.

**MEMBER BERUBE:** Okay. The only reason I mention this is because yesterday we talked about the idea of maintenance drift in terms of the safe operating envelopes. And so I just really need to understand that you're looking at that very seriously as you're changing this hardware out, because it's not a like for like, in some cases an adapted type of control architecture.

So I just want to make sure very very clearly that you're not drifting out of the safety envelope by doing these kind of upgrades. And, you know, if you could just talk to that process a bit to make sure that that's all in spec?

**MR. THOMPSON:** Yes. So I think, if I understand the question, the question is how do we ensure that we stay within the envelope of the design requirements and the design basis. And all of this stuff happens

through our regular, you know, engineering change process and defining the requirements, defining the parameters, all of that is just integral to the way our design process works.

So if there's a particular, I don't know, set point or trip limit or something like that, that's part of the design requirements for that system, and then the replacement must meet that system, and that's verified through design reviews, commissioning and all that sort of stuff.

**MEMBER BERUBE:** And CNSC, could you speak to basically the oversight of especially control systems upgrades, cable management and how that's actually validated and verified for service?

**DR. VIKTOROV:** Alex Viktorov, I'll begin and then I'll ask Justin Sigetich to provide the details.

But with regards to cables or digital computers, just as any equipment, before any change is done there's a very robust, quite time-consuming process to control engineering changes. That's been first matured over years and examined by CNSC Staff. There's abundant evidence that the process works, and we have confidence that it works for the electrical system.

I'll ask Justin to provide details of what we do actually with electrical systems.

**MR. SIGETICH:** Good morning. This is Justin Sigetich from the Systems Engineering Division.

As, Dr. Viktorov mentioned, the CNSC reviews information from the licensees regarding their submissions for these types of updates to their electrical systems or for their instrumentation and control. So regarding any of these changes, they follow a robust engineering change control process.

And so that would tell us the types of changes that are being made, especially for systems that are important to safety, like a digital control computer, for example. They need to be able to specify what is being changed, how it's being changed and what kind of process is being taken to ensure that all safety requirements are being met, and that all of the regulatory requirements are being satisfied.

Concerning your question about cable aging management, that's something that our electrical specialists have been reviewing over the past years, that NB Power certainly has a cable aging management program, and their cable aging management program meets the regulatory requirements.

And we have been ensuring that they have been meeting the regulatory requirements for their cable aging management, verifying that their cables will be able

to perform their design intent when called into action.

We have performed compliance verification activities for their program and we are satisfied that that meets the regulatory requirements.

Now, for the digital control computers, just to follow-up on that. As I mentioned, there is this engineering change control process.

There are also CSA standards that we verify compliance against to ensure that digital equipment and software are qualified for their purposes before they're installed in a nuclear facility. And we perform compliance verification activities on this type of equipment as well.

So this is potentially desktop inspections or Type 2 inspections of this type of equipment to make sure that they're following all of the processes necessary.

Of course there's also, just to make sure that if it is an instrumentation and control or a particular system that is important to safety, like a digital control computer, we would also be ensuring that there are connections to the cyber security program. And if there's anything like this kind of system, this needs to interface with the cyber security program and that needs to be part of the overall change control process.

**THE PRESIDENT:** Okay. Then moving to Dr.

Demeter please.

**MEMBER DEMETER:** Thank you for your presentation. All my questions have been answered, thank you.

**THE PRESIDENT:** Thank you. I have a question for you, Mr. Richard, and really more a point of clarification. In your presentation, you know, you talk about the need for regular meetings with New Brunswick Power and CNSC, thus your conditional support for the long-term licence.

We've heard from both CNSC Staff and Mr. Goddard that certainly the Joint Health and Safety Committee members and our CNSC Site Inspectors meet on a regular basis.

In your submission, are you talking about then meeting with the Commission on a regular basis or is it what's already underway with Staff?

**MR. RICHARD:** Thank you for your question. Currently, we meet separately. We have regular meetings with NB Power and we have good relations with NB Power. We've started to meet with Staff at the CNSC, I had a great experience there as well.

What we're proposing is for a lengthy renewal period, is a formal process where we all could meet together on site; the CNSC, the leadership of NB Power, and

the leadership of IBEW to have a discussion about current status of morale, operations, and other issues to continue safe operations on site.

And so my observation is that we do have great meetings, but I can't predict the future. And so a formalized scheduled meeting goes a lot further than good intentions.

You all have meetings that you'd like to attend, but you're always dealing with pressing fires, and so sometimes those meetings get pushed off. And in the past I've seen meetings not occur for very long periods of time.

And so with this proposal, what we're suggesting is that every three or four years that we schedule a meeting on site with CNSC, NB Power to discuss issues.

**THE PRESIDENT:** Thank you. Okay. So I'll turn to New Brunswick Power, and maybe you can comment on that recommendation as well.

**MR. NOUWENS:** Sure. Jason Nouwens, for the record. Specific to that recommendation, we'll turn it over to Mark Power.

But I just would like to add a little comment about the discussion we had on cable aging management and the digital control computers.

We have three key programs at site. One is long-term asset management where we look at the aging potentials and the requirements for long-term operation of equipment. So this is 25-30 years lifecycle where we look at all the different systems and the major components and what the needs will be over the long term of the station.

The second one is system health monitoring where we look day-to-day, week-to-week, of the actual performance of those components and any potential degradation mechanisms and make sure that we're understanding exactly the performances of them and anticipating any potential degradation or needs that may come.

And the third one is under both those programs, when the need comes for a design change because of obsolescence or other requirements, that there's a very rigorous change control process that meets the CSA and regulatory requirements, but has a lot of quality aspects built into that to make sure that any components that are replaced meet or exceed the original design requirements and also take advantage of any new learnings from a performance point of view.

So those three key programs are very important. And the two examples we talked about are examples of items within those programs on how we manage

the station.

So I just want to highlight that. And we do have people in the room that could speak at more length on those on those programs if you're interested.

But with respect to the recommendation from you, I will turn it over to our Site Vice-President, Mark Power, for some comments on that please.

**MR. POWER:** Thank you. For the record, Mark Power. Regarding Mr. Claude Richard's presentation, we certainly are open to meeting with him and the CNSC Staff, as Mr. Richard suggested.

We meet regularly with the Union on many different forums. Mr. Richard mentioned that Mr. Goddard was a Co-Chair of the Joint Health and Safety Committee. He was the Employee Co-Chair. I was actually the Employer Co-Chair for several years with Mr. Goddard on this and we worked very closely together.

As a result of seeing Mr. Richard's intervention, I personally reached out to the Union, Mr. Richard and Mr. Goddard and suggested we set-up an additional regular occurring meeting to ensure that if they had any concerns that they would be addressed by us. So that is now in place as well.

And, you know, we have a longstanding positive relationship with IBEW. We recognize we cannot be

successful without IBEW, and us working closely together. And safety and quality is our primary goals of working together with them and to ensure our safe, continued, reliable operation of the station.

Mr. Richard also mentioned that for the last 25 years that we've had corporate safety meetings regularly, monthly. I also participated in those Union meetings with the management for several years as well. So I'm very tied into the Union issues and any concerns they may have and will continue this long-term great relationship. And if they want to meet with the CNSC Staff, we'll be happy to do so.

**THE PRESIDENT:** Okay. Thank you very much for that. So I'd like to thank Mr. Richard and Mr. Goddard for your submission, your presentation. And it's extremely important to the Commission that we actually hear from the employee representatives on their perspective of safety in the workplace and how well it's working. And so thank you for this.

With that, we will move to our next presentation, which is by Ms. Ann McAllister, as outlined in CMDs 22-H2.198 and 22-H2.198A.

Ms. McAllister, the floor is yours.

**CMD 22-H2.198/22-H2.198A**

**Oral presentation by Ann McAllister**

**MS. McALLISTER:** Good morning, Madam President, Commissioners, ladies and gentlemen. Thank you for this opportunity to intervene.

First of all, I would like to acknowledge that I live on the unceded and unsurrendered territory of the Wolastoqiyik, the people of the beautiful and bountiful river, and that I am grateful for their stewardship of Mother Earth since time in memorial.

First, a little bit about me. I'm a retired teacher with a lifelong commitment to environmental and social justice. I'm also a member of the Coalition for Responsible Energy Development in New Brunswick, representing the Saint John Chapter of the Council of Canadians.

I'm intervening as an older person whose experience and judgment cannot be contributed ever again, if the next hearing is in 2047.

I'm going to discuss three concerns with NB Power's relicensing application. First, it would limit public input for 25 years. Second, a 25-year licence could curtail public input into decisions to ensure the best management of an aging reactor.

Finally, a 25-year licence would give NB Power maneuverability with little public scrutiny to lay the groundwork for new nuclear project at Point Lepreau. Notably, Moltex Energy's proposal to reprocess or extract plutonium from Point Lepreau's waste nuclear fuel, which risks contributing to nuclear weapons proliferation.

So for the first point, a 25-year licence renewal raises concerns that the public will be silenced during this time. For example, what opportunities would the public have to review and comment on the environmental risk assessment updates if not in a relicensing hearing?

As one example of public concern about tritium exposures. According to the CNSC's website, standards and guidelines for tritium in drinking water, INFO-0766. Five of the nine residential wells tested near Point Lepreau show the third highest levels of tritium in Canada. Only Chalk River and Pickering show higher ranges.

In light of this, what long-term health studies by entities independent of the nuclear industry exist to provide evidence that chronic low doses of tritium are not causing health problems in residents living near CANDU power plants? This would provide evidence that regulatory safe limits truly are safe.

On Tuesday we heard about NB Power's plans to replace the heavy-water moderator by 2028. This

timeline should fact into the length of the relicensing period being considered.

Even though financial matters are not a direct focus of a relicensing hearing, renewing the licence of a facility whose debt makes up \$3.6 billion of NB Power's \$4.9 billion debt could enable this liability to increase, adding to the tax burden on present and future generations.

Consequently, the public must be able to decide to stop debt increases by phasing out Point Lepreau and replacing it with alternative forms of energy. Therefore the CNSC should consider renewing the operating licence for five years.

Secondly, the public must be able to participate in decisions to ensure the best management of an aging reactor. Point Lepreau has a history of reliability issues which could worsen as the reactor ages, with dire safety and financial consequences. For example, the most recent unplanned outage, in January and February 2021, lasted for 40 days at a cost to NB Power of one million dollars a day.

Other reliability risks for Point Lepreau could result from the decline of CANDU performance after 12 years, which was acknowledged by NB Power using industry data at the hearing for the application for refurbishment

in 2002. As a case in point, the pressure tubes were installed in 2012 and should be inspected in 2024. This should factor into decisions regarding the length of the licensing period.

Also of concern are the steam boilers, now 40 years old, that weren't replaced during the refurbishment to avoid the expense and the difficulties of removing and disposing of such large, highly radioactive pieces of equipment. If they failed, it would result in a total reactor shutdown. This should also be considered when determining licensing length.

Therefore the CNSC should continue to consider relicensing periods of five years to guarantee regular public participation in decisions for an aging reactor.

Finally, a 24-year licence would give NB Power manoeuvrability with little public oversight to lay the groundwork for new nuclear developments at Point Lepreau, such as nuclear fuel waste reprocessing, until such time as NB Power triggers the licence.

Moltex Energy's reprocessing or plutonium extraction program is a serious activity with implications for the proliferation of nuclear weapons. It cannot be compartmentalized out of future plans for Point Lepreau, for the following reasons.

First, Moltex's claim that the extracted plutonium would be proliferation-resistant has been discredited by six U.S. national laboratories in 2009 and by Dr. Edwin Lyman of the United States Union of Concerned Scientists in 2021.

Second, last May, in an open letter to Prime Minister Trudeau, nine U.S. non-proliferation experts warned that Canada's support for Moltex's reprocessing program could be seen by other countries as justifying their own reprocessing R&D, thus destabilizing the fragile global nuclear arms balance Canada has worked so hard over the years to strengthen.

Therefore I urge the CNSC to ban the extraction of plutonium from the waste fuel produced by the Point Lepreau nuclear reactor.

In conclusion, the CNSC should continue to consider renewing the operating licence for five years. A five-year relicensing practice would guarantee regular public participation in decisions to ensure best management of an aging reactor. The CNSC can prevent significant risk of nuclear weapons proliferation by banning the reprocessing of waste nuclear fuel from Point Lepreau. Therefore the CNSC should grant a five-year operating licence in the best public interest. Thank you.

**THE PRESIDENT:** Thank you, Ms. McAllister,

for the presentation. And we'll start with Dr. Berube.

**MEMBER BERUBE:** Thank you for your presentation. I have no questions.

**THE PRESIDENT:** Okay. Dr. Demeter.

**MEMBER DEMETER:** Thank you for your presentation. In your written intervention, you talk about impact on marine life and you quote us the 2017 study.

I think it may be a good idea if DFO, the Department of Fisheries and Oceans online, to talk about what authorizations are in process, what authorizations have been given, the impact on marine life based on this facility, just to clarify it from their point of view.

**THE PRESIDENT:** Okay. Do we have anyone from DFO online?

**MR. HULBERT:** Yes, it's Bryan Hulbert here, for the record. Can you hear me?

**THE PRESIDENT:** Yes, we can.

**MR. HULBERT:** Thanks. Yes, speaking to the authorization process, I can give some notes there, and then I'll turn it over to my colleague, Angeline LeBlanc, who is also online here.

So the department is working towards the review of a *Fisheries Act* authorization application submitted by New Brunswick Power for the Point Lepreau

facility and we are nearing the conclusion of that process. We are working towards finalizing some of the details related to the conditions in that *Fisheries Act* authorization. Part of our process was to attend these proceedings, and we anticipate being able to wrap up our process shortly after the conclusion of these proceedings.

As for some of the specifics about the details of impacts to fish, I'll turn that over to my colleague, Angeline LeBlanc.

**MS. LeBLANC:** Hi, good morning. I'm Angeline LeBlanc, for the record.

So we have reviewed all the impact, the impingement and entrainment studies provided by NB Power through the process of our *Fisheries Act* authorization, and we determined that the station does cause serious harm to fish and fish habitat. That means that there is a death of fish. And we do look at the impact on local population, and then just like the population in general, and we do believe that the amount of death caused by impingement and entrainment will not have a huge impact on the productivity of fish -- or at least it's an acceptable impact.

One of the things that is associated with the *Fisheries Act* authorization is offsetting; therefore, like any loss of fish is offset by another project to compensate for that loss as well. So we take that into

consideration when issuing a *Fisheries Act* authorization.

**MEMBER DEMETER:** So I may need some clarification because it's not unusual at such hearings to hear that the authorization is in process, but they've been operating since 1983. So did they have previous authorizations? This surely isn't the first time that DFO has looked into the impact on marine life with this industry, and so operations prior to the process you're going through -- have they been assessed, and what type of mitigation factors are in place or considered? You had mentioned that about offsetting. Maybe give me some details on that. To DFO, please.

**THE PRESIDENT:** Mr. Hulbert?

**MR. HULBERT:** Yes, thank you.

As with respect to the process, yes, there are offsetting requirements and DFO is working to finalize some of those details. So there was a proposal put forward by New Brunswick Power for the removal of a dam on a large river system, and it does meet the requirements of our program in terms of offsetting under the *Fisheries Act*, under which we're issuing this authorization.

