

**Canadian Nuclear  
Safety Commission**

**Commission canadienne de  
sûreté nucléaire**

**Public hearing**

**Audience publique**

**March 3<sup>rd</sup>, 2020**

**Le 3 mars 2020**

**Casa Do Alentejo  
Community Centre  
1130 Dupont Street  
Toronto, Ontario**

**Centre Communautaire  
Casa Do Alentejo  
1130, rue Dupont  
Toronto (Ontario)**

**Commission Members present**

**Commissaires présents**

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Dr. Sandor Demeter  
Dr. Timothy Berube  
Dr. Marcel Lacroix  
Dr. Stephen McKinnon**

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D<sup>r</sup> Sandor Demeter  
M. Timothy Berube  
M. Marcel Lacroix  
M. Stephen McKinnon**

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**Mr. Marc Leblanc**

**M<sup>e</sup> Marc Leblanc**

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**Ms. Lisa Thiele**

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Toronto, Ontario / Toronto (Ontario)

--- Upon commencing on Tuesday, March 3, 2020  
at 8:30 a.m. / L'audience débute le  
mardi 3 mars 2020 à 8 h 30

**Opening Remarks**

**THE PRESIDENT:** Good morning and welcome to the continuation of the public hearing -- can you hear me?

--- Technical difficulties / Difficultés techniques

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

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

I would like to begin by recognizing that the land we are gathered on is the traditional territory of many nations, including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples, and is now home to many diverse First Nations, Inuit and Métis peoples. We also acknowledge that Toronto

is covered by Treaty 13 with the Mississaugas of the Credit.

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 extreme right is Dr. Sandor Demeter; to my left are Dr. Stephen McKinnon, Dr. Marcel Lacroix and Dr. Timothy Berube.

Ms Lisa Thiele, Senior General Counsel to the Commission, and Mr. Marc Leblanc, Secretary of the Commission, are also joining us on the podium today.

I would also like to make some further introductory remarks that I made yesterday for those who were not here yesterday.

I wish to emphasize that the Commission is a quasi-judicial administrative tribunal and that consequently it is independent from any political, governmental or private sector or industry influence. In fact, each Commission Member is independent of one another and also independent of the CNSC staff.

Submissions filed for this hearing include recommendations to the Commission. CNSC staff also make recommendations to the Commission, but it is the Commission

Members who will render a decision based on all the evidence presented in the context of the hearing process.

The Commission Members are appointed by the Governor in Council on the basis of their achievements in their respective fields of endeavour as well as their excellent reputation amongst their peers.

Our mandate is simple: ensure that the use of nuclear is done in a manner that protects the environment as well as the health, safety and security of the workers and the public.

I would also like to emphasize that the CNSC has no economic mandate and will not base its decision on the economic impact of a facility. The mandate of the Commission also does not include a requirement that licensed activities have community support, local buy-in, social licence or social acceptability.

While it can be understandable that certain intervenors would seek to require social licence from the companies who wish to operate in their communities, the Commission is not mandated to adjudicate social licence considerations. It is solely the health, safety and security of the public and the workers and the protection of the environment that guides the Commission's

decisions.

Finally, as I stated earlier, the Commission is an administrative tribunal. We are pleased to conduct this hearing in the communities that host the facilities where we can hear firsthand the views and submissions by members of the public and interested persons and probe the issues on the matters we must decide.

The Commission means to conduct a fair, efficient and transparent hearing. To achieve this and in order to hear from everyone who wishes to be heard and to address the issues the Commission must consider, the Commission will insist on a respectful process. As President of the Commission, I want to set the tone from the outset so that we can all be assured of this.

The Commission will treat all participants with respect and courtesy and expects the same from all hearing participants toward all other participants. Please respect the order of proceedings and the importance of one person speaking at a time. I will expect participants to address their questions and comments through me and not to address each other.

There is much ground to cover and the Commission will not tolerate clapping, disparaging personal

remarks, disruptive or disrespectful behaviour. The Commission will take the measures it considers necessary to maintain order during the hearing, including limiting the participation of or ejecting from the hearing room any person who disrupts the hearing.

The code of conduct for attendance at Commission proceedings is posted and provides clarity on how we will all conduct ourselves. The important issues that have brought us all here will be best able to be fully addressed through an orderly and respectful hearing process.

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

Marc...?

**MR. LEBLANC:** Thank you, Madame la Présidente.

Bonjour, Mesdames et Messieurs. Welcome to the continuation of the public hearing on the application by BWXT Nuclear Energy Canada Inc. for the renewal of the licence for the Toronto and Peterborough facilities.

During today's business we have simultaneous interpretation. The English version is on

channel 1; la version française est au poste 2.

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.

The transcripts should be available on our website in about two weeks.

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

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

Yesterday we heard the presentations by BWXT, CNSC staff and several intervenors.

We also went through all of the written submissions that had been filed by the public.

Seventeen intervenors are scheduled to present orally today. Ten minutes are allowed 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 and will indicate when the time is up.

The break for lunch is anticipated to be around 12:30 today.

There are also emergency exits at those two corners, as well as the bathroom outside of this room.

So, Madame la Présidente, back to you.

**THE PRESIDENT:** The first presentation today is by Ms Marit Stiles, MPP for Davenport, as outlined in CMD 20-H2.191.

Ms Stiles, the floor is yours.

**CMD 20-H2.191**

**Oral presentation by**

**Marit Stiles, MPP, Davenport**

**MS STILES:** Thank you, President Velshi, Commissioners, and fellow community members. I want to start by thanking you all for the opportunity to present here today.

As mentioned, my name is Marit Stiles and

I am the Member of Provincial Parliament for the riding of Davenport. I am a member of the official opposition in the Ontario Legislature and proud of having lived in the riding for many years and raising my children here.

I want to acknowledge the CNSC for coming here to our community and for moving these hearings from a North Toronto location right into the riding at the request of myself and the Member of Parliament for our riding.

I also want to thank all the community members who have presented here so far and will do so today. My staff and I were listening to all the presentations yesterday and I want to tell you I appreciate that you gave up your day, brought photos of your children, spent so much time preparing and participated in this process, which I think can be quite intimidating. So thank you.

I recognize that this facility is federally regulated, but I believe it's important that I am here as the provincial representative to represent my community and particularly to bring forward the concerns and questions that have been raised with me.

Although I had lived in the riding for many years, it wasn't until the last round of licence

renewal hearings took place that I became aware of the existence of the uranium processing facility. I was not an elected member either at the time.

Since I lived in the area of Dufferin Grove Park, so not really close to the plant, that wouldn't be surprising. But I have been active in the community around many issues and as a volunteer and so I do recall being somewhat surprised that this had not come to my attention previously.

After attending some of the public meetings around the licence renewal 10 years ago, I came to better understand that I was not alone. Many people, even longtime residents living close to the facility, were becoming aware of the facility for the first time.

So when news of this facility's existence broke in the media, I think it's fair to say that many residents were concerned about the safety of the facility, their health and the health of their families, and they were upset that they didn't know about the uranium facility that was operating in their own neighbourhood.

I remember at the time that our MP and MPP, Andrew Cash and Jonah Schein respectively, worked very hard, in partnership with global residents, to get

information for our community and to ensure greater accountability and transparency as well as ensuring that residents' questions could be raised in new public meetings with the CNSC.

