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sûreté nucléaire

Public hearing

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

Commission Members present

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Dr. Sandy McEwan
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TABLE OF CONTENTS

	PAGE
Opening Remarks	1
CMD 17-H2.76 Oral presentation by Sipekne'katik	4
CMD 17-H2.69 Oral presentation by Leah Belding	13
CMD 17-H2.78 Oral presentation by Sunil Nijhawan	27
CMD 76 H2.72 Oral presentation by Keith Miller	70
CMD 17-H2.15 Oral presentation by the Canadian Nuclear Association	79
CMD 17-H2.95 Oral presentation by PEACE NB	92
CMD 17-H2.66 Oral presentation by Marlene Dewar	113
CMD 17-H2.85 Oral presentation by Leanna Hickman-Leroy	124
CMD 17-H2.89 Oral Presentation by Anne Harding	135

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

--- Upon commencing on Thursday, May 11, 2017
at 9:04 a.m. / La réunion débute le
jeudi 11 mai 2017 à 9 h 04

Opening Remarks

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

During today's business, we have simultaneous interpretation. Des appareils d'interprétation sont disponibles à la réception. La version française est au poste 2 and the English version is on channel 1.

Please keep the pace of your speech relatively slow so that the interpreters have a chance to keep up.

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

Les transcriptions seront disponibles sur

le site Web de la Commission dans environ 10 à 14 jours.
So in about two weeks the transcripts would be available.

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

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

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

Mr. President.

LE PRÉSIDENT : Merci, Marc.

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

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

For those who were not here yesterday, I will begin by introducing the Members of the Commission that are with us for this public hearing.

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

We have already heard from Marc Leblanc,

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

We also have some members from other government departments: Health Canada, Natural Resources Canada, New Brunswick Emergency Measures Office, and Environment Canada and Climate Change. So they will make themselves available for questions.

Marc.

MR. LEBLANC: So to give you a sense of how the day should unfold, we have nine intervenors that 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 1 minute left and turn red at the 10-minute mark.

After the oral presentations, the Commission members will have final rounds of questions to NB Power and CNSC staff.

Your key contact persons will be Ms Louise Levert and Ms Johanne Villeneuve from the Secretariat staff and you will see them going around or at the back of the room if you need information regarding the timing of presentations or access to document. Our table is right

there on the side.

There will be a break for lunch around 12:00, 12:30, and there will be short breaks in mid-morning and as necessary this afternoon.

Thank you very much.

CMD 17-H2.76

Oral presentation by Sipekne'katik

THE PRESIDENT: So the first presentation today is by the Sipekne'katik, as outlined in CMD 17-H2.76.

I understand that Ms Copage is joining us through teleconference. So let me test the technology.

Ms Copage, can you hear us?

MS COPAGE: Good morning. Jennifer Copage for the record. I can hear you.

THE PRESIDENT: Okay. The floor is yours. Please proceed.

MS COPAGE: Okay. And at any time if you can't hear me, just let me know.

THE PRESIDENT: Okay. Thank you.

MS COPAGE: Okay. Thank you, Mr. President.

First, I would like to acknowledge the unceded Mi'kmaq and Maliseet Territory where the Commission

hearing is taking place in Saint John, New Brunswick today.

I would also like to thank the Commission for the opportunity to present during Part 2 of the hearing and also thank for the opportunity to participate by teleconference today.

My name is Jennifer Copage. I am the Consultation Coordinator on behalf of Sipekne'katik, formerly known as Shubenacadie First Nation. In my role as Consultation Coordinator, I have no authority to make decisions. In my role, I provide information to Chief and Council and my actions are directed by Chief and Council.

A little bit of our community background.

Sipekne'katik First Nation is one of 13 First Nations located in Nova Scotia and is the second largest Mi'kmaq Band within Nova Scotia. Sipekne'katik has a membership of about 2,600 members who live both on reserve and off reserve. Sipekne'katik includes the communities of Indian Brook Indian Reserve No. 14 and Dodd's Lot in Hants County, New Ross Indian Reserve No. 20 and Pennal Indian Reserve No. 19 in Lunenburg County, Wallace Hills Indian Reserve No. 14A and Shubenacadie Grand Lake Indian Reserve No. 13 in Halifax Regional Municipality located within Nova Scotia.

In the Maritimes, we have pre-confederation peace and friendship treaties, also known

as the Covenant Chain of Treaties, which also includes the Royal Proclamation of 1763.

It is important to note that the peace and friendship treaties did not sell, trade nor release any land. As such, the Sipekne'katik members continued to practice aboriginal and treaty rights within Nova Scotia and beyond.

The 1752 treaty was signed near the banks of the Shubenacadie River, which is about three kilometres as the crow flies from the Sipekne'katik's community of Indian Brook. The Shubenacadie River flows to the Minas Basin and into the Bay of Fundy.

Protection of these waters and its species within is key to the protection of rights. The Crown has a duty to consult when a government action may impact rights. The Sipekne'katik represents itself in all consultation and negotiation matters and seeks to celebrates relationships based on mutual respect, honesty with government proponents and other stakeholders.

I'll now move into Sipekne'katik's comments.

I have reviewed New Brunswick Power's and the CNSC's written submissions as well as Part 1 of the hearing from January 2017. My comments today will not speak to being in support or of not in support of the

renewal of the Point Lepreau generating station.

But what else my comments speak to is, in the event that the Commission approves the renewal licence for five years, the Sipekne'katik is seeking to protect its communal commercial fishery and also its food social ceremony fishery within the Bay of Fundy and surrounding waters during the normal operation of Point Lepreau as well as in the unlikely event of an incident at the facility may impact fishery activities and trapping (indiscernible).

The Sipekne'katik holds three licenses for lobster within LFA 35 and also holds a full bay Scallop licence under its communal commercial fishery.

The Sipekne'katik members have the right to fish for food both for ceremonial purposes within the Bay of Fundy. But the Sipekne'katik is seeking the following.

One, a commitment to communication and information sharing and, two, a protection of our fishery by way of having a specific term or condition added to Point Lepreau's operation manual that would specifically address the potential fishery impacts to the Sipekne'katik.

In closing, I would like to thank the Commission for the opportunity to present today. Thank you.

THE PRESIDENT: Okay. Thank you. We're into the questions. Question? Dr. McEwan?

MEMBER MCEWAN: Thank you for the presentation. I'm just trying to orient myself with the geography. So on day one of this hearing, we had a map with showed us LFA 36 and 37. Presumably what you describe as LFA 35 is to the south of 36, towards the northern shore of Nova Scotia?

MS COPAGE: Jennifer Copage for the record. I didn't see the map but, yes, LFA 35 is closer to the coast of Nova Scotia.

MEMBER MCEWAN: Okay, so it is probably, what? Eighty kilometres east/southeast of the station itself?

MS COPAGE: Jennifer Copage for the record. I'm sorry, did you have a question?

MEMBER MCEWAN: Yeah. So if it's where I think it is, it's about 80 kilometres east/southeast of Point Lepreau itself?

MS COPAGE: Okay.

MEMBER MCEWAN: That'd be the broad area that we're talking about?

MS COPAGE: Yes.

MEMBER MCEWAN: Thank you. So if, staff, if we are talking about that area and I'm actually looking at the Maliseet map. What is the effective distance on risk as you move out from the nuclear station?

MR. FRAPPIER: Gerry Frappier for the record. I think there's a couple of things that have to be considered here. One is certainly from a risk point of view. As we've noted yesterday, had quite a bit of discussions yesterday, we certainly don't believe there's any significant impact beyond 20 kilometres, even in the worst accident scenario we could imagine.

However, there is a second aspect to this which is the Crown's duty to consult. And for that and how the distance or whatever might play into that, I would ask Kim Noble in Ottawa to perhaps provide some comments.

MS NOBLE: Good morning. This is Kim Noble for the record. The duty to consult is raised, just as Ms Copage mentioned, if the Crown is going to make a decision that may have an adverse impact on established or potential aboriginal or treaty rights.

In this case, the staff have made a decision or a recommendation to the Commission that, because NB Power is not asking for any changes to its operation or changes to the size of its footprint, the duty has not been raised because there cannot be any adverse impact to rights.

That said, however, CNSC has taken a very proactive approach and has reached out and engaged with,

obviously, by identifying a number of First Nations and engaging them and encouraging their participation in this hearing.

But based on their first recommendation, we're certainly committed to ensuring that the Sipekne'katik First Nation continue to receive information and I know they've had talks with NB Power and, if they want more information throughout the *Fisheries Act* authorization or if the licence gets renewed, we'll keep in touch with Ms Copage and provide all the information she would like.

MEMBER MCEWAN: Thank you.

THE PRESIDENT: Questions? Ms Velshi.

MEMBER VELSHI: And I'd like to ask the same kind of question to Point Lepreau and New Brunswick. Have you had any interaction with them and, given their request for communication and information, what's your reaction to that?

MR. PLUMMER: Brett Plummer for the record. Andrea Allen will answer that question.

MS ALLEN: Andrea Allen for the record. Members of our First Nations Affairs Department and Kathleen Duguay have indeed had discussions with Ms Copage and I'll turn the floor over in a moment to Kathleen.

NB Power does appreciate all interactions

that we have with our First Nations. We learn a specific interest. We can begin to grow new relationships, more positive relationships, include everybody.

These proceedings have certainly provided an opportunity to do that. Inclusion and responsiveness are part of our approach with First Nation affairs at NB Power and I'll turn it over to Kathleen for any further information now. Thank you.

MS DUGUAY: Kathleen Duguay for the record. I had the opportunity to meet with Ms Copage via teleconference and we did indeed agree that we would share information and continue the dialogue in areas of their interest and we will be taking a proactive approach moving forward in ensuring that we share with them information that they are interested in.

MEMBER VELSHI: Thank you. And, as you proceed with your DFO authorization application and the consultation around impact and offsets, would they be one of the groups you would consult with and engage?

MR. HICKMAN: Charles Hickman for the record. Yes, they certainly are and I think that's one of the advantages of an opportunity like this is we've now recognized the interest and we will reach out to them for that.

MEMBER VELSHI: Thank you.

THE PRESIDENT: Let me follow up on this. Is there existing right now a mechanism where First Nations from Nova Scotia and New Brunswick get together to discuss various issues? Are there such existing mechanisms right now?

MR. HICKMAN: So Charles Hickman for the record. I may not be the best person to speak to but, from the point of view of the *Fisheries Act* authorization, we'll be reaching out both to CNSC staff and to the DFO Fisheries management personnel. We do have contacts with the First Nations, both for the communal commercial fisheries and the social and traditional fisheries so we'll be working with both those levels of staff to ensure that we do touch base with and get information from all the relevant First Nations groups as well as other commercial fishers.

THE PRESIDENT: Thank you. Mr. Tolgyesi.

MEMBER TOLGYESI: This is to the intervenor. In Point Lepreau operation licence, there are several measures which the remoter or Point Lepreau have to do concerning protection of fishing and environment.

And my question is, do you have any additional specific concerns? Because you were expressing concerns for protection of fisheries and the Bay of Fundy. Do you have any specific concerns regarding fishing which you consider are not coloured by the licensing -- operating

licence of Point Lepreau?

MS COPAGE: Jennifer Copage for the record. No, I do not.

THE PRESIDENT: Okay. Any other questions? Okay. So, Ms Copage, thank you for your intervention. Do you have any final thoughts you want to share with us?

MS COPAGE: I would like to add that -- and just confirm I have been in contact last week with Point Lepreau and New Brunswick Power via teleconference and thank you for that, and I do look forward to building our relationship and ongoing communication.

In closing, I would like to thank the Commission for the opportunity to present today by teleconference. Thank you.

CMD 17-H2.69

Oral presentation by Leah Belding

THE PRESIDENT: Okay, thank you.

I'd like to move now to the next submission which is an oral presentation by Ms Belding, as outlined in CMD 17-H2.69.

Ms Belding, over to you.

MS BELDING: Thank you. Good morning.

For the record, my name is Leah Belding.

I am a shift supervisor-in-training at the Point Lepreau Nuclear Generating Station. I am pleased to provide my support for the Station's five-year licence renewal.

Today I am going to elaborate on my letter to the Commission about my experience working at Point Lepreau and for the reasons that I support this licence renewal, but first I would like to tell you a little bit about myself.

I was born and raised in the area and grew up in the local community of Chance Harbor which is approximately 10 minutes from the station, as did my husband Nathan. We are proudly raising our three children here today.

Our family ties run deep over many generations with family careers tied to both Point Lepreau as well as the local fishery. Nathan is a commercial lobster fisherman as was his father, his grandfather and his great-grandfather and one day I would like to see our children follow the strong tradition as well.

For some people the concept of protecting the environment and protecting the public in our nuclear operations is important but it may also be a bit abstract. This is because for many people they are kilometres, even

hundreds of kilometres away from the actual site.

But in my case when I talk about ensuring the safety of the public and the area surrounding the station, I am talking about my three children, my siblings, nieces, nephews, parents, aunts, uncles and friends. I am talking about my husband and the family members who are area fishermen providing fresh, safe food for the people throughout New Brunswick and beyond.

I have been part of the Point Lepreau family now for more than 16 years and what I enjoy most about Lepreau is our most valued asset. It is our people. I also appreciate the value the station brings to our community.

The station represents knowledge and skill-based jobs that pay well and allow our community a better quality of life. But that doesn't mean we take -- doesn't mean we support its operation blindly and, on the contrary, my commitment to ensuring a safe and environmentally-friendly operation and to understanding all impacts from our operation is even greater.

And for all these reasons in the late 1990s when I had completed high school I decided I wanted to be part of the operation of the plant. As a new high school graduate I six months work training in position in service maintenance at Point Lepreau and it gave me a

wonderful opportunity to see so many different career paths. I get to see firsthand many different or dozens of career paths -- pardon me -- with operations peaking my interest the most.

And at 19 years old I visited the main control room in the station for the first time and I was amazed. I was amazed that there are so many panels that were covered with buttons and switches and screens, amazed at how calm the environment was there given the complexity of the environment. And most of all, I was amazed that one individual had the knowledge to operate the station.

Since those first moments or months of working at the station, I found the culture and the people at Lepreau to be exceptionally welcoming and supportive. It is an incredibly positive environment where I have always found encouragement for career aspirations and personal growth and with that has come rigorous training that has been challenging in the best possible way.

I have grown intellectually, professionally and I have gained emotional intelligence through the training that I have been provided. And after my initial work term at the plant I went to college. I completed a power engineering program and from there I have not stopped learning.

In 2005, I was selected to train for the role of a Licenced Control Room Operator. This was both an honour and a responsibility that I took very, very seriously. For the next three years, I went through a rigorous training program that included a year of general training, a year of station-specific training and another year of simulator training where we train for upset management and prepare for the unlikely or challenging scenarios at the station. This was followed by about six months of co-piloting where I worked day-to-day with a licenced operator before I was interviewed, and then licensed myself.

With several years' experience under my belt, in September 2016, I was again selected to re-enter another formal training program and this time to become a licenced shift supervisor. Still married and a mom of three, my goal is to be licensed by April 2018.

Today I have another family of people I'm thinking about as I sit here and it is my co-workers. Their safety is also on top of my mind.

I understand the future responsibilities that I will carry as a duty shift supervisor and have the unique perspective of understanding the design and operation of the station in a way that most people don't.

In the last 16 years of employment I have

spent nearly 40 percent of my career taking formal training either in a classroom or a simulator. The focus has not only been on plant operation but equally important is operator fundamentals and operation performance.

When I come to work I'm thinking about my human performance tools as well as my technical training, my focus on the job ensuring everyone else's mind is on the job too. This is my professional family. These are the people I am observing, coaching, mentoring and who do the same for me to ensure the safety of everyone at the station and outside of it are protected.

We also know we are accountable for producing 30 percent of the station -- of the province's electricity. There are a lot of families whose livelihood and quality of life depend on this electricity. They count on that to be there for them when they need it and at a price that they can afford. Our work impacts that directly. We are both proud and mindful of the responsibility that we have to them.

There are many engineer barriers we have within our design but the human side, the plant interaction side remains vital. The site standards and expectations are well communicated and we work together to maintain a high safety standard.

I mentioned that our people are our

greatest asset and from being -- and being from a small community we know one another very, very well. And the same holds true for my work family. Our staff embrace a strong safety culture with a clear message from our senior management that no work is so urgent or important that it cannot be performed safely. I have a responsibility to myself, my family and my team to model this behaviour, to challenge my co-workers and to also be challenged myself.

I have essentially grown up in the nuclear world. I have spent nearly half of my life now at Lepreau. I see how we have improved together, how we have helped each other and how we have shifted from needing to follow expectations to wanting to follow them because we internalize why it's so important.

Nuclear is unique and we don't take it for granted. The responsibilities that we are entrusted with; trust from our community level, the provincial level, the federal level, but also on an international stage and years -- and trust does take years to earn and only seconds to lose.

This summer I will be boating in the waters that surround Point Lepreau in the Bay of Fundy with my family, as we do every year. When I am enjoying the natural environment with my children I feel a lot of satisfaction knowing that our work at Point Lepreau is

avoiding greenhouse gas emissions that contribute to climate change and I will think about the safe operation of the station and my contribution in keeping those waterways clean. When my husband, relatives and friends are out on their boats fishing, I take comfort knowing that my work ensures the safety of our food supply.

And finally when I think of my children who one day will be making their own career decisions, I will know that I have been a role model for them. I am working in a job that contributes to the wellbeing of our society, the wellbeing of our family and a job that provides me personal and intellectual growth as an individual.

I am grateful for the opportunities I am given. I am grateful to still be home to raise my children in Chance Harbour. I am grateful for finding meaningful employment in my own backyard and not needing to move west like many friends have. And I am grateful for carrying on family traditions and yet carving out a unique trail that many women don't realize exists.

And I am grateful for the opportunity to speak to you today. I unreservedly support the five-year licence renewal.

THE PRESIDENT: Thank you.

Questions? Mr. Tolgyesi...?

MEMBER TOLGYESI: Mrs. Belding, your career progress at Point Lepreau is commendable.

Now, you are talking about your training as licence control operator when you are talking and you were talking about simulator training. Now, could you tell me that are situations to face severe conditions like outbreaks, tsunami, severe cholera damage or large releases are part of this simulation training?

MS BELDING: Leah Belding for the record.

So we train continuously in the simulator every six weeks as a team and we go through various scenarios in the simulator. So they do various challenges to the station, through radiation releases as well.

We are trained and adhere to many complex procedures that we have in place to ensure that the public is always protected that we have got -- I guess our simulator approach and our training approach is a hierarchy that we always follow with safety always being first.

So if I think I heard your question correctly is you're asking if we train in the simulator to various scenarios that would have radiation releases to the public the answer is absolutely we do.

MEMBER TOLGYESI: So in your training simulator is outbreak and potential consequences like severe releases or cholera damage, you should deal with

that?

MS BELDING: Leah Belding for the record.

Yes, we have. We have specifically trained for earthquake scenarios, trained to the enunciation of the alarms that we get in the station to support that, how we diagnose that and how -- what our approach is and the -- you know our approach is based on -- you know we do survey results. We simulate radiation at the station. We simulate radiation outside the station and we take required actions based on the event through its unfolding.

THE PRESIDENT: Questions? Ms Velshi...?

MEMBER VELSHI: Over the last couple of days we've heard from both the Lepreau management team but as well as from a number of intervenors about the strong safety culture that exists at the plant and not only the right but the expectation that employees would stop unsafe work or if they thought someone was not working safely or was not fit enough to do work that they would call that out. Have you personally ever had to stop work or identify someone as not being fit to work?

MS BELDING: Leah Belding for the record.

So day-to-day we do certainly encourage and promote safety in everything that we do.

There's been perhaps low-level incidences

or maybe somebody forgot to wear earplugs or if they're out in the turbine hall, then absolutely we'll remind them of the expectations of PPE.

As far as fitness for duty, that's not something I've personally been challenged with, that I've had to coach anybody on. Like we all walk into work knowing what the expectations are. We all want to work safely and we all have a general culture that we will help one another do so.

MEMBER VELSHI: And has there been any other, besides not wearing earplugs or something like that, anything more risky that you have actually had to stop from going ahead?

I'm just trying to understand the frequency of occurrences like that. And I suspect it's pretty rare. I just wanted to see if you had had any personal experience.

MS BELDING: Leah Belding, for the record.

I don't have any personal experiences that I can share in that regard to that level. Typically my experiences have been what I consider to be low-level incidences.

THE PRESIDENT: Let me push you a little bit on this.

You have the title called Shift

Supervisor. You supervise people on the shift.

So what I want to know is, is it your responsibility to tell somebody: you know what, you've worked long enough, go take a rest?

MS BELDING: Leah Belding.

So I am in training to become a shift supervisor. My previous role up to now has been a control room operator. But that responsibility does rest with all of us. I don't believe it's only in the supervisor level; it's with everybody.

So if I'm tired, then I need to bring that to my supervisor and say I need a break right now. And vice versa. It's also my responsibility to recognize amongst my co-workers.

I feel like we've got the benefit. We've worked together a long time and we know each other. So you can tell if somebody has changed. You can tell when somebody is really tired or if they can't focus.

Then it's also within my responsibility to suggest maybe you have a break, or go to their supervision and say maybe we should change something here.

THE PRESIDENT: Thank you.

Anybody else?

Dr. McEwan.

MEMBER MCEWAN: Thank you.

My sense, listening to the interventions, is that Point Lepreau is a comfortable place to work. It seems to be a very cohesive place to work.

I'm not sure "happy" is the right word but perhaps that's an adjective.

Is there a broad level of satisfaction in the environment with the work among all of your co-workers?

And I guess to Point Lepreau, do you do formal staff satisfaction surveys? Are they done by you internally or are they independently done?

MS BELDING: Leah Belding, for the record.

Personally I've always had great satisfaction working at Lepreau. Even at home before I leave for work, my children feel that. They know how much I enjoy going to work every day.

I feel within the operations family that satisfaction is there. I can't speak to the rest of the site.

There's a lot of growth. There's a lot of personal satisfaction, a lot of gratification that goes into our job.

We do a lot of safety culture type surveys, not necessarily a lot of personal satisfaction, along those lines, type of surveys.

MR. PLUMMER: Brett Plummer, for the

record.

I just want to make it clear that even though it appears to be that most folks are comfortable -- you used the word "happy" -- to work at Point Lepreau, we still strive and push each other for very high standards. And we are constantly striving for excellence.

So even though it's a very respectful workforce, and I think we all work as one team, we're still trying to push each other to excellence.