So we're working to finalize some of the details surrounding that, and some of the productivity metrics that were established for the loss of productivity through entrainment and impingement that were identified in

the application from NB Power were in consideration for what the requirements would be for offsetting of this particular project. So that is what I was referring to previously regarding finalizing some of the details.

So we have in the *Fisheries Act* authorization itself, conditions that relate to the operations of the facility, and conditions that relate to the offsetting for the impacts or the residual impacts to fish and fish habitat. So those are two separate components of the authorization itself.

So within the authorization, we'll identify some of the operating parameters, such as the amount of water that is intake, the rate of intake -- so velocity of water -- that affects impingement and entrainment. So that will be established as conditions in the *Fisheries Act* authorization, and if there were changes to those metrics, it would require further investigation or amendments by our department for the *Fisheries Act* authorization, *i.e.*, if NB Power plan to increase the rate of intake or the velocity at which they're intaking water, it may have an impact on impingement and entrainment and it may lead to us having a further review and opening up the review of the *Fisheries Act* authorization.

And for the offsetting component, we are still working out some of the finalized details and really

some of the components around milestone timelines related to the decommissioning project of that dam. So that's where we are for status of that.

And I'll open it to any further questions if there are more details required, or specification.

**MEMBER DEMETER:** Just a clarification. When did the requirement for authorization, what year did that come into place? I am trying to place when *Fisheries Act* authorization was required compared to the longstanding operations of this plant. Is this a recent component of the Act or is this longstanding?

**THE PRESIDENT:** Okay.

**MR. HULBERT:** Again, Bryan Hulbert, for the record.

**THE PRESIDENT:** Yes.

**MR. HULBERT:** I'm sorry.

**THE PRESIDENT:** Yes. No, Mr. Hulbert, you can start, but then I want Point Lepreau to also comment on that.

**MR. HULBERT:** Okay. We can offer some specific dates, but NB Power can probably answer some of that as well, as you mentioned.

Yes, this is more recent. This will be the first authorization, *Fisheries Act* authorization sought for the Point Lepreau facility. So we are in the process

of obviously navigating through that and this will be the first issuance of an authorization at that facility for mortality of fish.

**THE PRESIDENT:** And to Dr. Demeter's question on when did the requirement come into effect?

**MR. HULBERT:** I will defer to probably Angeline for specific dates around the application, when it was received and when those changes have happened between the Department of Fisheries and Oceans and New Brunswick Power. Thank you.

**MS. LeBLANC:** Hi. Angeline LeBlanc, for the record.

I believe the application for an authorization was submitted to the CNSC in 2017, maybe following the previous licence renewal process.

When it comes to nuclear facilities, we have an agreement or an MOU with the CNSC where they determine the need for *Fisheries Act* authorization and once that determination has been made, then it comes to DFO to issue the *Fisheries Act* authorization.

But I believe it might have come out from the previous relicensing hearings in 2017.

**THE PRESIDENT:** Thank you.

Point Lepreau...?

**MR. NOUWENS:** Jason Nouwens, for the

record.

Before I turn this over to Andrea McGathey, I just want to point out that this is a long file, it has been in progress for a number of years. It started with a specific application for Point Lepreau only and then transitioned and was superseded by an application for the Corporation in its entirety. So there is a little bit of history there and Andrea McGathey, if you could walk us through some of those details and timelines, please.

**MS. MCGATHEY:** Thank you, Jason.

President Velshi and Members of the Commission, good morning. Andrea McGathey, for the record.

So Angeline is correct, the requirement for *Fisheries Act* authorization under *Fisheries Act, 2012* was a result of a self-assessment that was done following the last relicensing for Point Lepreau.

As part of Point Lepreau's environmental stewardship and commitment to the environment, we undertook impingement and entrainment studies in the timeframe from 2013 to 2015 to understand the loss to the marine environment associated with the cooling water intake.

A self-assessment was completed in accordance with requirements to the Regulation and submitted to the CNSC and DFO for review and it was concluded that an authorization would be required, despite

what one could consider impacts not significant at a population level when we look at different commercially important fish species in the Bay of Fundy. So NB Power was mandated to comply with the requirements for an authorization for non-fishing-related mortality to fish and other marine species.

**THE PRESIDENT:** Thank you.

Mr. Kahgee...?

**MEMBER KAHGEE:** Thank you very much for your presentation. I just have a follow-up question to CNSC staff.

Ms. McAllister made reference to tritium levels with respect to wells. I know we have had a lot of discussion over the last couple of days with respect to tritium, but I'm just wondering if you can help me understand in terms of cause any mitigation efforts and are there any concerns overall in terms of safety?

**DR. VIKTOROV:** Alex Viktorov, for the record. Allow us a second to find the best person to take this.

All right. So we will ask Melissa Fabian Mendoza to provide details on the tritium monitoring.

**MS. FABIAN MENDOZA:** Good morning. Melissa Fabian Mendoza, Director of the Environmental Risk Assessment Division, for the record.

So regarding tritium levels in the environment, this is not something that is a concern to CNSC staff.

In terms of more specifics about the levels that we are seeing in groundwater and wells, I will ask Dr. Shizhong Lei to please provide those details. Thank you.

--- Pause

**MS. FABIAN MENDOZA:** I'm not sure if Dr. Lei is able to connect.

Perhaps while we are waiting for him to connect I will see if maybe just in the meantime we could perhaps pass to Ms. Sauvé, who I know can talk a little bit more about health concerns and limits regarding tritium.

**MS. SAUVÉ:** Kiza Sauvé, for the record. So your question was about causes, mitigation and I think concerns.

In terms of causes and how it gets in there, we could also pass to NB Power to kind of talk about how tritium comes out of the facility and might get into the groundwater. But what do you --

**MEMBER KAHGEE:** Yes. Just specific to the wells, that was right, yes.

**MS. SAUVÉ:** Okay. So I think if we want specific to how it gets into the wells, if Dr. Lei can't

connect, I think NB Power is probably the best way to talk about how it gets in there and then we could come back to me if needed.

**THE PRESIDENT:** Mr. Nouwens...?

**MR. NOUWENS:** Jason Nouwens, for the record.

I will turn this over to Jennifer Allen, who is our Senior Health Physicist, and we will maybe take this opportunity as well to clarify some points from Tuesday around tritium releases.

Jennifer Allen, over to you, please.

**MS. ALLEN:** Thank you. Jennifer Allen, for the record.

Tritium is released from the station in a couple of different pathways, through the airborne pathway as well as through the liquid effluent pathway.

Before the station became operational there were samples taken from wells as part of our preoperational program and very low levels of tritium were detected in those wells at that time.

However, monitoring wells has become an integral part of our Environmental Monitoring Program. So well water is tested as part of our Environmental Monitoring Program. The results of those samples are made available to the public and they are posted on our website

in compliance with CNSC's regulatory requirements for our licence, as well as our Environmental Monitoring Program. Again, the samples are posted on our website, they are available to the public.

Releases. Again, minimizing public dose is very important to NB Power and those operational activities are proactively assessed and we make every effort to mitigate releases.

So in terms of your question around causes, the cause of tritium in the environment as a result of Point Lepreau's operation is related to those operational activities that involve heavy water systems.

For example, during maintenance, purification and venting, there can be slight increases in controlled releases. The releases are well below the regulatory limit set out by the CNSC and they pose no danger to the health of our employees or the public.

Airborne tritium is monitored and reviewed daily to ensure that it is controlled and that levels are maintained well below the regulatory limits. Airborne emissions of tritium from the station are the largest contributor to potential public dose and, again, the highest potential cause for tritium being found in the environmental samples.

Radiation dose from our releases, again,

if you look at all of the estimated releases from the station as a result of our operation over our entire operational period, just to put that dose to the public in perspective, that would be less than a person would receive from receiving one chest X-ray. That being said, you know, monitoring our releases and assessing the impact on the public is very important to us and we are proud to maintain those low doses to the public based on that.

**MEMBER KAHGEE:** Thank you. That is very helpful.

CNSC, any response?

**DR. VIKTOROV:** Hopefully, Dr. Lei is able to connect now.

**DR. LEI:** (Off microphone).

**DR. VIKTOROV:** Dr. Lei, we cannot hear you well.

**DR. LEI:** Hello. Can you hear me now?

**THE PRESIDENT:** Much better. Thank you.

**DR. LEI:** My name is Shizhong Lei, I am a Geoscience Technical Specialist with the Canadian Nuclear Safety Commission.

The tritium released into the air over time would be washed down by precipitation to the surface and then would gradually penetrate into the monitoring wells.

Since 1979, NB Power has been sampling tritium in drinking water wells within about 3 kilometres of the Point Lepreau Generating Station. So far the maximum offsite value within the 3-kilometre radius in the past 10 years was just 48 Bq per litre among all of those monitored drinking water wells.

The tritium concentrations onsite in the groundwater have also been very low. Within the generating station the maximum in the past five years was 440 Bq per litre. In the waste management area the maximum was 600 Bq per litre. In the inactive landfill area the maximum in the past five years was 90 Bq per litre.

So from those numbers, CNSC staff concluded that the tritium impact to the environment and human health is minimal.

**MEMBER KAHGEE:** Okay. Thank you for that.

**THE PRESIDENT:** Thank you, Ms. McAllister. Thank you for your submission and for your presentation. We very much appreciate that.

We are going to take --

**MS. O'DONNELL:** Would there be time for me to ask just two quick questions?

**THE PRESIDENT:** Okay. Very quick, because I know people are desperate for a break. So please.

**MS. O'DONNELL:** Yes, I am aware of that.

Just very quickly.

I don't expect answers now, but just to consider what other mitigation measures for impingement and entrainment would NB Power be considering or planning, for example, coarse screens over the intakes and fish deterrent mechanisms.

And then the other thing regarding tritium is, to me, to hear that it is well below regulatory levels makes me ask, okay, but can this be validated by long-term studies that have tracked exposure in residents who live near CANDU power plants to ensure that the levels indeed are backed up by the fact that there haven't been illness caused by chronic low dose exposures to tritium? And it would have to be studies over a long time because of the fact that chronic low dose exposures, illness takes decades to manifest.

So those are my only two questions. Thank you for that opportunity.

**THE PRESIDENT:** Thank you. And we will try to get to those questions in our round of questions at the end. So if you are here, hopefully you will be able to hear the responses to that.

Okay, we will take a break and we will be back at 10:15, please.

--- Upon recessing at 10:03 a.m. /

Suspension à 10 h 03

--- Upon resuming at 10:16 a.m. /

Reprise à 10 h 16

**THE PRESIDENT:** Our next presentation is the Brilliant Energy Institute, Ontario Tech University, as outlined in CMD 22-H2.240, and we have Ms. Jacquie Hoornweg presenting this remotely.

Ms. Hoornweg, over to you, please.

**CMD 22-H2.240**

**Oral presentation by**

**Brilliant Energy Institute, Ontario Tech University**

**MS. HOORNWEG:** Thank you.

Good morning. Can you hear me well?

**THE PRESIDENT:** Yes, we can.

**MS. HOORNWEG:** Thank you.

My name is Jacquie Hoornweg, Executive Director of the Brilliant Energy Institute at Ontario Tech University, and I will just start my video. There we go.

So, Jacquie Hoornweg, for the record.

I want to start by acknowledging the lands and people of the Mississaugas of Scugog Island First

Nation. We are thankful here at Ontario Tech to be welcomed on these lands in friendship. They are the traditional territory of the Mississaugas, a branch of the greater Anishinaabeg Nation, including Algonquin, Ojibwe, Odawa and Potawatomi.

I am pleased to be with you here today, albeit virtually, to support the Point Lepreau Generating Nuclear Station's licence renewal. My support is based on my knowledge of the benefits from the station for the people of New Brunswick. It is also based on my knowledge of the people who work at the station and their commitment to serving the communities that depend upon them for reliable, safe and environmentally sound electricity generation, all things I know they are keenly aware of.

The primary source of electricity for more than 40 percent of Canadians is from low carbon nuclear generation and this is a tremendous advantage in Canada's work to address the climate crisis we face. And it is the case in New Brunswick where the Point Lepreau nuclear plant has been a significant contributor to the avoidance of greenhouse gas emissions for many years.

The expertise in operations, project management, as well as community and stakeholder engagement that has been developed as part of this history is crucial not only for the future of New Brunswick but also as we see

nuclear being increasingly considered to play an important role as part of clean energy systems elsewhere.

Many provinces and other jurisdictions internationally are looking to nuclear to help address climate change, meet sustainability goals and achieve competitiveness in a global net zero economy.

Canada's longstanding energy expertise, including in nuclear power, will be a significant asset as the country positions itself as a desired global partner in the transformation that will be necessary to ensure global sustainability. It will also help Canada emerge as a place to do business in the world where low carbon energy will offer a distinct advantage.

So what does this have to do with New Brunswick's licence renewal specifically?

For the past two decades I have worked with colleagues at New Brunswick Power, first in my progressive roles at Ontario Power Generation and later in my own company, where I work both directly and indirectly in collaboration with New Brunswick Power on engagement, communications and strategic initiatives. This included during the early days of the COVID-19 pandemic, when ensuring the safety of workers and ensuring reliable power continued to flow became of parallel importance and became codependent.

I saw personally the hours of work, the commitment to collaboration, and the use of skills and knowledge of the management team and staff firsthand, both in my work with CANDU Owners Group, where NB Power is a leading member, and working directly with the communications team led by Kathleen Duguay at NB Power on both internal and external communications during this time.

I saw the management team and staff put the needs of their customers, and their neighbours frankly, ahead of their own needs as individuals and ahead of the needs of their families, while trying like so many of us to navigate a terrifying pandemic we were all struggling to understand.

They worked with their industry peers and each other to ensure there would be no disruption to service and that the safety of workers would not be compromised. In fact, I saw this exemplary response at every station across Canada and how people worked together to ensure that response. I think this example is illustrative of the dedication and human performance processes and commitment that are deeply woven into Canada's nuclear industry operations and projects.

There was a tremendous challenge to all society, not just the nuclear industry, and to NB Power and the entire CANDU fleet, and NB Power and the fleet rose to

the challenge and they did it together, which is a core strength. Collaboration is something we talk about a lot and I think it is a core strength of the industry.

Similarly, in their work with the people interested in the station or having a stake in the plant's operations and projects, I can think of countless ways the NB Power team has worked to share information transparently and, importantly, to listen, to engage, involve and also to learn from the communities and individuals.

Sometimes these engagement activities happen in formal ways, the kind that get you checkmarks on regulatory documents, and of course these are very important. I have also seen, however, many hours spent on the less official but perhaps even more meaningful engagement that takes place between people, not between organizations. These are the kind of engagements that only occur when you have people working in companies that care as much about the people behind the checkboxes as they do about the formal process. It is what happens when they really see and care for the people in these communities at a human level.

And that is what I have seen over the past several years working with NB Power, the NB Power team, with First Nation communities, the local community, and even individuals who have no titles or associations but

simply want to know more to make informed decisions about Point Lepreau and nuclear power.

And I would just say, in hearing some of the representatives who spoke over the last few days, for those who hadn't engaged with NB Power and felt the only way to do so was during a hearing, I would say reach out, ask for that engagement and I would be shocked to hear that you weren't more than welcome to come and to have a conversation and to become involved with NB Power.