I recall many of the issues raised during those meetings: families concerned about the safety of eating the food they grew in their gardens; parents concerned about the safety of their children playing in local playgrounds; some residents wondered if their health problems were caused by proximity to the plant.

I mention this because over the last few months, since news broke again of the latest request by now BWXT to renew the plant's licence for another 10 years, I have been struck by the fact that many of the same concerns and questions are being raised by residents and neighbours. I have heard those same concerns in correspondence from constituents, at community meetings and on doorsteps.

In fact, I have knocked on doors, as you can imagine, in this neighbourhood for many, many years and many times, but on the eve of these hearings I wanted to see for myself what people were thinking about the facility and this proposed licence renewal.

So this past weekend I went door to door

in the area just immediately north of the plant and I need to tell the Commissioners that I wasn't expecting to find that everybody was familiar with the plant or that they were engaged in the issues and the questions around it, but I sure wasn't expecting to find that virtually no one that I spoke with seemed to have even the most basic information about the plant.

I found newer residents who -- one might expect this -- were not familiar with what the facility produces. But even still, I would have imagined, given the company's interest in a 10-year licence renewal and given the nature of the questions raised about this facility that there would be an interest in ensuring these people know about the hearings, they know about the nature of the facility, they know what is being produced and the company would proactively address those concerns.

Beyond the newer residents, I met residents who have lived within a block, maybe half a block even, of the facility for six, eight, 10 years, even people who lived here 20, 30 years, who could not recall ever receiving information, people who had only recently learned about the hearings taking place because they received a flyer which seems to have been circulated actually by

members of the public who are opposed to the plant.

So once again -- and I want to tell you I actually brought information about the hearings with me so that I could share that information with them.

So once again, we are in a situation where the people who are living closest to the facility are only now finding out about it as the licence is up for renewal. And again, the sources are not even the BWXT or CNSC. Often, it's because they received a homemade pamphlet from local activists. And frankly, in some cases it's because I was there over the weekend, armed with a little flyer simply including details of the hearing.

This runs completely counter to the company's claims that they have been reaching out to thousands of neighbours to join their Community Liaison Committee and other claims. And I wanted to stop and thank the current and past members of that committee for their work, because I have reviewed over the years the minutes of those committee meetings and I appreciate that the meetings appear to happen regularly, but I have to say that I wonder, you know, if the issues that are being discussed at the meeting really are addressing the concerns of the local residents.

Commissioners, Davenport is a community that has been defined by its industries, many of which were located here because of the proximity to the rail line. We produce everything from chocolate bars to hardwood floors to gelatin and people live with noise and odours and truck traffic in those neighbourhoods daily.

But this facility is not manufacturing chocolate bars and the nature of its production means that public perceptions and safety concerns -- I know you have heard them here over the last 24 hours -- about the work that's being done there is substantially different from those facing other industries.

Those concerns are legitimate and deserve to be taken seriously by the company and the regulator. There are good reasons why the nuclear industry is so highly regulated in Canada and that means there should also be a higher threshold for community engagement.

Now, I understand that many questions around health impacts of the uranium emissions as well as emergency preparedness have been addressed by the company and CNSC staff as part of these hearings. I have heard much of it, but my point is that residents who share a neighbourhood with this plant shouldn't have to attend a

licensing hearing to find out that their neighbourhood is safe, that their water and their air is safe or to raise their concerns and their questions and have them answered by impartial third parties.

They deserve proactive, ongoing communication from BWXT. That communication should be accessible, it should be in plain language and it should recognize that there are new people moving into this area all the time. You know, frankly, they should not be required to first figure out that there is an issue and then go to the company's website and then sign up for a newsletter.

From what I'm hearing from my constituents and from what has been said by others making presentations here this week, the company's communication protocols are not getting the job done. I understand that that is hard and it can be inconvenient. I applaud the company for committing to do more on social media, but a robust social media strategy is still a passive means of reaching people. Asking the public to go find their website and sign up for their newsletter online is not doing the job. As development draws more people to the area, this kind of outreach is going to be more important than ever.

But I want to be clear that this is not just a communications problem. The onus is on the company to make its operations known, to assure neighbours that emissions are being monitored and invite them to fully participate in safety preparedness measures. Rather than making testing results available on an intermittent schedule, why not make them open data and available in real time?

What I have seen through this process and the hearings that happened a few years ago is that when people do not have access to accurate information they have no other option but to think the worst or they rely on information that is less accurate. We cannot ask residents to become their own environmental monitoring agency. We can't expect neighbours to research the impacts of uranium and its properties themselves or rely on Google. We rely on the federal regulator to do that work for us and that is why it is essential that the public have faith in that independent regulator to put their interests and their safety first.

I have serious concerns about the length of this licence. This community has changed a lot since the licence was last issued and it is going to change a

great deal, as I know you have heard already, over the next 10 years. Given the consistent -- and I mean consistent --community concerns raised about this facility, if the CNSC is going to renew this licence, which I would point out seems to be an unpopular option having listened to other presenters and from speaking with many in my community and elsewhere, I think it would be appropriate for the public to have the opportunity to have the operations reviewed by the Commission on a shorter timeframe. I know that folks in Peterborough would welcome the same, particularly given the proposed change in operations there.

In closing, Commissioners, I want to ask that you take the concerns of this community very, very seriously. They are asking what I believe is the bare minimum that BWXT should live up to: transparency, accountability, participation in emergency preparedness, real-time testing results, basic, clear information.

Notwithstanding their concerns about corporate secrecy around things like their insurance, the public has a right to know. We don't want barbecues, we don't want, you know, murals, we want information. We want to know that our children are safe and if BWXT can't live

up to those basic requirements, perhaps their licence should not be renewed. Thank you.

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

Dr. Demeter...?

**MEMBER DEMETER:** Thank you. Thank you very much for your intervention. I will have a question for you and then to CNSC staff.

So we spent a lot of time yesterday discussing communications. We talked about the things that you talked about, the social media, the mailouts, the barbecues, the meet and greets, the tours. That obviously isn't sufficient for you, so give us some help on what else could be done. How can we achieve the level of communication that you would like? Perhaps your office has some techniques for your constituents that might be useful. How do we get there?

**MS STILES:** Well, I mean absolutely. I have to say I have heard again, I have heard the company at the public information meeting say that they are doing a lot to try to get information out there and I'm not -- honestly, I was actually quite surprised at the level -- I guess at the lack of information that people in the very

immediate vicinity had, I mean people who don't know about the barbecues even. So I think that it has to be more proactive.

You know, I have heard this -- and I'm going to say it, I have heard this excuse from many organizations, from many companies over the years. If I want to get information out to my constituents, I make sure it gets to the door steps by mail certainly, but I will go and I will, with my volunteers, and they have paid staff who can do this, go door to door and talk to people. And there is nothing, nothing that replaces that, that contact and communication.

And I have to say, you know, as I mentioned in my presentation, if you -- you know, we all have strong -- many people have strong opinions about this, the nature of this industry. We appreciate that. Why would this company not want to make sure that people are as engaged as possible? And I appreciate there have been tours, there have been invitations to barbecues, but if the people living within half a block of this facility don't even know about it, who have lived there not for six months but for years, something is not working.