Now to answer your question specifically, the Nuclear Safety Culture Survey doesn't look at people's perceptions. It looks across the organization but mostly it's focused on the workers.

It does look to determine if there are concerns and issues. We do that formally every two years, but we actually do a briefer, I'd call it a brief survey, on an annual basis just to do a pulse.

So it's a very open survey. Again it's based sometimes on people's perceptions. But perception at times can be reality and we have to deal with that as well.

So we do pulse it frequently.

THE PRESIDENT: Thank you.

Any final thoughts?

MS BELDING: No final. I'll just thank you for the opportunity to be here today.

THE PRESIDENT: Okay, thank you.

I would like to move to the next submission, which is an oral presentation by Dr. Nijhawan, as outlined in CMD 17-H2.78.

I understand he is also joining us via teleconference.

Dr. Nijhawan, can you hear us?

DR. NIJHAWAN: Yes, sir.

THE PRESIDENT: Okay, please proceed.

CMD 17-H2.78

Oral presentation by Sunil Nijhawan

DR. NIJHAWAN: For the record, this is Sunil Nijhawan. I'm speaking to you from Halifax.

This is my fourth appearance before this CNSC Commission and the senior CNSC managers.

For the record, I'm a nuclear engineer who has spent 35 years developing methodologies for CANDU safety assessments.

I'm very familiar with most of the systems at Point Lepreau Nuclear Generating Station.

I have worked lately, for the last 25 years, on severe accident related issues in power reactors and research reactors and within power reactors also in the

fueling machine accidents and spent fuel bay accidents.

I've developed a large number of codes, which are really methodologies for finding out how the accident progressed and what are the consequences.

I've worked on CANDUs, RBMKs and light water reactors, PWRs and BWRs.

As I said, this is my fourth appearance, this is my fourth interaction, and with each interaction my trust and independence or competence of the current CNSC and its capacity to properly safeguard public interests is depleted substantially. It has come to a point that I've begun to consider that these hearings are a farce and the results and the conclusions are pre-ordained.

Yet I'm still hopeful for a new CNSC, a new Commission, a new set of CNSC managers, and alternate forums, not necessarily these hearings, and a government commission or a judicial pathway to find ways of reducing the risks that these reactors pose.

I'm also hopeful that the rules of CNSC staff and consultant presentations will allow one day for cross-examination and that the staff would not be able to change the rules of engagement with industry on the fly without public consultation or without consultation with the Commission members.

I'm pro-nuclear. I'm a nuclear engineer.

This is my livelihood. I'm a reactor safety engineer who feels that over the last ten years the current CNSC has contributed significantly to the decline of safety culture and the decline in safety related R&D in this country.

Article 7 of the *Nuclear Safety and Control Act* that allows the staff to forgo any regulations has not helped. Absence of a requirement for a quorum that allows Commission meetings with the majority of members has also not helped.

I speak with deep conviction that an abundance of caution and in the interest of safety of people in New Brunswick, Nova Scotia and Maine, Point Lepreau should not be relicensed for another day, let alone five years.

I base it on my long and systematically acquired understanding of severe accident issues in these kind of reactors.

I pointed out in my submission specific design features that are dangerously inadequate for a high confidence successful outcome following an accident as simple as a station blackout.

I also pointed out some design features that are contributory to undesirable explosive outcomes. I have recommended a denial of licence not because there is no hope for this rather obsolete old reactor. I say that

because there actually are engineering fixes to most of these problems that I and other people have identified.

But there seems to be no expertise or will with New Brunswick Power to undertake the required changes.

The design enhancements that scream out from Fukushima lessons have become an enigma to the industry and only lip service is being paid to understanding through accidents, the mitigation, etc.

A denial of licence will wake the company up to their true obligations to the stakeholders and the citizens they serve. And it's only then that they will stop playing the games that they're playing with public safety.

I assure you that within six months or maybe to a year of a forced shutdown, means and will can be found, and will be found, expeditiously and the reactor will be refurbished to meet the current expectations of reduced risk.

One premises of my intervention is that the current design of Point Lepreau is not licensable in any new jurisdiction in the world.

The station has not performed any credible severe accident progression and consequent assessments of design as built, and their emergency preparedness measures are based on some idealized design basis accident with

minimal off-site consequences.

The design enhancements after Fukushima have been minimal and largely poorly designed.

Some of the design enhancements, like the recombiners, are actually dangerous.

To put things in perspective, I will rehash what I heard yesterday.

Member Velshi correctly stated that the emergency planning and preparedness is a key component of public hearings. Her questions and observations are in stark contrast to some of the other bizarre questions that are routinely asked at public hearings and scream for a compilation of a book on the subject.

My last intervention on March 8th, the lone comment to me was that I was an outlier and intemperate, and there was only one Commission Member present at that time.

The main issue raised yesterday about emergency planning by CELA of course is that the Point Lepreau planning basis is really a design basis accident. The source term is really for a design basis accident.

Point Lepreau has not determined the source term for a severe accident, anything close to what was claimed yesterday. There's a lot of confusion among New Brunswick Power, CNSC, New Brunswick EMO, about severe

accidents. Yesterday Brett Plummer of NB Power said that the emergency planning includes severe accidents and Lee Casterton of CNSC said that NB EMO demonstrated ability to deal with a severe accident.

What is interesting, when a severe accident was designed -- was claimed by Charles Hickson, who described the 2004 planning basis to include a severe accident, and he described the reactivity-induced accident. That was like Chernobyl-type accident. Which included, he said, hydrogen explosion and early containment failures, with a 40 per cent core inventory release. My God, that's far beyond what happened even at Fukushima or even at Chernobyl.

Gerry Frappier was quite happy, and I was happy to see his response, he noted that the source term that was claimed by Charles Hickman of 40 per cent of core inventory is higher than the SARP study, and we all know that the SARP study was a joke; that they pulled a source term out of the hat of a 100 terabecquerels while other source terms which have been published by some of the CNSC Staff and Chalk River people talk about almost 20 per cent release.

You will recall that the SARP study considers only 0.1 per cent of inventory loss. Another surprise when President Binder said yesterday that

Ontario's likely going to use the SARP source term for planning basis. God help us, 0.1 per cent of inventory loss while New Brunswick Power is talking about a 40 per cent release.

Interesting that Luc Sigouin said that there's no scenario with a need for evacuation beyond 20 kilometres. If there's a 40 per cent release with an early containment failure, you will need evacuation to maybe 50 to 100 kilometres.

It was interesting that they said that IAEA wants to avoid nuclear specific plans for emergency planning. That is not true. It reminded me of Gerry Frappier saying at the Bruce hearings, that no protective action was necessary for 24 hours.

Yesterday, Greg MacCallum of NB EMO who implied that the public would be unable to understand the plan written for practitioners who I assume are all rocket scientists and we cannot understand that.

I have seen some of the stuff written in parts of their plan which was disclosed, and it is rather bizarre, and public examination of those plans should have been done years ago.

There are statements made even by the previous presenter, they implied that's similar to the use to look at severe core damage accidents. All these

statements, all the statements starting from Charles Hickman's statement or Brett Plummer's statement, they're disturbing to me and they're outright lies. The truth is that the consequences of a bounding credible accident were never analyzed and the source term was never used for any planning basis in New Brunswick.

You cannot have 40 per cent releases and have these wardens and people going out and trying to round up people. A very basic question that I asked Mr. Shepard a couple of months ago was, how are you going to get these people if there is no electricity? If it's a station blackout, there's no electricity. There's no answer to that.

New Brunswick Power did not do anything severe accident assessments prior to 2004. Actually, I was hired by AECL in 2008 to prepare the inputs for the use of the computer codes to assess severe core damage accidents.

You need, Commission Members, to go back. Look at the veracity of the submissions, at some of the wild statements. If you're able to understand and look through these statements, you should deny them this extension of accidents(sic).

The Point Lepreau reactor, which was designed in the 1970s at a time when we were using slide rules and rotary telephones, is plagued by inherent

weaknesses, and these I have pointed out a number of times and in the submission that I have made for you. There is reactor damage after a station blackout accident, even before the NACC can come in.

There are no provisions for manual depressurization, there is no high pressure injection of ECC (indiscernible) injections. The activity in a CANDU reactor is put directly into the containment after core damage, there is no pressure vessel. There's one less level of -- one less barrier. There are very high sources of hydrogen from just 9 kilometres of carbon steel and zircaloy -- and 50,000 kilograms of zircaloy, approximately.

The current design and the number of recombiners which have been put in Point Lepreau will cause explosions. The enhanced potential of an interaction with the water and the moderator may cause further problems in the shield tank at Point Lepreau, which is already leaking.

It has been leaking 8 kilograms an hour for the last 32 years. Nobody has understood or pointed out that this particular reactor with a leaky shield tank does not have a capacity to contain any energetic interactions.

Of course, common with other reactors, there's a calandria vessel inability to contain debris, there's a chance of a containment bypass after a station

blackout because of boiler tube failure or because of reactive device failures. The shield tank cannot contain any pressure because of its limited ability of pressure relief. You can't restore cooling to the shield tank, because the outflow water is at the top of the vessel.

THE PRESIDENT: We've read your submission, Dr. Nijhawan.

DR. NIJHAWAN: You have, but these are --

THE PRESIDENT: So please wind up.

DR. NIJHAWAN: -- I'm pretty happy.

Let's go through then the specific suggestions, which are on page 2 of my submission. There are a large number of suggestions that are made, about 11 suggestions that are made, and we should perhaps later on talk about these suggestions. Maybe, if you don't want to talk about them, you should consider them while you decide whether any further operation of this reactor is in the public interest.

This reactor will cause, in my opinion --

THE PRESIDENT: Can you please wind it up? Please wind it up so we can engage in discussion.

DR. NIJHAWAN: We can stop right now, but I am very -- the reason I'm speaking to you, in spite of my reservations about the way things are handled by CNSC, is that one day people would inquire about a devastation that

this reactor can cause because of a simple act of nature; such as extreme cold, an ice storm, and they will ask why did we not fix these reactors? Perhaps we will find, or will now, this is a critical time that we will make efforts to fix these reactors.

Thank you for your time, sir. Thank you for the extra time.

MEMBER VELSHI: Thank you. Questions? Ms Velshi.

MS VELSHI: Thank you, Dr. Nijhawan. You know, I do want to commend you for, if nothing, your perseverance, but definitely your commitment and passion to raise these issues. There's absolutely no question in my mind that the reason why you're doing it is because you care for public safety, so for that I thank you.

I do, however, want to tell you that I take great exception to when you call proceedings like this a farce, that you say that the licensee is playing with public safety. Comments around the CNSC Staff's credibility and expertise, I think not only are they unfair, they're alarmist and totally unfounded. So I think that in order for us to even engage in a dialogue I don't think comments like that are at all helpful. So I did want to state that at the outset.

As to get into questions, let me start off

with something that wasn't in your submission, but that you did comment on based on what you had heard over the last couple of days, around emergency planning and the planning basis for that.

So we did hear that what was in there from 2004 that has been revisited, which you said was 40 per cent of the inventory. You did say that that would be a beyond-design-basis accident and would be a good basis to plan for emergency management. I wanted confirmation from you on that.

DR. NIJHAWAN: Yes, ma'am. I understand you're taking exception to my comment, but these comments are out of frustration with what I have seen in my interactions with CNSC Staff where basic science is denied for the sake of denying, very basic science. I'll be very happy to sit with you in camera and discuss with you the implications of these actions.

In terms of the source term, the source term of 40 per cent of any number --40 per cent is a good idea, 40 per cent is a nice bounding number for releases of fission products from the reactor.

Forty per cent really, Ms Velshi, in this particular case means about 25,000 terabecquerels of cesium-137. One of these isotopes that we worry about, although there are other, like cesium-134, 25,000

terabecquerels is 250 times what is used and what has been pretty erroneously and very, in my mind in a criminal fashion, suggested by the CNSC Staff as a limit for which we should be looking at offsite consequences.

There's no reason to pick a number out of the hat of either of 100 terabecquerels or of 40 per cent. We should do good analysis. My analysis, which I have done with the new computer course that I have developed for my overseas clients, who will leave us behind very soon in their ability to look at accidents because of the honesty with which we are looking at accidents, my analysis for a station blackout is right now showing approximately 25 per cent releases from a containment because of a containment failure.

A containment failure will occur because of containment bypass or because of the hydrogen explosion causing a containment failure, or because of failure of door seals, which are the weakest point in the CANDU.

So, yes, 40 per cent is a good number, let's go out and do it. Let's see -- you will see that no warden, no firefighter would want to be in that area if they understand what is the size of release which they might be working under, because that will perhaps mean in the order of 10 to 15 sieverts of dose, which would mean death within hours for people near the plant or inside the

plant.

MEMBER VELSHI: Thank you. Staff, did you want to comment just on that specific aspect? Then I'll ask Point Lepreau if they wanted to around the design basis -- the planning basis for emergency planning.

MR. FRAPPIER: Gerry Frappier, for the record.

So as was mentioned yesterday, we believe that the planning around emergency response, the planning around accident management within the station, certainly meet all the requirements that we've laid out, and are a sound approach, an internationally recognized sound approach, and we're fully satisfied with the work that's been done both by New Brunswick Power and with the Emergency Management Organizations of New Brunswick.

MEMBER VELSHI: Thank you.

MR. PLUMMER: Brett Plummer, for the record.

Although we don't agree necessarily with specific values that the doctor used, but I think he's validated that we use worst-case design basis for our emergency preparedness, which doesn't mean it's the same as the actual accident scenario we're designed to.

DR. NIIJHAWAN: May I suggest that --

THE PRESIDENT: Just a second, one at a

time. Mr. Tolgyesi.

MEMBER TOLGYESI: According to the intervenor, Fukushima action items are closed, while industry has not done anything about that. He was using an example of passive autocatalytic recombiners. Could you comment on these items and generally on the Fukushima action items plan?

MR. FRAPPIER: Gerry Frappier, for the record.

I can let New Brunswick Power give details, but as we've noted here before, during the integrated safety review that was done before the Fukushima accident, there was safety improvement opportunities that were identified, one of which was around the management of hydrogen. Because of that, New Brunswick Power had taken the step to, as part of their refurbishment, commit to installation of PARs, which is an instrument or a piece of equipment that'll recombine any hydrogen so that you don't get into explosive situations.

That equipment has been installed, it was a recommendation out the Fukushima action items for industry to be doing that. New Brunswick Power actually was ahead of the game because they had already planned on doing that, and they are fully installed right now. Perhaps New Brunswick Power can give some details.

THE PRESIDENT: I think Mr. Jammal wants to intervene. Go ahead.

MR. FRAPPIER: Okay, Mr. Jammal.

MR. JAMMAL: Ramzi Jammal, for the record. Mr. Tolgyesi, on March 8th the science and the explosion arising from hydrogen, or any other components, were discussed at length in a very extensive manner, and the minutes of meeting of March 8th did address the science, and that was even evaluated by an external consultant. So we will make reference to the minutes themselves with respect to the decision made by the Commission on closure of potential accidents.

I would like to add, in addition to what Mr. Frappier has said, New Brunswick Power has installed more than the minimum requirement with respect to the passive recombiners, but it's up to them. But I would like to remind the Commission that this was discussed at length, not just by CNSC Staff, we had external reviewers who reviewed the assessment, and that was presented to the Commission.

THE PRESIDENT: Point Lepreau.

DR. NIJHAWAN: May I speak now?

MR. PLUMMER: Brett Plummer, for the record.

As the Staff has mentioned, you know,

we're part of the CANDU owner group, the industry group has addressed these issues in length. As far as the specifics with the hydrogen recombiners, I'll ask Paul Thompson to speak to that.

MR. THOMPSON: For the record, my name is Paul Thompson. I'm the Senior Strategic Advisor at the Point Lepreau Generating Station.

It is correct, that we conducted an integrated safety review as part of the refurbishment project. Part of what that did is look at and compared the plant against modern codes and standards, and performed gap analyses against modern codes and standards and did a safety assessment for those gaps.

Those that were deemed as having any safety significance were then further assessed to determine if potential changes were required. So one of the areas, and which was identified, was the need to perform some hydrogen mitigation. Based on review and extensive experiments that had been done through COG at the Whiteshell facility NB Power decided to install passive autocatalytic hydrogen recombiners within containment.

There are 19 of those devices, they're passive, they basically take a mixture of steam and hydrogen in one end. The device itself looks like barbecue just to give us sort of a visual impression. Then it

recombines to produce hydrogen and oxygen, or oxygen and water.

There is 19, and the reason for that number, as extensive studies were performed to determine the correct distribution, only about two or so are required from a general perspective. The additional 17 were to ensure that there weren't non-uniform distributions of hydrogen.

So different studies of locations of the hydrogen source term and mixing studies were performed with the appropriate models at the time. It underwent extensive reviews, and then those were installed. Those were installed during the refurbishment project, well in advance of the Fukushima accident.

THE PRESIDENT: Okay. I really don't like to reopen the March discussion, so I'd like to focus on some new information being put at the table.

Dr. McEwan.

DR. NIJHAWAN: This is --

THE PRESIDENT: You'll get your turn. Dr. McEwan, please.

MEMBER MCEWAN: Thank you. Dr. Nijhawan, again, as I was the Commissioner who you identified, again I'm sorry if the word outlier caused offence.

DR. NIJHAWAN: And intemperate.

MEMBER MCEWAN: The intemperate I think is validated by some of the terms you've used in your submission and your letter.

DR. NIJHAWAN: I should really tell you what words I would use for you, sir. Should I?

THE PRESIDENT: Can you keep quiet while the Commissioner is talking please?

MEMBER MCEWAN: So let me just ask you a couple of questions.

The first question I think relates to -- you dismissed the consultants who presented before us in March. I think I asked you this question last time, how would you have selected consultants to provide a balance that you feel we needed or didn't get?

My second point is you make a comment that there are at least 100 papers in the literature discussing the differences between D2 and H2. I must confess, this is not my field, but I've done a literature search and I struggled to find that many papers, and I've spoken to my chemistry colleagues who also struggled.

So it would have been very helpful in this if you could have provided us with one or two references or review papers which would have given us something to sink our teeth into.

DR. NIJHAWAN: Good. Let's talk about both

these issues. Consultants, there were two sets of -- three consultants which were hired by CNSC for a cost of \$200,000. One set of consultants were from U.S. NRC who have never worked on a CANDU reactor or have ever been able to avoid a severe accident in their reactors. After all, two American-designed reactors have had severe accidents. Today they are no experts in severe accidents.

The second consultant worked for Westinghouse, which really has no interest in our reactors (indiscernible - coughing). The third consultant, Dr. Luxat from McMaster University, said two things. First, he said that I, Sunil Nijhawan, am a liar and I've never developed -- I had no significant contribution to development of a computer code, which is very insulting.

Almost everybody in the industry knows that I have developed the CANDU components of the MAAP-CANDU computer code that everybody uses and have developed at least a dozen other codes which I'll be very happy to discuss.

He also stated that he does not believe that the feeders would oxidize and produce hydrogen. Steel oxidation starts at minus 50 degrees centigrade. It starts at all temperatures, but at 500 degrees centigrade it is very significant.

So, therefore, at temperatures when

zircaloy is not oxidizing, steel will oxidize and produce very large amount of hydrogen, not only from the inside, but also from the outside because the feeder cabinet would be blown out by the time by the high temperature. They would be -- the aluminum-clad feeder cabinets would be gone. So, that would be open to air. The oxidation will occur on the outside and occur on the inside.

Therefore, the amount of hydrogen, which he said I did not understand -- there was a large number of personal comments in there and there's a history behind that, which I don't care to discuss -- he said that I did not understand severe accident, I was not in the loop, I have no idea what I'm talking about and there'll be no oxidation and that I have never worked on a computer code or analyzed any site.

So, those are the questions which are really wrong -- those are the answers which are really wrong.

And the choice of consultants, without looking at their background. Why do you hire two people to produce a 10-page report from U.S. NRC and give them \$95,000 just to say, without any description, without any technical addition, that Sunil Nijhawan is wrong and you guys are right? How can people tell you that steel will not oxidize? How is that possible?

And with that hydrogen source term -- and let me go back to what my friends from NB Power just said. Yes, they need only two recombiners for a design basis accident. For a severe accident they require 75 recombiners in my calculation and that is just based on hydrogen coming out of zircaloy, not including even the hydrogen coming out of steel.

So, yes, they have put in 19 recombiners, but 19 recombiners will be 19 flame throwers, they'll be 19 sources of explosions, something which has been absolutely confirmed by experiments worldwide.

Beyond about six, seven per cent hydrogen concentration coming in and a small explosion is -- a trigger is caused, a trigger -- you know, a spark plug is a trigger -- a trigger is caused at the exit of these recombiner.

MEMBER MCEWAN: Dr. Nijhawan, can I just tuck in there? So, you've just said that these 19 recombiners are going to become flame throwers and that there is evidence.

Can you give us the references that you base that statement on?

DR. NIJHAWAN: Absolutely, sir. The experiments were done at Chalk River which showed that explosions occur at the exit of these recombiners. That's

why Germany had developed recombiners which limit the amount of re-combination, such that there's no linear increase in exit temperature with the concentration of hydrogen coming in, and that is what we should be using.

So, a recombiner which never produces a temperature for auto ignition. That's --

MEMBER MCEWAN: So, let me just -- again, let me ask staff to respond to that, please.

MR. FRAPPIER: Gerry Frappier, for the record. Actually, I'm going to give you a little bit of a different response.

I mean, I think it's clear that Dr. Nijhawan is, as Ms Velshi explained, is very passionate. I would say he's not the only one in this business that's passionate.

I've been involved in nuclear safety since 1982. Ever since then I've been in safety and security engineering and I'm very passionate about it. But I would say you have a staff that is very passionate.

I think we've heard over the past couple of days that New Brunswick Power has a lot of people who are passionate.

These discussions that we're entering into now were fully discussed several times, as Dr. Nijhawan has mentioned, and, in particular, on March 8th you had a whole

meeting set up that went through in very big detail, which is totally captured in CMD 17-M14, for anybody who wants to look at it.

At that point we explained how we have had experts from, yes, the U.S., they were looking at it mostly from, is the regulator doing the right thing? They weren't trying to pretend they were experts in CANDUs, they were looking at whether we, the staff, had been doing what we should be doing.

But we also had experts from the U.S., many from Canada. COG had put together a whole research program around this, a whole engineering assessment of all the comments. We had people from Germany looking at this.