It is also about working together on initiatives that have little to do with the station but everything to do with improving the communities, because that is what matters to the people of these communities. This work is harder to quantify in a hearing like this, but working together on what matters most to people in their lives helps them understand the kind of person that you are, your commitment to them and the kind of job you will do for them when you are back in the station managing things the way they would want to do it themselves if it were their job.

And as we have seen in COVID and the debate on public health measures, just because everyone has the same information does not mean everyone will come to the same conclusion. The bar against which we measure success in an engagement project should not be consensus.

Meaningful engagement is about building a relationship that results in trust that allows the conversation to continue even when agreement has not been reached.

My observation after years of this work is that sometimes we need more patience. Perhaps sometimes relationships and engagement are judged to have failed simply because we are checking in on them too early, sort of like looking in the oven when the pie is still baking. Pie is delicious, but have you ever tasted uncooked pie? Not as good.

These are complex subjects and they are not just intellectual, they are about emotions and beliefs that are far more difficult to separate from clinical facts.

As a Commission, my understanding of your role is to determine safety based not on emotion or beliefs, but on facts and science, and within a time frame. Sometimes you cannot wait for the pie of consensus to finish baking. And because your job is to determine the fact-based science case, that is a hard but doable job.

But good relationships, the kind I have seen built between the folks at Point Lepreau and their communities, allow the conversation to continue for new approaches and solutions to develop that strengthen mutual satisfaction and even present innovations that were

previously unconsidered.

I would suggest that it is in NB Power's self-interest to nurture these relationships. I don't think it is about ensuring that every five years or 10 years or 20 or 25 years they have a good hearing. Increasingly, studies prove and companies are realizing the tangible benefits they gain by investing in best practices in environmental, social, and governance activities and principles.

Today in my new role -- I've been in the role about six months at the Brilliant Energy Institute at Ontario Tech University -- we are committed to be a change agent for the transition to net-zero. It means some technical innovation for sure, and we have lots of great researchers who can do that. But we are also committed -- so we are committed to the advancement and integration of technologies, including nuclear, that together will contribute to clean, safe, affordable energy systems.

We are also committed to advancing knowledge that will ensure that these technologies can help decarbonize our civil infrastructure, like transportation, buildings, municipal services, and heavy industry, and also be affordable, safe, and responsibly managed.

It also means the investment into the development of diverse and effective workforces --

something I know is close to your heart as a Commission -- the people of all races and genders with the right skills and knowledge and removal of barriers for them to achieve those who will be needed for this massive transition.

It is about removing those barriers and strengthening accessibility to training and careers to ensure equitable opportunity for all. And it means empowering people to be active participants in the way we were generate, conserve, and use energy and how we will manage the waste in the future by strengthening energy literacy and engagement opportunities.

We are doing this with many partners across Canada from academia, industry, government, and communities. Already I am pleased to say we are finding ways to include New Brunswick Power and their community partners in our work. And because I know them and I know of their leadership and commitment, I also know they will make our initiative stronger by their involvement.

For all these reasons, I am pleased to lend my support to their application.

**THE PRESIDENT:** Thank you very much, Ms. Hoornweg.

And we'll start with Dr. Demeter, please, with questions.

**MEMBER DEMETER:** Thank you for your

presentation. I'm going to take a slightly different approach.

One of the things we haven't talked about yet is succession planning for the industry and professionals within nuclear engineering, nuclear science professionals.

You are at an institute that trains such individuals at the undergraduate and graduate level. Can you give me a sense of your footprint for how many students you have enrolled and if you have a sense of how many end up in Canada's nuclear industry, working at nuclear power plants?

**MS. HOORNWEG:** Yes, thank you for the question. For the record, Jacquie Hoornweg.

So I'm also going to take a little bit of a different approach.

As you may be aware, Ontario Tech has Canada's only undergrad in nuclear engineering. We also have an extensive engineering program that includes mechanical and electrical engineering among other engineering programs.

And in our energy systems and nuclear engineering and science faculty, we have an excellent rate of student graduates going into the industry. In fact, I believe for those who want, who at the end of their work

decide that they want to go into the industry, I think there are almost no students who don't have the opportunity to do so.

We also have several opportunities for work-integrated learning, co-op programs, internships that those students have an opportunity to work in the industry throughout their education.

I also want to mention that in addition to the students that are specifically enrolled in the nuclear engineering program, there are also students who, through the other engineering and even some of the other cross-discipline areas, so for example, in advanced manufacturing, artificial intelligence, some of these other -- cyber security. So in that case, it's not even in engineering specifically, but in computer science and in information technology through our business and information technology program. There we have many students who have the opportunity to be hired into the industry, and we also have many pathways for which they can do so.

And I would say that the industry, both the utilities as well as the supply chain, are active members of the engagement of ensuring that that is happening and work with us very closely.

With respect to specific numbers, I am happy to go back and make sure that I have those right and

bring them forward to the Commission for your information.

**MEMBER DEMETER:** Okay, thank you.

If I could just -- NB Power, what is sort of your pool, if you're looking for people, what is your pool of applicants? Is it easy to find? What's your vacancy rate for professionals in the plant?

**MR. NOUWENS:** Jason Nouwens, for the record.

I'll turn this over to Mark Power, site vice-president, to answer the question specifically about the pool, but also provide some comments on your earlier question about succession planning, which is very important to us as a station.

**MR. POWER:** Thank you for the question. For the record, Mark Power.

So regarding the succession plan, we have a very robust succession plan at Point Lepreau where we've identified ready-now candidates in all of the senior positions right down to the manager level and superintendent level. And we're continuing to work on that at the supervisory level.

Not only do we have ready-now candidates for those positions, but we also have several others identified in each of these positions that could be ready up through six months, one year, or two years. And we have

individual development plans for each of those people so that they can then work out those development plans so that they will be ready in the future.

Regarding our engagement with the other universities and community colleges, we work very closely with UNB to draw in additional engineers. Our vacancy rates are very low. We have long lists of people applying whenever we post a position for sure in the engineering field.

We're also, as I mentioned, working closely with UNB and Community College of New Brunswick, Saint John Campus, and that's where our power engineers come from. And we work closely with them to ensure that their program is tailored to meet the needs of our station.

And we also have an internship going on right now with the community college that they are actually running a large portion of the certified staff program for us. So they would've done similar things in Ontario at Durham College, where they end up having some power engineering students working towards getting the operations jobs at their stations as well.

I will turn it over to Jen Lennox now, just for a few moments, to elaborate more on what she has done recently working closely with the UNB and the engineering department on some of their presentations and

also their recruitment process.

**MEMBER DEMETER:** Actually, I'm good with the answer now.

**MR. POWER:** Okay, thank you very much.

**MS. HOORNWEG:** Can I add one more thing before we move to the next question?

**THE PRESIDENT:** Go ahead.

**MS. HOORNWEG:** Thank you.

I also was remiss in not mentioning the fact that we have a -- one of the things not only in Ontario Tech, but I'm also the board member for Ontario Tech with the University Network of Excellence in Nuclear Engineering. And both through the work that we're doing here at Ontario Tech and also I can tell you in collaboration with my colleagues at UNENE but also across the university network of the other universities in Canada that have nuclear engineering courses and programs, that there is a tremendous focus -- and also just generally in STEM and engineering -- a tremendous focus on thinking through the interlay of equity, diversity, and inclusion. And that includes in gender; it includes thinking about BIPOC communities and how we remove those barriers, and recognizing that there have been commitments to equal by 30, for example, within the nuclear industry. And so if we're going to get to gender equity by 2030 and we're going

to have momentum in that, that there is a role that the universities, who are the feeder into that pipeline for talent, have to play in this. And so we're very active in organizations like Women in Nuclear and others that are -- and also in talking and building initiatives ourselves on how we can strengthen this within the university sector.

**THE PRESIDENT:** So, Ms. Hoornweg, I can't help but follow up on that, because I had been led to understand last year that the enrollment particularly of women in the nuclear program at Ontario Tech University was quite disturbing. It had actually dropped.

So maybe you can share with us exactly how diverse the pool is. But is the enrollment dropping across all disciplines or, you know, is this a pandemic-related concern over the last year?

**MS. HOORNWEG:** Yeah, so, thank you for the question. Jacquie Hoornweg, for the record.

So one of the -- so Brilliant Energy Institute was formed over the course of a period of about 18 months of engagement with the business community, the industry community, as well as government and other stakeholders, but really only got started in November, and as -- when I was hired as the first executive director.

And one of the key areas of focus working with my colleagues in the faculty of nuclear energy systems

and nuclear science is that we are looking at this and taking this as a pillar within the Brilliant Energy Institute to look at this, develop -- and working, frankly, with some of the other organizations within the university and, as I mentioned, with our colleagues.

So I think that I don't disagree with you and I won't counter what you said, that the numbers are not where we want them to be. But I would say that initiatives like the development of Brilliant Energy Institute, which in part is very -- the principle that we're building it on is a people-centred focus to address exactly this question.

So I think that I probably will be in a better position to talk more fully about this once we have done some of that work.

We do actually have some initiatives that we're developing, including one that we have put in a proposal to the federal government to provide us the ability to take on some of this work. And you know, I think this goes back to the collaboration that we need to consider how are we getting into high schools, how are we getting into even those lower grades in terms of helping open up the conversation not only in nuclear, frankly, but in energy more generally and in clean energy as to how are we going to get the workforce that we need and to ensure that it is diverse and to work with businesses so that we

also remove for them the barriers that may be creating a situation where not as many people from diverse backgrounds are applying into the universities, into the programs, but also into the businesses.

So I would just say that this is work in progress.

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

Mr. Kahgee?

**MEMBER KAHGEE:** Good morning. Thank you very much for your presentation.

I have no questions at this time, thank you.

**THE PRESIDENT:** Okay, Dr. Berube?

**MEMBER BERUBE:** Yes, thank you for the presentation.

I have no further questions at this time.

**THE PRESIDENT:** Okay. Thank you, Ms. Hoornweg, for your submission and for your presentation today. Thank you. And we wish you well in your new position.

Our next presentation is by the Canadian Nuclear Society, as outlined in CMD 22-H2.175.

And Mr. Kamal Vermal, I understand you'll be the first one to start the presentation, so over to you.

**CMD 22-H2.175**

**Oral presentation by the Canadian Nuclear Society**

**MR. VERMAL:** Thank you. Thank you very much.

Good morning, Madam President and members of the Commission. My name is Kamal Vermal, and I'm the president of the Canadian Nuclear Society of Canada, which is a learned society for the nuclear industry throughout Canada. We have branches in almost all parts of Canada, including one here in New Brunswick, the New Brunswick chapter, for which Derek Mullin is the president.

We have approximately 800-plus members throughout Canada of the Canadian Nuclear Society. And the society has many divisions as well as branches and committees to serve the nuclear industry. And we are an association of researchers, engineers, and scientists. The mandate that we have as part of incorporation is to present true, factual, and accurate information related to the nuclear power to academia, public, and the decision-makers.

With respect to my background, I have over 40 years of experience in the nuclear power industry and starting with design, construction, commissioning, operations, and maintenance of the nuclear power plants, CANDU nuclear power plants here in Canada, starting with

Point Lepreau where I spent 21 years starting from February 1981 until I left NB Power and went to China to commission Jinshan Units 1 and 2 for two and a half years. After that, I went to Romania to commission Unit 2 Cernavoda, and stayed there for 11 years to support both Cernavoda 1 and 2.

Throughout my nuclear industry experience, I have been associated with the CANDU 6 fleet in Canada as well as around the world as part of providing enduring support through ACL and lately by SNC Lavalin.

I'm today here with my colleagues. On my right is Dr. Burany. Dr. Burany is the CNS board secretary. She has approximately 15 years-plus experience in the nuclear industry. On my back on the right-hand side is Colin Hunt. Mr. Colin Hunt is the co-chair of the Regulatory Affairs as well as the Government Relations Committee along with Mr. Peter Easton, who is joining us by video from Toronto. He is also the co-chair of the Government Relations as well as the Regulatory Affairs Committee of CNS.

And with respect to our support, we fully support NB Power's application for the extended licence for the Point Lepreau Generation Station. We would like to outline some of the major reasons with respect to our position on this matter.

Number one is that Point Lepreau is very important with respect to the overall mission of controlling greenhouse gas emissions by providing about 30 per cent of the need for electricity in New Brunswick.

Point Lepreau was the first nuclear power plant -- CANDU 6 nuclear power plant that ACL designed and built in Canada, and then it was followed by other countries. Point Lepreau has been a flag nuclear reactor for all other CANDU 6 editions to follow in other parts of the world. They have emulated Point Lepreau with respect to its processes, procedures, certification of the staff, as well as operation of their units up to some point that many of the other international stations have sent staff to Point Lepreau for training at the station.

And Point Lepreau is also very important with respect to providing the needs for electricity in other provinces, including Prince Edward Island and, as required, to Nova Scotia.

Lepreau's operation since its start-up has been key with respect to the economy of New Brunswick by providing high-power and high-paying jobs to the residents of New Brunswick as well as the rest of the relevant industry which is dependent upon the station operation, maintenance, and support.

The reason for going to 25 years of

licence is in line with some other countries' international practices, as is seen in countries like Korea and China. There, their licences are issued for the whole life of the station, 30 years, and reviewed in between based upon the periodic safety review requirements. And basically, Point Lepreau's request or application for 25 years is in line with the international practice.

Some of the other major reasons of our support, we support the licence application, and the other reasons for this support are that nuclear power is essential to New Brunswick for its base load electrical generation. In addition, it cannot be replaced. If the licence is not approved at Point Lepreau, it cannot be replaced by short-term construction of new generating facilities in the province of New Brunswick. And it will obviously increase the imports from other jurisdictions.

New Brunswick's nuclear power program provides high technology employment and industrial capacity and academic and apprenticeship training programs.

Our strong support for nuclear power is essential to meet the federal decarbonization policy by having Lepreau's extended licence.

The Canadian Nuclear Society strongly supports the application of Point Lepreau with respect to longer-term operation of 25 years based upon its

application.

And we will be pleased to answer any questions that you may have.

**THE PRESIDENT:** Thank you very much for your presentation.

Let's start with Mr. Kahgee.

**MEMBER KAHGEE:** Thank you very much for your presentation. I have no questions at this time.

**THE PRESIDENT:** Dr. Berube?

**MEMBER BERUBE:** Yes, thank you for your presentation and thanks for coming to speak to us.

Obviously, you have quite a bit of experience with CANDU 6s from the sound of your resumé. Let me ask you, we were looking at licensing periods that fall in line with international practices. But in your opinion, looking at a very long career with CANDU 6s, what do you think is the best practice for a licensing term? I mean, like you know, we can say this is a spectrum. But what do you think from a practical standpoint would be the best practice?

**MR. VERMAL:** The best practice is, number one, a long-term licence coupled with, in between, periodic compliance reviews which answers many of the questions to make sure that the licence holder is meeting with all the regulations of the nuclear power, and meeting the

requirement in terms of safe and reliable operation of the station. With the periodic intervention through a PSR, which is every 10 years, I think that the adequacy of addressing those concerns that some people have raised are fully addressed.

So I think that a long-term station licence is definitely in the best interest because the station can then continue operating with periodic reviews to make sure that they're meeting all the licence requirements. So I think that this is a good practice to follow.

**MEMBER BERUBE:** What are your thoughts on public intervention? I mean, because so many different nations have these reactors in process. And I mean Canada is a leader in public intervention, I would think, but what are your views on that?