So I mean I think the company should, if

they can't do it themselves, hire somebody to help them to make sure that the people at the very least in the immediate vicinity of the facility are informed and engaged on a regular basis.

**MEMBER DEMETER:** So BWXT -- I'll get to staff. So it seems that there is a very active communication strategy by people who don't want you in their neighbourhood anymore. They are on street corners, they are handing out pamphlets, they are going door to door, meeting people in bus shelters. Is there a strategy for you to disseminate information in a similar manner, door to door, on the street, in the malls? Because what you are doing now is not really reaching, as we hear, people who live across the street necessarily. We all have busy lives. A flyer once, three times a year may not cut it. Have you looked at other strategies that are more direct and proactive?

**MS CUTLER:** Natalie Cutler, for the record.

We have not used an approach similar to the approach you are describing of door to door or bus shelter, et cetera. We have used Canada Post and in 2019 sent six separate mailers to 4,000 homes around our

facility. We understand that those flyers aren't being necessarily read by all of those individuals.

One approach that we think will be effective, in addition to possibly, you know, a more grassroots approach that you are describing, is targeted social media, because again we are getting that feedback that digital is preferred, but we will take into consideration a more boots on the ground type approach. It has not been our practice in the past.

**MEMBER DEMETER:** It sounds like it might be beneficial to knock on the door and say, "Hey, we are your neighbour, we run this operation, you are safe. This is why we think you are safe." Anyways, I just -- I will leave my question to staff until later and let someone else ask a question.

**THE PRESIDENT:** Okay.

**MEMBER DEMETER:** Thank you.

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

**MEMBER BERUBE:** So communication is a process and what we are seeing here is -- and I think it has become quite clear as we have been examining this for the last day and a bit -- is that you launched the process, but you are not taking feedback from the process to adjust

the process. Is that a reasonable assumption on my part?

**MS CUTLER:** Natalie Cutler, for the record.

Until very recently we didn't really have this feedback. I mean from seeing all the interventions in the last month or so we have been seeing that feedback and so we are quickly going to adapt to make improvements.

**MEMBER BERUBE:** Particularly with your flyer campaign, obviously it seems to be not working. So the issue is are you validating, first of all, that the flyers are being delivered? Sometimes you pay for a service that you don't receive and that may be the case. So there has to be some kind of real tangible feedback mechanism that you have to employ I think at this point.

**MS CUTLER:** Natalie Cutler, for the record.

We will do that. I will be following up with a rep from Canada Post. As well, we will be redoing a survey, as we mentioned in our presentation, in 2021 to get that feedback directly as well from residents in our neighbourhood.

**MEMBER BERUBE:** CNSC, do you have any best practices that you would recommend to help increase the

visibility of local operators, local suppliers? I mean obviously you are working across the entire industry, you see a lot of different campaigns, you know how successful they are. What would be your recommendations to help this situation?

**MS TADROS:** Haidy Tadros, for the record.

We had brought up yesterday the public information disclosure programs that are a regulatory requirement for all nuclear facilities and we definitely have organizations in different nuclear facilities who have different techniques.

From a CNSC perspective, we don't prescribe what techniques work for which facility, but we do keep oversight on the effectiveness of each of the facilities' public information disclosure program and put the onus on the licensees to ensure that they know their communities, adjust their programs accordingly.

So I would ask our Communications Specialist on this file to give you some detail on what we do under the PIDP, but also what we have seen that works best.

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

Before I pass it on to my colleague, I would like to make a comment with respect to continuous improvement at the CNSC.

We fully accept what we heard being in the community here, but I would like to remind the Commission that it is the responsibility of the licensee to establish its communication program according to the needs of their community and that's where we would like to start from. So just like they are primarily responsible for safety, they are primarily responsible to ensure -- and according to our information program, PIP, or the public information program, it is them who will have to determine the needs of their community.

With respect to the best practices, they exist everywhere, but not one would work according to the needs of the community. So we will take this into consideration, but we do not see it at this point as an issue with respect to the compliance of what they proposed to us. But we hear the intervenors and I will pass it on to my colleague in order to provide specificity with respect to the program itself.

**MS GERRISH:** Meghan Gerrish, for the record. I am a Senior Communications Advisor with the

CNSC.

So the CNSC itself follows the Government of Canada's digital first policy, which in this case we post information to our website as a primary form of communication. We push out emails to subscriber lists and we post various information on four different social media platforms. Now, on those platforms we receive feedback and we have an opportunity to engage in direct one-on-one conversation with various audiences. So that gives us the opportunity to inform people, build awareness and educate these various publics through monitoring the discussions and producing material and/or conversation that enhances the discussion with the facts based on the scientific findings.

So most importantly, the CNSC engages in these direct conversations with members of the public and we have the opportunity to produce that information that is timely and relevant to them to the immediate audience, while simultaneously reaching a broader audience.

So it's important to note that we do communicate regularly with licensees and with their audiences through this variety of means, and through that discussion that's how we learn how to tailor our

information. So based on what we are hearing from the intervenors, we take that information into consideration, tailor our products and develop our social media campaigns around what they are asking for.

So based on the feedback received here at this Commission hearing, we will review our communications program at the CNSC and report back to the Commission.

**THE PRESIDENT:** So let me comment on that. We had over a few dozen intervenors yesterday. I don't think one of them left this room convinced that they're safe, even though they heard from experts, and I am totally with you, we need to do something. The CNSC and the licensee need to do something radically different to be able to not only reach out to community members but to give them information and reassurance that actually they are willing to accept and understand.

So we heard yesterday, even though you've heard digital is the way to go in Toronto, every intervenor who we asked said we want someone at our door, whether it is mail or personally there. So I think what we are hearing here, what we have heard from the intervenors is what was tried before is not working. And you are not planning on doing your survey until 2021, that may be too

late. I think there are opportunities to do something a lot quicker, test things out, see whether they are working and then modify them. I think there needs to be a sense of urgency in getting on with this.

Dr. Lacroix...?

**MEMBER LACROIX:** Thank you very much, Mrs. Stiles, for your presentation.

One of the questions that you raised in your submission is: What are the impacts on the environment? And I know that this matter has been discussed yesterday, but this is a new day, and I would like to hear it from BWXT what are the impacts of your facility on the environment and what action are you taking to mitigate these impacts? Of course, do it in a nutshell, please. Thank you.

**MR. SNOPEK:** Dave Snopek, for the record.

I'll focus on Toronto location. In Toronto, we have the releases to the environment include through stacks to the air and water. So I'll talk about each briefly.

For the air, we have -- first of all, talk about our process. We receive powder. The powder is contained within process equipment. The facility's not

dirty. The powder is moved through process equipment to the point where it becomes pellets.

We have a very strong housekeeping process to make sure that floors, walls, equipment are all clean, and a verification process to confirm that the cleaning was effective.

There are not a lot of opportunities for uranium to become involved in the air, and in fact it's limited to rooms, for example, where drums are hooked up to equipment, small rooms that are provided with negative pressure and ventilation.

The whole facility actually has ventilation, and that ventilation draws air through multiple stages of filtration. The final stage of filtration is HEPA filters, which is high efficiency particulate air filters. Those filters are capable of stopping virtually a hundred per cent of particles of all particle sizes, and therefore prevents them from being available to release to the atmosphere.

Talking through a little bit of defence in depth here, with the filters being a key part in that. Another key part in that is the monitoring that we do of those stacks. So there are six stack locations in Toronto.