And I can tell you that from my experience, yes, you can have passionate people, but sometimes they can be blind to what other people are saying. And, in my experience, when the weight of evidence is that all the experts are saying that Dr. Nijhawan is incorrect in his assessment -- I don't believe we're going to convince him of that -- but, at the same time, we have to be looking at things from the wider perspective of what all experts are saying, not just one.

So, if we want, we can go into a lot of details on the things, but we've done the review of his submission. There is nothing new in it from what we've

talked about on at least four occasions with the Commission and, in particular, on the March 8th, but we'd be happy to look into it.

THE PRESIDENT: So, I don't think we should re-open the March discussion. There's minutes, there's decision on this and we can continue this debate elsewhere.

DR. NIJHAWAN: I wish you guys luck.

THE PRESIDENT: We are here on Point Lepreau. So, what is new in this intervenor's submission that has not been discussed in March? Is there anything new here, and both our staff and Point Lepreau, please, share with us what you think about that submission that has not been discussed before, if there is anything here.

Please?

MR. PLUMMER: So, Brett Plummer, for the record.

So, there's nothing in the submission that hasn't been addressed through the research project that COG conducted that we were members and associated with.

And we did have third party review through the COG process and the CNSC also had third party review. So, there's nothing new that hasn't already been addressed on the March 8th.

MR. FRAPPIER: Gerry Frappier.

That is absolutely correct. The only thing that has really changed is in the past he was making reference to Bruce didn't do this and OPG didn't do this, and in this one here he's talking about New Brunswick Power did not do this, did not do that.

But the basic theory and science and concern that he has is exactly the same.

THE PRESIDENT: Ms Velshi?

MEMBER VELSHI: So, this isn't on whether there's anything new in the submission, but in his oral presentation -- it's a question to staff -- he said Point Lepreau would not be licensable in any other country today.

And I want a confirmation from staff that with the integrated safety review that Lepreau did against modern codes and standards, what are your thoughts on that comment, please?

MR. FRAPPIER: Gerry Frappier, for the record.

As members from SNC-Lavalin yesterday pointed out, something around eight to 10 per cent of the world's reactors are CANDU reactors. They are licensed, they are operating.

We do periodic safety review and, in the case here, an integrated safety review that compares it against modern standards and it has come out with gaps that

are deemed acceptable.

I think that if somebody was to design a new reactor, of course, there would be some differences to what this reactor would be, but you can go to many of the countries -- all the countries where the CANDU reactors are and they are operating, they are licensed. So, they're certainly licensable.

THE PRESIDENT: Is Argentina not building a new one and is Romania not thinking about building a new CANDU?

MR. FRAPPIER: Gerry Frappier, for the record.

Sir, you're correct, both Argentina is discussing -- it's always until the final signature is on the paper. Certainly Romania has indicated they are going to be building two new reactors. They'll be essentially the same design as Point Lepreau. They'll be updated, for sure, but essentially the same design, and similarly in Argentina.

THE PRESIDENT: Mr. Jammal?

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

Just to complement Mr. Frappier's, a couple of things. That CNSC staff are reviewing the enhanced CANDU-6 and it was mentioned previously to the

Commission that Argentina, China, Romania are utilizing the regulatory process of the CNSC with respect to life extension and refurbishment.

In addition to it, CNSC is supporting the review of the CANDU design for other authorities and, to date, any of the projects will not take place without the CNSC as a third party review of the design and the design we respected.

We have international peer review, we had an IRRS mission in 2009, a follow-up mission 2011. We have the Convention of Nuclear Safety where the technology is discussed. There is the CANDU senior regulators group. So, the international experience and the peer review is ongoing internationally to include the IAEA. As the Commission is fully aware, what we call CANDU issues. Issues are being closed. We were before you describing to you the process of closures and the agreement.

So, making a statement, 'will not be licensed', that's an opinion, it's not a fact.

THE PRESIDENT: So, Dr. Nijhawan, you know, again, you have the final say here. I know that you're not going to be satisfied with this particular thing, but this is not the time to go through all the engineering debate that goes on.

I invite you to continue this debate with

our staff and see if there can be further understanding, but right now please give us your final thoughts.

Sorry, Ms Velshi has another question.

DR. NIJHAWAN: Dr. Binder, thank you so much for --

THE PRESIDENT: Sorry, Ms Velshi has one more question for you.

MEMBER VELSHI: So, sorry about that, Dr. Nijhawan, and I'm still going through your written submission and I think they are submissions that I do want some more clarification from staff on.

So, this is on page 3 of the submission and it's around internal expertise within New Brunswick Power to understand reactor response to severe accident initiators.

And I know staff has spoken in more general terms around qualification requirements and your assessment of that, but when it comes specifically to reactor response to severe accident initiators, can you elaborate on how you, as the regulator, go and assess the adequacy of expertise that Point Lepreau has, please?

MR. FRAPPIER: Gerry Frappier, for the record.

If I understand your question, you're looking at how do we assess whether New Brunswick Power has

the expertise to undertake the studies that we're making reference to?

MEMBER VELSHI: Right. Undertake studies, or if they're contracted out that they're smart buyers and know what they're getting and what they're requesting?

MR. FRAPPIER: So, the New Brunswick Power is required to submit to us safety report, probabilistic safety assessments, a whole bunch of other analytical analysis and engineering assessments and support to whatever decision they are making.

So, depending on which one it is, there's a little bit of different things. So, for instance, when it comes to the pressure boundary work and changing or re-designing the pressure boundary pipes, the vessels, all that, then both, we have our own staff that are qualified with respect to codes and standards associated with it, but, more importantly, we also require them to have an authorized inspection agency which will review that, so that, with the Province of New Brunswick who are recognized by ASME and other certification bodies with respect to competency, to not only perform, but, more importantly, to inspect and ensure that things were performed properly.

So, if there's any of those kind of design changes and that, there'd be that sort of level.

When it comes to other things, like

probabilistic safety assessments, we've had many discussions here, we would go through multiple checks and balances. First, starting with the methodology they're going to be using and we have -- again, the staff has experts in those kind of analyses to say this, whatever methodology is being chosen is appropriate and then we will review the quality of the work, but we also require them to have a third independent reviewer who'd review that quality.

The safety -- the deterministic safety, life safety report. Again, there's methodologies, depending on what aspect that we're looking at, that have requirements that must be met.

All of this is captured in our regulatory framework, if you like, both the REGDOCs and the CSA standards and other standards, ASME codes and things of that nature.

MEMBER VELSHI: So, besides looking at the quality of the product, do you actually look at the credentials of the staff, do you interview them? Is that part of a requirement?

MR. FRAPPIER: We don't have a formal review of sort of if you're a qualified PSA engineer, for instance, although somebody could correct me if we do checks on the backgrounds, but I think it's primarily the

quality of the results themselves, the quality of the products.

I also would point out that all of these have to go through New Brunswick's own quality assurance and management system where they have registered engineers, as it may be, who obviously are qualified in the sense that the province has given them engineering designations and we will be looking for them to be taking full responsibility for the assessments and analyses that were done.

MEMBER VELSHI: Point Lepreau, do you have anything to add to that?

MR. PLUMMER: Brett Plummer, for the record.

One of the advantages we have is we've operated for over 30 years and we have a lot of very, very experienced and qualified engineers in-house. But with that said, when we go onto other, be a probabilistic safety assessment or, you know, a periodic safety review, we always reach out to the experts to help us with that work.

We do look at credentials. We do have a process in place that we go through looking for qualifications and vetting through a contract process.

And then, we do have third party independent review and we have the oversight to take a look at it. So, we're confident that we're doing this work with

quality.

MR. FRAPPIER: Gerry Frappier, for the record.

If I could add -- I'm just having a few people whisper in my ears as to some of the things we do with respect to -- as you know, we certify operators and whatnot, but we also take -- do take a look at their staff and Mr. Poulet will explain that a bit.

MR. POULET: Thank you, Mr. Frappier. Ben Poulet, for the record.

The CNSC has a whole division called the Training Program and Evaluation Division. Their main function is to ensure that the NB Power training program for all of the job families, including the technical staff, is developed in accordance with a systematic approach to training. It's a well-known industry practice.

The CMD covers a description of what that is and the CNSC staff, CMD that is, for Part 1 and the program is sound. We have been following up on it, we continue to do monitoring on it on a regular basis and the program adheres to the industry best practice in this area and it covers technical staff as well.

Thank you.

MR. PLUMMER: Brett Plummer, for the record. Can I add one more comment?

I also want to reassure that when we go about doing these things, we're also a member of the CANDU Owners Group and when we do these activities, we work with our industry partners as well. As most of you know, you've heard all the information from the CANDU Owners Group on the research and development and all the work we do there and we're involved with that.

And so, there's multiple organizations involved with reactor accident progression.

THE PRESIDENT: Dr. McEwan?

MEMBER MCEWAN: Sorry, Dr. Nijhawan. I just have one more question, because you make a statement which is a lot more definitive in your submission than I heard from you in March.

So, I guess two questions related to the MAAP-CANDU code. On page 12 you say that there has been no significant or meaningful upgrade of the MAAP-CANDU code in 22 years since its first release.

So, I guess my question to staff; is that true, or has there been an upgrade?

My second question, Dr. Nijhawan, to you is:

"...I have a new, significantly advanced severe accident code ROSHNI..."

Has that been peer reviewed and validated?

MR. FRAPPIER: Gerry Frappier, for the record.

So, perhaps I'll answer the first one associated with MAAP-CANDU. And MAAP-CANDU was first developed in the early 90s -- late 80s, early 90s, and since then there has been updates, but I would ask Mr. Noreddine Mesmous to comment on that.

MR. MESMOUS: Noreddine Mesmous, for the record. Director, Reactor Behaviour Division.

So, MAAP-CANDU, we are agreed that Dr. Nijhawan had worked on it 25 years ago, but it has been gone through a lot of modern improvements and validation against experimental data and benchmarking against other tools.

Recently by the IAEA, they have performed some validation and benchmarking with MAAP-CANDU, MAAP4-CANDU and the U.S. computer tool MELCOR and ASTRID, the French computer tool, and the results were comparable.

So, to say that the computer tool is still similar to 25 years ago does not fare with -- not...

Regarding the second question for the intervenor computer code. CNSC staff, we haven't looked at it and we don't know if the tool is validated. We know there are requirements for computer tool validation which is CSA N286.7. So, the tool has to be validated to be used

for severe accidents or any other assessments.

MEMBER MCEWAN: Thank you.

Dr. Nijhawan?

DR. NIJHAWAN: In two thousand -- between 2008 and 2010 I worked on MAAP-CANDU preparing it for use for New Brunswick Power. I saw no differences except that the language was updated from Fortran 77 to Fortran 90.

In any of the models there were a few errors which were fixed, there were minor errors which were fixed. The fact that the code was compared against MELCOR does not say anything about MELCOR's ability to model CANDU or MAAP-CANDU's ability.

But there are basic problems with MAAP-CANDU and they have remained where I left them 25 years ago. It still uses light water properties. It doesn't model enough number of channels, it doesn't model entry things, it doesn't model feeders, it doesn't model oxidation of steel. It doesn't model a large number of energetic interactions.

What I did first then, in my opinion, and only in my opinion -- not only in my opinion, but also in the opinion of my friends, customers who are using my new code -- is, it's a brand new entirely different approach to looking at accidents and it gives us an entirely different perspective on how accidents will progress.

For example, very simply, the old code, the old method predicted as one of the options we can put in the code, that the whole core will collapse under the weight of debris on top resulting in everything getting cooled for 10 hours or eight hours and nothing coming out of the reactor anymore.

That's giving us a feeling that there's a window over which there are no release.

With the new methodology that we are developing, we look at each channel, each bundle, each ring, each appendage separately, each part of the feeder separately. We see that this assembly is discrete and that the releases are coming at entirely different time.

Whether this code is used by Canadians or not is a function of whether they're interested or not. When I tried to speak with CNSC staff about some of the issues with the MAAP-CANDU code their response was, it is adequate for the purpose. We don't know what the purpose is. The purpose is to find the rate and timing of events. How fast is hydrogen being produced, so that I can have methods of removing that hydrogen.

What -- what Lepreau has done is put in the combiners which correctly stated my friends is for a designed basis accident. They themselves say they are for a designed basis accident in their submission.

The design basis accident source still is maybe 100 some kilograms hydrogen. That's very small hydrogen. Here we are looking at deuterium which is about 3,000 kilograms of deuterium which is very large amount of deuterium for which these recombiners will become flame throwers and ignition sources.

You don't want to look at it, I couldn't care less any more. I've given you 15 years of my life with this information which I've given to you freely and nicely and you say, "No, we don't need it. We have adequate for the purpose."

MAAP-CANDU code has not been improved. I can tell you because I know every line of that code and I -- last time I saw it was six years, seven years ago.

And what's --

MEMBER MCEWAN: Dr. Nijhawan, let me -- you still haven't answered my question. Has ROSHNI been externally peer reviewed and validated?

DR. NIJHAWAN: It's been externally peer reviewed by my clients, by people who have asked me to develop it and who are using it. It has not -- the reason it has not been done in Canada is because this industry refuses to talk to me. I met one of your managers in a meeting in Korea in October and I said, "Why don't you guys sit together and work on it?" He says, "No, don't write to

us, don't talk to us. We are not allowed to talk to you."

He said -- and I have it on -- I can tell you --

THE PRESIDENT: Okay. Look --

DR. NIJHAWAN: So if you don't want to talk to me, you cannot review my code.

THE PRESIDENT: No, I would like a short -- I'd like --

DR. NIJHAWAN: -- having you --

THE PRESIDENT: -- I don't want to hear a speech -- I do not want to hear a speech on every question we ask you. I want to hear some facts here so, staff, do we know where his code was used? He mentioned that there are some customers that are using it. Do we know who is using it?

And the question is, what does it take to run one of his simulations?

MR. FRAPPIER: Gerry Frappier, I will ask Noreddine Mesmous to answer that, please.

DR. NIJHAWAN: -- simple thing --

THE PRESIDENT: Can you let staff -- can you let somebody else speak? Okay? Let staff now reply to my question.

MR. MESMOUS: This is Noreddine Mesmous for the record, director, reactor behaviour division. We

know that Dr. Nijhawan is working with Kaeri in South Korea. That doesn't mean that his tool is validated for the server accidents. To say that the tool is validated, it has to be undergoing review against a CSA standard and to 86.7.

That tool has to be validated against experimental data and that's what we have for MAAP-CANDU. It has been validated for the specific applications against experimental data and also benchmarked against international computer tools.

Just for your information, the tool has been improved and recently there is a new version which is MAAP-5 CANDU.

THE PRESIDENT: So, Dr. Nijhawan, was it certified according to what you just heard?

DR. NIJHAWAN: Not really, we are in the process of validating portions of the code, MAAP-CANDU or ROSHNI cannot be validated for a large part of -- large number of phenomena which occurred in this accident because there are no experiments which have been undertaken to demonstrate code to system; there aren't.

What has been done at Chalk River is they have demonstrated something that are demonstrated with a simple equation that a tube heated by electrical heaters from inside will bend. That's all.

So there are really not too many experiments under which -- against which it can be validated. What is required is for us all to stop putting ourselves -- each of us in a corner and start talking to each other. Nobody talks to me, either about my submissions, unless it is in a forum like this where eight of you come back and say, "Well, we know everything is under control. Our recombiners are great," even though they are not, "and everything is done," according to some TSA standards.

These territories, to an extent, is a very uncharted territory. We have to continuously work on it. For 30 -- almost 30 years or 25 years, there has been no development of a new computer code for severe accident in Canada except we have MAAP-CANDU what's left.

You can say there have been changes. Of course there are changes but there's no -- what we are proposing now is a fundamentally different way of looking at it and we're finding different answers. And I've given those answers to CNSC in one of the meetings perhaps two years ago. I've shown them that you are missing out on a large number of phenomenal on what I developed when I was young and not experienced and that's where you're sitting now, what are you doing now with people, we have an ability to understand our accident progression a lot more but we

don't -- we refuse to work together.

THE PRESIDENT: Okay. Thank you.

DR. NIJHAWAN: (indiscernible)

THE PRESIDENT: Thank you for that. That's useful input. Anybody has a final thought before I turn the floor? Okay. Dr. Nijhawan, final words please.

DR. NIJHAWAN: I am thankful, Dr. Binder, for your letting me speak. I sent you a letter on 21st March, 2017, about the March 8th meeting and certain issues that were discussed. I hope you'll put that in the record.

What I was talking about, realized something was realized something in a new jurisdiction. You will not be able to realize licence this reactor in any other country except where they already exist. Yes, they will build -- they will complete Cernavodă using Chinese contractors. They will perhaps build -- perhaps build a same reactor in Argentina but let you build one in Chile or in Thailand or in France or in United States or India or any other country, your reactor is not licensed. In terms of difference between hydrogen and deuterium, Dr. McEwan, I will send you papers. There are a large number of papers. Just the fact that the density of the two materials, the viscosity of the two gases become a conductive, the two gases -- these measurable quantities are anywhere from 1.4 to two times different. The behaviour is different of

these two gases.

Additional comment is surprise and I don't know which chemistry people you asked but certainly the number of papers available from deuterium hydrogen are really large.

I'll be happy to provide them with you. I'll be happy to work with the staff, to give them at least my views based on technical arguments, not based on some differences.

I hope one day there will be a national inquiry set into what has been done in terms of severe accident in Canada and what has -- with the opportunities which have been missed.

Yes, there was a Fukushima action item list which was very quickly erased to zero. Everybody has met the requirements yet Point Lepreau did not install measures to remove hydrogen for a severe accident, therefore that Fukushima action item was not met.

In terms of what my interest in this particular science is, it is going towards frustration right now. I'm very frustrated that you guys are not interested. I'm already very frustrated that we are not progressing towards safer reactors.

There is an opportunity to do so and should you go ahead and licence these reactors based on

ignoring any and all evidence put in front of you, this is your prerogative. It is your prerogative to do so but I will feel very sorry for you.

THE PRESIDENT: Okay. Thank you. Thank you very much. Okay. I'd like to move onto the next submission which is an oral presentation by Mr. Miller. His outline is CMD 17-H2.72. Mr. Miller, the floor is yours.

CMD 76-H2.72

Oral presentation by Keith Miller

MR. MILLER: Good morning, Dr. Binder and members of the Canadian Nuclear Safety Commission. I am Keith Miller.

This morning, I would like to discuss a few points in support of the Point Lepreau reactor operating licence renewal. This oral submission is complementary to my written letter of support.

Although I retired last year, I have worked most of my life in the nuclear industry, both in the UK and, for the last 17 years, at Point Lepreau.

I am second general nuclear. My father was involved in the design and construction of the country's first commercial nuclear reactors in the UK,

Italy and Japan in the late '50s. He continued in the nuclear program until his retirement.

My career has focused on engineering and operations and, in later life, I was engaged more widely in the NB Power nuclear program as deputy chief nuclear officer.

During a lifetime in the nuclear industry, I have witnessed continuous progress in nuclear safety, professionalism and increasing standards.

I do not feel it useful for me to discuss the detailed technical submissions made by NB Power; however, I would like to offer a wider perspective which I hope would support your favourable judgement of Point Lepreau.

As a now interested public citizen, I sought to avail myself of the NB Power public information program in support of licence renewal. I attended the information session at the Saint John Trade and Convention Centre in January, 2017. I viewed all the displays provided, providing a very comprehensive overview of the facility and explained the advances in the technology and safety.

The staff supporting the event were well prepared and knowledgeable. They were willing to talk openly about the challenges and the efforts expended to

advance nuclear safety.

I was impressed with the presence of senior management, including the site vice-president and chief nuclear officer who circulated and talked to members of the public one on one.

NB Power had arranged for members of the head office First Nations team to have a display and they explained the First Nation engagement program. Overall, I was impressed particularly with the commitment of all NB Power staff.

As a member of the Saint John Rotary Club, we are always looking for speakers for our weekly meeting. We look for topics of public interest, so a request was made of Point Lepreau to speak on licence renewal. The presentation was very interesting, inviting many questions, some regarding the licence renewal and others about NB Power and nuclear power in general. All of the questions were answered professionally. Several Rotary Club members said to me afterwards that they had enjoyed the information presentation and a couple said that it had changed their perspective on nuclear power, particularly about safety and quality.

Point Lepreau is in a rural area, so many employees live in Saint John and the surrounding suburbs. It would be true to say that almost everyone knows someone

who works at Point Lepreau, providing tremendous penetration into the local communities. Ask anyone you meet if they know someone at Point Lepreau and they will mention family members, friends and neighbours, kids' hockey coaches, people at churches, et cetera. What they will tell you is that Point Lepreau has a reputation for high standards in safety and is a caring and good employer. They will say that most staff work at Point Lepreau, remaining their whole working life. The relationship between management and unions is healthy, but there is continuing training and they enjoy working in the nuclear culture. They will say they feel their contributions are valued. They believe that they are part of something important and something special.

As an integrated utility, NB Power covers electrical generation, transmission and distribution. However, Point Lepreau is special to New Brunswick Power. The executive of NB Power maintains corporate oversight of the nuclear program. The President and executive visit the station often and it is not unusual to find the President, Gaëtan Thomas, in his hard hat talking to workers at their workplace. The President and executive of NP Power are engaged and informed.

Good behaviours engender good neighbours and Point Lepreau is certainly a good neighbour to local

communities and schools. For example, Point Lepreau annually hosts a day for the local CBC Harbour Lights Campaign in the run up to Christmas. This day each year is one of the largest fundraisers for food banks to assist the disadvantaged in Southern New Brunswick. As a company, NB Power provides a charitable, giving facility for employees through a payroll program in conjunction with the United Way that permits employees to give to charity, to the charity of their choice.

Greenhouse gases are a challenge for New Brunswick as an industrialized and energy-intensive province. Forest products are a major industry and a major employer in New Brunswick, with around 30 percent of their costs being attributed to energy, particularly electricity. As such, NB Power needs to provide safe, reliable, environmental and economic electricity for all its customers.

Point Lepreau plays a pivotal role in the electrical generation mix, providing 30 percent of the electricity from safe, reliable and non-emitting sources. This contribution only follows substantial investment in the refurbishment and life extension program that should allow the reactor to operate for another 30 years. I am sure you can see the importance of Point Lepreau to NB Power and to this beautiful province. Impending carbon

taxes could further increase the cost of electricity if Point Lepreau were not to operate.