**MR. VERMAL:** With respect to public intervention, I think this is a very good practice. And public interventions can be still held with periodic compliance reviews. Opportunities are there always for the public to intervene, you know, whenever they know that there is going to be a review after 10 years, it is an opportunity for the public to intervene. So it's always there.

**THE PRESIDENT:** Dr. Demeter?

**MEMBER DEMETER:** Thank you. I don't have any specific questions.

**THE PRESIDENT:** Thank you.

And Mr. Vermal and your colleagues, I don't know if you have been following the hearing over the last few days. There have been a number of concerns raised by intervenors, Dr. Berube touched some of those, where the licence term and public engagement are so intertwined, and the need for ensuring the public has an opportunity to engage not only with the proponents and stuff, but frankly, with the Commission, and thereby build greater trust within the overall ecosystem on how nuclear power is managed and regulated.

I wondered, besides the ten-year periodic safety review, if you had any other thoughts around building or strengthening that public confidence and trust in the overall process.

**MR. VERMA:** Kamal Verma, for the record.

Madam President, I will refer this question to my colleague, Colin Hunt.

**MR. HUNT:** Colin Hunt, for the record.

The question, Madam Chairman, is a very good one. It has already been answered, at least in part, this morning, not by us but by other presenters.

The notion that public contact or public input only happens at a licence renewal is fundamentally false. I say that it's false because NB Power has already indicated a number of outlets of contacts with other groups

within New Brunswick's larger civic society, groups which the utilities contact specifically, such as various specific First Nations groups, various civics groups within society as defined by essentially themselves.

So, the notion that this can only happen because of some formal licence review process is false.

**THE PRESIDENT:** Thank you.

Thank you for your intervention. Thank you for your appearance today.

We will move to our next presentation then, which is by Ms. Margaret MacDonald, as outlined in CMD 22-H2.3.

I understand Ms. MacDonald is joining us remotely. So, Ms. MacDonald, over to you, please.

**CMD 22-H2.3**

**Oral Presentation by Margaret R. MacDonald.**

**MS. MacDONALD:** Can you see me and hear me?

**THE PRESIDENT:** Yes, we can; thank you.

**MS. MacDONALD:** Margaret MacDonald, for the record.

I would like to express my concerns regarding the proposed lengthening of the licensing period

for the Point Lepreau Nuclear Generating Station from five years to 25 years.

The effects of climate change have been exponentially increasing, particularly since the 1970s, and we have begun to see more rapidly rising sea levels and more severe, unpredictable and lengthy storms.

The integrity of the generating station structures, including the aging concrete containment silos which are filled with high-level radioactive waste, may not be able to withstand the effects of future violent storms. Also, the effectiveness of the station's piping may become overwhelmed by rising sea levels.

The licensing situation should be re-evaluated every five years as the effects of climate change increase.

The Bay of Fundy is an area which supports biodiversity in the form of a delicate marine ecosystem. It also supports agriculture, shipping and fishing and a healthy tourism industry. As sea water has warmed with the effects of climate change, this has caused acidification of the water, resulting in the dissolving of the shells of mollusks, as well as affecting algae and microscopic phytoplankton, which are the basis for the aquatic food webs. Warming of the sea water also affects the feeding and spawning activities of certain fish species.

Since Point Lepreau Nuclear Generating Station draws in sea water to use as cooling water and releases it back into the Bay of Fundy at a slightly higher temperature, this will further exacerbate the problems affecting marine life.

Maintaining a five-year licensing renewal option would ensure that the public can submit their opinion regarding any undue impacts of the generating station with regard to a decline in marine activity and health.

Financially, the Point Lepreau Nuclear Generating Station is not a good long-term risk. In 2021 the NB Auditor General reported that \$3.6 billion of NB Power's \$4.9 billion debt was directly attributed to the Point Lepreau Station. Since the responsibility for eventually dismantling the reactors will be paid for by the provincial government and since future generations of New Brunswickers will be paying to restore and maintain the safety and security of the radioactive waste forever, perhaps money from NB Power and the provincial government for New Brunswick could be better spent on safer and more renewable energy options, such as solar or wind.

If the licence for PLNGS is renewed for only five years at a time, there would be an opportunity for the public to suggest and discuss alternatives. If the

licence is legally locked in for the next 25 years, there would be no option for public discourse regarding this financial issue.

I fear that if Point Lepreau is granted this licensing period of 25 years, we will be setting a precedent for other nuclear generating stations within Canada and other parts of the world, particularly the U.S., to do the same, setting a dangerous precedent for many aging nuclear generating stations.

Although Point Lepreau was refurbished in 2008 to 2012, it will soon be approaching the end of its lifespan. Nuclear generating stations are generally rated as safe for 20 to 40 years before being decommissioned. Since Point Lepreau was originally intended to operate for 25 years before refurbishment but has been operating 39 years, it is an aging station. Refurbishment does not make it a new facility. The risk of having something go terribly and irreversibly wrong with the basic infrastructure of the station increases as time goes on.

We have to keep in mind that in another 25 years the Point Lepreau Nuclear Generating Station will be 64 years old.

Continuing to have its licence renewed every five years would allow for public input on the risks involved with keeping the station in operation.

In summary, I would advocate maintaining the present five-year licensing period so that public input could be received every five years. I would also encourage NB Power to implement a new plan of carrying out an impact assessment every five years and to review their emergency plan in conjunction with each five-year renewal.

I know that this is not currently the practice, but I believe that we need to protect the health and welfare of our people and of our beautiful province, particularly in the light of the changing climate.

Thank you.

**THE PRESIDENT:** Thank you very much, Ms. MacDonald.

We will start with Dr. Berube, please.

**MEMBER BERUBE:** Thank you for your presentation. I have no questions.

**THE PRESIDENT:** Dr. Demeter.

**MEMBER DEMETER:** Thank you, Ms. MacDonald.

I had similar questions about the impact on marine life and we put it to the Fundy North Fishermen's Association and Fundy Weir Fishermen's Association earlier, to ask if they noted any impact on their industry related to the operations of Point Lepreau, and they did not speak in the affirmative for that.

Do you have any other reference or source

for your concerns about impact on marine life that you could share with us?

**MS. MacDONALD:** Well, there's lots out there, but I don't have a particular footnote right now at hand.

**MEMBER DEMETER:** Okay, thank you.

**THE PRESIDENT:** Mr. Kahgee?

**MEMBER KAHGEE:** Thank you very much for your presentation. I did have a question with respect to rising sea levels, but I believe that was addressed earlier. Thank you so much.

**THE PRESIDENT:** Ms. MacDonald, I just wanted to make maybe an observation in your submission, where I think you rightfully say that this request for a 25-year licence, and if one was granted, could be setting a precedent for other nuclear generating stations in Canada. But you also said maybe even in other parts of the world, especially the United States.

I just wanted to let you know that staff presented to us that in the United States they actually grant a 40-year licence as an initial licence, and I think it's a 20-year renewal thereafter. It's pretty much an international practice, these long-term licences.

Thank you very much for your submission and for your presentation today. Thank you.

We will now move to our next presentation, which is by the Center for Nuclear Energy Research at the University of New Brunswick's Fredericton campus, as outlined in CMD 22-H2.218.

We have Dr. William Cook making the presentation.

Dr. Cook, over to you, please.

**CMD 22-H2-218**

**Oral presentation by the**

**Center for Nuclear Energy Research on the**

**University of New Brunswick's Fredericton campus**

**DR. COOK:** Thank you, Madam President and Commissioners. I am very pleased to be here to present this intervention to the Commission today, as well as the colleagues and general public that's here.

A bit of background on myself and where the thoughts in this position come from.

I have been a professor in the Chemical Engineering Department at UNB for the past 18 years. Prior to that, I'm also a three-time graduate from that same Chemical Engineering program and in the undergrad with an option in Nuclear Engineering.

Over the years that option program, due to

retirements and attrition, had been amalgamated into an energy conversion option in 2006, and I'm going to explain a little bit more how we've revived that over the past little bit with the support of Point Lepreau and NB Power.

As part of my role in the Department of Chemical Engineering and teaching traditional chemical engineering core courses, with my expertise in the nuclear sector, and particularly asset management, chemistry control, corrosion management for operating nuclear reactors, I took an interest as well in energy as a whole and spearheaded a course in the Chemical Engineering Department called Energy in the Environment, which is an overall survey of the need, where the energy comes from, how we can generate it and provide energy for society.

In those teachings and review, it is absolutely clear that nuclear power has to be the cornerstone to a decarbonized bulk energy production grid. We have had the fortune of having that bulk energy power production in New Brunswick supplying more than 30 percent of the entire province's baseload electricity for nearly 40 years at this point.

So, I fully support the continued operation of Point Lepreau and the licence renewal period over the next 25 years.

In my written submission I had indicated a

minimum of five years but looking at international practices, a 25-year licence extension would definitely give NB Power the opportunity to focus on operations, providing very efficient, clean, carbon-free electricity to the grid and maintaining baseload power production.

So, in separate roles at the University of New Brunswick as well, I am currently also serving as a Chair at the Department of Chemical Engineering, so I'm on the management team in the Faculty of Engineering. And for the past seven years I have led the University's constituted Research Institute, called the Center for Nuclear Energy Research.

As a constituted institute at the University of New Brunswick, that means we actually have governance and oversight from upper levels of administration, including an Advisory Board which our Vice-President of Research sits on and is fully supportive of the activities that we have ongoing at UNB.

The Center for Nuclear Energy Research was established in about 1991, and it was a collaboration between the New Brunswick Research and Productivity Council and Atomic Energy of Canada Limited at that time. It was really meant to be an avenue to support the continued operations of Point Lepreau in terms of R&D activities and supporting the long-term research and consulting needs in

order to keep the plant operating as efficiently as possible.

There has been a continuous interaction between CNER and NB Power, as well as the nuclear industry in Canada, over this past 30 years. This has really sparked key positions for graduate students to come in and conduct meaningful research and development activities in support of the nuclear industry in Canada, as well as NB Power and Point Lepreau.

It has sparked out commercialized technology for corrosion monitoring asset management, which over the past 15 years has been deployed at Point Lepreau and over the past few years, with significant efforts in R&D from the University and our partners within the nuclear industry, is looking at expansion to other CANDU stations, not only in Canada but abroad, as well as potential further applications for monitoring in different parts of the system as opposed to the reactor proper itself.

CNER undertook activities in R&D looking at safety systems, looking at radiation control and in-shield, as well as many other aspects.

The key point of the university interaction with the industry and the benefit, which is really untangible in the continued operation of Point Lepreau, is engaging the future engineers that will lead

the next 25 years of operation of Point Lepreau.

We've had a very successful program in terms of the grad research ongoing at CNER, but with the excitement these days over new nuclear technology and the need to have nuclear infrastructure to offset carbon emissions, as we look towards net zero by 2050, and supporting an expanded renewable technology, this has led to a huge resurgence in interest in nuclear programs.

As such, in 2019 we in the Faculty of Engineering and Chemical Engineering reinstated our nuclear option program. That has allowed us over the past two years to vamp out a new course curriculum of currently eight courses offered on a rotating basis, hired a new assistant professor to help deliver these courses, as well as spark interest in moving those new students to positions within industry.

We've also partnered with NB Power on our co-op side of things and have a direct nuclear co-op program from the Faculty of Engineering to have 12 to 16-month placement opportunities at the station doing meaningful work activities in support of station activities.

So, I'm really happy to report that in 2019 we spearheaded a program. We had our first graduates from that nuclear option program in 2021, May, last year.

It was marginal. It was four at that point, but it was a good start. We will have another ten graduates with an option on their degree this year.

And to ask about diversity and other things, from a chemical engineering perspective, we've traditionally been I would say close to 50-50 female in our department; 40 percent of those graduates that are given the nuclear option right now are female, and several of them already have employment opportunities at Point Lepreau.

So, moving forward then, as we look at a renewed operating licence for 25 years in order to support so NB Power can actually focus on operations, focus on process improvement and focus on efficient energy production, I think this is the right time to look at extended licensing operations and commitment, as well as expanding the nuclear portfolio within New Brunswick and within Canada.

So, Point Lepreau provides more than just electricity. Through these interactions with academia at the university, we're educating young engineers and young scientists who really sought to be the future into the operations of Point Lepreau and the nuclear industry within Canada, as well as providing very, very interesting and beneficial research development activities so we can expand

those prospects for advanced degrees, as well as provide the high-level expertise required for the future.

With that, thank you very much and I open the floor for questions.

**THE PRESIDENT:** Thank you, Dr. Cook.

We will start with Dr. Demeter.

**MEMBER DEMETER:** Thank you, Dr. Cook.

In a similar vein to a question that I asked before, I wanted to get a sense of your footprint.

So, in any sort of particular graduation year, you mentioned a certain stream, but in general how many graduates would be coming out that may be eligible or looking at jobs in the nuclear industry out of your program?

**DR. COOK:** I don't have the specific number there. I can speak to Chemical Engineering specifically as the department Chair there.

We have about 220 students at various years within the Chemical Engineering program. In any one year we will graduate between 40 and 80, depending upon what that is.

With the institution and the revival of the option program right now, many, many students have migrating for that. And we currently have over 30 students currently in the nuclear option program.

From that cohort of the ten that will be graduating with their Chemical Engineering and nuclear option in the next few weeks, I know several of them already have employment at Point Lepreau.

**MEMBER DEMETER:** And I take it that outside of Chemical Engineering, there are electrical and mechanical in that stream. It's a larger pot.

**DR. COOK:** It absolutely is. And the industry does hire many mechanical engineers and electrical engineers from the UNB program.

One thing that is in my written submission that I skipped over for this verbal presentation is that the university and the province does see benefit and value of looking at expanding option programs outside of where we are currently delivering it in Chemical Engineering, to include Mechanical, to include Electrical Engineering.

The sort of mid to long-term, so three to five-year plan on that would be to investigate turning that option program into a full Nuclear Engineering degree program offered out of New Brunswick, which would be only the second Nuclear Engineering degree in Canada.

We heard earlier from Ontario Tech, who highlighted that they have the only Nuclear Engineering degree. We are moving in that direction and looking at that potential at this point.

**MEMBER DEMETER:** Thank you very much.

**THE PRESIDENT:** Mr. Kahgee.

**MEMBER KAHGEE:** Thank you for your intervention.

You didn't spill your coffee on me. We almost had a head-on collision.

Thank you very much for your intervention. I have no questions at this time.

**DR. COOK:** Thank you.

**THE PRESIDENT:** Dr. Berube.

**MEMBER BERUBE:** Thank you for your intervention.

A question is: Have you done any consulting work at the plant itself? Your background is in chemistry obviously, so I would be curious to hear any experience you might have while actually looking at the actual PHT, in terms of the actual steam generator, the chemistry of that system.

Do you have any experience in that at all?

**DR. COOK:** Significant. I've worked in the industry for -- well, including my undergrad and grad school days -- over 25 years now. I do have significant expertise in chemistry monitoring, chemistry control, asset preservation, corrosion. So, I am a regular consultant and work with a team at NB Power and Point Lepreau, as well as

in Ontario, Bruce Power, Ontario Power Generation, and internationally as well.

So, very in-depth knowledge on PHT, chemistry corrosion, as well as steam raising systems.