All of those have monitoring 24/7. So we know what the concentration of material in the air is every day, and it's very, very low. We report it in our annual compliance report. The emissions from the facility are exceptionally low concentrations, exceptionally low in terms of total quantity of material, and well below both the CNSC levels as well as the Ontario Ministry of Environment levels.

Additionally, outside of the facility, we monitor the ambient air at the boundary of the facility as a second check that there isn't material being released to the air.

As yet another check, on an annual basis we do soil sampling at the facility to look for uranium in soil, and we do that at just under 50 locations on and around the facility.

All of this is reported and summarized in our annual compliance report that is submitted to the CNSC, available on our web page, and is reviewed by the CNSC's regulatory oversight report meeting in December.

Shifting to water, the facility uses actually small amounts of water. We don't have a liquid process; it's a dry process. Most of our water is actually generated from doing laundry, cleaning floors, those types

of activities

But all of the water that's used in the production area is contained within a tank. When that tank nears fill, nears the point where it's full, we switch to a second tank. And what that allows us to do is process the first tank and then sample that tank to verify that it is below our release limits. Only at that point do we make a release decision based on the sample result.

If the sample result comes back unacceptable, we don't release that tank; we reprocess it or take other action. So only tanks that meet the release limit are released to sewer, which means we have positive control of all of the water releases from the facility. Again, those are very low concentration and exceptionally well controlled.

**MEMBER LACROIX:** Mme Stiles, does it answer your question?

**MS STILES:** I mean, I'd like to reflect for a moment on what I've heard, both from BWXT and CNSC staff and some of the questions you've asked.

I mean, there are far more qualified people than I who have raised concerns over the last 24 hours, over the last 10 years about safety and health

issues.

And I know we're going to hear from Lake Ontario Waterkeepers shortly. I've spoken with them. I understand some of their concerns.

But I want to reflect back on some of the issues that I raised in my submission, because I think it's -- the communication piece, it's not about just a nice thing to do. And it's certainly not just about raising awareness around the facility *per se*. It should be about how they share the information as well and the transparency around what both safety issues but also opportunities for people to have their voices heard and to participate in some of the conversations about things like emergency preparedness, which, despite everything that has been shared here over the last 24 hours, I think does not make many people in our community feel safe. They feel threatened. They feel unsafe.

And I also want to mention, like it's also not just, again, a nice thing to do; it's a condition of the licence. And I'm going to say it: This is an industry that I believe has survived in part over the years and certainly in a downtown neighbourhood by flying under the radar. And that is simply not acceptable.

I get more calls in my office about the smelly gelatin factory than I do about this facility, and I don't actually think that's right. Because I think it's because nobody knows, because people don't see the data in a timely fashion, because they don't know there's reason to be concerned.

And if there's no reason to be concerned, this company should be providing real-time data. They should be not just sending out newsletters, Here's who we are; aren't we a nice company? It should be about actually how people can be engaged, providing them with real information.

And I don't think that this licence can be renewed for 10 years with all of the questions and the change that's happening in my community. I really think it does a disservice to the people of this community to extend it by that length, and I really think you should be considering whether or not it matters that they haven't actually lived up to their licence requirements in terms of the information and transparency that they've provided.

**THE PRESIDENT:** Okay. Dr. McKinnon?

**MEMBER MCKINNON:** Yes, thank you for your comments. We certainly hear the message about

communication loud and clear, so I won't pursue that further at this point.

But in your opinion, you raised the interesting point about what will happen in the community in the next 10 years. So on the basis of your knowledge of official planning and what you have seen, how the neighbourhood has changed over the years since you've lived in the area, can you give us some feeling on how you think it will change over the next 10 years?

**MS STILES:** This is, as I mentioned earlier, I mean, we are a community that was defined by industry. We were a community defined by railroads. And the fact that those railroads exist and the rails surround our community is the reason why industry thrived in our community for so many years.

But that has changed. And as I mentioned, there is still industry in our community. There's chocolate factories and gelatin factories, and there's a big video game company. But it has changed.

And in the area surrounding the plant we are going to see continued and significant, very significant development happening. We are going to see thousands and thousands of new residents coming into new

buildings, new condos. We are going to see that happen not just right next door, but in the surrounding area, and that will have an impact generally on the community around there.

We are a community that I think is struggling with those issues. And we are a community that -- you know, there are many people who have lived around that -- who moved and could afford to live in our community because of the industry that existed there and frankly the jobs that they provided, which I want to acknowledge. But it is changing, and it's changing fast.

And the industry cannot, you know, continue to survive by flying under the radar. They have to be -- they have to literally come clean with the community.

And I think that people are going to continue to have more and more concerns -- as you've heard here, I don't have to restate them -- about, you know, what the impact in terms of development is going to mean in terms of, you know, if there were to be some emergency, and how many people could be impacted. There are many, many residents surrounding this facility now, and it's only going to increase.

**MEMBER MCKINNON:** Yeah, thank you. And I'd like to ask a slightly more technical question about something you brought up that people might grow things in their garden and they'd be afraid to eat them. And I know it's common; people do like to grow more, and that's an increasing trend.

So I have a question for CNSC staff that I know some plants at least in the mining world, for example, are used to indicate presence of certain minerals because they are bioaccumulators for certain elements and minerals. Is there any information on -- so we also know that the air will transport contaminants to the soil. That's the mode of transport. But then can there be any accumulation into plants that would be consumed? Is that a potential pathway? Is there any information on that?

**MS TADROS:** Haidy Tadros, for the record.

So I'll pass your question back to our environmental protection specialists.

One thing we need to note is currently from the data that we have the emissions from these plants are negligible. So basically, the question really is about how the organisms, the plants themselves, take the bioaccumulation and have indicators associated with them

based on our research. Okay.

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

I wonder if I could add something about what we know about uranium in terms of safety and particularly about environmental protection.

As you'd be aware, uranium is extremely important to the CNSC. It's the main constituent in mining, processing facilities like BWXT, and for fuel and waste. And so uranium changes form as it moves through the fuel cycle. It begins as a mineral that's been around for billions of years, very immobile. It comes to a mill where it gets dissolved and precipitated as a chemical precipitant, so it's fairly soluble. It gets formed physically into ceramic pellets; it becomes less soluble, and that changes its toxicity. When it's soluble, it can dissolve in your lungs and arrive at the kidney, and so you have kidney toxicity issues. If it's insoluble, it could stay in your lung and have a dose consequence. And so we have to grapple with the two issues related to safety, whether it's dose, radiation dose or kidney toxicity.

And so we worked with the Standards branch of the then called Ministry of Environment, who developed the air standard for uranium, 0.03 micrograms per cubic

metre. And Ontario developed this, keeping in mind that kidney toxicity is very important for uranium.

But they didn't look at this in isolation. They worked with Health Canada and they worked with CNSC. So Ontario developed the standard thinking kidney toxicity. Health Canada looked at the standard and said, Well, what if it's insoluble and has a dose consequence? And the CNSC looked at it from a third perspective: What if the uranium were to accumulate in soils and in gardens, and the protective scenario is over decades and children are getting exposed to this? What's an appropriate standard?

And that number, the 0.03 micrograms per cubic metre as the Ontario standard is protective of all three scenarios. So dose consequence if it's insoluble, kidney toxicity if it's very soluble, and from the garden perspective, if it accumulates in soils.