The concept of the nuclear program in New Brunswick was envisaged to deliver additional spinoff benefits for the province. The Centre for Nuclear Energy Research runs out of the University of New Brunswick Fredericton campus, providing cutting-edge research toward a chemistry control and monitoring plus information technology. In addition, Dr. Derek Lister and the School of Chemical Engineering has built a world-class research lab, researching high-temperature corrosion of nuclear materials. This research has attracted international funding and supports many graduate students.

In December 2014 I was supported by New Brunswick Power to participate as an expert in only the second IAEA Corporate OSART review to EDF in France. I was assigned the review area of corporate management. During the OSART review, the response to the Fukushima accident was a clear theme and, as a team, we shared our worldwide collective experiences, talked to experts and reviewed many documents.

I contrasted the foresighted safety improvements that had been made at Point Lepreau as a response to severe accidents such as the emergency containment filter advanced system which preceded the

Fukushima accident. The Canadian nuclear industry, under the leadership of the CNSC, had made great progresses in their Fukushima response. My impression was that nuclear safety in Canada was world-class.

I am convinced that New Brunswick Power safely operates Point Lepreau to the highest ethical standards and should be awarded a power reactor operating licence.

I thank you for your attention.

THE PRESIDENT: Thank you.

Questions...? Ms Velshi...?

MEMBER VELSHI: Mr. Miller, thank you for your submission.

Over the last few days most, in fact exclusively interventions from the community have been extremely positive and supportive of the relicensing of Lepreau, but as a member of the public here, what do you think their concerns, if any, are about Lepreau?

MR. MILLER: Keith Miller for the record.

I believe all citizens and all citizens of Canada, of New Brunswick, of Saint John and the surrounding communities are concerned about safety and they are concerned also about the economics of the province. They are concerned about jobs. They are concerned that many of their children have had to move away to find employment. I

am convinced that people in New Brunswick, to the most part, and I'm sure there are people who have different opinions, but on the whole they are convinced that the station is safely operated, that it is well invested and that the employees take safety as an overriding priority.

In listening to the previous commentary, many of the people, other than the young people like my son, talk to each other, they talk on the phone, they talk at the supermarket, when they meet at Costco, and know what's going on. This isn't, you know, an anonymous society that operates on cell phones and Facebook. Many of the people talk to each other, they know that the people are ethical, they know that their members are their friends and family and would not do anything to damage or threaten the environment, the fishery or the communities in total.

THE PRESIDENT: Just a quick -- I noticed that you said you worked all your life in the nuclear business or sector or industry, both in the U.K. and Canada. So how would you compare the U.K. and Canada?

MR. MILLER: I would say comparable and maybe I will talk a little bit about what happened. When I left university, I joined the nuclear program. I was involved in the construction of the Hartlepool gas-cooled reactor, I worked as an engineer at Hartlepool. I was licensed at Hartlepool as a reactor operating engineer and

as a shift fuelling engineer. I moved to the Heysham 1 AGR reactor and I was licensed as a control room supervisor, as a shift manager and as a production manager.

I moved to head office and worked on corporate programs and I was involved in the International Acquisition Program involving Imogen in the U.S. and Canogen that went on to become Bruce Power. You will probably know my colleague. Duncan Hawthorne and I were colleagues together and the first few members of the team.

You know, coming to Canada it's different but very much the same and I would say that both countries enjoy high standards, high-quality employees who care about safety, and a good regulator and healthy tension with the regulator to make sure improvements are worthwhile but also provide a reasonable cost-benefit.

I hope that answers your question.

THE PRESIDENT: Thank you. Thank you very much.

Anything else? Thank you.

Okay, we will take a 15-minute break, which will bring us to 11:15. Thank you.

--- Upon recessing at 10:59 a.m. /

Suspension à 10 h 59

--- Upon resuming at 11:20 a.m. /
Reprise à 11 h 20

CMD 17-H2.15

**Oral presentation by the
Canadian Nuclear Association**

THE PRESIDENT: Okay. We are back and we will proceed with the next submission, which is an oral presentation by the Canadian Nuclear Association, as outlined in CMD 17-H2.15.

I understand that Dr. Barrett will make the presentation. Over to you, sir.

DR. BARRETT: Thank you and good morning, Mr. Chair and Commissioners. My name is John Barrett, I am President and CEO of the Canadian Nuclear Association, and with me is Steve Coupland, Director of Environmental and Regulatory affairs at CNA.

We appreciate the opportunity to speak in support of New Brunswick Power's application for a five-year operating licence for the Point Lepreau Nuclear Generating Station, and you will have received written comments on behalf of CNA and its members. Given that and the fact that you have already listened to a number of interventions over the past two days, I would like to

briefly address some of the key points behind CNA's support for NB Power's licence application.

Nuclear energy is a safe, clean and reliable source of energy that not only helps Canada meet its electricity needs but is also a critical element in achieving Canada's greenhouse gas emissions targets. Our members provide 15 percent of Canada's electricity and around 20 percent of Canada's low emissions are clean electricity.

Since PLGS first began operations in 1983 it has safely and reliably supplied New Brunswick with 30 percent of this province's electricity. And as the Commission knows, PLGS has undergone a midlife refurbishment. It is now positioned to continue to be a major centrepiece of New Brunswick's energy strategy for the next 25 to 30 years.

PLGS has completed two comprehensive assessments, an environmental assessment and an integrated safety review to cover future operations and is committed to completing a periodic safety review within the next licensing period. The best indicator of future performance is past performance and in this regard NB Power has an outstanding safety record and it is rooted in a strong safety culture.

NB Power is justifiably proud of its 30+

years of safe reliable operations at PLGS. The station employees over 800 highly skilled and well-trained people who are committed to the safe operations of the facility and to the protection of the public and the environment.

The station has worked over 5.8 million person-hours without a lost time accident. Public radiation dose continues to be significantly below the regulatory limit, i.e. less than 1 percent. This performance has been recognized by the CNSC, which has given PLGS a satisfactory rating for the past five years as part of its annual review of nuclear power plants.

I would like briefly to highlight just several other key aspects of PLGS' performance.

The station has a highly developed safety culture, which is an integral part of nuclear safety excellence. NB Power undertakes periodic reviews of its safety culture in a continual attempt to recognize positive attributes and to identify areas for improvement. This includes internal evaluations through nuclear oversight audits and external reviews through industry peer groups. In 2015 NB Power received the award for Canada's Best Health and Safety Culture from the organization Canada's Safest Employers.

Like all nuclear facilities, PLGS has a very detailed radiation protection program designed to not

only protect workers but also the public and the environment. The program ensures radiation doses and levels are monitored and controlled based on the ALARA principle. As outlined in the application, over the period of the last licence both the average and maximum dose to workers was well below the regulatory limit.

With respect to public dose, the total dose to the public since PLGS began operations in 1983 is below the station's design and operating target for a single year.

Notwithstanding this exemplary record, NB Power is committed to continual improvement in radiation protection. Current initiatives include a plan to benchmark the radiation protection program against industry best practices to identify areas for improvement.

PLGS operates an environmental management system which is certified under ISO 14001. The EMS considers all conventional radioactive environmental activities and has identified objectives and targets for continual improvement. PLGS is in the process of performing a gap analysis with the updated ISO 14001 standard and will be compliant to this new standard by 2018.

PLGS has been the subject of a series of environmental assessments throughout its history, including

most recently an independent environmental risk assessment which has projected the impacts on the site for the next 25 to 30 years of operation as well as for decommissioning activities.

The station is committed to regular, ongoing, open and transparent public communication. PLGS undertakes a variety of public and stakeholder consultations designed to increase public and stakeholder understanding, and these include public information meetings, key stakeholder meetings throughout the province, a community relations liaison committee and media days at the station. In addition, NB Power has an active community sponsorship program and encourages and supports its employees in community undertakings. That was articulated very well by the previous speaker, Mr. Miller.

In conclusion, the CNA believes that throughout the life of the PLGS New Brunswick Power has demonstrated a proven track record of being a safe, reliable operator of the station. Its high standards, its focus on continuous improvement are a clear indication of NB Power's commitment to operational excellence. The CNA is pleased to strongly recommend that the Commission renew the PLGS operating licence for the next five years.

Thank you for your attention and we would be pleased to answer any questions you may have.

THE PRESIDENT: Thank you.

Questions...? Ms Velshi...?

MEMBER VELSHI: Thank you for the presentation.

My question actually is to Point Lepreau, based on what you have said and what we have heard before, is around your safety culture assessments and you referred to that earlier today. Can you share with us the results of your latest survey done? What are some things that you are doing particularly well and where are there some opportunities for improvement?

MR. PLUMMER: Brett Plummer for the record.

I would be glad to share the overall results. I believe the results show that we have an open mechanism or environment for dialogue. People feel willing to bring their issues up. So from a nuclear safety culture standpoint, that's one of the fundamental foundation attributes you need.

The area we need to improve and we are improving on is making sure that we communicate on a regular basis down to the workers. It is actually not so much the communication coming up to management from the workers, it's actually information coming down from management to the workers. So we have done a lot of work

in that regard.

We have had what we call Leadership Boot Camp, which we are working on our behaviours, how we interact with each other, how we coach and observe and how we share information and explain the why behind what we are doing, which we believe when people understand the why both ways that we can get more aligned around our objectives.

So we have completed that with the whole leadership team and we are going to continue that through every employee onsite through the summer and fall timeframe, but we have already seen results from it. We went through the last outage and we had a very, very successful outage. It's almost like a frog being in, you know, a boiling pot of water, sometimes you put all these efforts in place and sometimes you don't see it unless you step back. And when we look at this last outage and all the work we have done over the last year, we are starting to see that breakthrough, that communication and that teamwork foster itself through the results of the last outage.

MEMBER VELSHI: And when you speak about the results of the last outage, other than the standard measures of completing all the work on time and within budget and so on, what are some of the more granular measures that you use to see that you have been effective

with this initiative?

MR. PLUMMER: The number one thing we look at is safety. So we set a target of 10 first aids and during the actual outage itself for the 24 days slated it was nine first aids. We had zero medical aids, we had zero lost time accidents. We had no significant human performance or initiated events. So, you know, we actually staffed up for our performance improvement corrective action. Sometimes during an outage when you do that much work and you bring folks in, just sit there and manage from a corrective action system and get ahead of it, and we didn't need that. So the performance overall from a safety perspective was very good.

MEMBER TOLGYESI: I have one. In this submission there is mention of waste storage, which is a reinforced concrete structure for 50 years. My question: Is there any research or development work in order to extend the life of this 50-year maintenance-free storage capacity or develop new technologies to replace concrete structures or you don't feel it's necessary because 50 years is enough and something will come after?

MR. HICKMAN: So Charles Hickman for the record.

The initial design for the structures is default at 50 years. We have programs in place, we have

processes in place. If we wish to change that life, it would involve inspections, maintenance, ongoing work to maintain that -- those facilities in appropriate working order.

The thought of going to a different technology hasn't come to the table at this time. We feel that the existing technology is very robust, it's easy to maintain, it's easy to inspect. So we have the processes if we need to extend the life of them. I am comfortable that we have a good process in place.

MEMBER TOLGYESI: To the Canadian Nuclear Association. Besides representing the interests of the nuclear industry, do you supply any services to your hundred members?

DR. BARRETT: I guess the only services we would supply would be trying to circulate information about what is happening in the broader sphere of the industry and items of interest to the industry, so we have a daily news clipping service, if you will, to our members. We do have our annual conference and tradeshow.

There is the opportunity to handle the two main sides of our service, if you will, and that is to talk about and discuss policy-related issues to ensure that there is good support for the industry in the federal level as well as provincial level where applicable, and

communications in the public realm as well as getting the opportunity for our members to discuss commercial possibilities where they do a lot of their own business-to-business meeting. So we try to formulate those opportunities.

But the main thing is to try to provide a link between those companies, sometimes very small companies, engineering firms and others who have high quality -- have reached high-quality assurance levels in their work, very highly skilled. They are working too, you know, earn their keep and survive as companies. We try to go from that level, plug them into wider understanding of what's going on in policy.

The Refurbishment Program in Ontario for example is very, very important to those members, and then we take it right through to other members, which include Cameco for uranium mining and Canadian Nuclear Laboratories on the scientific and research lab side. It's that kind of service.

MEMBER TOLGYESI: Well, 100, it's quite a large number when you consider the number of power stations and uranium mines and uranium processing. So you have, what, contractors, suppliers?

DR. BARRETT: Yes. Yes. I will see if Steve Coupland wishes to add something.

MR. COUPLAND: Our membership is made up of obviously the power reactor companies, the uranium mines and mills, and then basically the supply chain, most of the supply chains that help those companies. We also have a number of engineering, environmental engineering firms that are involved and a few law firms as well that do some business. So it's kind of a wide range of services. Our members are a wide range of services to the industry.

THE PRESIDENT: On the broad policy, as an industry, have you considered doing something about outreach to indigenous communities? As you know, it is a very hot topic in terms of the UN Declaration and the FPIC and all this stuff that goes with it. Is there anything that you as an industry are thinking about doing?

DR. BARRETT: Yes. That's a very timely question because we are gathering ourselves for such outreach. It is a complicated area. One doesn't just rush in with views and opinions without understanding better what the local concerns are and the views of the indigenous peoples and their variety as well.

The two main areas that propel us into that I suppose would be we are looking at studying first the environmental and ecological impacts of energy systems. We have our own internal studies and ones we have contracted to try to get a better fix on what I call the

sort of 360-degree impacts on flora and fauna, of the main -- selected but main energy systems, so fossil fuels, coal and natural gas, solar, wind, nuclear of course.

Because when you look at the nuclear industry we start right from the -- as this Commission knows -- right from the mining of uranium and follow through to the eventual disposal and decommissioning of any waste streams. All energy systems have an upstream and a downstream, that input and the waste, but not always is that really discussed a lot.

So I won't go further into that, but I just think it's an area of policy that we all need to understand better and we are of course very prepared as the nuclear industry to talk about our own systems there from the mining and the environmental and ecological impacts that may be there, the regulation. And that's the key thing, is that we all know in this room because we are here we have a regulated industry from top to bottom and not all energy systems have that as well. So that's one area.

The second area is that in discussing the broader picture of energy supply in Canada. And I just came from an Energy Council conference, Energy Council of Canada conference in Western Canada, Regina. It's interesting that a number of provinces are looking at, because of the climate change challenge and the need to

reduce carbon emissions, provincial standards, let alone the Canadian-wide standard that is still in evolution but the provincial standards. It's clear that electricity producers are seriously having to consider how they are going to meet the targets of whether it be 30 percent reductions by 2030 or whatever the formula is.

And in that, you have a consideration of different types of energy systems, and one of the ones that we think in our industry could play a very strong role, an important role in our decarbonized economy of the future, in a number of applications, not in population centres or populated parts of the country well populated but in remote areas off grid as well as on grid, a variety of applications for smaller types of reactors that are now in.

But in answering that question, we are very cognizant that you can't approach the possibility of demonstrating licensing in due course by this Commission and deploying such smaller reactors for these applications only by having a technology push. You have to have a demand pull. You have to have communities say we want this energy, we want this type of energy. So we are looking at using the universities that have more expertise in indigenous cultures and indigenous relations to help us sort of map out the kind of conversation you need to have with indigenous communities and remote communities, to say

what are your energy aspirations, what would you like to see? If you had the possibility of an energy supply that could produce electricity and heat 24 hours, seven days a week in the form of a small, safe, passively safe reactor with advanced technologies that you yourself could operate or be part of the operation, part of the ownership for sure, for your community, is this something that you would like? Can we talk about that? And that's the outreach part. So that's the other stream.

THE PRESIDENT: Thank you.

Anybody else? Any other questions?

Okay, thank you. Thank you for your intervention.

CMD 17-H2.95

Oral presentation by PEACE NB

THE PRESIDENT: The next submission is an oral presentation by PEACE NB, as outlined in CMD 17-H2.95.

I understand that Ms Murphy-Flatt will make the presentation.

MS MURPHY-FLATT: Thank you very much. My name is Sharon Murphy-Flatt.

I have been participating as an intervenor in various nuclear hearings for 15 years now. It's been 15

years. And in my written submission I basically put a synopsis of the issues over the years that have been concerning myself and fellow intervenors in the various groups that I have been representing over the years. There was the Canadian Unitarians for Social Justice, the Conservation Council of New Brunswick and currently my group PEACE NB.

Currently, as we have been hearing today and throughout these hearings, there is a push -- even just the people before me were talking about selling nuclear power, the small reactors -- there has been a push for nuclear, a second plant in Saint John, a lot of propaganda in the papers and on the news and an inference that social licence has been granted and I'm really here to say that indeed my group, the citizens I represent, do not feel in any way that a special licence has been granted for nuclear power, nor has it ever been. It is a case of we don't want it in our backyard, most definitely.

The Bay of Fundy is a treasure trove of environmental and economic riches for this whole area and we do not believe that cracking the atom and risking all of this for power that we do not even believe is necessary is moral. The risk that our homes, our family, my business is being put under is unnecessary.

We do understand that -- indeed, I know

lots of people that work at Point Lepreau. It's a very small community. They are lovely people, it is run tickety-boo, it's great. No one has any issues about the niceness of the people or their happiness. The issue is the danger, the unnecessary danger that our communities, our Bay of Fundy, our businesses, the risk that we are being put under to make power that we do not believe in any way is necessary.

We know that there are plenty of ways to make power in this world and, yes, climate change is real but, you know, there are a lot of options and we are very smart people. Your industry is full of smart, smart people that could be very happy working decommissioning the plants, as is going on in Quebec, even down in Korea, all around the world, plenty of smart people and we can do a lot. But this industry, we don't accept it -- the people in my group and the people that I know, the citizens in Saint John, we don't accept it as safe or necessary.

So the few issues that I have highlighted in my submission have been repeated, the issues have been repeated, the concerns were repeated by the various intervenors from the Canadian Environmental Law Association to Nuclear Free Solutions, various people that have been presenting, even Dr. Sunil who recently presented. All these concerns that I have are the same concerns that are

continually being repeated. So I am just -- briefly, I only have six minutes left, I will just touch on them.

The seismic is one of them. We do know now that -- we are thankful that a seismic study was done and we know that several large earthquakes, unknown before, were found in this region. Of course Lepreau is built on Lepreau fault. I do understand that the seismic study has been reviewed by Dr. Adams, but you are not allowed to release it, so who is to say how this -- if the study was legit or not, but I believe it was legit and these earthquakes are very real.

And I also am quite concerned that when you found the earthquakes, the only thing really, besides shoring up a few fire hydrants I guess, was move the rule where now you can have higher earthquakes because you moved the number on the chart. I don't think fancy math is any way to deal with this issue. We have seen what has happened before in this world and we know what can happen if we get in a dangerous situation with the power plant, that we could lose everything. So having a plant operating right now when we know there is a possibility of very high earthquakes, heaven forbid, it's close to the surface and near the plant, things really terrible could happen.

As well, there are several upset situations that could happen in relation to a seismic event

and if anything like a large release of radiation did happen, we don't believe we are prepared in any way in Saint John to evacuate. We know the "E" signs are only pointing in one direction, who knows which way the wind might be blowing. We don't have any type of pills that you might take if there was a wind blowing in our direction and something bad happened. We have no idea in Saint John what we would do.

And again, I went over and I listened to the Emergency Measures presentation and it's all great that they have wonderful programs, but in the centre of their presentation they did admit that actually they are only sort of studying how they might look at evacuating Saint John or what might happen or maybe let's evaluate giving pills out in a larger area, but nothing is being done, it's not actually happening. So there again are some serious concerns.

What would happen to the people in Saint John if an emergency did ensue and the wind was blowing our way and, you know, there was a hurricane, the roads burst out and then, lo and behold, oh, well this is when the earthquake happens and, you know, what if it happens out in the water? We don't even know.

Out in the water is another point that I wanted to make, is that that area hasn't been studied for

earthquakes. We have studied the land area and we found several large earthquakes, but we haven't studied the area in the water that we know needs studying. It has been pointed out by many of the scientists that there will be another earthquake and most likely the next earthquake will be in the Passamaquoddy Bay region by Lepreau, but we need to study that and we don't know. No studies were ordered for that area in the water, just on land and indeed we found very large earthquakes on land.

Regarding what I called licensing bias and, again, I'm sure you guys are great, wonderful people but how really well can we regulate an industry that if we shut it down we lose our jobs? It doesn't make a lot of sense. It sounds like an inherent bias to me.

And it would be really great if somehow we could work out with the other energy industries and the new National Energy Board that's being worked out right now that we could put nuclear in there and then take away that inherent bias and maybe you guys would all work for the National Energy Board. I don't know but really then if there was a plant or something that really needed to be shut down you wouldn't lose your jobs because you would be overseeing all sorts of energy programs. It wouldn't just be about nuclear. So for sure the inherent bias I see as a huge problem.

And then regarding a line I put in here, "mistakes suspected" we have looked at a lot of math done by NB Power over the years and, indeed, the Lepreau stuff and we have found mistakes, mistakes in safety analysis. Of the six we really wanted to look at these mistakes for this hearing or at least look at the calculations and go over the calculations for the safety studies. We got funding for that and then we found out that we weren't allowed access to the safety studies to look at them.

We do understand that CNSC can hire -- Dr. Kennedy is the name of the doctor who was willing to oversee the safety studies but as an intervenor if I hired him I wouldn't be able to hire him to look at anything. So we gave the funding back but we would certainly request that the CNSC hire Dr. Kennedy to review the safety studies for Lepreau. It would be great because there has been a lot of math that we found a lot of mistakes in the math.

I see that my time is out here. But I just want to go over one more thing and, again, it's the thing that's been brought up over the years and that's the inherent flaws in the CANDU design. I know it's not fixed yet. We still have that positive reactivity problem.

And Dr. Sunil added a little bit of icing to that. So if we get in that trouble here we could be in trouble compared to other plants. So it would be great if

we could simply shutdown Lepreau before this happens and, you know, maybe hire a lot of people for a long time to decommission instead of continuing with this dinosaur that, indeed, many of us believe is not safe in any way and putting us all at great risk.

Thank you.

THE PRESIDENT: Thank you.

Questions? Ms Velshi...?

MEMBER VELSHI: You've obviously followed the proceedings over the last few days and, as you mentioned yourself that many of the issues that you have raised were discussed. So I am going to pick on a couple that we haven't spoken about and get your further clarification on that.

So one is on mistakes suspected where you said there were many mathematical errors that you found in the assessments. Have you shared those with Point Lepreau and CNSC staff?

MS MURPHY-FLATT: Absolutely. Yes, it was an ongoing issue over the last couple of years and there have been corrections the way the studies were. The graphs they were using median instead of mean and all this and when they do the studies and things have been adjusted after we found different mistakes. There is no question that changes were made then, which is why we wanted to see

the studies themselves because this was even in the methodologies there were mistakes being made. So, yes, the mistakes were corrected but there could be more we don't know.