**MEMBER BERUBE:** Thanks for that.

Given that -- and you've probably got NDA in place on some of that, I'm sure -- but could you give us your general impressions of how NB Power is doing in their corrosion control management systems and the PHT? It doesn't have to be anything specific, but just give us an understanding of how that looks and your general confidence level of that.

**DR. COOK:** The first thing I will qualify is through my interactions and work with the team at NB Power and Point Lepreau, they are a top-notch organization. Quality control as well as perspective on safety is always forefront. It's a very professionally run organization. It's a pleasure to be able to consult and work with them.

In terms of chemistry management and asset management and corrosion management, as I'm sure you are aware, 15, 20 years ago the entire CANDU fleet had an issue with feeder wall thinning and flow accelerated corrosion. I've been intimately involved with R&D in that program, and actually the corrosion monitor that I had mentioned that's been commercialized was specifically targeted to track and

monitor that. And that is still in place at Point Lepreau and monitored on a daily basis through some of the work that we have.

In terms of Point Lepreau and NB Power's asset management in chemistry and corrosion control practices, the team in chemistry for monitoring and maintaining specifications keeps the plant operating very well and is always on top of any excursions and getting them to where they need to be very quickly.

**MEMBER BERUBE:** I'm just going to move over to NB Power here.

During the refit you didn't replace your primary E transport steam generators. Is that correct?

**MR. NOUWENS:** Jason Nouwens, for the record.

Yes, that is correct.

**MEMBER BERUBE:** So I just want to go through some of the chemistry management of that, what kind of shape are the steam generators in, based on your inspections during that. Of course, it's probably been covered by the Commission before but it's kind of a critical piece because of the duration of the licence period.

So if you can give me some idea as to your chemistry control? And then we'll move to CNSC just to get

their view points on what they think of that as well.

**MR. NOUWENS:** Thank you. Jason Nouwens, for the record. I will turn this over to Pierre Michaud, who we heard a little bit earlier from on lifecycle management.

But you are correct, that is a very critical piece of equipment and one that we do benefit from a world class design that uses Inconel 800 material, which is world's best.

So I will turn it over to Pierre to discuss more about the chemistry.

**MR. MICHAUD:** Pierre Michaud, for the record. Great question on our steam generators. So our steam generators do remain fit for service and, as you pointed out, they were not replaced in refurbishment.

They are part of the original plant construction, we did do detailed assessments and we continue to do inspection on those steam generators, and there are no concerns in terms of their integrity.

As Dr. Cook alluded to, between the management program for the steam generators and the chemistry program, their health is very good, and we continue to inspect those and there's no foreseen issues at this point in time.

**MEMBER BERUBE:** And since I've got you

here, how often do you actually check the chemistry in the generators? Is that continuous, weekly basis, monthly basis...? How often do you actually check that?

**MR. MICHAUD:** Good question. I have to confer with our chemistry folks, but I do know there's continuous sampling and monitoring on those steam generators. And for specific details on timing and complexity, I can get back to you on our steam generator program.

**MEMBER BERUBE:** Let's move to CNSC. Basically, you're oversight on this. You're probably more aware of what's going on. Could you just elaborate on the processes you have in place to actually monitor the operators' inspections of the steam generator, primary heat transport system as well? Thank you.

**DR. VIKTOROV:** Alex Viktorov, for the record. Indeed we are aware that steam generators are not replaced during refurbishment, and that's an indication that the chemistry control has been reliable. Over years steam generators were in good shape, they need replacement, and we know that the chemistry control remains to be strong feature of operating performance at Point Lepreau.

I'll ask Scott Lanqille to describe what we know currently about the steam generators shape and conditions, and then we can elaborate on the chemistry

control overall.

**MR. LANGILLE:** Scott Langille, for the record. I'm a Technical Specialist with the Operational Engineering Assessment Division.

NB Power does have a lifecycle management plan in place for their steam generators, and the most recent inspections have shown that they're currently fit for service.

As NB Power has stated, the steam generators at Point Lepreau are made from -- are some of the newest steam generators for the CANDU reactors and they're made from Inconel 800.

Additionally, the supports are also of a stainless steel, as compared to a carbon steel that was used for older generations, and this is where a lot of issues had occurred with some fretting. So having the stainless steel is an improvement for the Point Lepreau steam generators.

So from a fitness for service perspective we're satisfied they are maintaining the steam generators very well. However, I'll pass it to other specialists for comments on chemistry control.

**MR. SIGETICH:** Justin Sigetich from the Systems Engineer Division. I can talk to the chemistry control program.

CNSC does review the chemistry control for both the heat transport system and the secondary side system, so the water coming into the boilers from the secondary side. Both of those systems are covered by the New Brunswick Power chemistry control program and we perform compliance verification activities of the program and of the output to that program. And we ensure that that program is meeting the appropriate regulatory requirements.

We can confirm that they're meeting our expectations for the appropriate parameters with respect to our regulatory expectations with ensuring that it is maintaining the appropriate conditions to ensure that it is fit for service and they're not causing any degradation conditions in those systems, in both the heat transport side and the secondary side of the boilers.

**THE PRESIDENT:** Are you good with that, Dr. Berube?

**MEMBER BERUBE:** Yeah, I think that's good.

**THE PRESIDENT:** Okay, thank you. Dr. Cook, you mentioned that you do work besides New Brunswick Power with many others in the industry. Do you do any R&D work for the regulator?

**DR. COOK:** I have not had the opportunity to work directly with the regulator, and would welcome a discussion.

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

So thank you for your intervention, thank you for appearing in front of us today, it was much appreciated.

Before we break for lunch, I understand Staff has an update to one of the questions raised by Dr. Demeter around the IAEA's INES scale and the number of incidents. So maybe we can cover that now?

**DR. VIKTOROV:** Yes, indeed. Alex Viktorov, for the record. We have a response to Dr. Demeter's questions regarding the events at Canadian nuclear power plants and their ranking on the INES, or International Nuclear and Radiological Event Scale. So I can confirm that they verified there have been no events of Category 3 or above ever happening at the Canadian nuclear power reactors.

It also has become clear that in the last two decades the frequency of events reportable under INES has gone down significantly. There were more frequent events occurring two decades ago and the frequency of these events have decreased significantly, which is an indication of a reliable operation.

**THE PRESIDENT:** So, Dr. Viktorov, on your last part, and I don't have my notes in front of me, but I think we had an intervenor who said, there have been 57 or

so significant events post-Chernobyl. And I don't know what the basis of that 57 is. But if you were to tie that in with the INES scale how many, you know, more than Level 3 incidents have been reported to the IAEA worldwide?

**DR. VIKTOROV:** Again, Alex Viktorov, for the record. Without knowing the source of this number, it's difficult to comment. INES is a system maintained by the International Atomic Energy Agency and CNSC's an active participant in this system, so we have access to this information. I'm not sure if the intervenor uses the same data.

Again, regarding contribution from events from nuclear reactors, it's not the only events considered. All nuclear activities are reported through this system. Again, difficult to differentiate whether those events were specific to power reactors.

And from Canada, I believe there were only a couple of events in the last two decades that were provided to the INES that were of any significance, of safety significance.

Of course, on the other hand, we do have our own reporting system when licensees report to us under REGDOC-3.1.1 and the report history shown under this document is very low, so we get information on numerous occasions, situations, events from the Canadian utilities,

but they are of very low safety significance.

**THE PRESIDENT:** But my question was international reporting of significant events, how many have been reported in the last two decades that are more than Level 3?

**DR. VIKTOROV:** I'll ask John Burta to provide any insights.

**MR. BURTA:** John Burta, for the record. So I'm the INES National Officer for Canada. And just to clarify the question, I want to be clear that INES is not intended to be a reporting mechanism. INES is exclusively a communication tool, it's designed to help add context to the safety significance of an event. Events aren't actually reported to INES, they're communicated using INES, so it's just a little bit of a nuance.

The IAEA has several other reporting tools such as IRS, the Incident Reporting System, which does capture events and lessons learned from those events for sharing and learning opportunities.

INES does have a database where events are documented for that communication. The database started in about 2008 and events from then forward are available.

The original question Dr. Viktorov has answered, there has been no events in Canada since the inception of INES above Level 3. And as far as

international events, I suppose we could look at the database and give you an idea of how many have come in through INES.

But I want to be very clear, there is no requirement for international bodies or organizations to report to INES. We would have to use other tools, such as IRS or different databases to give you a valid number or an idea of how many events have come in and what the significance of those events have been.

**MS. BULKAN:** Anu Bulkan, for the record. I would ask Mr. David Moroz to provide further information on your specific question.

**MR. MOROZ:** Good morning. David Moroz, Director of the Emergency Management Programs Division, for the record.

I did check the database for INES. I agree with what Mr. Burta said. There are four 3+ events globally. I believe INES goes back to 1990, not 2008. One of course was Fukushima, and three others were exposures of individuals or small groups.

**THE PRESIDENT:** Thank you, Mr. Moroz, that's exactly the kind of information I was looking for, so I appreciate that.

So this concludes the oral presentations by intervenors. We will break for lunch and we will resume

at 1:30 p.m.

Thank you.

--- Upon recessing at 12:23 p.m. /

Suspension à 12 h 23

--- Upon resuming at 1:29 p.m. /

Reprise à 13 h 29

**THE PRESIDENT:** Welcome back. We will now begin the general rounds of questions from Commission Members. And Members may also use this opportunity to ask questions stemming from the 200 written interventions listed on the agenda.

We'll start with Mr. Kahgee please.

**MEMBER KAHGEE:** Okay. I'd just like to follow-up with respect to Kopit Lodge & Elsipogtog First Nation's intervention, so I believe that's CMD 22-H2.145. And I'm going to have questions both for NB Power and CNSC. So if you have that in front of you, that'd be great.

I first want to start with CNSC. In the intervention there was reference to a 2019 MOU regarding a title claim with the Crown, and I believe that was with Indigenous Relations and Northern Affairs Canada.

Is CNSC aware of this MOU?

**DR. VIKTOROV:** For CNSC, Adam Levine will

address this question.

**MR. LEVINE:** Yes, we are aware of the MOU, but we don't have all the details as we weren't directly involved in those specific discussions, and we're just beginning out discussions with Kopit Lodge and we'll certainly be learning more as we follow-up and build our relationship.

**MEMBER KAHGEE:** That kind of answers it. And my next question was going to be, has there been any coordination with CIRNAC with respect to those discussions?

**MR. LEVINE:** Adam Levine, for the record. We meet regularly with Crown-Indigenous Relations and Northern Affairs Canada and we're part of federal networks that discuss different collaborative agreements with nations and communities. So we are aware generally of their policies and approaches.

But specifically Kopit Lodge, no, we haven't had specific discussions regarding their specific MOU or agreements to date.

**MEMBER KAHGEE:** Thank you. NB Power, do you have anything to offer with respect to that MOU?

**MR. NOUWENS:** Jason Nouwens, for the record. I'll turn it over to Kathleen to speak a little bit about our engagement with them, and then she can turn it over to Jesse Perley for some finer details if you'd

like.

**MEMBER KAHGEE:** Thank you.

**MS. DUGUAY:** Kathleen Duguay, for the record. We have been engaging with Kopit Lodge for several years now, irregardless of MOU. We've been engaging in update meetings, station visits and so on. And as we evolve as NB Power, we export the opportunity to also develop an MOU with Kopit Lodge.

So work is in progress, and Jesse could probably add more information about it. Thank you.

**MR. PERLEY:** Thank you, Kathleen. For the record, Jesse Perley. So to share a little more here, Commissioner Kahgee. With communications with Kopit Lodge we do have the same means to come to an agreement as we're working through relationships to date. And it's not that -- we would never go towards that way, you know, we can definitely have a good record here with all the Nations in New Brunswick. We can actually use the word all, you know, by having Kopit Lodge support an agreement with ourselves to move ahead in that relationship in capacity building.

The meaningful engagement, as we know, is what's important to reconciliation and not only that, but to consultation with our projects and how successful we've been so far with the other nations with projects in their

territories.

But other than that, as we know, our agreements are designed with and not for, and the most important thing here is it meets the need.

So as we hear back and there's so much respect and value with these agreements that allows for us, you know, to hit the overall mandate.

**MEMBER KAHGEE:** And have you reached an agreement with Kopit Lodge?

**MR. PERLEY:** No, we have not.

**MEMBER KAHGEE:** Okay. That would then take me to my next question. I think they raise a number of concerns in their intervention, I think it's probably within the scope of the engagement that they're seeking.

I notice in particular they made reference to some very particular language in their submission around past grievances, which would automatically go to the kind of historical concerns with respect to the plant and its interactions with the territory and their rights and interests.

Obviously I'm not sure, but my question to NB Power would be, does NB Power have a past grievances process?

**MR. NOUWENS:** Jason Nouwens, for the record. I'll turn that over again to Jesse Perley to

discuss that particular aspect and how that ties into reconciliation for us.

**MR. PERLEY:** For the record, Jesse Perley. To my understanding, there is no actual process. But ideally being a proud Indigenous man and being able to share my position with NB Power, and not only that, but my beliefs and the impacts that I can bring to this industry, it allows or something like this to be very passionate for me, like it has been with supporting the other agreements.

Working with NB Power I've learned that, you know, there's sincere interest involving Indigenous. As I stated Day 1, you know, just the impacts of being able to start this journey in 2011. And ultimately, you know, with all the safeguards in place and the minimal impacts that we do -- I mean, we're always striving to ensure that's sustainable energy for future generations.

And by all means, in order to do that, you know, we do need to make sure that we can successfully be prominent to get to what an agreement can look like for both Kopit Lodge and NB Power.

**MEMBER KAHGEE:** Thank you. Has there been any consideration to reach out to other licensees, in particular Ontario Power Generation, who does have a past grievances process or policy in place?

Obviously that's carried over from the

days of Ontario Hydro and predominantly it's been used to deal with Hydro Electric developments in Northern Ontario and other parts of Ontario. But was actually specifically put in place for nuclear, but there's never been a nuclear kind of past grievance process other than a commitment to resolve outstanding legacy issues with the Saugeen-Ojibway Nation.

So has there been any thoughts to reaching out to perhaps OPG to get a sense for lessons learned on how they've approached those types of processes?

**MR. PERLEY:** Jesse Perley, for the record. Thank you for that, Commissioner Kahgee. There has been talks here in the last few days just with meeting some new colleagues to help support his file. I really feel like those were great relationships built and a good takeaway here for this week.

At the same time, since my acting role on September 1st of 2021 we have made many attempts with Kopit Lodge to get ahead and start a new relationship with, you know, a Wolastoqey man such as myself leading the file and being able to sit down with Kopit Lodge.

COVID of course, you know, comes in many barriers outside of the fact that it's such a big community and they suffered so much loss last year. So there's been -- you know, they've had many grievances in the

community. And many attempts have been made and, unfortunately, a lot of our scheduled meetings have been pushed out.

And we did get to an opportunity to sit down with Kopit Lodge just this past April, so we did break the ice with actually an introduction. And we do have anticipation here in the coming weeks to have our second meeting and fully rollout, you know, some conversation here on where we can meet and what an agreement can look like, and continue those discussions possibly from where we left off with the previous Director.

**MEMBER KAHGEE:** Thank you for that. And so what I'm hearing then is that there's a willingness to sit down with the community and explore how you can move forward and reach an agreement similar to what you have with other communities, it's a matter of scope obviously.