And BWXT facilities, both in Port Hope and in Toronto -- or sorry, in Toronto and Peterborough, are very much below the standards protective of those three.

In addition, several years ago, there was a lot of angst and concern and public was wanting information at this facility here in Toronto. And so we worked with the Province and we did a soil survey around

this facility, engaged the community. So we went door to door, sampled in many people's gardens, backyards. That report is available on our website.

And what was found, the results are showing that around this facility, despite the fact that GE, now BWXT, has been operating this facility since 1955, the levels of uranium in those areas are the same -- they're within the Ontario typical ranges. So the same concentrations you would get anywhere in Ontario. So there hasn't been the accumulation around this facility. And the gardens that were growing vegetables near this facility would have the same uranium content that they would be in my garden where I grow vegetables in Ottawa.

**MEMBER MCKINNON:** Thank you very much. But I expect that may not be widely known.

So my question back to the intervenor, how do you measure the effectiveness of your own communication methods?

**MS STILES:** Well, I mean, you know, the kind of communication I do, look, I see it as part of my role as a member of provincial parliament to try to make sure that my community is aware of what's happening around them. This is a federally regulated, you know, plant. But

I still think that my role is to try to keep my community informed. So I'll go door to door and talk to people about it.

But I can say -- and I appreciate all the information that's being provided. And I think for those folks who have come here as intervenors with significant and particular concerns -- I think of, for example, the woman yesterday who came, you know, with concerns about diabetes and whether this could, you know, have caused diabetes in her family. And I think that though there are, you know, many people who have raised very significant and real concerns that I'm not sure that everybody has addressed adequately.

But when I hear, you know, the explanations -- which I really appreciate -- I'm not sure that -- you know, you would have to be tuned in right now, watching this online, to hear that. And that's too much to ask of people. It really is. We shouldn't have to do that.

So as an MPP, you know, I try as well and I struggle with trying to keep my community informed about issues. And it is a problem. But I don't think -- I think that if we are going to, you know, allow this company to

continue to operate and if they are going to continue to be licensed, that this is the bare minimum that can be expected.

And as I said before, it's not as if, you know, this is a facility that has a giant "uranium processing facility" sign on it. Okay? And I know why. You know, when you go by the chocolate factory in my riding, there's a giant sign. It says, "Chocolate," right here. Right? I know why they don't talk about that.

And it has to be. It has to be lived up to. They have to live up to the very basic requirements of their licence, at least.

But I don't want to pretend that it's just about, you know, again, about awareness. I mean, that is part of it, absolutely, but it's also about how do we share the information that people are demanding in a timely fashion and effective way.

And with all due respect, I mean, I've got -- I spend a lot of time on Twitter. But I know who I'm connecting with through Twitter, and it isn't the people whose doors I was knocking on in that community this week. You're only going to reach those people by literally going to their doorstep. And I'm not convinced that the

plant sees that as being in their interest, to be fair.

**THE PRESIDENT:** Okay, well thank you very much for sharing your insights, and thank you for your intervention. It's been most helpful, thank you.

**MS STILES:** Thank you very much.

**THE PRESIDENT:** The next presentation is by Swim Drink Fish Canada/Lake Ontario Waterkeeper, as outlined in CMD 20-H2.108. And Ms Pippa Feinstein is here to make the presentation.

Over to you.

**CMD 20-H2.108**

**Oral presentation by**

**Swim Drink Fish Canada/Lake Ontario Waterkeeper**

**MS FEINSTEIN:** Good morning, President Velshi and Commission Members. Thank you for the opportunity to address you all today.

For the record, my name's Pippa Feinstein, and I'm representing Swim Drink Fish Canada/Lake Ontario Waterkeeper, which has been granted intervenor status in this hearing concerning the licence renewal application for BWXT's two fuel processing facilities.

Waterkeeper is a non-political registered charity that uses research, education, and legal tools to protect and restore the public's right to swim, drink, and fish in the Lake Ontario watershed.

Both BWXT facilities are located within the watershed. They're surrounded not only by densely populated urban areas, but also ecologically rich and diverse ones, and much of this diversity depends on neighbouring waterways.

Waterkeeper was provided with participant funding to intervene in this hearing to help ensure the Commissioners render a decision that supports the swimability, drinkability, and fishability of the Lake Ontario watershed. To do this, Waterkeeper focused on three main issues. The first was the need to better protect local waterbodies by lowering effluent release limits and evaluating both sites for possible legacy groundwater and stormwater quality issues. The second was the need to improve BWXT's public information sharing activities and policies. And the third concerns the potential transfer of pelleting operations to Peterborough in the absence of any specific timeline or plans for the move. I'll discuss each of these three issues in turn.

So first, the need to protect local waterbodies. There are three potential pathways by which BWXT facilities could adversely impact nearby waterbodies. This is through effluent, stormwater, and groundwater. Currently, only one of these pathways -- effluent or wastewater -- from the facilities is being monitored.

Wastewater from the Toronto and Peterborough facilities is discharged after some internal treatment into the municipal sewer systems. Sewage in Toronto is ultimately discharged into Lake Ontario, and in Peterborough, sewage is discharged into the Otonabee River. While this effluent may be further treated at the Humber Wastewater Treatment Plant in Toronto or the Peterborough Wastewater Treatment Plant, this treatment's not always guaranteed. Precipitation events or snow melts, sewer blockages or faulty sewer connections can lead to contaminated water flowing into combined sewers rather than only sanitary sewers, and combined sewage discharges directly into receiving waterbodies.

Both Lake Ontario and the Otonabee River are important sources of drinking water and subject to source water protection. They also provide important habitat for a wide variety of aquatic species as well as

important recreational spaces for growing urban populations. As such, it's crucial that they're adequately protected.

In 2013, Waterkeeper cautioned that historical and current release limits for wastewater from both BWXT facilities was absurdly high. Waterkeeper is encouraged that the new release limits proposed for the BWXT facilities are lower and that they take into account aquatic biota for the first time; however, the new proposed release limits are still too high.

The calculations used to determine these new exposure-based release limits, or EBRLs, need to be revisited, as several assumptions on which they're based give some cause for concern. In particular, these calculations rely on Canadian Council of Ministers for the Environment, or CCME, guidelines, rather than stricter provincial water quality objectives. And no scientific justifications have been provided for this CCME preference.

It's important to also note that the CCME guidelines are a product of some political negotiations, while PWQOs, or provincial water quality objectives, are more scientifically supported and precautionary.

The EBRL calculations also assume a

hundred per cent dilution capacity at the wastewater treatment plants, despite the lack of confirmation that the BWXT facilities will be the only sources of uranium in both cities.

And finally, EBRL calculations fail to take into account the potential variation in contaminant concentrations coming from BWXT and also fail to take into account the fact that changing flows in sewage plants can impact treatment effectiveness.

Waterkeeper submits that all these variables would require more conservative limits than those currently being proposed for the BWXT licence.

The last point I'll make concerning wastewater from the BWXT facilities is that there's currently no publicly available information concerning the extent to which wastewater treatment plants in Toronto or Peterborough can effectively treat and dispose of sewage or sewage sludge contaminated with uranium. This will be an important issue requiring input from and cooperation with municipal authorities. However, their presence is noticeably absent from current proceedings.