MEMBER VELSHI: Staff, can you comment on that, please?

MR. FRAPPIER: Gerry Frappier for the record. And I'll ask Chris Cole to add to this.

But the item that she is making reference to is a concern that was expressed with respect to some of the original -- or not some of the original but seismic assessments that were done and Dr. Adams is still here as well.

With respect to when you use an average versus a mean and I think at the time it was determined that either way is acceptable but, perhaps Chris Cole or Dr. Adams could add to that.

MR. COLE: For the record, I'm Christopher Cole, Director of Engineering Design Assessment Division.

As Dr. Frappier mentioned, there are several ways, internationally-accepted ways to carry out a seismic risk assessment. We have looked at all the assessment processes done by Point Lepreau. We are satisfied they meet all the regulatory requirements.

There has been advice given to us by some

of the intervenors. We take that into consideration and we look at it from many aspects and we incorporate those ideas. But at the end of the day, the reports are satisfactory and the results meet our expectations.

MEMBER VELSHI: The question was around mathematical errors you know, if it's a difference of using you know mean versus median or whatever, if those averages -- a little different than mathematical error. That may be just a judgment call but are they mathematical errors that one would say may question, you know, the confidence in the report? Has that been an issue?

MR. COLE: Christopher Cole for the record.

You are correct. They are not mistakes as stated by the intervenor. They are fact processes that we can use that are fully acceptable and, as I mentioned we have looked at all those aspects and they are acceptable to the CNSC staff.

MEMBER VELSHI: Thank you.

And then you make mention of bullying reports. Tell me what those are, please.

MS MURPHY-FLATT: Yeah, BullyingCanada. It's an organization called BullyingCanada and I would imagine you have heard from them because three years ago BullyingCanada actually reached out to local people because

of the high rate of reports coming from Lepreau, from people calling BullyingCanada. This is not new at all.

MEMBER VELSHI: Sorry, it's new to me.

MS MURPHY-FLATT: Okay.

MEMBER VELSHI: So maybe I can get Lepreau to elaborate on that, please.

MR. PLUMMER: Brett Plummer for the record.

I'll read a few notes around bullying. First off, I'll reassure you there is no tolerance at all for bullying or a disrespectful workforce. But NB Power is committed to providing a work environment in which all individuals are treated with respect and dignity. We are proud of our efforts to ensure our workers enjoy an atmosphere that promotes equal opportunity and prohibits discriminatory practices.

As a company we have always respected the privacy and confidentiality of our employees regarding personal matters. The corporation has a series of effective programs in place for employees to have their concerns addressed without fear and retribution and loss of privacy. Our well-established policies apply to all workers, both those who feel they have suffered some form of harassment while at work and those who may have been accused of inappropriate behaviour. As always we remain

committed to investigating all allegations and inappropriate behaviour in our workplace.

A respectful workforce policy and objectives are also expressed in our code of ethics and extension of our values that sets out high standards of personal and professional integrity which all employees are expected to adhere.

NB Power is committed to improving our workplace environment and participating in activities like anti -- the annual Anti-Bullying Day. Matters of workforce and harassment bullying are promptly addressed as they are raised. NB Power also has an ombudsman where workers can express in confidence any matters of concern including harassment.

The numbers -- for example, in 2016-17 five issues were brought forward for review on our respectful workforce policy. This is a New Brunswick Power tool which one resulted in one process review. One resulted in a formal investigation. Three resulted in interventions and conflict resolution. All of these issues were immediately addressed and have been resolved.

So the process works in the review and the application of the policy in HR-14 which is our disrespectful workforce policy. We use it, and it does work.

So I personally believe we do not have a bullying issue at Point Lepreau and I think you have seen by most of the interventions most people don't believe we do either. But when there are issues we address it promptly.

MEMBER VELSHI: And was it an issue a few years ago? I think you said three years ago.

MS MURPHY-FLATT: Yeah, BullyingCanada they did a press release on it.

MR. PLUMMER: It's not an issue now. I honestly can't speak to several years ago.

MEMBER VELSHI: And your safety culture assessment would have shown that as well, I suspect, if it was an issue?

MR. PLUMMER: Brett Plummer for the record. Yes, it would have.

MEMBER VELSHI: Thank you.

THE PRESIDENT: Dr. McEwan...?

MEMBER MCEWAN: So on, I think, your last page talking about CANDU flaws, so presumably you are referencing Dr. Nijhawan's presentations before us?

MS MURPHY-FLATT: I only heard his presentation before and I referenced it just here on the spot.

I was referencing the flaw that we all

know about, the positive code that when -- the Globe and Mail even talks about it. I've still got it up here. It's called the "Positive Reactivity Feedback" is the one I was talking about, but Dr. Sunil was talking about another flaw that if you put that flaw together with the positive reactivity situation and heavens knows what else, we have a problem especially at Lepreau.

But any of the CANDUS can do this blow-up problem unless it's been fixed. And I'd love it to have been fixed but I haven't seen the press release yet.

MR. FRAPPIER: Gerry Frappier for the record.

The intervenor is talking about the positive void reactivity which is a law of physics. That's not a flaw. It's just there and has to be taken into consideration as part of the design. This was known from the very beginning of the CANDU design and is one of the fundamental reasons why we have the two independent fully capable shutdown system designs.

So that there is a time that it takes for this positive reactivity to occur and a very important safety system, in fact two safety systems, Shutdown System 1 and Shutdown System 2, are designed to be able to fully stop the reactivity within the timeframe that prevents a runaway -- a reactor.

So while this is a feature of the CANDU reactors it's taken into account as part of the design and the design fully compensates for that item.

MEMBER MCEWAN: Comment?

MS MURPHY-FLATT: Yeah, I guess the only comment is the snowball reactivity effect that is a natural physics activity is the very thing that puts all at risk. That's the big issue.

MR. FRAPPIER: Gerry Frappier for the record.

It's a big item to be taken into account during the design and it has been. We don't view it as a flaw. It's a fact of the design, given that we want to use natural uranium as opposed to enriched uranium. Not all reactor designs have that feature and I think that's what perhaps intervenor is making reference to.

But from our perspective that's been part of the workings of the CANDU reactor. We have fully compensated for it with engineering approaches. There is other features of that physics that are very good from a safety perspective and from an inherently safe perspective. So we do not have concerns for that feature.

MEMBER MCEWAN: So can you elucidate the good elements?

MR. FRAPPIER: Gerry Frappier for the

record. I might get Vali Tavasoli to assist me on this a little bit.

But essentially for one thing, it uses natural uranium. Because of the design we have two independent shutdown systems. Most reactors do not have that. There is a lot of water around our approach because of the moderator, heavy-water moderator which is very useful to have around when we talk about what -- an item being talked about now, a lot of severe accidents.

So one of the best things about the CANDU design is under severe accident conditions it has a lot of capability that is -- gives a lot more flexibility from the perspective of managing severe accidents. So like all designs there is pros and cons.

And we also have an emergency core cooling injection system that again provides cooling even if the main cooling function should fail. There is a -- we can go through a lot more if you want.

MR. TAVASOLI: For the record this is Vali Tavasoli, Director of the Active Physics and Fuel Division.

As Mr. Frappier has said that the positive water reactivity actually improves the effectiveness of shutdown systems for certain accident scenarios which are more probable. For example, a small break in the primary heat transfer system or a loss of pump flow, the timing of

the shutdown system intervention can significantly be improved by the fact that there is positive water reactivity and because of the density decrease in the coal the power would go off and you don't have to wait until the process trip comes in. So it does -- for certain accident scenarios it actually improves the effectiveness of the shutdown systems.

And as for the other ones which are more rapid, as Mr. Frappier said, they are CANDU reactors. It is a recognized design feature and because of that two independent fast-acting shutdown systems were incorporated in the design to reduce the risk associated with this design feature.

THE PRESIDENT: Mr. Tolgyesi...?

MEMBER TOLGYESI: Merci, Monsieur le Président.

On the last, before last page on the "Security and Safety concerns" the intervenor is talking about facility to access. On land you have a perimeter of security which is the fences, et cetera and guarded. However, how it looks like on the water and in air? How easy is to access the property through the water and through the air? Could you overfly the site?

MR. PLUMMER: As far as the mariners, you know, we have a protected area and their security force is

well trained to protect the plant proper. There are no requirements specifically for a barrier beyond that protected area into the maritime areas. As you heard from a lot of the fishers that are in the area, anybody that comes in the area will be reported immediately.

But as far as flying over the site, and I believe the reference was in a Cessna, that's not an issue as well. There's not a concern there.

MEMBER TOLGYESI: It means that there are the regulations which are deployed we think to overfly the nuclear stations or they are not but -- so anybody could overfly? Like, the intervenor was saying that she was taking a small private helicopter and she got very close to the site.

MR. PLUMMER: Yeah, Brett Plummer for the record.

There is no regulation for flying a helicopter or a small plane by the plant.

MEMBER TOLGYESI: Do you have or do you consider in the last few years the drones that have developed very strongly, overfly sites? And it's happening in France in nuclear power stations like in Flamanville. They have two or three drones who are overflying the site. Do you have any concerns regarding that?

MR. PLUMMER: Brett Plummer for the

record. There is no concerns with drones but I'll ask Paul Thompson to go ahead and comment on it.

MR. THOMPSON: For the record my name is Paul Thompson. I'm the Senior Technical Advisor at the Point Lepreau Generating Station.

I think it would be useful to understand that there is a process that is used in security and it refers to a design basis threat. And the design basis threat is in fact reviewed periodically and what it looks at is based on OPEX from around the world and looking at what are the various changes in developments on threats and what are their likelihood for application in Canada. And there is a very structured process that is done through security, overseen by the Canadian Nuclear Safety Commission to look periodically at that design basis threat. So it does change and evolve which is a very flexible nature.

It is then incumbent on the licensees to meet and prove they meet the design basis threat both through their design provisions that we have and the response capabilities that we have. And these response capabilities are also periodically tested. So I think that captures the process of evolutions of any threats.

Thank you.

THE PRESIDENT: Ms Velshi...?

MEMBER VELSHI: In your intervention on page 1 in your introductory comments in the second paragraph you make a statement about the residents of New Brunswick maybe having the wool pulled over their eyes and we have had almost 100 interventions at these proceedings. I'd suspect almost half of them are from members of the community, all very well presented, very articulate and came across as knowledgeable about the facilities.

And then I saw this statement here about the average education and I looked that up because I was very taken aback by that. That's not what I saw from the OECD results where I think they said, well, it was comparable to the other provinces. Almost 50 percent have high school education.

But if it wasn't correct then I just wanted to give you an opportunity to confirm that.

MS MURPHY-FLATT: Yeah. It's the Conference Board of Canada. You can look up those statistics. It's the most recent study and, indeed, we are graduating a lot of high school people but they also are at a grade four level. It's a problem in New Brunswick. We are certainly graduating a lot of people that have literacy problems. So that's where you get that study at one side. But if you look at the Conference Board of Canada and New Brunswick is the lowest, second only to PEI for our

literacy levels and the people that I have seen here the last couple of days are all extremely literate people and know a number of them in the community.

This process is not accessible for the average New Brunswick citizen in any way as well as extremely intimidating to have a quasi-judicial system here where you sit above the people. It would not be possible for people to be able to intervene.

THE PRESIDENT: What an elitist, snobbish insulting remark to the whole province of New Brunswick that has been living with this for 30 years, and you can come here and telling them that they cannot understand what is in play here?

MS MURPHY-FLATT: Absolutely. I'm absolutely saying that you can --

THE PRESIDENT: That's very --

MS MURPHY-FLATT: -- you can look at the Conference Board of Canada and our literacy level is --

THE PRESIDENT: They all write letters to --

MS MURPHY-FLATT: -- very, very dangerous.

THE PRESIDENT: -- they all write letters to the editors. They all can write. They don't have to appear. They don't have to be intimidated.

MS MURPHY-FLATT: If you look in the

papers you will see nothing but nuclear propaganda currently. It's a big problem in New Brunswick and people are not aware of the truth of what's going on. There is a lot of propaganda. They simply do not understand.

THE PRESIDENT: Thank you.

Any other comment?

Thank you for your intervention.

MS MURPHY-FLATT: I just -- about the fishers watching from the water I think that the risk to our population is far more serious than to simply have fishers watching from the water. If someone is going to be coming in to do damage to this plant this is not acceptable. So that's a comment on that one.

Thank you.

THE PRESIDENT: Okay, final words.

MS MURPHY-FLATT: That was definitely my final word. Thank you for listening.

CMD 17-H2.66

Oral presentation by Marlene Dewar

MS DEWAR: Good morning, President Binder and other Commission Members.

For the record, my name is Marlene Dewar. I am currently the Superintendent of Radiation Protection

at the Point Lepreau Nuclear Generating Station.

I am speaking here today to express my support for the five-year licence renewal of Point Lepreau.

Throughout my 15-year career at Point Lepreau I have had the opportunity to work in the Health Physics and Training Departments. I've also supported several maintenance outages as a protection assistant and represent the Radiation Protection Department as safety officer as part of the Emergency Response Organization.

At Point Lepreau it is stressed that we recognize the importance of our constant responsibility to ensure that we all take required steps to protect each other, the public and the environment from any unnecessary exposure to radiation. All employees and support staff at Point Lepreau are educated to have a healthy respect for radiation while providing them with the information they need to feel confident and comfortable working in an environment with radiological hazards.

The Health Physics Department is responsible for monitoring and assessing the radiological impact the station has on the staff, the public and the environment.

I am proud to say that the radiological impact on the public and the environment is very low and the station continues to work to improve performance in

this area.

Employee radiation exposure is managed and with our commitment to high standards to radiological safety, we keep employee exposures as low as reasonably achievable. This is something that all workers at Point Lepreau can take pride in.

The Training Department uses a systematic approach to training, which includes several different training methods. We use classroom training, combined with field tours, dynamic learning activities and several forms of evaluation to ensure that all workers have a clear understanding and respect for the radiological requirements of their job.

At Point Lepreau nuclear safety culture and human performance fundamentals are embedded in all of our processes. This provides employees with an understanding of what makes nuclear unique from other industries and provides them with tools to help them operate safely and reliably.

One of my favourite aspects of this job is the relationships and partnerships we have at Point Lepreau and throughout the nuclear industry. We are fortunate to have a strong international nuclear community to help us on our continuous journey to excellence and guide us to achieving our goals. This is possible through our

partnership with CANDU Owners Group, the World Association of Nuclear Operators, the Institute of Nuclear Power Operations and the International Atomic Energy Agency.

Through work with these organizations we are able to gain and contribute valuable operating experience.

I take pride in our openness and responsiveness when working with our industry peers, along with our willingness to accept their feedback and support.

At the end of the day our goal is to ensure everyone working at Point Lepreau understands that safety is of the utmost importance. This includes all aspects of safety: public, nuclear, radiation, fire, conventional, environmental and community.

While my role focuses on radiation safety, our commitment to operating Point Lepreau safely and responsibly extends far beyond.

I am fortunate to be working in the community where I was born and raised. I never dreamed that once completing university I would have the opportunity to move back to New Brunswick and become part of an industry that encourages me to reach far beyond that community.

I am proud to be a nuclear energy worker in New Brunswick and to work for a company that continues

to invest in my personal development so that I can continue to contribute in a positive way to this industry.

I appreciate the opportunity to share my experiences here today and would like that you consider this when making your decision.

Thank you.

THE PRESIDENT: Thank you.

Questions?

Ms Velshi.

MEMBER VELSHI: Thank you.

Thank you for your submission.

You mention in here the journey to continued excellence, the journey to excellence and continuous improvement and being part of an international community.

Have you been on any peer teams or any benchmarking visits? Maybe you can elaborate on that, please.

MS DEWAR: Marlene Dewar, for the record.

Yes, I have had that opportunity. I've been to several different plants. I've also had the opportunity to attend different conferences where I meet industry peers and can learn and bring back information to my station.

MEMBER VELSHI: Have you been part of a

peer team that actually goes to look at radiation protection practices elsewhere to see what best practices are?

MS DEWAR: I've been part of a benchmark at Bruce Power where we did review the Radiation Protection Department.

I've also had the opportunity to participate in Safety Culture Assessments at both Pickering and Bruce Power.

THE PRESIDENT: Dr. McEwan?

MEMBER MCEWAN: Thank you for the presentation.

So Superintendent of Radiation Protection. What is your reporting relationship? What supports within Point Lepreau do you have and how much independence do you have to make decisions?

MS DEWAR: Marlene Dewar, for the record.

The supports that I have. So, for instance, who reports underneath me and then who do we report to?

Okay. So underneath is the Health Physics Lab as well as the Radiation Protection Department, who both report up through me.

And we also have the Health Physicist, so the technical group that report to me directly as well.

Independence, as far as independence, the senior health physicist who reports to me is directly linked with the CNSC. So she's the one that's responsible for the licence and reporting directly to them.

MEMBER MCEWAN: And who do you report to going up?

MS DEWAR: Marlene Dewar, for the record. I report directly to the Station Manager.

MEMBER MCEWAN: And if something concerns you about the radiation safety environment, would you have the ability to call a halt and to say stop until you are satisfied that whatever the cause was has been resolved?

MS DEWAR: Yes, I 100 per cent feel that I have that ability and that my work group has that ability.

THE PRESIDENT: Mr. Tolgyesi.

MEMBER TOLGYESI: So I understand that there is a new perimeter of monitoring station. Are they going directly into the lab?

I'm trying to understand where they're connected to.

MS DEWAR: Marlene Dewar, for the record. They're probably only through the Emergency Preparedness Department. They are all along the perimeter and we do have access. That's more of my role as safety officer, so that we can have access to the results

of those instruments.

MEMBER TOLGYESI: I know but they are continuously monitoring things. Right?

So you don't have to wait for an emergency to tell everybody it's safe.

MS DEWAR: Right.

MEMBER TOLGYESI: I thought that was the whole idea; that I would put it up so everybody could see it on an ongoing real time.

MS DEWAR: That is not directly through me.

MEMBER TOLGYESI: No. Maybe I'll wait for the last round here.

MS DEWAR: Thanks.

MEMBER TOLGYESI: Go ahead.

MR. PLUMMER: Brett Plummer, for the record.

Derek Mullin will speak to that.

MR. MULLIN: Derek Mullin, for the record.

The radiation, it's a real-time radiation boundary monitoring system that we installed. It provides real-time data all the time. That data is provided to the Emergency Response Organization in an event. It is always there. It's always monitoring.

I would have to confirm whether or not

there is an alarm in the main control room if one of those monitors happens to indicate that a high set point was exceeded. I'm not sure of that.

In my role in the Emergency Response Organization we see that. We can get access to that information and that data. And we can see what's happening.

Thank you.

MEMBER TOLGYESI: I know. But you don't consider it's useful to let everybody know almost on a daily basis that everything is good?

It's not a leading question. I know what I would do.

MR. MULLIN: Derek Mullin.

The original design intent of the system was to help us with emergency response in the event that we suspected that we might be having a release, a highly unlikely release following an event.

It really wasn't intended for a day-to-day monitoring around the plant. We have other mechanisms for that.

Thank you.

MR. PLUMMER: Brett Plummer, for the record.

Now I think I understand what you're

saying.

There is a whole system of radiation monitors all through the plant, to sit there and monitor all the different work areas.

MEMBER TOLGYESI: But the public is always concerned about what happens outside the fence.

MR. PLUMMER: Right.

MEMBER TOLGYESI: And an unintended good benefit from that particular system, they can always allay the fear about ongoing emissions.

MR. HICKMAN: Charles Hickman, for the record.

I'm not sure if Dominique from Health Canada is still here, but I'm pretty sure I heard him specifically outline the existing data systems -- sorry, monitoring systems that are present at Point Lepreau and the other stations that give real-time data.

I believe it's available on the web, on a 15-minute refresh basis, that shows basic gamma levels in the communities.

THE PRESIDENT: I can tell you again -- it's out of scope here -- governments are moving to something called open government where available data should be posted all the time so they don't actually try to hide some information.

So to me that's a good set of data that could be used just to further demonstrate the safety aspect.

Sorry, I'm out of scope.

Any further discussion?

Okay, thank you.

Thank you for your intervention.

I think we need to take a break.

Unfortunately, we have to break for lunch.

We will be back at 1:20.

--- Upon recessing at 12:20 p.m. /

Suspension à 12 h 20

--- Upon resuming at 1:22 p.m. /

Reprise à 13 h 22

THE PRESIDENT: Good afternoon. We're back.

We are going to continue with the next submission, which is an oral presentation by Ms Hickman-Leroy, as outlined in CMD 17-H2.85.

Please proceed.

CMD 17-H2.85

Oral presentation by Leanna Hickman-Leroy

MS HICKMAN-LEROY: Thank you.

For the record, my name is Leanna Hickman-Leroy and I am a member of the Emergency Response Team in fire protection and prevention at Point Lepreau Nuclear Generating Station.

I submitted a letter of support for Point Lepreau's five-year licence and today I will briefly speak to this.

First, I would like to express my gratitude to the Commission for coming to Saint John. Your presence here provides the community with a chance to speak to you in person and for you to see the people whose lives have been changed in a very positive way because of the Point Lepreau Nuclear Station.

As an emergency responder, my full focus is nuclear and conventional safety.

I work with my co-workers inside of the plant and with the community members, specifically emergency responders from the surrounding area to keep the plant and the community safe.

We do this through robust vigilance of fire and incident prevention, as well as rigorous training

in the highly unlikely event of an emergency response requirement.

The station brings significant value to the community beyond the jobs it provides. As well, the partnerships between Point Lepreau and the off-site emergency responders allows for a timely and efficient response to our station.

For example, the rigorous cross-function training between the on-site emergency personnel and the off-site emergency responders benefit not only for a potential response to a station event but also for community emergencies.

I know my family and our community neighbours are better protected because of the additional resource from this partnership. It provides a high level of training and improved equipment to our local fire department.

As I mentioned in my letter, I spent the first eight years of my career in the Security Department at Point Lepreau after joining with previous experience in the security field. I then completed the rigorous physical testing to become an emergency responder, and I've learned everything I could about the other aspects of the role.

In my current role I'm focused on fire prevention, and a big part of that role is education of our

employees in the importance of housekeeping and the material controls within the plant.

As well, I conduct vigilant monitoring to track how well we are meeting our goals. And with our external partners, I help facilitate joint training, drills and processes.