And I would encourage NB Power to reach out to licensees like OPG for lessons learned there, because they certainly have a long track record in working towards these issues, maybe not necessarily particularly in the nuclear sector, but I think there's probably some valuable lessons there to be learned. Because this is kind of where the rubber hits the road, when you're trying to reconcile these complex issues.

So that's good, I'm glad to hear that

there's a willingness to do that. Thank you for that.

My question then would be to CNSC.

Obviously Kopit Lodge has raised a number of concerns in their intervention, although not very dissimilar to what we heard throughout the last few days. But a lot of the requests they've put forward are, from my perspective, quite reasonable.

My question then to CNSC Staff is what efforts have been made and what dialogue has taken place specific to the concerns that they've raised in their intervention, and have those discussions included perhaps reaching an engagement protocol similar to the way CNSC Staff have reached similar agreements with other First Nations?

**DR. VIKTOROV:** Alex Viktorov, for the record. For my part, I can only agree that many of their recommendations certainly make sense and they are aligned with our efforts.

I'll ask my colleagues to corroborate. Perhaps Adam can start, and Heather Davis can comment on what's done locally.

**MR. LEVINE:** Thank you. Adam Levine, for the record. So we've had an initial meeting with Kopit Lodge just a few months ago and I'll ask Heather to speak to a bit more details on what was discussed.

But certainly we're really happy that they are wanting to engage with us. Now we've found their intervention to be full of great information on their particular areas of concerns and interests, and they did show willingness to work with us moving forward.

And once we get past the hearing process we will be sitting down with them again to discuss their particular areas of concern and look to start developing terms of reference for long-term engagement with them, if they're interested in doing that with us.

We're very much wanting to develop that relationship. And this goes after many years of reaching out to Elsipogtog First Nation, and we're just starting to hear back from them now and we're really glad that they are coming forward and expressing interest and engaging directly with us. And we're looking forward to learning more about them and their community and areas of interest.

I'll pass now to Heather Davis just to talk about our specific engagement with them to date and the discussions we've had. Thank you.

**MS. DAVIS:** Good afternoon. For the record, my name is Heather Davis. More recently, CNSC Staff reached out to Kopit Lodge in November of 2021 to inquire if they would be interested in having discussions or a presentation who the CNSC is and how the CNSC

regulates the nuclear industry, and also go through the licensing process and what the renewal hearings would look like.

This was prompted by the PFP application that was received with regards to licence renewal, which indicated that Kopit Lodge had an interest in the activities at Point Lepreau.

The first meeting was held with the representatives of Kopit Lodge in February of 2022, with plans to meet again in the summer or early fall of 2022.

During the first meeting Kopit Lodge explained that it is the representative organization for the Elsipogtog First Nation for consultative and engagement purposes.

In addition to this, we have reviewed the intervention and are aware of the concerns and requests that are raised in that intervention, and we intend to follow-up on those items in our next meeting that should be held probably this summer or in the early fall. And that will include a discussion on possible terms of reference.

Nonetheless, CNSC Staff remain committed to engaging regardless of whether there is an established terms of reference. Thank you.

**MEMBER KAHGEE:** Thank you. And particular reference to -- I'm seeing requests and/or recommendations,

and I believe it's 6, 7, and 8 that deal with a willingness to reach that longer term agreement with CNSC, including being involved, having a role to play in the independent environmental monitoring program.

So that's good to hear, that there's going to be those discussions and encourage CNSC Staff to work diligently to try and get to a resolution on these issues. Thank you.

I just want to shift gears for a minute and focus on the *Fisheries Act* authorization if I can. And I believe DFO's on the phone. I may have questions for them as well.

What efforts have been made to engage specifically with Kopit Lodge with respect to the *Fisheries Act* authorization? Perhaps NB Power first and then DFO.

**MR. NOUWENS:** Jason Nouwens, for the record. Again, I'll turn that over to Kathleen Duguay to explain a little bit of our community outreach in that aspect.

**MS. DUGUAY:** Kathleen Duguay, for the record. Like I indicated earlier, we have been meeting with Kopit Lodge on several topics over many years. Irregardless of the agreement, we made sure that information that we share with all the other groups in the province were also shared with Kopit Lodge.

It is also my understanding that information that we share with MTI also are shared with Kopit Lodge. So we did have a meeting actually in their community to discuss fish impingement, fish entrapment, and the file around the fish authorization, at the same time as providing an overview about our station, which allowed them to ask questions, not just focusing on the fish authorization, but the overall operation activities.

And following that, they reflected on our meetings and they've provided us with some questions following the meeting, because sometimes it's always good to reflect. And we had the opportunity to respond to those and continue the dialogue.

So they have also had a lot of change in leadership within that organization, and we made sure that every time that there was a new person coming on board that we reached out proactively to make sure that we introduce ourselves. Because we're truly interested to hear from Kopit Lodge, they bring a lot of value and insight to our station.

They came and did a walk of the site and shared a lot of their knowledge. They've also been invited to participate into a case study, so they're preparing that documentation. I was talking to Alex yesterday who was here with us. So it's continuously evolving. So thank you

for the question.

**MEMBER KAHGEE:** Perhaps DFO could comment on your engagement efforts with Kopit Lodge, not only with respect to the *Fisheries Act* authorization, but with respect to the offset measures?

**MR. HULBERT:** Bryan Hulbert, from Fisheries and Oceans, for the record. Yes, so clarify some information around the *Fisheries Act*, authorization, consultation, and how it pertains to the offsetting.

The Department -- so within the Fish and Fish Habitat Protection Program we oversee the administration of the *Fisheries Act* authorizations. So we have a duty to consult and we also have an engagement on partnership unit developed specifically within our branch to help facilitate and coordinate consultation engagement sessions.

So at the onset, letters of offer were generated for all the Nations and communities within New Brunswick for this project, and letters were sent out. And for the Nations or the representatives of MTI or WNNB, and also for the Passamaquoddy, receive those letters. Some nations or communities requested specifically to meet and consult on the project, and which we carried that out.

For Kopit Lodge specifically, there were several attempts made acknowledging that there was a

changeover in some of the leadership or responsibilities within their organization. And we've made several reach out attempts.

To my knowledge, there was no direct consultation meetings set for that, although there were somewhat informal exchanges on the project. Thank you.

**MEMBER KAHGEE:** Thank you. Then perhaps maybe NB Power can help clarify then. I looked to the intervention and they raise a number of concerns with respect to information requests. I don't know if it is the first time they are raising it, but they obviously make specific reference to getting more information or details associated with the cooling water intake and discharge. Has that information been provided to the community?

**MR. NOUWENS:** Jason Nouwens, for the record.

Again, I will turn it over to Kathleen Duguay.

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

That information was provided to the previous leadership and Alex from Kopit Lodge. We are going to be meeting to revisit that component of the fish authorization and re-discuss the fish impingement and all the associated activities with regards to the intake and

the outflow.

I'm just trying to think now. So with regards to the fish authorization, I will turn it over to Andrea McGathey because we have discussed some of that information with them.

**MS. MCGATHEY:** Andrea McGathey, for the record.

Thank you, Kathleen, and thank you for the question.

So as we heard here this afternoon, with the change in leadership and the sharing of documentation and bringing Kopit Lodge up to speed, it is a bit of an iterative process. Kathleen has spoken with Alex just this week during the hearings and the path forward is for NB Power to refresh this file with Kopit Lodge and to help to understand what their concerns are, explain the science, explain the implications of significance to fisheries in the Bay of Fundy and get an understanding of how moving forward with that authorization would satisfy the interests of Kopit Lodge.

**MEMBER KAHGEE:** And in that reengagement, would there be an opportunity to share the information they requested in the submissions?

**MS. MCGATHEY:** Absolutely.

**MEMBER KAHGEE:** Okay, perfect.

I am assuming that would also expand -- I'm hearing that there have been attempts to try and coordinate consultation efforts with respect to the offset measures. Would there be an opportunity to reengage and have a conversation on that as well? Because they have also identified it as an area of concern.

**MS. MCGATHEY:** Andrea McGathey, for the record.

I see Kathleen nodding and as part of our process and protocol that is the path forward that we would take.

**MEMBER KAHGEE:** Okay.

So perhaps, DFO, that might be an opportunity to loop back into the conversation to make sure that everything has happened the way it should with respect to the offset and Kopit Lodge. Okay.

Thank you very much, those are my questions.

**THE PRESIDENT:** Thank you.

Dr. Berube, please.

**MEMBER BERUBE:** Oh, I see we still have NBEMO in the room, which is convenient. I have a couple of questions. Probably you need to answer those.

--- Pause

**MEMBER BERUBE:** Thank you for coming up

and still being here for me to ask these.

I am digging a little bit now into severe accident or threat analysis at this point. Some of that is a response from onsite, but some of it is also a response from offsite. A couple of things that I have to ask are proximity of fire stations and response times to the plant should that be necessitated. Could you give me some idea of where they are, how long it takes them to get there?

**MR. MacCALLUM:** Yes. For the record, Greg MacCallum, Director of New Brunswick Emergency Measures.

In terms of proximity to the plant, the nearest fire department actually was represented yesterday by its Chief, the Musquash Fire Department. And for greater capacity, the City of Saint John here -- which is how many kilometres, Roger?

**MR. SHEPARD:** Forty-four kilometres.

**MR. MacCALLUM:** Forty-four kilometres, thank you. They are also capable of responding to an incident at the plant with more apparatus, more capacity obviously.

**MEMBER BERUBE:** The time there is half an hour or less, I would think.

**MR. MacCALLUM:** And less than that indeed for the initial response from Musquash if necessary.

**MEMBER BERUBE:** So the other thing I need

to know is do you have a hazmat team in Saint John that can respond?

**MR. MacCALLUM:** There is a hazmat team located in Saint John, yes, sir.

**MEMBER BERUBE:** And are they full-time or do they have to be mobilized?

**MR. MacCALLUM:** They are full-time firefighters with the Saint John City Municipal Fire Department.

**MEMBER BERUBE:** Okay. And probably the last question with response to offsite response has to do with a tactical team in case there is a need to pull in a tactical team. Are you familiar with a tactical team in the area and how long that would take to respond or do I need to go there?

**MR. MacCALLUM:** I'm sorry. When you are -- Greg MacCallum. When you are referring to a tactical team, are you talking about security response?

**MEMBER BERUBE:** Security response, yes.

**MR. MacCALLUM:** Yes. The Royal Canadian Mounted Police "J" Division is the police of jurisdiction for that area and they do maintain an emergency response team or a tactical team for deployment anywhere within the province. And as necessary they can reinforce that from other Divisions of the RCMP within the Maritime Region.

**MEMBER BERUBE:** Okay. That gives me an understanding of what the backup looks like in the event that it is necessary.

The other questions I have are probably for NB Power, they have to do with just a couple of things I saw in the initial written submissions.

One of the things I note is response to emergency situations and that is the emergency calandria vault makeup line has been added. That line is, I guess, an injection point to get water into the vault itself. Is that correct?

**MR. NOUWENS:** Jason Nouwens, for the record.

Correct. I will turn it over to Derek Mullin who could provide a little bit more, because that was one of the aspects that we implemented post-Fukushima.

Derek Mullin, if you could give some technical background, please?

**MR. MULLIN:** Derek Mullin, for the record. Thank you for your question.

In a CANDU reactor we have something we call in-vessel retention strategies. As a highly unlikely severe accident might progress, we want to make sure that we keep whatever radioactive materials we have in the calandria itself.

So there are two ways of doing that. There is the calandria vault makeup line. That provides water from an external water source to what we call the calandria vault or end shields which are outside of the calandria; and we can use a radiative heat transfer through the calandria shelf itself in order to make sure that we don't cause -- you know, don't result in failure of the calandria. So we can terminate the event that way.

That was installed during plant refurbishment. Post-Fukushima, as a part of the Fukushima action items, we took a look at other methods that could enhance our defence in depth or robustness of those in-vessel retention strategies. So we added another line to provide water from an external water source directly to the calandria itself and what that would do is help to keep the water level in the calandria at a higher level.

We have those two methods, so we have a robust strategy in order to manage that and to try to make sure that we don't cause -- not that we would cause it, that the accident doesn't progress to a point where calandria failure would occur.

**MEMBER BERUBE:** That is a high-pressure injection system; is that correct?

**MR. MULLIN:** Derek Mullin, for the record. No, that does not need to be high

pressure, it simply needs to be able to overcome the static head of water that is in the systems, plus whatever containment pressure might be at a maximum.

**MEMBER BERUBE:** And so does this system require operator intervention? Is there manual valving involved or is this an MV-type situation? How is this done? Does somebody have to show up and crank a valve or can you do this from a control room or remote site -- or the backup control room for that emergency control room, for that matter?

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

These are manual actions. Based on severe accident analysis, we know how much time roughly that we have into an accident that we would need to get operators out there to do that and it is several, several hours, like 10-20 hours into the event.

Our deployment strategies for immersing mitigating equipment is actually we would deploy things earlier and connect them up and then if we need to open up valves we would be able to go out and do that.

**MEMBER BERUBE:** One of my concerns was we had a similar issue with Fukushima. If the operators had actually opened up some valves manually earlier in the process, they would have had a lot less issues there, and they just didn't remember to do it.

One of the problems with relying on manual intervention in an emergency situation is that people panic. You hope that is not the case and you hope your offsite people don't do that, too, but we have to be cautious with that. I am not sure if that needs to be addressed. Maybe CNSC can wade in on this and give us some insight as to what your thoughts are on that.

**DR. VIKTOROV:** Alex Viktorov, for the record.

As was indicated, there are multiple provisions to address challenges and that is one of the provisions. The emergency response team is trained to be prepared for this unlikely situation and if it doesn't work there are other alternatives to achieve the same purpose.

If you would like more details, we have specialists who can elaborate on specific provisions.

**MEMBER BERUBE:** Let's do the defence in depth analysis here, because this is a severe accident situation. So let's just explore that a little bit.

**DR. VIKTOROV:** Samuel is our lead on severe accident analysis and design modifications in response to Fukushima actions.

--- Pause

**DR. GYEPI-GARBRAH:** Sam Gyepi-Garbrah, for the record.

So as part of the Fukushima action items, NB Power was supposed to do an analysis to ensure that they have enough heat sinks and strategies to deal with any severe accident, usually for the first 72 hours, and this has been analyzed so that they can get the emergency mitigating equipment in terms of water and power to the reactor to keep it safe and controlled and to mitigate any core meltdown that may have happened.

And like you just heard, one of the main strategies is in vessel retention to ensure that indeed they will be able to keep the radioactive elements inside the calandria vessel.

**MEMBER BERUBE:** So what I hear is that we have a robust defence in depth strategy and that this is just one of many, many ways of us injecting water into the core to keep it from melting down.

**DR. GYEPI-GARBRAH:** Yes. So as part of severe accident management they have various strategies, so we have severe accident guides. Like SAMG is symptom-based, so they have a few strategies and based on the symptoms, as the control room is observing, then they will triage and pick one of them to deal with. So that is how it is done.

**MEMBER BERUBE:** Thank you.

I just have a few other questions on the

emergency situation. Let's look at the severe accident management recovery process.

How long does it take you to deploy diesel generators, emergency water pumps to start injecting water into the system should something happen and you have to respond?