In addition to these many concerns over wastewater from the BWXT facilities, it is important to

remember that processing activities at both BWXT facilities also predate many of our environmental protection laws and regulations, not to mention municipal zoning laws and our current regime of nuclear regulation. As such, legacy contamination issues are highly likely to be present around and underneath both BWXT facilities. However, no comprehensive evaluation seems to have been undertaken to measure whether or to what extent this is true.

As such, Waterkeepers strongly recommends environmental site assessments of both site locations to determine whether there are any legacy contaminations in the stormwater infrastructure and/or groundwater below both BWXT sites that could affect local groundwater, lakes, rivers or creeks.

A second issue that I'd like to discuss is the need to improve BWXT's public information activities.

While BWXT only started managing operations at its two facilities in 2016, its predecessor, GE Canada, and later GE Hitachi Canada, owned and built the facilities and operated them for various purposes for over 100 years.

Despite the length of operations in these locations, many locals continue to be unaware of the

facilities or what they do. As such, Waterkeepers has recommended several specific improvements to public information sharing by BWXT and the CNSC to better facilitate the public's right to know about these facilities and their operations.

In particular, Waterkeeper's recommendations stress the need for real-time and machine-readable public environmental disclosure as well as better public reporting of unplanned events at both facilities, and we provide a loose template for the content such incidence reports should include.

Waterkeeper also makes a series of recommendations to help BWXT and CNSC Staff to develop a more inclusive conception of who the public is or are that would better ensure communication and more community awareness and engagement moving forward.

The final issue I'd like to discuss concerns the potential future transfer of pelleting operations to Peterborough.

In its relicensing, BWXT seeks permission to conduct pelleting activities at the Peterborough facility should it decide to some time in the future. The vagueness and potential breadth of this licence request is

deeply concerning, as is CNSC Staff's recommendation that it be approved.

Conducting pelleting operations at the Peterborough location would require significant renovations to the existing facility as well as changes to environmental monitoring activities in Peterborough. It would also require the cooperation -- further cooperation with the Peterborough municipality and the province as well as the CNSC to ensure all liquid discharges could be adequately understood and treated to protect local ground and surface water.

Approving this request with no timeline and no plan available for public review during this current relicensing would not be in the public interest, as it could effectively refuse public participation in or knowledge of the particulars of this significant change in BWXT's operations whenever or if ever it ultimately occurs.

BWXT has explained its rationale for requesting this provision now just by its no official plans to move and that it's primarily because the next 10 years may bring changes that would merit such a move.

Yesterday we heard for the first time that it may be related to the closure of the Pickering nuclear

generating station.

This rationale highlights long-standing concerns Waterkeeper has had with regard to the CNSC's move away from licensing periods of about three to five years toward licensing terms of 10 years.

A decade is a long time. Over the past 10-year licence term for BWXT, there have already been several important changes affecting BWXT facilities, including the development of new financial guarantees, two changes in plant ownership and a change in the characterization of the Peterborough facility.

The next 10 years will certainly bring changes as well, and amendments to the licence are bound to be required over that time.

However, the only ones who would be excluded from notification and review of these amendments would be members of the public without hearings to consider them.

Ultimately, Waterkeeper cautions the Commission against permitting the relocation of pelleting activities without further plans and timelines. Waterkeeper requests that should BWXT develop these plans and submit them for CNSC approval, we request that the same

information be made available for public review and funded participation before any decision on the matter is made.

So thank you for listening to my presentation. I look forward to any questions Commissioners may have.

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

We'll start with Dr. Berube.

**MEMBER BERUBE:** Thank you for your presentation. Very thorough.

This question is for BWXT. I'm just curious, what emissions data do you have available on your web site at this point? Is there anything there that you actually list or could you give us a breakdown what that looks like?

**MS CUTLER:** Natalie Cutler, for the record.

We have an environmental section on our web site that includes information about how we monitor. We also include detailed information in our annual compliance reports, all of which are under the compliance section of our web site.

There's quite a bit of information on our web site about results of monitoring that the public can

access any time.

Thank you.

**MEMBER BERUBE:** Is that real data or is it just a description of process and the stuff that's submitted to CNSC?

**MS CUTLER:** That is information that has been provided in our annual compliance reports to the CNSC and includes current processes for how we do monitoring and data.

**MEMBER BERUBE:** And one question for CNSC. The intervenors brought up in their paper here that they're questioning the emission limits in terms of, you know, how high they are compared to what the storage limits. I'm aware that that's under review. Is that the case?

**MS TADROS:** Haidy Tadros, for the record. Yes. So in our proposed Licence Condition Handbook as per Staff CMD and our presentation, limits will be changing.

Perhaps I'll have our environmental protection specialist speak to that.

**MS SAUVÉ:** Kiza Sauvé, for the record. So as Ms Tadros mentioned, the new

proposed Licence Condition Handbook does have lower release limits based on exposure, base release limits, and that does take into account concentrations going into the environment.

So we've looked at some of the things the intervenor has brought up in terms of what screening levels were used to make those exposure-based release limits, is based on new science, the CCME Guidelines, or our newer screening level. The provincial water quality objective is from the nineties, and so it's a more updated number that we're using.

Going forward, as the Commission has heard before, we're looking at a new RegDoc, 2.9.2, and that will be standardizing these types of release limits across the industry, so BWXT, by putting in these exposure-based release limits, will be one of the first facilities to have that.

**MEMBER BERUBE:** Just one third question on this.

The intervenors also brought down the idea that downstream characteristics are unknown. Could you go through the process by which these discharges might be monitored further downstream than just at the plant outlet

itself?

**MR. McALLISTER:** Andrew McAllister,  
Director of the Environmental Risk Assessment Division.

Downstream or sort of past the point of when the licensee is discharged to the sewer, what we are able to glean, and this is simply by looking at sort of the available information, it appears that, in the case of Peterborough, for example, they do do some sort of monitoring of the -- of the wastewater received.

That was from one of the intervenors, actually, CMD summarized a discussion with the Peterborough environment manager for that plant when they talked about that they do do some sampling for uranium, for example.

As well, the Province of Ontario has their provincial water quality monitoring network, and so there are some downstream provincial water quality monitoring points, albeit their proximity to discharges from the wastewater treatment facility. I'm not aware of what they are, but that's sort of a general indication of some of the monitoring that is happening with respect to the Peterborough situation.

**THE PRESIDENT:** Dr. Lacroix.

**MEMBER LACROIX:** Thank you, Mme Feinstein,

for your presentation. Appreciate it.

I know that there is information already available on BWXT web site concerning information on the environment, but nevertheless, she mentioned in her submission that there is a significant lack of detailed information, environmental information, in BWXT relicensing application.

So I would like to ask, Mme Feinstein, what is exactly the data that you're looking for?

And it's your chance. You do have the BWXT representative here, so please do ask him what, exactly, you need.

**MS FEINSTEIN:** Thank you. Pippa Feinstein, for the record.

So the ERAs that -- I shouldn't use acronyms. The environmental risk assessments, the annual compliance reports and regulatory oversight reports are three sources that are usually pointed to when we ask for data, so over the years, we've looked at the quality of the data included in those reports, and we found some significant gaps, the primary gap being that the monitoring that's already being done isn't being reported as raw data. It's already -- when it is being reported, it's being

reported as annual averages or other types of highly-digested information.