We host the external emergency response team members at the stations so they can come to know the layout and the logistics of the plant just as well as we do.

I am proud of the work I do for my community and the province. I am also grateful for my career opportunity I have been given and for the value the community receives because of the station's presence at Point Lepreau.

In closing, I want to assure the Commission of my commitment. My co-workers, my community responding partners have ensured a robust safety program at Point Lepreau.

This commitment includes continuous learning in every aspect of our role, as well as monitoring, training and ongoing drilling and prevention methods.

Thank you.

THE PRESIDENT: Thank you.

Questions?

Mr. Tolgyesi.

MEMBER TOLGYESI: You are not one of ten of those who are also members of Musquash Volunteer Firefighters?

MS HICKMAN-LEROY: For the record, Leanna Hickman-Leroy.

No, I'm not.

MEMBER TOLGYESI: you are saying here that you're focusing on the education of your employees and good housekeeping and material control.

Does it mean that each firefighter has some kind of designated role or responsibility, or it's in general to keep good housekeeping and material control?

MS HICKMAN-LEROY: For the record, Leanna Hickman-Leroy.

As a rule, the ERT do do walk-arounds and we engage with different work groups as well to tell them and educate them on the importance of housekeeping, not keeping combustibles around the plant, removing them when they're finished, etc., just keeping the plant safe.

MEMBER TOLGYESI: What happens when you go by and you see there is missing housekeeping or there is something that's not in order to be safe?

What is your responsibilities and what

should you do to make sure that it's corrected?

MS HICKMAN-LEROY: Sure. For the record, Leanna Hickman-Leroy.

If it's small and something we can pick up, we'll pick it up and we'll return it, go back to the work group that we believe is working in the area and just discuss with them that we found stuff laying around and that the process is to pick things up as you go and be more vigilant.

MEMBER TOLGYESI: Do you go to the supervisor also and say that that section, it doesn't work?

MS HICKMAN-LEROY: Leanna Hickman-Leroy, for the record.

As a responder, we would go to our supervisor and then the supervisor would go to the work group supervisor.

THE PRESIDENT: I may have missed it. So I'm sorry for that.

But you didn't introduce your colleague.

Is there anything we're missing here?

MS HICKMAN-LEROY: This is my chief, Chief Mawhinney.

MR. MAWHINNEY: Halley Mawhinney, for the record.

I'm Chief of Fire Protection at Point

Lepreau.

THE PRESIDENT: Okay, welcome.

MR. MAWHINNEY: Thank you.

THE PRESIDENT: Questions?

Dr. McEwan.

MEMBER MCEWAN: So both your roles would involve a lot of walking around the station and talking to people in the station. So you are probably one of the groups in the station who would have the best sense of mood and morale issues, just as a group.

We heard before lunch one of the intervenors saying there were bullying issues at the station, and my sense is that you would be one of the groups that would hear about that first if there was.

Over the last five years any experience, any sense around that?

MS HICKMAN-LEROY: For the record, Leanna Hickman-Leroy.

I've been at the plant for 11 years and I have not experienced any bullying at the plant.

MEMBER MCEWAN: And have you heard it discussed? Have you heard it complained about? Have you heard other people talking about it?

MS HICKMAN-LEROY: Not to my knowledge, no.

MR. MAWHINNEY: Halley Mawhinney, for the record.

Not to my knowledge either.

THE PRESIDENT: Are the Point Lepreau employees active on Facebook, social media, to communicate and express views, to your knowledge?

Maybe I will ask Point Lepreau on this too.

What do you think? Are they an active population or not?

MR. PLUMMER: Brett Plummer, for the record.

It really depends on the demographics of which group you're looking at. The younger group, definitely they are into social media.

And I don't even know how to begin with Snapchat and whatever. I don't know.

--- Laughter / Rires

MR. PLUMMER: But they're into it.

I think some of us older folks have just learned how to text, to be honest with you.

--- Laughter / Rires

MR. PLUMMER: But it does go on.

THE PRESIDENT: Thank you.

Ms Velshi.

MEMBER VELSHI: We had the Fire Chief from the Musquash Volunteer Fire Rescue Department, I think it was yesterday, and he said one of the best practices identified during WANO Review was your joint interfaces and collaboration.

From your perspective, how well does that interface work? Is there clarity on who does what?

I'd like to hear your side of things.

MR. MAWHINNEY: Halley Mawhinney, for the record.

We do put endless time into preparing for the mutual aid event that we have annually at Point Lepreau. And we do work with our partners outside, the Musquash Fire and Saint John Fire, for this event, countless hours.

I do have to agree with Chief Pollock's statement saying that it was recognized as one of our best events to date.

THE PRESIDENT: Anything else?

MR. MAWHINNEY: No.

THE PRESIDENT: If memory serves right, Point Lepreau invested a lot in upgrading their fire protection over the last few years.

Is everything now up to snuff, best in the industry? It must be the most modern one, given the amount

of money they spent on it.

MR. MAWHINNEY: Halley Mawhinney, for the record.

We are continually improving in our program and our processes. I will say that we have definitely increased in our protection and safety at the station.

THE PRESIDENT: So just remind me. Is the staff now totally satisfied that all the fire upgrade that was worked on over the years is all done?

MR. FRAPPIER: Gerry Frappier, for the record.

I will ask Mr. Poulet to answer that, please.

MR. POULET: Thank you, Mr. Frappier.
Ben Poulet, for the record.

As has been reported from time to time to the Commission -- and you will recall that NB Power has also provided an update on their fire protection improvement program -- there are two aspects mainly to the program.

There was significant design and station improvements that involve fire detection, fire suppression, public address systems and other types of systems.

These were design improvements that was

reviewed and accepted by CNSC staff.

The second part is the response capabilities.

As you may recall, the on-site fire brigade used to be made up of staff that were actually working the operations or security in the past. Now NB Power has implemented a fulltime fire brigade on-site that is strictly dedicated to inspections, as was described by the intervenor, and also immediate response should it be required.

We have also looked at that and accepted and are satisfied that everything is okay there.

We've heard from the Saint John Fire Department and also the Musquash Fire Chief, Mr. Pollock. There are agreements in place to provide additional resources to come in and, if you like, relieve the on-site brigade or do work with the on-site brigade to ensure the response is commensurate with the type of fire that is encountered.

The equipment, I could ask my colleague from Emergency Management and Preparedness Division.

All I can comment right now is that they have two brand new fire pumper trucks on site. But I know they have additional equipment and I could ask my colleague if you want more information on that.

MR. TENNANT: Richard Tennant, Emergency Management Programs Division.

Over the past licensing period we've done numerous inspections at Point Lepreau. We've observed the acquisition of the two new pumper trucks, both capable of blowing 2,000-gpm, which is a high flow rate for fire pumper trucks.

We've seen the acquisition of new equipment.

And over the period of licensing we've also seen continuous efforts in learning, training and drilling and specifically in the areas of mutual aid, with reference to the Musquash Fire Department and Saint John Fire Department.

So when we do compliance inspections and we verify the response efforts of the fire department on site, we are able to see a very integrated response now. Everyone knows their roles and responsibilities. They are able to integrate and provide a seamless and interoperable response.

THE PRESIDENT: Thank you.

Any final thoughts?

MR. TENNANT: Thank you for your time this afternoon.

THE PRESIDENT: Thank you.

I'd like to move now to the next submission which is an oral presentation by Ms Harding as outlined in CMD 17-H2.89.

Ms Harding, over to you.

CMD 17-H2.89

Oral Presentation by Anne Harding

MS HARDING: Good afternoon, Mr. President and Members of the Commission.

I know you've been waiting three days to hear my presentation.

--- Laughter / Rires

MS HARDING: Let's hope you saved the best for the last.

My name is Anne Harding and I live in the vicinity of Point Lepreau Nuclear Generating Station. I have been living there since 1968, for 49 years.

The reactor structure is actually built on my maternal grandfather's homestead and on Tuesday, May the 16th this year will be the anniversary of his 137th birthday. He was born in a house that is -- that was where the reactor stands right now. My family history in this area goes back to the early 1800s.

The plant is located less than two

kilometres from my back door and it is in my back yard and I'm happy to have it there.

After 32 years in the education system, I retired in 2005 as the Principal from Fundy Shores School which was at that time a kindergarten to grade 8 school located in Dipper Harbour, New Brunswick. Presently, I volunteer and supply teach at the school when they get desperate for a supply teacher.

I have four points to my presentation on the role of Point Lepreau Nuclear Generating Station.

The first is the numerous volunteer and support systems provided by the Point Lepreau Nuclear Generating staff for Fundy Shores School.

Number two, the plant's staff's sharing of expertise and raising environmental awareness for the students at the school.

The third point will be the exchange of information between the Community Relations Liaison Committee and the community.

And the last point will be the provision of information to the community by way of information sessions.

So, the first point is the numerous volunteer and support services that the staff at Point Lepreau provide currently to the school.

Several staff members donate their lunch hours for several weeks to visit the school and participate in the ELF Program, and that's an acronym for Elementary Literacy Friends. This program requires that the adults be trained to mentor students in grade 2 and they come to the school for one hour twice a week for 10 weeks. The students eagerly await for the volunteers to come and participate in this and it was my privilege to be in the school volunteering not too long ago -- actually, supply teaching grade 2 and as soon as I walked in they were telling me who was going to the ELF Program at noon, they were really excited little people. It has shown positive results among the participating pupils.

Further to that, Point Lepreau Nuclear Generating Station has teamed with Fundy Shores School in the Partners Assisting Local Schools, the PALS Program. There are fund-raising activities at Point Lepreau and they help support many school initiatives including, and not the least, is the breakfast program. Last year Breakfast Clubs of Canada helped serve over 16-million breakfasts to over 106,000 students across Canada.

My second point is the plant staff's sharing of expertise and raising of environmental awareness with the students and staff at Fundy Shores School. For several years the generating station has sponsored an Earth

Day event which includes all students and all staff from the school. It has included contests based on multi-age grouping and has allowed them to work with the students with a community clean-up day on Earth Day.

Not only did the staff from the plant readily join the students picking up the trash from the ditches, but they also engaged in discussions with the students on the environmental impact of litter in the environment. And this impact on the students has been significant in that they realized how the damage can be occurring from littering in the community.

In conjunction with the school, Point Lepreau continues to be involved in the annual marigold planting in the community.

Thirdly, the exchange of information between the Community Relations Liaison Committee and the members of the community. The purpose of this committee is to disseminate to the community accurate and pertinent information regarding Point Lepreau Nuclear Generating Station.

Such information is presented in an orderly and coherent manner with opportunities for questions and feedback. The staff at Point Lepreau are knowledgeable, open and frank in the discussion of any issue, giving full disclosure to the matter as it concerns

the community. Their willingness to take the time and effort to fully explain demonstrates to the committee that they are fully aware of any situation and desire that the community understand the implications fully.

The committee meets once a quarter with special meetings called, if necessary. The committee has recently addressed such topics as the 2017 planned maintenance, safety and regulation update, emergency planning and response teams.

Persons from the community are also able to contact committee members with any questions or concerns that they might have. These questions and concerns can then be addressed at the next committee meeting, or earlier as needed. It is the general belief of the members of the committee that the nuclear generating station is a vital part of our community.

I am no longer an active member of this committee, yet I continue to receive accurate and timely information through the school representative on any matter that is addressed at these meetings.

Lastly, is the information that is provided to the community at large through the information sessions. Point Lepreau Nuclear Generating Station has held information meetings in the local fire halls, in the seniors' hall for the community. These sessions include

visual presentations in the form of large posters and videos. The staff is well represented and professionally discusses the information with the public. The data is presented in a clear, informative manner which is easily understood by the local population. The staff always appreciates feedback and questions to clarify any point.

We recently received our Calendar/Emergency Guide, which is a very informative brochure, which provides a large range of emergency preparedness tips and steps to follow.

Our community also participated in a large-scale emergency exercise in 2015. The school teachers and students participated in the evacuation. Another example of working and partnering with the station to achieve a common goal.

For the aforementioned reasons, I opine that the New Brunswick Nuclear Power -- I'll start over again.

For the aforementioned reasons, I opine that New Brunswick Power nuclear operating licence for the Point Lepreau Nuclear Generating Station should be renewed.

As a retired educator and a member of the community, I suggest it is beneficial to the school, the environment and the community that the plant continues to operate.

Thank you for this opportunity to present my views.

THE PRESIDENT: Thank you.

Questions?

Ms Velshi?

MEMBER VELSHI: Thank you very much for your submission.

I'm especially intrigued by the first point that you make about staff volunteering for the ELF Program, the Elementary Literacy Friends Program. So, how many staff and -- well, first, and for how long has this been going on for?

MS HARDING: There's about six staff come in on Tuesdays and Thursdays and there's about 10 students, I would say, go to the program.

How long has it been going on?

I'm really not aware of that. It's been on for two or three years. Perhaps Kathleen Duguay could answer that more fully.

MR. PLUMMER: Brett Plummer, for the record.

Kathleen Duguay will answer that question.

MS DUGUAY: Kathleen Duguay, for the record.

We've been working for the school now for

many years, but this year we took upon something a little bit different that we brought to the community and we were inspired by the program, and the program is usually an after-school program, but to accommodate the school and in partnership with the school principal, we felt it was really important for the school and we had to do it at lunch hour due to the bus drive and so on.

So, I approached some of my colleagues if we could support that during our lunch hour and also our management at the station. So, for 10 weeks, two times a week, we mentor children, build on their self-esteem and also with the reading program. And it was recognized provincially about three weeks ago, this initiative, which was different, it was innovative and it was fully engaging the students and we received an award.

So, I'm very proud of that initiative, but also the partnership with the school in supporting us and NB Power as a company.

MS VELSHI: Congratulations, and thank you.

THE PRESIDENT: Dr. McEwan?

MEMBER MCEWAN: So, if you don't want to answer this question, please don't.

You're a retired educator and we heard a submission prior to lunch suggesting that the level of

literacy in New Brunswick was low and unhelpful in understanding some of the complexities of the issues we've been discussing. Certainly hadn't been our -- certainly my and I think our perception.

Do you have any views on that? I mean, you've obviously been involved in the education system for some time.

MS HARDING: Anne Harding, for the record.

I would strongly disagree with the presenter before lunch on her views on the education in the Province of New Brunswick.

MEMBER MCEWAN: (off mic)

MS HARDING: Well -- no, I feel that every province in our country is having problems with education. I mean to say, that we are not challenged, educators are not challenged on a daily basis to instruct their students would be a farce, but I think the teachers in New Brunswick are professional and I do believe our students are achieving great strides and I do not agree that we are an illiterate province in any way, shape or form.

THE PRESIDENT: Just to follow up. Outside of school, I mean, I'm talking about the general population here. You're a member of the community.

The notion was that they cannot possibly understand the complexity of the safety case. I think

that's what the intervenor was trying to make.

What's your view on that?

MS HARDING: I'm going to say that -- Anne Harding, for the record.

I'm would say that the majority of people in the Province of New Brunswick can certainly understand the safety record of the Point Lepreau.

I can also say that attending general meetings, any questions are answered thoroughly and until the questioner is completely satisfied.

So, I again would disagree with the statement made this morning.

THE PRESIDENT: Thank you.

MR. FRAPPIER: Gerry Frappier, for the record.

Because we have a great team in Ottawa, we over the lunch break did try to track that down, the Conference Board survey that was referenced by the previous thing.

So, there was a study that was done on adults with inadequate literacy skills, but the -- and New Brunswick was the second lowest, actually it wasn't PEI -- PEI was one of the highest, Newfoundland was the lowest, but the difference between provinces was very, very, very small.

So, certainly even in the Conference Board, while they were suggesting literacy could be improved across Canada, they weren't identifying any group as being particularly marginalized.

And, most importantly, even for New Brunswick or even for Newfoundland, it still compared very favourably to the OECD countries which is the, you know, it's generally viewed as the well-developed countries. So, the literacy rate is better than most there.

So, I'd say -- and we can give you some more on that, if you want, but the quick conclusion would be that the Conference Board study, I would say, does not support what the intervenor was saying.

THE PRESIDENT: But the intervenor also was mentioning grade 4. Has the study actually indicated the level of education as grade 4?

MR. FRAPPIER: They have a bit of a -- it wasn't so clear that it was grade 4. They had a -- what's the level that they could understand, and literacy., and perhaps I should get -- do you have that handy, Lee, or...?

MR. CASTERTON: You have it right there.

THE PRESIDENT: While you're looking, anybody else? Any other questions?

M. Tolgyesi?

MEMBER TOLGYESI: You have this Elementary

Literacy Friends Program. Do you have any yardsticks to measure what's the improvement of those kids and how they are progressing and what the performances are?

MS HARDING: Anne Harding, for the record.

Are you requesting an answer concerning the late immersion, or the early immersion, or...?

MEMBER TOLGYESI: You were talking here, there is Elementary Literacy Friends train grade 2 students who had problems with reading, et cetera. So, my question, is that -- okay, they help, but do you see the progress, do you measure the progress and how you measure that?

MS HARDING: Anne Harding, for the record.

The grade 2 teacher tells me that it has been a great benefit to her students. She has seen them improve in their reading levels.

Children are measured by reading levels constantly and they've seen them come up in their reading levels. Also in their self-esteem.

When we find something difficult to do, we don't want to do it and I think perhaps one of the best markers for the children in reading is that now they want to read, they feel they can read; whereas, before they had the intervention, they were reluctant to do it and would, you know, develop all kinds of strategies to avoid it.

MEMBER TOLGYESI: And you were a member of

this Community Relations Liaison Committee. Do you think there are things -- after your experience, do you think there are things what they could be improved or changed or clarified in the message, or in the way the message is published?

MS HARDING: Anne Harding, for the record.

The Community Relations Liaison Committee, I think the flaw, if there would be a flaw, would lie in the members getting the information out to the community. When I was a member, I would give it to my staff at a staff meeting, I would also send it to the PSSC, which is Parents School Support Committee, as well as the Home and School, and that is still being done. I know the school rep quite well and she is still doing that, she's still presenting that to the school, so the teachers are well informed and they can pass it on to the students.

And I know that if I had people call me, because they knew who were on the committee, and I do believe that the general population of the local community do know who's on -- the fishing man that is on the committee, I taught him, I've had no problem calling him and saying, what's going on? No, I don't have any problem talking to the school rep and I do think that there's a lot of feedback back and forth.

Wayne Pollack, the Fire Chief, is on it

and he certainly lets his members know what's going on.
So, yeah, well done.

MEMBER TOLGYESI: And you spent your life in the school. Did you observe that the kids, when they talk, they talk about the future, or are they interested to work at Point Lepreau or what the parents are doing who are at Point Lepreau?

MS HARDING: Anne Harding, for the record. I can't speak today because the school has gone from a K to 8 school to a K to 5 school, but I do know that when it was a K to 8 school, when I was there, the children in 6, 7 and 8 were definitely interested in careers at Point Lepreau. Many of the parents, brothers, uncles, aunts work there and they'd be interested in what was going on, for sure.

And where it's in the local community and it is a good employer, certainly the grade 8s especially were looking at it and they would discuss it with the staff that would come to the school.

When I was there, we used to have a science club with the Middle School and we had personnel come from the Point, chemists and so on, who would do presentations and it would get the children involved in that sort of thing and certainly sparked an interest in what was going on with radiation, chemistry, things like

that.

So, yes, I -- thank you.

THE PRESIDENT: So, any final thoughts?

Oh, sorry.

MR. FRAPPIER: I did find the quote that was sent to me that I wanted to read.

With respect to, you were asking about the grade 4. Now, it doesn't really talk that way. It says:

"Literacy skills are defined as "the ability to understand, evaluate, use and engage with written text to participate in society, to achieve one's goals and to develop one's knowledge and potential"."

And it was basically rated on a scale from 1 to 5. So, more of that --

THE PRESIDENT: The actual grade was not mentioned anywhere in it?

MR. FRAPPIER: Not that I have right now, but I'd have to get back to you on that. I'm not sure.

THE PRESIDENT: Okay.

You have the final word.

MS HARDING: Thank you.

THE PRESIDENT: The real final word.

--- Laughter / Rires

MS HARDING: Exactly. Anne Harding, for the record.

Thank you so much for waiting for me and thank you for coming to Saint John.

THE PRESIDENT: Thank you.

So, before we start our round of questions, I understand that Point Lepreau want to update us on some commitment you have made.

Please proceed.

MR. PLUMMER: Brett Plummer, for the record.

So, we have some look-ups, some actions we took. One was a question on how many people we have hired recently, and the response is since refurbishment, 2012. The total for all hires is 284 new staff.

Next question was, the Commission requested information pertaining to the hiring practices and whether or not residency was a factor in the hiring. It is not part of the formal hiring process. If all factors were equivalent, then it may be taken into consideration in the hiring process, but it's not part of the formal process.

Another question the Commission had was on percentage of female, women in the workforce at Point Lepreau. In senior management it's 15 per cent;

maintenance is 13 per cent; operations is 13 per cent; engineering is 14 per cent; fuel handling is 2 per cent; chemistry is 50 per cent; projects 18 per cent; supply is 20 per cent; radiation protection and health physics is 45 per cent; work management is 24 per cent; training is 20 per cent; emergency preparedness, ERT and security is 9 per cent; and the other professional groups on site are 30 per cent.

Okay. You also asked a question on how much funding was available for low-level waste and intermediate level waste. Presently there's \$15-million in the decommissioning fund, that's five per cent of the fund, but the fund is currently in surplus position.

You also asked a question on how many people participate in the open houses. I'm going to put this in a little bit of context.

So, the first one we had was at Dipper Harbour and that was the only one planned at the time and we did sit there and we put out news releases, tweets -- which I still don't know what that is -- and we sent out flyers to all the households within a 20-mile zone and the St. George area, and we also covered it in the community newsletter. We only had 10 people.

But based on that and talking to Gordon Dalzell, we realized that we needed to reach out to more

people, so we held an open house in Saint John and we also -- including all those, we also put it out to the local radio station and we had 20 people visit our open house.

And then we made a decision to do it in St. George as well to reach out to those folks and, again, we advertised on radio as well as all the other media mechanisms that I mentioned.

Also we have done one-on-ones with many of the intervenors with subject matter experts. We've done focus groups and we've also done community meetings that you've just heard about from Anne. So that answers that question I believe.

THE PRESIDENT: Thank you. So we're going to start with a round of questions. Okay, Dr. McEwan, you're first on the list here.

MEMBER MCEWAN: Thank you, Mr. President.