**MR. NOUWENS:** Jason Nouwens, for the record.

I will turn this question over to Nick Reicker, who is our Manager of Regulatory Affairs and Emergency Preparedness, who has very in-depth knowledge of this.

**MR. REICKER:** Nick Reicker, for the record.

That is a great question. When it comes to act to our defence in depth approach, making sure that we can have a timely response and deployment of emergency mitigating equipment is paramount within the process.

We have done a significant amount of timing tests, drills and exercises as part of the development of the EME approach, and whether it is generator deployment, whether it is emergency water supply makeup, we have the ability to deploy all of those assets in under a five-hour duration. It is based on a priority matrix that is directed through the shift supervisor and

through operations, based on the type of event that we are responding to.

It is very unlikely that we would get into an incident where we would have to deploy all backup generators or all water supplies, but our approach is really based on a proactive deployment as well.

We assume that as an accident progresses that we will start in a design-based event and if things transition into severe accident, that that equipment would be proactively staged in the field. Like the previous discussion where we talk about operator action to open those valves or open the breakers to allow the power or water supplies to be managed, that is done and it is also done through operational procedures and guidelines that we have continuing actions embedded within it.

We do not just deploy and assume that the deployment actions are going to be taken. The operators and the Incident Command and Planning Section within the Emergency Response Organization need to continually assess those actions and make sure that we are providing the adequate makeup.

Continuous monitoring both through the control room and into the emergency response facilities allows us to monitor all system parameters and make sure that we are adequately responding early in the event to

avoid that progression into a severe accident.

**MEMBER BERUBE:** The other question I have to deal with is with that of personnel. Of course in a severe accident it is ambiguous as to how many personnel you would have available, but in terms of the ability to recall off-shift personnel, do you have a system in place that you could actually effectively do this in a reasonable period of time?

**MR. REICKER:** Nick Reicker, for the record.

So yes, we do. We do have the full ability and we have a full emergency response organization which is staffed 24/7. Primarily we look at our shift crews that are onsite operating the station, between Operations, the Emergency Response Team and the Nuclear Security Force that are there, and they are really enabled to ensure that any actions to an event are initially taken.

That is then augmented through the Incident Command Structure, which all ERO staff are on a two-hour recall, and that is ensuring that they have all procedures to adequately respond to the emergency facility to support the shift supervisor. And we continue training drills and exercises for proficiency with in-depth.

**MEMBER BERUBE:** I only have two more questions and they are both for NB Power.

The first one relates to cyber security. There was a little ambiguity in our discussion yesterday and I just want to clear this up.

Could you tell me, is there a physical isolation of systems that are your main reactor control system and your shutdown systems? In other words, they are not connected to the external world in any way?

**MR. NOUWENS:** Jason Nouwens, for the record.

The short answer is yes, but really there is more context required for that, so I will ask Herb Thompson again to elaborate a bit more on that.

**MR. THOMPSON:** Yes, sir. Herb Thompson, for the record.

If I understand the question, it's about physical separation and segregation between safety systems and control computers.

They are both -- they are completely logically and physically separated. There is no common instrumentation, there is no common data connections, no interconnections whatsoever.

**MEMBER BERUBE:** So there is no way to actually access these systems externally from the plant itself?

**MR. THOMPSON:** Herb Thompson, for the

record.

These systems can only be accessed while physically in the power plant. They are in secure zones within a secure building. There is no remote access even from other areas on the site.

**MEMBER BERUBE:** Good.

And the last question has to do with timelines for future upgrades. I believe you have a number of them, but one of them is the heat transport pumps. The HP turbine rotors is due to come up -- unit transformer is going to get replaced, this kind of stuff. So what is your general timeline to do these kinds of things?

**MR. NOUWENS:** Jason Nouwens, for the record.

I will ask Pierre Michaud to elaborate a little bit on our long-term asset management plan.

While he is getting ready, I will highlight that the high-pressure turbine is actually being replaced as we speak.

--- Pause

**MR. MICHAUD:** Pierre Michaud, for the record.

I just want to pull up my dates here for the asset management. I will start by saying we do have an Aging Management Program in place that maps out these

replacements and this is revisited periodically.

With respect to the heat transport motors -- I am just trying to find my notes here -- we have a replacement over the next three years. One, the first -- there are four motors in total. They will all be replaced in the next three outages.

As Jason mentioned, for the HP turbines we are doing that in this outage. We are currently in a shutdown.

And in terms of transformers, I would actually have to take that back, I'm sorry, I don't have that right off the top of my head.

**MEMBER BERUBE:** As we know, supply chain things are tenuous in terms of getting transformers and stuff like this.

**MR. NOUWENS:** And I will just add to what Pierre was saying. Even though we may not have the dates available, it is all part of a long-term asset management plan within the station where we try to look at the needs of all the pieces of equipment, transformers, pumps, motors and fit them into strategic plans.

**MEMBER BERUBE:** And just a final question for CNSC.

Given all the post-Fukushima upgrades to the plant and given a scenario where we have a severe

accident, which is low probability, do you feel that the plant is in sufficient shape and that the training is sufficient to rely upon from a public safety standpoint for the foreseeable future?

**DR. VIKTOROV:** Alex Viktorov.

The answer is yes, CNSC staff is satisfied with the provisions currently in place.

To reassure the Commission Members and the public, again, the defence in depth is the underlying principle we utilize in particular in considering unlikely events. There are multiple ways to achieve the same provisions, including reliance on equipment, on personnel at the station or personnel in the area, or even from sister utilities that can provide both expertise and equipment.

We are also looking at the international experience to make sure that we do absorb the best practices, and currently, yes, we are satisfied that Point Lepreau and New Brunswick Power have taken all appropriate measures to assure safety in case of an accident.

**MEMBER BERUBE:** Thank you. I have no more questions.

**THE PRESIDENT:** Thank you.

Dr. Demeter, please?

**MEMBER DEMETER:** Thank you.

I have a few more technical questions for clarification and response.

I am looking at the staff CMD under Human Management, page 30, and I will just read the paragraph:

"During an inspection of the fall 2021 emergency exercise, it was identified that two evaluators were not evaluation qualified. Both individuals who were evaluating the exercise without an evaluation qualification could be considered SMEs in performing the tasks of the area they were evaluating. The safety significance of this finding is negligible." (as read)

So I have sort of two questions.

One, I couldn't find out what SME stood for. I looked through the whole document and it is not in the glossary.

And the other one is even though I mean the issue for me versus the safety significance is the validity of the exercise. If the people evaluating it aren't qualified to evaluate it, how does that impact the result? There could have been 200 evaluators and this is just two of them or it could have been 10.

So give me a sense of how this impacts the validity of the results and just tell me what SME is.

**DR. VIKTOROV:** Alex Viktorov.

I will start with the easy one.

SME stands for subject matter expert and we kind of use it extensively.

I will ask Heather Davis to comment on the specifics of the exercise and CNSC staff inspection conducted during the exercise.

**MS. DAVIS:** Good afternoon. Heather Davis, for the record.

In terms of this inspection, in this case there were individuals who were evaluating the drill who in their normal work role would fulfil this type of role and so they were fairly familiar with how to conduct the role, but these individuals did not have evaluator training, so they were not trained to be evaluators. So although they could do the task, they did not have the training to perform the task of an evaluator.

I would ask Mr. David Wallace from Emergency Management Program Division to follow up with some further information.

**MR. WALLACE:** Hello. David Wallace, Licensee Emergency Program Officer, for the record.

Yes. So in this particular finding we did

find that it was a negligible safety significance. As Ms. Davis said, it is an expert in the area that they were evaluating. However, within the NB Power programs and procedures, they have requirements for evaluator qualifications for certain roles within an emergency exercise. So we could say that he is qualified to conduct this evaluation role; however, he just didn't have the formal training qualifications in the database at the time of our inspection.

Do you have any further questions? I can answer those as well.

**MEMBER DEMETER:** Sure. Maybe to NB Power. So this would obviously be vetted ahead of time. So what happened, that people that were involved with it didn't meet the qualification standards, that were found after the fact?

**MR. NOUWENS:** Jason Nouwens, for the record. I will turn this over to Nick Reicker. I just want to highlight though that this is more of an administrative where the people were competent to do the job, but in our system were not being shown as qualified.

But I will pass over to Nick Reicker for a little more context.

**MR. REICKER:** Thank you. Nick Reicker, for the record.

So you're right. From the context of the individuals being subject matter experts and our part in being familiar with that role from day-to-day operations, what got us into the challenge with the full-scale exercise was some last-minute resource challenges that we had to bring additional members in.

One barrier that we did put in place, although not laid out under the preview that everyone has the evaluator training, is they are under the direct oversight from the drill director throughout that, so, from a field observation, a critique in ensuring that feedback was done under the overview of the evaluation team and their feedback was validated that way.

And we have since gone through a full review of our program and process to ensure that any subsequent evaluators for any driller exercises will be part of that controller evaluator training -- that we have that as the prerequisite in ensuring that we have the sustainability, moving ahead.

**MR. DEMETER:** Thanks, that answers the second part of that question.

So I'll move on to the next technical issue, on Page 59 of the staff CMD:

"CNSC staff noted that a CANDU Owners Group ... project determined that the

Normac NR-5S 400 coating system should not be used for new submerged environments due to decreased adhesion and that existing applications where it is used should be inspected to evaluate the actual in service condition."

And then, later on, it says:

"In 2017, CNSC staff accepted NB Power's proposal to change the frequency of leak tests at the reactor building from every three to four years."

So, am I to assume that the Normac NR-5S 400 coating system is what's being used, and despite the issue that there's no recommendation not to use it in the future, that the leak test changed to a longer period?

It just didn't make sense to me why you would increase the length of time for testing of something that you recommend not being used on a new system. And maybe it's not in the place that I think it's in; so maybe I just need clarification from --

**DR. VIKTOROV:** I'll ask George Stoyanov to address the question.

**MR. STOYANOV:** For the record, George

Stoyanov, Acting Director, Engineering Design Assessment Division.

So, with regard to the Normac liner, we have been informed under the IIP, as an IIP item, about the situation, and CNSC staff reviewed and accepted NB Power's resolution going forward with regard to the Normac liner.

**MEMBER DEMETER:** On the face of it, it doesn't make sense that, if it should not be used for new submerged environments, that you reduce the frequency of leak testing. Something doesn't add up, to me.

**MR. NOUWENS:** Jason Nouwens, for the record.

I will clarify that the issue with the Normac liner is in some sense not related to the frequency of the reactor building leak rate test.

So, the comment about the Normac liner being used in submerged applications I'll try to explain as quickly as I can, but the Normac liner is used on the entire inside of the reactor building.

However, at the very roof of the reactor building is the dousing tank, which is part of the reactor building and covered with the Normac liner. That dousing tank is a tank of water that's one of our special safety systems that could douse the reactor building if required. That's the only area that the Normac liner is submerged.

The rest of the building, the predominant area of it, is not submerged, and the Normac liner is in an air environment the entire time.

The concern -- or I guess the issue that was brought up about the Normac liner really relates back to whether the Normac liner is qualified to be used in submerged applications, and that was the original concern. And what we've implemented since then is a performance-based approach where we do inspections and sometimes de-water the dousing tank to do go in there and do an inspection of the integrity of the Normac liner and the adhesion of the Normac liner to the concrete structure under water, to ensure that the performance characteristics of the Normac liner are being maintained.

And to date, those performance checks have verified that the integrity of the Normac liner is being maintained at all times even though it's submerged. So that performance-based approach is what CNSC was referring to about accepting our approach going forward to make sure that the performance-based approach makes up for the lack of the qualification.

Now, with regards to the overall reactor building leak rate test, the extension from three years to four years was not related to the Normac liner at all -- two completely separate issues. And that was based more on

our safety analysis of the integrity of the reactor building leak rate -- sorry, of the reactor building, and I guess the structure and the integrity of the test, and the validity of the tests going forward. And we could provide more technical details if you'd like to know.

**MEMBER DEMETER:** No, no, that helps clarify. It was in the same body, so I was trying to put it together.

Second last is dealing with fitness for duty, and I wanted, from the talk about fitness for duty, Volume II, Managing Alcohol and Drug Use, committed to implement Version 3 by July 22, 2021 with the exception of random testing, which would be implemented by January 22nd, 2022. And I wanted to get a comment from NB Power whether those have been implemented and that's been done.

**MR. NOUWENS:** Jason Nouwens, for the record. I'll actually turn those questions over to Krista Ward, who is our Director of Emergency Services and Continuous Improvement.

**MS. WARD:** Good afternoon. For the record, Krista Ward, Director of Continuous Improvement and Emergency Services.

So, for REGDOC 224, Alcohol and Drug, we have implemented the portions of that REGDOC for post-incident and for-cause testing. However, for the

random testing and pre-placement testing, on January 21st the Federal Court of Canada ordered the implementation of pre-placement testing and random testing of the REGDOC to be stayed pending a final disposition of the employees union's application for judicial review. So that is the current status.

**MEMBER DEMETER:** Okay. And CNSC, when was that court stay issued? It would have been nice to have it in -- if it was issued, depending on the timing for this --

**DR. VIKTOROV:** It was issued just a couple of days prior to the Part I Hearing.

**MEMBER DEMETER:** Okay. So the CMD stood as it was. I understand.

My last question is for Point Lepreau. Given all the supply chain issues for electronics and many other industries -- auto, and so forth -- does that have any negative impact on your ongoing maintenance, replacement parts future? Are you having any difficulties in getting the parts you need, especially in the electronics sector?

**MR. NOUWENS:** Jason Nouwens, for the record.

What I will say is that the COVID pandemic and the changes that the entire world has seen have really pushed us to be more proactive in our needs. So there are

some challenges, but they've pushed us to plan better for the future and make sure that we know that there are certain products that we could have relied on in the past to get at a week's notice that we now may need two or three.

So there's been no challenge that affected the safe operation of the station in any way at all; it just means that we need to be a little bit more proactive about our plans. So we'll look to outages in 2026, for example, and anticipate the parts needs a little earlier than we would have in the past, but there are no challenges that have been presented that really contribute to challenge our safe, reliable operation.

**MEMBER DEMETER:** Thank you. Those are all my questions.

**THE PRESIDENT:** Thank you. I have a few quick questions around waste, and I'll start with New Brunswick Power.

In your submission, you have made a statement that you are expecting to reduce your waste volumes by 90 percent. It sounds an extremely aggressive target. Can you share with us what are some of the strategies to bring about that great a volume reduction?

**MR. NOUWENS:** Jason Nouwens, for the record.

Yes, that volume reduction of 90 percent is typically -- what we were trying to imply by that is we have a campaign of proactive segregation which improves the amount of waste we generate to begin with through our Likely Clean campaign. But we have been making concerted effort every year to remove some of the currently stored low-level waste and send it to an offsite provider for incineration and separation. And that's where we see the 90 percent reduction. So of what we can remove from the currently stored inventory through qualified service providers, the waste we get back is typically 10 percent or less of what we provided.

**THE PRESIDENT:** Thank you. And what about your liquid waste? So, is that also stored in the SRWMF, or do you have a separate facility, and give me a sense of the quantum of volumes of liquid waste that would be onsite.

**MR. NOUWENS:** Jason Nouwens, for the record.

Liquid waste would typically be in the form of resin or spent resin. So within the station we do have spent resin storage tanks and we also do have facilities for the storage of that onsite within what we call the SRWMF or the Solid Radioactive Waste Management Facility.