So something that would be very useful to our organization is to have access to the actual raw data that allows us to see exactly what's coming in, whether there are any spikes in values, concentrations that allows us to better understand seasonal trends, for example. It allows us to also be able to see whether there are any geographical gaps that we can identify in terms of where monitoring locations are, what they're picking up or the frequency to see if that's sufficient.

Providing raw data is extremely valuable for us to get a better understanding of what's happening at the site.

So that's something that I would like to recommend, is that all of the data that's already been being collected, it would be very useful if that were posted in real time and in machine-readable formats for us to analyze.

But then also there are areas where there's just no data being collected, for example, the stormwater catchment system beneath the BWX facilities.

Our understanding is that they were

constructed many decades ago, maybe in the fifties or sixties, to collect stormwater, any contaminants that might be flowing from the site, and manage them. And yet we're unaware of any efforts to comprehensively assess what those catchment basins or what that stormwater collection system's actually receiving.

So that would be an example of a specific area in which more data needs to be generated as well, and then obviously once that data is generated, we'd ask for it to be released again as soon as possible.

One point that I'd also like to make that I think hasn't been addressed as much yesterday or this morning is that organizations such as ours or other NGOs do have technical abilities or expertise to digest this kind of data and can provide assistance for members of the public who are concerned about environmental levels.

There's an opportunity here for increasing public data literacy, environmental literacy around these issues and I think -- I think several society organizations, environmental NGOs fulfil a really important role in doing that, but we can ultimately only fulfil that role if we have access to that data and are allowed to assist in those processes and those communications of the

public.

**MEMBER LACROIX:** BWXT, is it difficult for you to have these data available?

**MR. MacQUARRIE:** John MacQuarrie, for the record.

No, it's not difficult for us to have the data available. It's readily available to us and we will -- we understand the request to provide all the raw data and we'll look at how to do that. I don't see any reason why we could not do that.

**THE PRESIDENT:** Thank you for that.

Dr. McKinnon.

**MEMBER MCKINNON:** Thank you for your intervention comments.

I'd like to address the issue of downstream monitoring and the sewer system, stormwater system that you were relating.

Yesterday the company questioned related to this that it was really more to establish that there is a settlement tank in which there's a certain treatment done and those concentrations are measured before there's any release, but we really weren't sure what happens afterward, which I think is more your concern, and whether there are

any locations where there could be any accumulation.

And one of your other comments raised another interesting point about the sewer sludge.

So once the water goes to this treatment plant, there are settling ponds and so on and there will be -- a result of that, there will be -- purified water will be discharged and there will be sludge remaining.

So I have a question for staff, that is there any issue with reconcentration mechanism in the sludge once the uncontaminated water has been released at the treatment plant and the sludge remains, you know, which could possibly collect heavier elements in the solution?

**MS TADROS:** Haidy Tadros, for the record.

Our environmental protection specialist can take that question.

**MR. McALLISTER:** Andrew McAllister, Director of the Environmental Risk Assessment Division.

So we certainly would anticipate uranium to be a component of that. To put maybe that into perspective, looking at the Humber wastewater treatment plant, which is the Toronto-based facility, it processes 78 dry tonnes a day of biosolids. Peterborough, they deal with 7,000 tonnes of biosolids annually.

So yes, it would likely be in that sludge, albeit relative to what is being handled low.

But I think if we take us back to the point of release, the important point to be mindful of is that the values that they're being released to the sewers at are low. They're below their current action levels, their administrative levels, and so we don't anticipate issues arising in the sludge.

CNSC has looked at this matter in general before for the SRBT facility in Pembroke. We had looked at that issue at the direction of the Commission looking at sludge values. And in doing some dose calculations on what that might mean to a worker in the facility or a farmer where the sludge had been spread and the results of that analysis were orders of magnitude below the public dose limit.

So it's an area that we've looked at in general before and really found no risk and one here with the sort of controls in place up front that we've talked about before that we don't see that being an issue in the sludge moving forward.

**MEMBER MCKINNON:** Okay. Thank you.

**THE PRESIDENT:** Dr. Demeter.

**MEMBER DEMETER:** Thank you.

This is a question for staff. I've tried to reconcile the action levels, the guidelines, the release limits and trying to figure out where they all sort of stem from. And I'll stick with -- just to make sure that I'm understanding with the uranium.

So there's the guidelines which in the footnotes tell me where the reference is, the Canadian Council of Ministers of the Environment or the Ontario drinking water, and then there's the release limits.

And I was trying to reconcile Tables 7 and 8 of the staff CMD which talk about the release limit to water for uranium at one gram per litre per week for Toronto and .14 grams per litre per week. That's their licence release limit for the two facilities.

And then I look at the Table 3.3, the uranium liquid effluent in kilograms per year for Toronto and Peterborough. And for uranium it's 9,000 kilograms per year and 760 kilograms per year in Peterborough.

Does that 9,000 and 760 correspond to the one gram per week? I'm just -- the numbers didn't add up.

If I do one gram per week per litre, I don't know if I get 9,000, and how do you -- how do you

reconcile those two?

**MS TADROS:** Haidy Tadros, for the record.

Our environmental protection specialist can help with that reconciliation.

**MS SAUVÉ:** Kiza Sauvé, for the record.

So the 9,000 is the current release limit, which is based on the radio toxicity, so the 50 microsieverts per year. Going to exposure-based release limits where we're using the CCME Guidelines, so we're looking at biota and the effects on the environment, we work backwards to determine what the release limit in a concentration would be. And that's what you're seeing with the one gram per litre or the .14 grams per litre.

So the new release limits are working backwards from the CCME Guidelines, and those annual loading release limits of the 9,000 kilograms per year, those would no longer exist and it would be based on the concentration.

**MEMBER DEMETER:** Okay, so that's comforting.

So we moved from pure exposure-based derived release limits which, for -- uranium has minimal radioactivity, so it's more the toxicity that's an issue,

so we move to CCME, which is more the one gram per litre per week, which reflects more the total biological impact, not just the radiologic impact.

**MS SAUVÉ:** Kiza Sauvé, for the record.

That's correct.

**MEMBER DEMETER:** Okay. Thank you. I understand now.

**THE PRESIDENT:** So on the exposure-based release limits, tell me the process of developing those and the kinds of consultations that you would have had with different stakeholders in coming up with that before that makes it into the licence or Licence Condition Handbook.

Is that -- I think what I heard you say is that the RegDocs is only going to come out later.

**MS SAUVÉ:** Kiza Sauvé, for the record.

So in this case, we're working ahead of the RegDoc, and so the -- these exposure-based release limits have been proposed by the licensee. CNSC Staff have reviewed them.

We have shared our review with the MECP, the Ministry of Environment and Conservation and Parks, but there hasn't been the public review of the RegDoc. That's coming out probably in the spring. We're just going

through our translation process to get it ready to go out for public review.

So these particular exposure-based release limits have not gone out to the public except through this Commission process. And in the future, any other release limits would follow the RegDoc if it's approved by the Commission and so the public review period would be on the RegDoc, not on each particular release limit.

**THE PRESIDENT:** So there is a possibility that with the review of the RegDoc these limits could change.

**MS SAUVÉ:** Kiza Sauvé, for the record.

Yes, and the RegDoc also includes a technology-based release limit, so these are exposure-based release limits. There'd be two different types to go through, yes.