I just have one more question on Dr. Nijhawan's submission. Because I know this was addressed in March, and I'd like again just some clarity so that I'm sure I remember correctly and understand correctly.

On page 5 of his submission, in the bottom paragraph, in italics, he's talking about the safety relief valves. I remember we had a very long discussion of the safety relief valves in March. The sense I got at the end

of that was that they did have the capacity to serve their function. Am I correct in remembering that and can you just provide me with a brief overview of why?

MR. FRAPPIER: Gerry Frappier, for the record.

So you're right, that's one of his main concerns, and I think it's one of his fundamental design issues that he sees with respect to the relief valves.

We have had, for several years now, like 10 I think, different discussions on and off about his concerns. We've had independent testing done -- or independent testing was done, rather, with respect to the various valves.

As part of the reviews that were done there, we had requested industry to relook at them, reassess them. After Fukushima, one of the Fukushima action items was again to review the pressure relief valves and to confirm that they were fit for purpose. That has been confirmed and that was part of what the independent review that we had done in support of the March 8th meeting. We had a separate reviewer from the United States take a look at them and, again, that came back saying that they're adequate.

MEMBER MCEWAN: So the one piece I don't remember from March 8th was this redesign in 1995. Could you

just briefly explain that please?

MR. FRAPPIER: I'll give a little bit and then I'll have to ask one of my colleagues to give a bit more detail if you want it. But, yes, in Pickering, I believe it was in Pickering, there was issues around -- the valves, at that time, were a different size and they were causing problems because of a chattering. So it was decided in the 1990s to change the valving size and -- actually, perhaps New Brunswick Power can answer that or Noreddine Mesmous.

MR. PLUMMER: Brett Plummer, for the record.

Paul Thompson will talk to that.

MR. THOMPSON: For the record, my name is Paul Thompson, Senior Strategic Advisor at the Point Lepreau Generating Station.

That is correct, there was an incident at the Pickering Nuclear Generating Station that did result in some water hammer on what they called their bleed condenser valves. So there was an industry-wide study that was done with regards to the performance of these valves under the appropriate conditions.

There was a series of tests done in the United States at the Wyle test labs, and there were some modifications done on the valves. The industry and the

regulator were confident in the design of the valves that were then used.

THE PRESIDENT: Ms Velshi.

MEMBER VELSHI: Thank you. I'll start the questions with Point Lepreau and then get Staff to respond. It's about the term of licence that you have requested of five years. I know in your submission you say you've done that because you want to complete your periodic safety review during that licensing term.

I wondered why you hadn't asked for a term of 10 years, which is now almost the norm with other reactor power plants. I know that on Day 1 we had raised a number of concerns about ongoing work: the environmental risk assessment not being done; the DFO authorization; the offsite emergency plan not being revised, and all those, and very clearly communicated to us that all of those follow a certain cycle and it's a question of timing.

We do know that a licence doesn't mean that you have it forever, it can be revoked at anytime or amended at any time. Given the level of effort that's required you said, you know, two years to prepare for a licence application and the level of effort, and at the end your regulatory oversight report allows for a thorough review; public engagement, participation.

Why did you not ask for a 10-year licence?

MR. NOUWENS: Jason Nouwens, for the record.

While we do feel that the currently regulatory process and the checks and balances that are in place are rigorous and adequate, we do believe that having a period safety review complete would provide a more solid foundation for a 10-year licence renewal.

So our current plan is to carry-on with this five-year licence renewal, complete the periodic safety review, which would include the global assessment report and the integrated implementation plan, and use that as a basis for a 10-year licence renewal in 2022.

MEMBER VELSHI: So with that maybe I'll ask Staff that a little differently. Would not a hold point have worked to say, hey, when you've done that, come back and we'll see? Does that change anything? What would be your thoughts if they had come with a 10-year request?

MR. FRAPPIER: Gerry Frappier, for the record.

The length of the licence is a request that was made by New Brunswick Power. We heard their rationale for it. We certainly have no concern with the idea of a five-year licence. We do like the idea of putting the Periodic Safety Review in. As you know, we're going to be doing that at all the stations.

So with them having come back online 2012, sort of get a Periodic Safety Review done by 2022, certainly fits in with our every 10 years we should be doing a periodic safety review.

So from our perspective, the approach seems sound and we have no concerns about it.

Could there have been other approaches? Perhaps. But we wouldn't be trying to impose another approach, and I think the strategy they have is sound.

THE PRESIDENT: Mr. Tolgyesi.

MEMBER TOLGYESI: This is regarding the thermal plume. NB Power submitted a third-part report which was saying, in conclusion, that it's unlikely a large area of marine habitat would be affected.

Does it mean that it's completed or there are additional investigations needed to confirm the aspects of thermal plume, or it's over?

MR. HICKMAN: Charles Hickman, for the record.

So when we did the initial environmental assessment for the station, it included developing some models for where the thermal plume might be found once the station went into operation. There were studies done by the Bedford Institute of Oceanography, which is part of Environment Canada. Those were done over about a period of

14 years, approximately, in the early 1980s and 1990s.

The methodologies that we used at that time reflected what was available at that time. We recognize that today there's better technology available, both for the modelling and for the monitoring and location of the thermal plume.

So as part of the path going forward for the next risk assessment we will include some additional work on the thermal plume. So it's, going forward, recognizes an opportunity basically validate what we've already done. We're comfortable and confident that the plume, as it is today, is not causing an undue risk. But we do recognize it is an opportunity to do additional monitoring going forward to validate what we already believe.

MR. FRAPPIER: Gerry Frappier, for the record.

So, as mentioned, there is discussion about doing more research, and that's always a good thing. At this point in time we're comfortable that the thermal plume is not having an immediate effect around the station.

But I would ask Mr. Andrew McAllister to provide more details, and then perhaps Environment Canada, since they are here as well.

MR. McALLISTER: Thank you, Mr. Frappier.

Andrew McAllister, Director of the Environmental Risk Assessment Division, for the record.

Yes, just to I guess confirm some of the matters that Mr. Hickman mentioned, is it did submit that third-party -- CNSC Staff did do a technical review of that, and we're in agreement with the conclusions regarding the thermal plume not affecting a large area.

But in sort of a risk assessment context, you know, it's also recognizing opportunities where more precision can be had where additional validation work could be done. Those are the kinds of discussions that we're going to be having with NB Power, as well with Environment and Climate Change Canada through our memorandum of understanding moving forward so that those kinds of aspects can be integrated into the risk assessment moving forward.

But to reiterate, CNSC Staff is of the opinion that the environment's protected from the operations at the Point Lepreau Generating Station.

I will pass it over to my colleague, Nardia Ali.

MS ALI: Nardia Ali, Environment and Climate Change Canada.

So, as Andrew mentioned, we have a memorandum of understanding with the Canadian Nuclear Safety Commission, so they actually seek our input in areas

where we have expertise and areas that fall in Environment Canada's mandate. Thermal effluent is one of those. So we have reviewed all the existing information on the thermal discharge from Point Lepreau.

As CNSC indicated on Point Lepreau, we have not identified any evidence of adverse effects on any of the marine biota due to the thermal discharge. However, we agree that there probably needs to be a little more mapping work done to get some more recent information on the plume. We saw yesterday in the presentation from New Brunswick Power that they're planning to do that.

So we'll be having discussions with the CNSC on Point Lepreau to sort of identify our expectations and the kind of work we think we need.

Thank you.

THE PRESIDENT: So I always ask the same question. When and is the report, by the way the third-party report, is that publicly available? I sound always like a broken record.

MR. PLUMMER: Brett Plummer, for the record.

We have not done the additional validation yet on the new technology on thermal plume. So we haven't done it yet. When? We'll do it probably within the next year.

I want to make it clear, we're doing this voluntarily. We're doing this just because of new technology and, you know, we think it's the right thing to do.

THE PRESIDENT: Sorry, but it does say, "NB Power submitted the thermal assessment conducted by a third-party expert." That's what I'm talking about.

MR. HICKMAN: Charles Hickman, for the record.

At this time, it hasn't been made public in its entirety. We've been having discussions with CNSC Staff. We have a meeting with CNSC Staff in two weeks to discuss the path forward on the thermal plume.

I think it's also worth noting that all the underlying studies that were reviewed prior to third party, they're all federal government studies, they're all available on the web, and they're live studies, they are somewhat dated now, that's part of the reason we'll be revisiting the issue. So those studies are all available on the web today. If people are interested, we can send -- post a summary of thermal plume work as well if you think that would be beneficial. I expect it will come up in discussion over the coming months.

Certainly as you work through the plan with CNSC Staff and Environment and Climate Change Canada

that information will be going public in terms of what we're going to do and how we're going to do it.

THE PRESIDENT: So the point is always the same. If the expert, the third-party expert, comes to the conclusion that there's real significant impact, you'd want it in the public domain not sitting on somebody's shelf. So I assume we're all on the same page. You will update us on the next ROR as to how much progress is being made?

MR. FRAPPIER: Gerry Frappier, for the record.

That's certainly something that is in the annual report every year and will be again this year as to progress in the environmental area.

THE PRESIDENT: Okay. Back to Dr. McEwan.

MEMBER MCEWAN: Thank you, Mr. President.

On page 52 of the MBR Part 1 CMD you talk about the chemistry control program. What you describe is really very very high level. It would be helpful to understand some of the structures you have in place to manage this program, more importantly to do the QA/QC on it so that you have confidence in the data you're getting out.

How often do you have to intervene because there are issues related to uncertain or wrong results, bad results?

MR. PLUMMER: Brett Plummer, for the

record.

Could you tell us what page number? We don't have anybody from chemistry with us.

MEMBER MCEWAN: Page 52 --

MR. PLUMMER: Fifty-two?

MEMBER MCEWAN: -- of the CMD.

MR. PLUMMER: Brett Plummer, for the record.

Could you ask your specific question one more time please?

MEMBER MCEWAN: So in this you basically say it includes the following elements, and then you describe a whole bunch of bullets. What I don't get is the structure that's supporting this and the QA/QC processes that would validate it and support it.

MR. PLUMMER: That would be covered in our management system within our processes under -- you know, basically our QA program is embedded in all our different processes through our management system, and there's actually a matrix that sits there and makes sure that quality's carried all the way through the process of management system.

So in the management system the CSA N286-05 would be embedded right into the processes.

MEMBER MCEWAN: The chemistry process is a

part of the SCA evaluations, aren't they?

MR. FRAPPIER: Gerry Frappier, for the record.

Yes, certainly chemistry control program is an area of keen interest to the regulator and, if you can spare a bit of time, I'll ask Mr. Ram Kameswaran to give a bit of an indication of what we do as far as an oversight on that program. Actually Eric, who is right here, can provide support on that too.

MR. LEMOINE: So my name is Eric Lemoine, I'm the Director of Systems Engineering Division at the CNSC. We definitely do chemistry inspections, chemistry is included as part of the physical design SCA.

Ram Kameswaran is our senior chemistry expert within our division, he's just arrived on the 14th floor in Ottawa. So if you could perhaps repeat the question for Ram because he just arrived, and we'll go from there.

MEMBER MCEWAN: It's just that there's a lot of processes, chemistry is clearly important throughout the plant. It's just how is it evaluated, what is the QA/QC I guess both from the plant's point of view and Staff's point of view, how do we have confidence that this series of bullets is appropriately validated and managed?

MR. KAMESWARAN: This is Ram Kameswaran,

from Systems Engineering Division, I am a chemistry specialist.

The chemistry regulatory oversight strategy from CNSC Staff has evolved over the last 10 years. That is CSA N286.5 or the 12 version that requires the licensees to have a chemistry program. So as a part of the chemistry program we do inspections and also the licensees submit quarterly safety performance indicators. There are two chemistry indices; there is a chemistry index, and there is a chemistry compliance index.

The chemistry compliance index is related to the safety parameters like the gadolinium and the moderator, the cover gas deuterium associated with all the nuclear safety parameters in the chemistry.

Again, we do baseline inspections. In the past licensing period, there have been three chemistry inspections. We do inspect the chemistry, the quality assurance program, and also the licensees have what is called a coaches program, which is organized by the COG owners group where their area standards prepared by a third-party lab and sent out to different licensees, and there is a quality assurance that is intralab -- an intralab blind sampling program, and New Brunswick Power have demonstrated that they have met all the requirements of the quality assurance program.

I think I have answered some of your question and, if you have anymore, I will be able to answer.

MR. PLUMMER: Brett Plummer, for the record.

So what I said before is absolutely correct. I mean, the quality of the chemistry program is embedded in our management system, process and procedures. But maybe a little bit more -- I mean, every system is monitored, every system has a specification. The instrumentation that we use is calibrated for the procedures and it's verified and validated.

If we reach certain action levels the action levels are brought up to the control room and actions are taken. They're very specific on what needs to be done to correct the actual level.

The other thing is the chemists are all trained and qualified to perform their jobs and they're tested for proficiency. So I think a combination of all those aspects ensures that we have quality around our chemistry.

MEMBER MCEWAN: Thank you.

THE PRESIDENT: Ms Velshi.

MEMBER VELSHI: Thank you. A question for Staff on page 3 of your supplementary CMD around

impingement and entrainment. Where you state that you concur with the conclusions that the losses are minimal and they're less than 1 per cent. So a couple of questions around that.

One is at what percentage would it no longer be minimal? The second one is you're doing a comparison for all of New Brunswick as opposed to Bay of Fundy or the Saint John area, and I wondered even if that comparison -- why that? A third part is how's the cooling water intake of Point Lepreau different than say Bruce or Darlington?

MR. FRAPPIER: Gerry Frappier, for the record.

I would ask Mike Rinker to start that, and then he might want to pass it on to some of his staff.

MR. RINKER: Mike Rinker, for the record.

So I'll ask Mr. Andrew McAllister to lead into the more technical questions on the criteria for assessment.

But, in general, I would say the mitigation measures for both impingement and entrainment at the Point Lepreau reactor, despite the fact that they're not new, they're several decades old, are really what we would want in a nuclear power plant. They're far off shore, hundreds of metres off shore.

They're really designed for two reactors. So the intake is about half of what the design is for, so half the water is coming in, and for the water that's going out, the warm water, again hundreds of metres offshore there's a diffuser in place -- there's a velocity cap on the intake to discourage fish and there's a diffuser to diffuse the warm water as well as the dynamic nature.

So as a mitigation measure it is very well designed and so to compare it to, say, Pickering -- you didn't mention that one, but that's sort of the opposite end where it's right at the shoreline where many of the fish would reside, but there are some small differences with Bruce Power, why it's offshore and there are mechanisms to discourage fish intake. They are not exactly the same design.

MR. McALLISTER: Andrew McAllister for the record.

Just to build on Mr. Rinker's comments, an additional mitigation feature at this intake structure is that it's raised specifically to deal with some of the more marine life, lobsters and things like that, to prevent the adults from getting into it, and that has been borne out in the results that we are finding.

We have heard these past few days, especially from the indigenous groups, some species of

concern from them. They have mentioned lobster, they have mentioned scallop, they have mentioned sea urchins. They have mentioned some other species as well, but using those three as examples, the plant's impacts on those are negligible. There have only been a few that have been impinged and/or entrained.

When we are looking at comparing a certain magnitude of loss to something we go to looking at how the fishery itself is managed and looking for surrogates to give us an indication of population level dynamics and things that we can look at, and really, looking at things like quotas for an area or looking at commercial landings for an area gives us a bit of an idea relative to what the actual plant is -- what sort of impact it's having. In this case we went to the values put out by Department of Fisheries and Oceans to provide some comparisons to give that context into the report.

With that, I don't know if my colleague behind me, Dr. Ducros, has a bit more to add with respect to the fisheries-related aspects.

DR. DUCROS: Dr. Caroline Ducros for the record.

In terms of the management of the fishery we have DFO ready to answer any -- they are ready to be called if you want more input on that, but I don't have

anything to add other than the fact that under the NSCA we do our revisions based on the effects, in terms of is there an effect at the population level. So basically, I just confirm what Mr. McAllister has just said.

MEMBER VELSHI: Thank you.

So at what percentage would you think this is no longer minimal? Like is it 2 percent, 5 percent?

MR. McALLISTER: Andrew McAllister for the record.

The science that we have looked at around talking about population level science and in discussions with our colleagues at Fisheries and Oceans Canada, oftentimes values that are used are between 10 and 20 percent. Now, 10 and 20 percent of, the "of" needs to be defined, certainly, but that is certainly kind of the -- I will call it the range that has been looked at in the past.

MR. RINKER: Yes. Mike Rinker for the record.

The difficulty in answering this question, the analogy would be dose to public. Our regulatory limit is 1 mSv per annum. We know below that, the public is protected. And if you ask, so what is the level at which effects start to occur, it's a harder question and that's why we know the criteria we use, if you are below that, the fish population is protected.

THE PRESIDENT: We already got a commitment that you will update us on the status of the negotiation with DFO somewhere in the next regulatory report, because at the end of the day it's the authorization from DFO that will, if you like, accept the process as it is now, right. So why don't we defer this action to that time. But it will be interesting to see where there is a percentage of the population, if somebody can calculate that, beyond which it will -- remember at one time the Act says you kill one fish, one fish can shut you down. I think they are coming into something a little bit more reasonable, so let's wait to see what the result of this assessment will lead to.

DR. DUCROS: Dr. Caroline Ducros for the record.

I just want to put a bit of clarity around this. So under the NSCA we are looking at the effects to the environment and we won't recommend that a licence be issued that unless we are confident that the environment is protected.

So going back to what you said in terms of our discussions with DFO, the environment is protected under many different acts of Parliament and under different provincial and municipal acts. DFO is the prime -- has the prime mandate for the protection of fish and under the

Fisheries Act, serious harm to fish is a different definition, it is not a population level effect. So when we are reviewing NB Power's submission about whether or not they need a *Fisheries Act* authorization, we are looking at the DFO *Fisheries Act* definition of serious harm to fish, which is the death of fish, and whether or not an authorization is required is DFO's decision. But it may be a much lower threshold than under the NSCA.

So the other point about the *Fisheries Act* authorization is if one is required, they require offsets, but the offset is offsetting the residual harm. So first we want to avoid, and Mr. Rinker and Mr. McAllister talked about some of the mitigation that's in place at the facility right now. I mean look at the mitigation measures, we look at reducing effects and then there is a residual harm. If there is a residual harm that is deemed serious harm and requires an authorization, the offsets will be put in place and they have to counterbalance that level of residual harm.

THE PRESIDENT: Monsieur Tolgyesi...?

MEMBER TOLGYESI: There are different environmental monitoring programs and samplings. Like there is CNSC's Independent Environmental Monitoring Program. There is a Health Canada gentlemen who was there yesterday, he was saying that they are doing a sampling, a

food sampling, samplings where they include vegetables. There is NB Power, who is doing a sampling.

My question is: Could they be extended in a way that they will include also native food sources and then compiled and merged together so the public will have a one-stop access to all water, soil, air and foodstuff data, so to be compiled in one access?

MR. HICKMAN: Charles Hickman for the record.

I suspect that other departments may wish to speak as well, but from the point of view of NB Power's monitoring programs, as we have indicated during these proceedings, we will work with the First Nations to find ways that we can work together to understand and walk down that path together, to understand and develop a better and more competent program that meets their needs and actually helps build some trust and relationships. We think we have a good start but we have a ways to go down that journey. We will go down that journey.

In terms of making the information available, our data is available, it is published on the website, so it is an available document on the Web.

In terms of whether it should be done in conjunction with monitoring results from other departments, that's certainly something we could discuss. I would note

that the staff's Independent Environmental Monitoring Program is independent because you are the regulator, staff are the regulator, and I suspect you would want to keep it independent, but your comment about the Health Canada work, that might be worth further consideration.

MEMBER TOLGYESI: There could be maybe a mention that there is a direct link, if you want to see CNSC Independent Monitoring Program results, click here, which will facilitate -- you know, you will not have to start your own.

MR. HICKMAN: Any suggestions are definitely worth consideration. We will have a look at that as we go forward. That is a good suggestion, thank you.

MR. FRAPPIER: Gerry Frappier for the record.

So certainly, as you mentioned, there are several different looks to the environment and ensuring no environmental effect and how that data can all be put together is -- as it grows more and more, I think we are all committed to open government, as the President mentioned, and getting it on the website. But I would ask Kiza Sauvé to give perhaps some more details, please.

MS SAUVÉ: Kiza Sauvé for the record. I am the Director of the Environmental Compliance and

Laboratory Services Division.

So I am going to cover three areas. One is kind of the monitoring data that is available, speaking with aboriginal groups as well as open government.

So with data available out there, we have talked about the Health Canada data that is available, we know that licensees have data and we are doing our Independent Environmental Monitoring Program. I have a project ongoing right now where we are trying to update our CNSC website so when you click on let's say the Point Lepreau page to see the data, there will be links that will bring you to all the other data available.

I will move to the open government. Right now we are getting our links -- or all of our data available so people can click on one link and they can get everything in an Excel file where they could then manipulate that data. A future project coming with government is a way that our map, you would be able to click on other government data and superimpose that on the maps, you would have different data available.

When it comes to the aboriginal groups, before we do sampling programs we reach out to aboriginal groups and we say, you know, talk to us, tell us what you would like us to be sampling. And we have discussions about what we can do, what we have capacity at the lab to

do, whether we need to contract out to another lab if our lab doesn't have that current methodology, and we are trying to work with groups to make sure that we are sampling something that makes sense to them. So we have done that with other groups around other facilities and we have had some discussions with aboriginal groups around the Point Lepreau facility as well.

MEMBER TOLGYESI: Is there a kind of timeframe that you are expecting that it will be done?

MS SAUVÉ: Kiza Sauvé for the record.

The update to the CNSC IEMP pages is planned by the end of the summer. So we will have all those links available. By the end of the summer is our current goal. And then with the aboriginal groups it's on a sampling case-by-case basis, is when they would like to talk to us. So each sampling trip we try to incorporate that as we can.

MEMBER TOLGYESI: NB Power, do you have any timeframe also in your mind, what you were talking about discussing maybe with natives and eventually develop something?

MR. HICKMAN: Charles Hickman for the record.

As Mr. Plummer indicated earlier, we will be working with the First Nations. We don't have a

timeline at this moment, but it's an on -- we have monthly meetings with both the Maliseet and Mi'kmaq groups and so this will be brought up at those meetings. We understand they have a lot of things going on, there's a lot of projects that they are looking at, so we will work with them in a timeframe that works for them.

THE PRESIDENT: While I have the Independent Environmental Monitoring Program table on page 6 of the supplementary, so first are the complements on all the data here. I don't remember seeing zucchini and lettuce and lichen kind of in the thing, so that's good. My question is, in HA, what is the colour code here? Is there a colour code?