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

And I don't know if Mr. Jamie Fairchild from NRCan is online. If so, I have a question for you, please.

**MR. FAIRCHILD:** Yes, I'm here.

**THE PRESIDENT:** Ah, perfect. Thank you. And Mr. Fairchild, I don't know if you've been following this hearing, but there have been a number of interventions having questions around the preliminary decommissioning plan for Lepreau, and the associated financial guarantee.

And both New Brunswick Power staff and CNSC staff have explained in fairly great detail on the basis for that, and yesterday we had someone from NWMO as well, trying to help the Commission get a better appreciation of things.

But I'll tell you what my question is, or the concern that I'd like to get some response from you on. The preliminary decommissioning plan is based on certain assumptions, and given the uncertainty, given the track record not only in Canada but frankly around the world around the availability of long-term waste solutions -- and here we're talking about low- and intermediate-level waste in particular -- was the question of what kind of contingency planning exists and more importantly the financial guarantee and how much would that change if there

was no long-term solution for low- and intermediate-level waste for, say, another 20, 40, 50 years or whatever is in the assumption.

And we know that NRCan has underway not only the policy work for rad waste but also has commissioned the NWMO to come up with an integrated waste strategy. And the question asked of NWMO yesterday is, Is the strategy going to have within its scope an expectation of licensees to have a long-term solution in place by a certain date? And the response was, Well, that's a little premature at this stage, and that it may be somewhere later in the year when the policy and the strategy will be available.

But I wanted to get your response to the concerns that have been expressed by intervenors but certainly concerns that the Commission shares as well around the reliability of the financial guarantee. And I know it gets reviewed every five years, but is there perhaps an opportunity once the policy and the strategy is developed to have further discussion around the assumptions that go in the preliminary decommissioning plan and perhaps even have a public hearing on that? So I wanted to get your thoughts on that, please.

**MR. FAIRCHILD:** Sure. Thank you very much, President Velshi, for the question.

Jamie Fairchild, Natural Resources Canada,  
for the record.

Just wanted to start by acknowledging the traditional lands from which I'm calling or joining today, which are the unceded and unsurrendered territory of the Anishinaabe Algonquin Nation, whose presence reaches back since time immemorial.

So I think it might be helpful to provide a bit of a broader context for those who might not be as familiar with the review of the Radioactive Waste Policy framework, and then kind of link that to the integrated strategy and then subsequently sort of to the financial guarantee requirements for radioactive waste management projects.

So it behooves me, I guess, to start by saying that protecting the health and safety of Canadians and the environment is the government's top priority when it comes to nuclear energy. We're committed to continuous improvement with respect to ensuring that safe solutions are in place both for existing radioactive waste and for future projects as well.

And so this is what largely inspired our review of the Radioactive Waste Policy, our desire to continue to meet international standards based on the best available science and provide Canadians with confidence and

the long-term solutions for all of the radioactive waste.

For those who don't know, this process was started some time ago and is a part of the extensive engagement that was undertaken with, you know, a broad range of stakeholders, interest holders, Indigenous peoples across the country. A draft policy was released in February of this year, providing additional time for comment.

So the draft policy built on the views and perspectives from those who participated in those discussions and we've also published additional materials including what we heard before that sets out the context for the management of radioactive waste and decommissioning in Canada and is one of the main points of feedback that helped us to sort of validate and confirm the submissions made by people throughout that process.

Our Minister is responsible for the police framework, and my colleagues in the Uranium and Radioactive Waste Division have been leading the review. And so we are working with others in the federal family across other jurisdictions, including the CNSC, through the review of the Radioactive Waste Policy.

But equally important to having a strong policy, and this kind of transitions to your question, is having a clear plan for the safe long-term management of

radioactive waste. And so concurrent with the Radioactive Waste Policy review and modernization process, the Minister of Natural Resources asked the NWMO to work with waste donors and engage Canadians to develop a comprehensive integrated strategy to address all forms of radioactive waste both now and into the future. And there was a feeling that the NWMO was uniquely positioned to do this, and they had been instructed thus to move forward with that.

The NWMO does not have a role in our policy review and modernization process, but as you mentioned, they cannot finalize an integrated strategy until that review is complete.

And so to kind of simplify that, the policy will define the principles, roles, and responsibilities for the radioactive waste management decommissioning in Canada, and the strategy will propose an integrated plan for dealing with all of that waste, particularly where there are gaps, including approaches for the long-term management of waste and its implementation.

And so to speak to sort of existing projects, it is the responsibility under the current Radioactive Waste Policy framework for radioactive waste donors to fund and implement long-term waste management solutions; right? And the review of the waste policy, you

know, is about ensuring that any of those gaps, you know, are potentially resolved or solutions to those are found.

And so this approach aligns with the principles that were developed during the government's review of other environmental processes, and these, you know, are based on science, evidence, and Indigenous knowledge and the views of the public. And so it's important to note also that project proposals are subject to, of course, the CNSC's regulatory review process, and there will be opportunity for input on those projects throughout.

With respect to the financial guarantee component, we have the *Nuclear Fuel Waste Act*, and it sounds like yesterday you had some comments from the NWMO based on that. And complementary to the existing *Nuclear Fuel Waste Act* framework, we have the financial guarantees that are of course required by the CNSC.

And so until the final Radioactive Waste Policy framework is concluded, the considerations therein are applied to the integrated strategy. I think it's, you know, difficult to say exactly how the financial aspects of that would be reflected, but it is something that is very much top of mind.

So that's my initial response. Hopefully, that answers your question, but please let me know.

**THE PRESIDENT:** Yeah. Very, very helpful.  
Thank you for that.

So can you give a sense of the timeline for when the integrated strategy may likely be available?

**MR. FAIRCHILD:** Well, the NWMO's leading the integrated strategy process. But what I can speak to -- Jamie Fairchild, for the record -- is the process that we are leading.

And so we are considering the feedback we've received. There was a 60-day comment period on the draft framework which was published on the 1st of February. And the finalization of modernized policy is expected for release this calendar year.

And so then this modernized policy will then set the stage for, you know, further evolution of the integrated strategy whereby, you know, some of the things that you've raised may be further considered.

**THE PRESIDENT:** Okay, thank you very much for that.

Anyone have any follow-up questions for that? No.

Thank you so much for that, Mr. Fairchild.

And my last question -- and it's more to give an opportunity to CNSC staff -- was a submission by an intervenor we had just prior to break, Ms. McAllister,

raising concerns around lack of health studies or had there been any health studies around Point Lepreau site to give members of the public confidence around the potential health impact from the facility.

And so I'll turn it over to CNSC staff if, just for the record, wanted to make that complete and provide some reassurance there, please.

**DR. VIKTOROV:** Thank you for the opportunity. It's Alex Viktorov. And I'll ask Ms. Kiza Sauvé to comment on this subject.

**MS. SAUVÉ:** Thank you. Ms. Kiza Sauvé, for the record. I'm the director of Health Science and Environmental Compliance Division.

So yesterday we spoke a lot about -- well, we gave a pretty long statement about the different studies that have been completed mostly around tritium and different tritium studies by international communities.

If we want to talk specifically about the Point Lepreau site, there has not been a specific study on the Point Lepreau site in terms of community members or the workers; however, we've got so much evidence from, you know, the CNSC RADICON Study, which is a health study that was done around the Ontario power plants looking at the releases from those plants and the health of the workers in the area. And there's currently -- we've talked about the

in-work study, which is studies of other -- like around the world workers at nuclear power plants.

And based on those studies, based on the community health profiles, and based on the releases that are coming from the site -- which we want to really make sure we recognize that the public dose is at, you know, really, really low, less than 10 microsieverts per year -- I probably received more dose flying here for this hearing than the public dose from the facility -- that we have confidence that the public and workers at the site are protected.

**THE PRESIDENT:** Thank you for that.

And her other question at the end was around mitigation measures associated with impingement and entrainment. And again I just wanted to give you an opportunity, New Brunswick Power, if you had anything you wanted to add on the record for that.

**MR. NOUWENS:** Jason Nouwens, for the record.

What I will add is our current intake structure -- and I did mention this on day one of the hearing very briefly -- but our current intake structure, even though it was designed in the late '70s, is actually world-best technology and is specifically designed to be a horizontal intake structure in the vertical range of the

bay where there's very low likelihood of major fish and sea species in that area. So there is some, obviously; however, that is one of the aspects that we're grateful to have that mitigates the inclusion of fish at all.

In addition to that, we have an intake structure that has a screen size of three eighths of an inch square, which is very small. And again, leading up to that travelling screen is a trash rack, which is a further deterrent.

So we do have, in our opinion, best-class technology to mitigate any potential entrainment and entrapment.

However, we're always looking for areas to improve, right, and we're looking for feedback from various groups to see if there's, you know, part of our spirit of continuous improvement is there are things we can do better. So we're always open to ideas. But we do feel we have an industry-best intake structure.

**THE PRESIDENT:** Thank you for that.

Any last questions, Commission Members?

No.

Okay, so before concluding the hearing, I'll turn the floor to New Brunswick Power for any final remarks. Mr. Power or Mr. Nouwens, the floor is yours.

**MR. POWER:** Thank you.

For the record, my name is Mark Power.

I would like to begin by saying how much of a pleasure it has been to be able to safely meet in person again. After so many months of restrictions and constant vigilance imposed by the pandemic, this public hearing has been an important activity in our return to normalcy.

Please accept my sincere appreciation to you, the CNSC staff, the Commissioners, for hosting this session in our community. And I wish continued good health to everybody.

We would like to thank Louise Levert, the translators, and the logistics and technical teams for organizing the proceedings as well as the City of Saint John and the Delta Marriott Hotel for hosting the hearing and their warm hospitality.

Let me also thank our industry colleagues for their insights and support throughout this process as well as in our everyday operation. One of the unique strengths of the nuclear community is its inclination to work together and to share experiences and lessons learned in the name of nuclear safety. As a result, we are a safer industry.

As always, we thank the intervenors and participants for caring enough to participate in this

public process. Their interest in our plant is important and gratifying. We recognize the time they have taken to share their thoughts and perspectives through written and oral submissions.

Feedback and input are considered gifts to us and are valuable contributions to our continuous improvement in all aspects of our operations, in our relationships with First Nations, and our engagement with members of our communities. We have listened closely this week and have learned a lot.

The next steps for us, our team will closely review our notes as well as the hearing transcripts when released so we can begin immediately to address the key issues and recommendations that we heard this week.

This list is by no way complete; however, I do want to note a few items that have resonated with us and me personally and with our team. While we have had solid engagement plans and longstanding relationships that we value greatly, all successful plans evolve over time, and what we have heard over the last three days as we move into the future will require us to view these engagement initiatives through a different lens as the landscape changes with new innovation.

To improve, it's clear, we have continued work to do with our First Nations communities to consider

reconciliation opportunities, to listen and plan together.

We heard this week how important it is to engage with members of the public and stakeholders on our ongoing operations. While licence hearings like this are valuable, we suggest there may be opportunities to explore alternative methods to decouple public engagement from licensing activities and involve the public independently of the licence cycle. On a side note, these plans should be made in discussion with the public so we can better understand what engagement activities will serve them best and to build greater trust.

As we mentioned earlier this week regarding community and First Nations engagement, we are committed to designing with and not for, especially when it comes to engagement and communication activities.

We will work together with our industry peers and CNSC staff to discuss how best we can build upon the public confidence as an industry and not in isolation at Point Lepreau.

Similarly, we will continue to work closely with our emergency response partners in the community and across the province to confirm that public is comfortable and knowledgeable about emergency planning procedures and how they would be protected in the low probability that there was an event at the station.

We would also acknowledge our appreciation to the CNSC staff for their ongoing intrusive oversight of our station operations, which helps us continuously improve.

In closing we hope the Commission leaves with the following impressions of Point Lepreau and our employees: nuclear, radiological, environmental, fire, and conventional safety are our core business. It is in our DNA, and the employees at Point Lepreau live and breathe it every day. We work very hard to maintain our social licence and its associated responsibilities to our rights holders, our shareholders, and our stakeholders. We are a learning organization that always strives for excellence. We work hard at what we can learn and do better going forward. We are open to feedback, suggestions, and criticisms. It is all valuable to us.

As we have heard many times, the true strength of Point Lepreau resides in our people. They also deserve recognition. We have a solid team, some of whom you have heard from this week. They take great pride in their work, which is evident in the operating results that we have shared with you. Every employee understands this tremendous responsibility that they have to operate safely, with safety being paramount.

Given the demographics of New Brunswick,

our employees do not just work at the station, they live nearby. They raise their families in the same neighbourhoods and engage with the host communities that surround us. These nuclear professionals are the reason that Point Lepreau has an excellent safety record and strong bonds that build trust and confidence among our right holders, our shareholders, and our stakeholders. I am truly grateful to them.

I also feel fully supported by NB Power and its sustained commitment to safe, reliable, long-term operation of our station. Our job is to provide New Brunswickers with predictable, reliable, and environmentally friendly responsible electricity, a job we could not do without the full support of our corporate leaders.

We are respectfully requesting the CNSC Commission to grant us the privilege of continuing to operate the Point Lepreau Nuclear Generating Station for an additional 25 years. We are confident with the granting of a 25-year operating licence, Point Lepreau will continue to be compliant with all regulatory requirements and we will sustain safe and reliable and quality performance. We will continue the highest standards of plant operations while protecting the well-being of those we serve.

So once again, thank you. This concludes

our closing remarks.

**THE PRESIDENT:** Thank you very much, Mr. Power.

I want to thank everyone for your participation in this hearing. And with that, Denis, the floor to you for closing remarks.

**MR. SAUMURE:** Thank you, Madam President.

I want to inform all participants that the Registry has received the written request for ruling presented yesterday by Peace NB, CMD 22-H2.139B.

As a word of caution, the submission has approximately 400 pages, but the request is summarized in the first five to seven pages. The rest is reference material to previous CMDs. The information will be posted on the CNSC website shortly.

NB Power and CNSC staff will have until May 26th, end of day, to submit their views on the request. Once all the information is received, the Panel will deliberate on the request and issue a decision in due course.

Before closing the hearing, I will also join my voice to thank a lot of people, thanking all the participants, people from NB Power, CNSC staff, and as well all the intervenors for a very successful Commission proceeding.

I apologize ahead of time if I forget anyone, but special thanks for having taken the time to assist in these proceedings go to Environment and Climate Change Canada, New Brunswick Emergency Measures Organization, Natural Resources Canada, Department of Fisheries and Oceans, Nuclear Waste Management Organization, and NB Health.

I also want to reiterate and echo our thanks to the interpreters -- who also have to go through those long hours and keeping everything going, despite the rapid pace of our speech -- the staff for the official transcript, the webcast team, the audio-visual staff and the room set-up, security personnel, and the staff of the Delta Hotel and the City of Saint John for the incredible hospitality, and of course the staff from my team, the Registry. Thank you everyone.

This brings to a close the public hearing on NB Power's application.

With respect to this matter, the Commission will confer with regards to the information under its consideration and then determine if further information is needed or if the Commission is ready to proceed with a decision. We will advise accordingly.

Thank you everyone. Have a good  
afternoon.

--- Whereupon the hearing concluded at 2:46 p.m. /  
L'audience se termine à 14 h 46