MS SAUVÉ: Kiza Sauvé for the record. Well, you will see beets are red because beets are red. --- Laughter / Rires

THE PRESIDENT: Thank you for that.

MS SAUVÉ: So there is no colour code.

THE PRESIDENT: So is that what it means, solid ground, is that what it is? It would have been nice for somebody like me to have a little code here. So there are different shades of grey, depending on which --

MS SAUVÉ: Kiza Sauvé for the record.

So when we present it in the EA reports we try to make it colourful, but when it's on our website with

there is no colour coding. I mean the icons -- it has specific icons on the website, but when it's in the EA report it's at the mercy of the person making the report.

THE PRESIDENT: Okay. Thanks for that.

Okay, we are back to Dr. McEwan.

MEMBER MCEWAN: So we have discussed this before, but a presentational issue in staff's slide deck 30 and 31, slides 30 and 31, and it is just the way in which the data are presented. You have on Slide 30 becquerels per year for the total releases and derived release limit. You then have the derived release -- the action level is 1 percent of the weekly DRL and in 31 it's 1 percent of the monthly DRL. For those of us arithmetically challenged it takes time to do the calculations. It would be very helpful to maybe just widen it a little bit and have a little consistency and some linkages between the monthly, weekly and yearly.

THE PRESIDENT: No, but I think they are different action levels.

MEMBER MCEWAN: No, I understand they are different action levels, but you give a monthly DRL and you give a yearly DRL and I think at our last meeting we found some calculation problems between the two. It would just be helpful to maybe have some linkage between them. It would certainly help me understand them.

MR. RINKER: Mike Rinker for the record.

So we did double-check our math this time and we were trying to differentiate in this case the difference between airborne releases and waterborne releases which have a different temporal trend, but maybe some more descriptive around that, an additional slide that would say airborne releases have weekly action levels, whereas waterborne -- and explain why.

THE PRESIDENT: I think just the fact that the monthly is divide by 12, just as simple as that. Because last time it wasn't -- the math was off, so we didn't know how it came about.

MR. RINKER: Mike Rinker for the record.

And just for clarity, it's 1 percent after divided by 12. So it is divided by 12 divided by 100.

THE PRESIDENT: We are quite capable of seeing a formula, so you can actually -- you can put a little formula in there and the derivation.

MEMBER MCEWAN: I can't remember if we asked this at Part 1, but in the New Brunswick Power CMD page 56 there is a collective dose to workers table, table 3. Why is 2014 so different to 2013 and 2015 in terms of maximum individual dose, in terms of total collective effective dose, external dose, in person millisieverts, internal dose? Because that was well after your reopening.

MR. PLUMMER: Brett Plummer for the record. Paul Thompson will answer that question for you.

MR. THOMPSON: For the record, Paul Thompson, Senior Strategic Advisor.

My recollection for this is that there are different activities that are done each year, in particular during the annual outage. The activities in the 2014 annual outage involved more work that was of higher dose. So in particular it did involve some fuel channel scrape activities and some activities in the vault, which would result in the different levels.

MEMBER MCEWAN: So again, I think it would be helpful to have some text as we read it just so that it doesn't leap out and strike us.

MR. THOMPSON: I think that's a very good point, thank you. We will take that under advisement.

THE PRESIDENT: Ms Velshi...?

MEMBER VELSHI: A question for staff. Over the last few hearings certainly we have heard a number of intervenors express concern about the difficulty of getting information and particularly information referred to in CMDs. I know there have been commitments made to share information from this particular process, from this hearing, but I wondered if you had a chance to reflect on how can we make it easier for members of the public,

interested members of the public to get information readily and what more can you do to publicize how they can get that readily?

MR. FRAPPIER: Gerry Frappier for the record.

Perhaps I will ask Mr. Jammal to add to it, but right now we have been very clear that everything referenced in the CMD is available and can be made public unless there is a reason it cannot, which typically is around security issues or sometimes with respect to third-party interests.

I think one of the things that we are seeing, which I think is a good thing, is that a lot of intervenors over the past few years are going deeper and deeper into the sort of documentation, into the rationales, into the technical reasons for things being deemed okay or not okay as the case might be. So that has been a little bit challenging to us because some of them were not as -- I was going to say ready, but it's just it was unusual to get the request and I think some people make requests and perhaps don't realize that we are about to send them 1,000 pages or something like that. So that has been a little bit of a back and forth.

But we have been very clear over the past couple of years that things -- which I would say is

different than it was five or six years ago, which is that the documents referenced in CMDs will in general be made available to people who are requesting it.

MEMBER VELSHI: Before Mr. Jamaal adds to it, my comment on that is we have heard a number of intervenors saying, well, we went to the applicant to get that information and didn't, were not aware that they could have come to the CNSC and get that. So is that -- you know, when you post, is that clear on the website? If someone comes for participant funding, is that made very clear to them that, you know, it may be just easier to get the information from us?

MR. FRAPPIER: Gerry Frappier for the record.

I think that's a good point as to how explicit are we being to people who may be interested that information is available through us and I'm not sure, I don't have -- I think we should take that as something we should look at too to make better, but perhaps Mr. Jammal would like to add.

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

I fully agree with your comment on how do we advertise. If you look at our supplemental CMD, at this supplemental CMD, there is a phrase we just added and we

are going to add for every executive summary of our CMDs to state "Referenced documents in this CMD" -- in this case it was a supplemental CMD -- "are available to the public upon request." So this is now the first advertising, explicit comment in the CMD. For the first time we are doing it. It's no longer a policy that we apply.

And your comment with respect to request of information under PFP, we are reviewing that process to make sure that we follow up with the requester to make sure that they have the information they were requesting so we don't run into the other problems.

In addition to this, as lessons learned from the other licensing hearing where intervenors said they had no access, for example the Environmental Risk Assessment, we are amending our regulatory document of proactive disclosure that it's really clear to the licensee that they will post on their website the ERA and so on and so forth. So it's an ongoing process but explicit. We are starting with every executive summary in every CMD that everything referenced in this CMD is publicly available.

MEMBER VELSHI: Excellent. Thank you.

THE PRESIDENT: Mr. Tolgyesi...? Dr. McEwan...? Ms Velshi...?

MEMBER VELSHI: My last question, and it's a small one. It was around equipment reliability and we

heard a few times about that being a big challenge with an aging facility. What are your performance measures -- maybe you can elaborate on that -- besides your maintenance backlogs, that you use to see how well your equipment is doing? I'm looking at the more lower tier measures that you use.

MR. PLUMMER: Brett Plummer for the record.

There are multiple indicators we use for looking for equipment reliability. We look at everywhere from the operators doing condition monitoring in the field and the logs associated with any kind of adverse trend. We have our system engineers walk down their systems on a regular basis as part of their system health reports, part of our process, and they also report out in a plant health committee anything they have seen, any degradation and basically advocate for their system and what they need to sit there and make improvements.

But probably the one the station is focused on the most is Equipment Reliability Index. It is an internationally known index. Some people call it the Quality of Life Index because the better it gets, the better the quality of life does at the station. But it's a composite index, it has multiple indicators and it looks at everything from operations, it has -- let me back up. It

has lagging indicators where it looks at your capacity factor and force loss rate over a rolling average so it's sustainable, but then it also has leading indicators and it looks at operations, maintenance, backlog, modifications to the plant and the backlog of modifications to the plant. So it goes through the whole gamut, system health reports, PMs that are deferred. It goes through the whole gamut of everything that goes into maintaining the facility in a healthy state.

So we are using that ERI to improve our performance. So we rolled that out this year and we have improved somewhere in the order of -- out of a scale from 0 to 100, we were at 62, our goal was to get to 75, we achieved 80 this year and this last month was 81. Our goal this year will be 85 and the next is 90. Typically the industry best quartile in Canada is around 85, but we want to get to 95 or better.

MEMBER VELSHI: Thank you.

And staff, is this something that -- because I don't remember seeing this in the RORs -- so is this something you would consider including? Because I think that will be a very good measure to look at.

MR. FRAPPIER: Gerry Frappier for the record.

So certainly, industry, the licensee is

far more interested than we are because it has big operational circumstances for them and so we know they are doing everything they can with respect to ensuring maintenance.

Having said that, we are very interested in it for two reasons.

One is with respect to equipment that we believe is -- or that is important to safety and so we want to ensure that the reliability of that, those systems are as required. So we are definitely following that very closely.

Secondly, as an overall indication of the quality of management of the Point Lepreau Generating Station, we are very interested in some of the higher level maintenance indicators. We do have them reported to us as a requirement under REGDOC-3.1.1 and we are reviewing those.

You will remember even in Part 1 we were discussing that. In our assessment that we had done over the past couple of years we did not believe that they had a good enough system health monitoring system. It's one of the things that was identified and I think we even talked about it over the past three days.

We have seen some real improvements in that area. As New Brunswick Power has just mentioned, they

are now moving into where we would like them to be as far as having a program and monitoring capability that we would like to see. But we are looking at it more from a global perspective that way and ensuring that we have indicators of a well-managed plant.

MEMBER VELSHI: So you skirted my question on -- well, maybe you thought you answered it -- on whether you would consider incorporating it in the ROR. And I know that you see this more, you know, from an operations perspective, but I suspect it's a good indicator on how well they are managing their asset.

THE PRESIDENT: Let me piggyback on that question because we have already had a little conversation. We have something like, I don't remember the number, 25 or 30 SPIs --

MR. FRAPPIER: Thirty-seven.

MR. JAMMAL: Thirty-seven.

THE PRESIDENT: -- 37 SPIs. Some of them would be of interest to the public. I don't know why we do not -- I'm not saying all 37 all the time, but you should select those that would be of public interest that we can actually include in the ROR.

MR. FRAPPIER: Gerry Frappier for the record.

Sorry, I did miss that part. So we do

have a section in the ROR for sure that's on maintenance. I don't think we have what the President was suggesting, which is a complete list of the 37 SPIs, and maybe we should be looking at pulling out of there some of the ones that can be trended, which would give people an indication of improvements or whatever the trend might be. Maintenance would be one of those, I would suggest, that we would -- and we do on a -- we do report in with respect to how well they are doing, but maybe we should be looking at whether we can do that in a more satisfying way to the Commission, if you like, but it definitely will be in the ROR section on maintenance.

MEMBER MCEWAN: Could I piggyback on that as well?

THE PRESIDENT: Go ahead.

MEMBER MCEWAN: So we discussed this earlier, the maintenance rating below expectations. So the maintenance rating is part of what, two, four, six elements of the fitness for service. At what stage does an individual rating that is below satisfactory or unsatisfactory begin to lead -- I know it's a complex equation -- begin to lead to some risk to the overall fitness for service SCA?

MR. FRAPPIER: Gerry Frappier for the record. I will ask Mr. Ben Poulet to comment on that.

MR. POULET: Thank you, Mr. Frappier. Ben Poulet for the record.

We discussed this earlier in this hearing specifically regarding some of the indicators that are reported to the Commission through the Safety Performance Indicator Program that Mr. Frappier just referred to. The below expectations rating that you are mentioning was based on the program oversight, the process of system health monitoring. It was the oversight, the process that was deficient. So the result is that the program could not be confirmed to be effective.

Now, CNSC staff doesn't stop there. We took the elements of the program it's supposed to oversee and we confirmed that the safety functions, all the safety-related equipment was actually available and ready for its safety functions. We confirmed that the mechanisms were in place and they were working. It's just the overall arcing process in the station wasn't -- we couldn't confirm that it was adequate. So we asked NB Power to look at that program and make sure that from top to bottom it was linked and could be confirmed to yield proper results. But we did follow up on that to ensure that safety functions were maintained at the equipment level. Thank you.

MR. FRAPPIER: Gerry Frappier.

Just to add to. As you were saying as

to -- so, as Mr. Poulet mentioned, within the maintenance area there are several areas that we are looking at with respect to determining our rating system. That then gets put together with other areas to come up with the overall safety control area rating for fitness for service, and there are various weightings to those things and in particular with respect to the safety significance of any finding that we might have.

But I think you also have to realize that while maintenance is critical and I don't want to minimize it by any means, fitness for service also includes where are we with pressure tubes, where are we with steam generators, feeders, and those from our perspective have a very big impact, a bigger impact, if you like, with respect to the overall rating for the safety control area. So we wouldn't want to be coming forward to yourselves and indicating we think there is a huge problem when in fact some of the major components for -- that are necessary to ensure safety are in excellent condition sort of thing.

MEMBER MCEWAN: Thank you.

THE PRESIDENT: Ms Velshi still? Monsieur Tolgyesi?

So I have two quickies here. The first one is dealing with the decommissioning causes. We have heard a lot about the preliminary decommissioning plan and

what does it mean and how it relates to the financial. I think -- and remind me again, how much of the existing decommissioning plan is public? How much of it is public?

MR. FRAPPIER: Gerry Frappier for the record. I would ask Karine Glenn to comment on that, please.

MS GLENN: Karine Glenn for the record. I am the Director of the Waste and Decommissioning Division at the CNSC.

So the preliminary decommissioning plan comes as one document. The front half of that document explains the strategies selected, the timelines, the end state and the planning assumptions in terms of time, and that part of the document could be made public. The part that is proprietary relates to the cost estimates and it's proprietary because the methodology used by the third party is proprietary to that consultant.

Also, it could pose an injury to New Brunswick Power from a commercial point of view in the future when they do go out and hire consultants to conduct that decommissioning. But the total amounts and the summary which are found in the front part of the preliminary decommissioning plan could be made public.

We are working with many of the proponents and the licensees to make those documents public. For

instance, Ontario Power Generation needs to have their financial guarantee re-approved as per the standard five-year process and they will be posting that front part of their preliminary decommissioning plans for all of the nuclear installations.

THE PRESIDENT: I think it's a good idea that we should find a way to actually -- I love your Slide 28 on decommissioning and it shows, you know, the various stages. And what people don't understand, these are plans that will change and they are designed just for coming up with some bottom-line cash on the table that's available no matter what.

But there should be a discussion about, okay, so what happens if their assumption changes. So you want to make sure that you are planning for the most -- I always like to use -- I don't want to use doomsday scenario in this case, but a situation where all the planned wish list does not materialize, so what does that result in terms of cost.

I think that we put too much mystery behind this. We have to find a way of actually putting it on the table. I'm using not necessarily Point Lepreau, but for all facilities, and not even NPP, all facilities there should be some public articulation of the assumptions. So I will get your reaction and maybe Point Lepreau's

reaction.

MR. FRAPPIER: Gerry Frappier for the record and then I will ask Karine to update.

But certainly I take your point, these are long timeframes, lots of things can happen, the world is definitely going to be different and that is one of the reasons why there is a requirement for updates though. So there is a look at that portion --

THE PRESIDENT: (Off microphone).

MR. FRAPPIER: So that's the first step. So there are updates but, as you mentioned, it is for us if you like.

And as far as the whole dynamic associated with trying to make more information public, I think, as Karine mentioned, we have gotten that message, OPG has gotten that message, I'm sure we will be delivering that message to New Brunswick Power as well, but perhaps Karine might want to add to that.

MS GLENN: Karine Glenn for the record.

As Mr. Frappier mentioned, we do require that the licensees at a minimum update their preliminary decommissioning plan and cost estimates every five years to ensure that they do reflect the situation of the plan and the total amount of waste that could be generated in the lifecycle of the facility.

In addition, depending at what phase the installation is in, there is quite a large contingency in the case of the Point Lepreau decommissioning plan. There is a 20-percent contingency that is applied to the cost estimates and as you get closer to the actual decommissioning phase of the installation, that contingency reduces because you get a more precise cost estimate and you are getting closer to that actual decommissioning.

So that all follows the guidance that is provided in the CNSC Regulatory Guide G-219 and the CSA -- and G-206, pardon me. G-206 is the one that deals particularly with financial guarantees, whereas G-219 is the guide that deals with decommissioning planning. Both those guides will be going under revision in the next year or two and we will definitely take into consideration, Mr. Binder, your request and what we have heard from the intervenors with respect to making more information available to the public.

THE PRESIDENT: Point Lepreau...?

MR. HICKMAN: Charles Hickman for the record.

Just two items I think could be useful.

So our decommissioning plan was made public as part of a provincial economic review under the Energy Utilities Board hearings that we have gone through

recently. So the plan was made public through that process.

Sir, we do hear very clearly your message that it would be useful to put at least some of your information available on our site, because it was made available through the Energy Utilities Board website. But we hear you loud and clear and it is a public document in that sense.

THE PRESIDENT: If I heard you correctly, I hope that there are updates in public documentation or at least a summary is not going to take one or two more years to produce because there are going to be some pretty important hearings coming and regulatory oversight coming and I think this is a recurring kind of a theme. I think if the Minister of Finance can predict the budget every year, I think we should be able to come up with some reasonable prediction every five years.

MR. FRAPPIER: Gerry Frappier for the record.

I will ask Karine to give specific dates, but as Karine mentioned, OPG is in the process of doing that, which would be of course important ahead of the relicensing at Pickering and I'm not sure with respect to Bruce. Karine, maybe you could comment.

MS GLENN: Karine Glenn for the record.

In addition to the provision to the preliminary decommissioning plans and financial guarantees every five years, the major licensees are also required to give a yearly update on the performance of their funds that they have to ensure that they continue to be sufficient to cover the cost estimates of the financial -- of the decommissioning plan. So at all times CNSC staff verify and report on an annual basis as part of the ROR on the value of those funds or the performance of those funds to ensure that they continue to be sufficient.

And it's really important to note that that five-year review cycle is really the minimum. Should there be a change in the operation, like for instance, you know, Point Lepreau build a second reactor or if they were to, as G-2 did, shut down unexpectedly, those estimates get revised to reflect the reality of the operations.

THE PRESIDENT: Thank you.

My last kind of comment is again a plea.

So on Slide 22, it talks about probabilistic safety assessment. The next PSA update is April 2022. So you know that we have always advocated that you know when the next -- if the Commission approved this licence request, the next licence hearing will be on June 30, 2022, and really people should start planning all the information that you will need to present in the next

licensing session. Don't wait until the last minute and say, oh, give us a licence and we will do some more work after you give us the licence.

So this is the staff. If you are going to produce the next PSA in April 2022, you are not going to be ready to share it with the Commission on June 30th. This is really -- you have to get the timing. We should not get mesmerized by some fixed date rather than what makes sense to be ready for the next hearing, if I'm making sense.

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

We get your message and we do understand it. And I will just make one comment. Like for the probabilistic safety review that we plan on having done in five years, that is already being done. There is already a project, project manager, funding and it is well underway. So we understand your message.

THE PRESIDENT: Thank you.

Anything else?

So believe it or not this concludes -- oh, sorry. You're right, I always give you the last word here.

So before I give you the last word, any last word from staff?

MR. FRAPPIER: Gerry Frappier for the record. No, we are ready to call it quits.

--- Laughter / Rires

THE PRESIDENT: Okay. Point Lepreau?

MR. PLUMMER: Brett Plummer for the record. I will try to make it short.

I want to thank President Binder and the Members of the Commission for coming to Saint John and conducting an open relicensing hearing. We have listened to seek understanding for many views presented by all the intervenors. We appreciate the public hearing process and we believe the process will reinforce the safe operation of Point Lepreau.

We would like to thank the following people: Louise Levert and Johanne Villeneuve and their logistics team for organizing the proceedings; the City of Saint John for hosting the hearing; and the Delta Hotel Marriott Saint John for their hospitality; and also the security force outside the door for making sure these hearings were conducted in a safe environment.

Based on the many interventions, we hope the Commission leaves with the following impressions of Point Lepreau and the employees.

Nuclear, radiological, environmental, fire and conventional safety is our core business. It's in our DNA and the employees at Point Lepreau live and breathe it every day. And I think you know those awards, but I think

you, through the interventions, I think you realize that we truly practise that. We work hard to maintain our social licence and associated responsibilities to our stakeholders, First Nations, our community in the Province of New Brunswick.

Even as a single unit utility, in many cases we have led the industry globally in technological advances and in many cases we are ahead of our time. We are a learning organization that is on a journey to excellence. Not just words, we listen and understand every intervention. We look hard at what we could learn and do better going forward.

Point Lepreau's safety culture is a collection of the behaviours of the employees at Point Lepreau. There is a tremendous amount of pride to work at Point Lepreau and we understand and take ownership of the preservation of the Point Lepreau asset. Point Lepreau is the people that work at Point Lepreau.

A few areas we will pay particular focus on, things we learned coming out of this relicensing hearing -- and we have learned a lot, but there are a few in particular.

Point Lepreau will continue to build and work on what NB Power has done to date on strengthening the respect and trust with the First Nations. We will reach

out and look and see where we can educate, whether it be in elementary school or secondary education, to try to have people better understand what nuclear power is and the benefits of nuclear power, to try to eliminate some of that fear.

We will look at broadening our reach with information sharing to the public on emergency preparedness and the status of Point Lepreau, and we will do it on a periodicity that isn't just tied to licence renewal. So we may get into some of that Tweet stuff and that media stuff --

--- Laughter / Rires

MR. PLUMMER: -- I'm not sure, but we have an excellent communications department, we will figure it out.

In conclusion, I would like to acknowledge the hard work of the Point Lepreau team in preparing for this relicensing process. We are a qualified and proficient group of nuclear professionals that request a licence for five years to continue to operate the nuclear power plant at Point Lepreau.

THE PRESIDENT: Thank you.

And I would also like to thank all the intervenors, CNSC staff, some of the departments from the federal government: NRCan, Environment Canada and Climate

Change, Fisheries and Oceans, and Health Canada. And I'm sure I'm missing some other people. And the provincial intervenors. So thank you all for the three days of support here and for your patience. So safe trip home. Thank you.

MR. LEBLANC: So this brings to a close the public hearing.

With respect to this matter, the Commission will confer with regards to the information that it has considered these past days and then determine if further information is needed or if the Commission is ready to proceed with a decision.

Akin to the President and Mr. Plummer, I also have some thanks to convey to all participants, the technical crew in terms of audiovisual, webcast facilities, coordination with the teleconferences, the security team, multifaceted, the interpreters to have to keep up for those three days and with technical information, the staff here and in Ottawa, as well as the other departments, federal and provincial for their inputs, and the security staff for their coordination of these proceedings.

And on the decision, a decision is due before June 30th, so we will advise accordingly. Thank you.

--- Whereupon the hearing concluded at 3:13 p.m. /

L'audience publique se termine à 15 h 13