**THE PRESIDENT:** Thank you.

And your concerns, Ms Feinstein, on the potential transfer of pelleting to Peterborough, I think it best that we save our questions when we're in Peterborough for that because many folks there will want to know what's being planned and how they can get engaged in that.

Any other questions?

So you've got 30 seconds for any closing remarks, please.

**MS FEINSTEIN:** Thank you. Pippa Feinstein, for the record, again.

There are just a couple points that I'd like to follow up on, things that have been mentioned by CNSC staff and BWXT in response to some of the concerns we mentioned.

One of them is about this issue of sewage sludge or downstream flows from the facility, and there are a few considerations that I'd like to bring to the Commissioners' attention, one being issues of some jurisdictional uncertainty between federal regulation and the municipality's ability to treat wastewater. And this is something that we allude to in our written submissions as well, is the need to ensure that there's cooperation between municipalities and federal regulators on this issue, but also to make sure that any cooperation or collaboration that's happening is made clear to the public so that the public understands what these authorities are doing together to address this issue.

Again, that's a prime example for the release of more data, so if this is something that CNSC

Staff has looked into with the municipality, then the public should be able to find somewhere online how those discussions happened and what they contained, as well as the data that's being used to inform the kinds of decisions coming out of those discussions.

A short note on the disposal issue of sewage sludge.

We have heard from concerned members of the communities that in other places such as Pembroke sewage sludge can be used on farm fields or else in municipalities if it's being sent to conventional landfills. Some kind of data, information assuring the safety of any actions like that which are being made would be extremely important to have on the public record, and currently that information is not available to the public.

I think I might leave it there. Our written submissions are pretty comprehensive as well and they are already on the public record. So I trust everyone is familiar with additional points that we are making there, especially on communication with the public.

Waterkeeper made a series of recommendations, and very specific recommendations, about improvements that can be made by BWXT and CNSC staff that

address a lot of the questions that have been arising yesterday and already this morning about that issue.

So I would direct your attention to those specific recommendations as well.

Thank you.

**THE PRESIDENT:** Yes, we have made note of all 23, or whatever you had in there.

Thank you very much for your intervention.

The next presentation is by the Canadian Nuclear Association as outlined in CMD 20-H2.118.

Mr. Steve Coupland will present the submission.

Over to you.

**CMD 20-H2.118**

**Oral presentation by the  
Canadian Nuclear Association**

**MR. COUPLAND:** Thank you and good morning, Madam Chair and Commissioners.

My name is Steve Coupland. I am the Director of Regulatory and Environmental Affairs at the Canadian Nuclear Association.

With me this morning is Dr. Adrienne Ethier from Calian, who specializes in both environmental risk assessment and effluent environmental monitoring program design.

I appreciate the opportunity to say a few words in support of BWXT's application for a ten-year renewal of its Class 1B fuel facility operating licence.

You have already received written comments on behalf of the CNA and its members but I would like for the record to briefly expand on some of the key points addressed in the letter, in particular BWXT's commitment to the areas of safety, the environment and public disclosure.

Like all members of the Canadian nuclear industry BWXT is committed to the safe, clean and reliable operation of its facilities. This means not accepting the status quo but continually working toward improvement in safety programs and environmental stewardship.

The CNA believes that the best indicator of future performance is past performance, and on that score BWXT has an outstanding record. Its strong performance is highlighted by continual positive ratings in all 14 safety and control areas regulated by the CNSC.

Strong performance is maintained by

ongoing audits and assessments and making continual improvements. BWXT's submission goes into greater detail on this subject, but I would like to list a couple of the key improvements over the past licence period.

These include updated safety analysis, upgrades to the preventative maintenance program, upgrades to fire and safety systems and powder storage upgrades, as well as security and monitoring system upgrades.

As I said, these and other upgrades are highlighted in much more detail in BWXT's submission.

If I might spend a couple of minutes addressing environmental and public safety, the CNA is well aware that there is significant public concern both here in Toronto and in Peterborough over possible releases to the public. And that's clear in the last couple of days.

One of the challenges the nuclear industry faces is the lack of understanding of radiation exposure among the general public. As the Commission well knows, radiation occurs naturally and the public is continually exposed to small amounts of radiation. The risk to the public is an unnatural exposure to a large dose of radiation either at once or over a period of time.

We are fortunate that there is a great

deal of knowledge about the impacts of radiation, and therefore safe limits can be established and facilities monitored both at the point of release and then later to confirm public safety.

In Canada preventing the risk, that risk, is the responsibility of the site operators with the CNSC providing continuous oversight and monitoring. Licences, such as the one BWXT is applying for, are granted by the CNSC and outline various requirements for operations, including action levels and release limits for radioactive and hazardous materials.

I think it's important that we look at past releases when considering this licence application. In addition to internal monitoring and reporting done by BWXT and the CNSC's own independent monitoring program, the Peterborough Public Health Unit also undertook a review of data for releases from both facilities.

In all cases it was concluded that the emissions at both facilities were well below release limits.

With respect to radiation dose, the public dose from the Peterborough facility from 2014 to 2018 was virtually zero. Here in Toronto the public dose over that

same timeframe ranged from .41 microsieverts to 17.49 microsieverts, which is significantly below the limit of 1,000 microsieverts.

There are similar results when looking at the air and liquid releases from uranium. In the last five years air emissions have ranged from .002 to .004 grams in Peterborough and 6.3 to 10.9 grams in Toronto. In both cases the releases are significantly lower than the licence release limit of 550 grams in Peterborough and 760 grams in Toronto.

In the case of liquid releases, again from 2014 to 2018, these range from .01 to .14 grams in Peterborough and .39 to .94 grams in Toronto. Again these releases are significantly below the licence release limit of 760 kilograms in Peterborough and 9,000 kilograms in Toronto.

With respect to beryllium the highest recorded value of beryllium in stack emissions over the course of the licence period was .009 micrograms per meter cubed, which is orders of magnitude less than the Ontario guideline.

However, it has to be acknowledged that there was a recent spike in one particular recording in the

Peterborough area that bears close monitoring, but still that concentration is well below the CCME guideline.

I think it's clear from the data that releases from both the Toronto and Peterborough facilities are well below facility licence release limits and the additional radiation released to the general public is negligible.

That said, it's also clear from the number of individual intervenors and the ones we've heard so far and the ones we will hear in Peterborough that there is a significant misunderstanding and apprehension around those releases.

Misunderstanding and apprehension are not just problems for BWXT here in Toronto and Peterborough but part of a larger problem for the nuclear industry as a whole that we are working to address.

At the CNA we believe clear, open public information and disclosure are essential in clearing up the misinformation and apprehension around our industry. That's why we support public meetings and hearings such as these and why we continue to encourage and support our members in holding public meetings and open houses, as well as the use of dedicated websites and social media.

BWXT shares our views and is committed to transparent and timely communications with the communities it shares. Over the course of the existing licence period significant updates have been made to the public information disclosure program, including the additions of community newsletter, regular mailings to the public as well as updating and maintaining public information website.

We have heard that there is more information still required and more work to be done. I believe BWXT has on a number of occasions expressed their willingness to take the next steps in the program.

In addition, BWXT holds or participates in public community meetings, open houses, requests annual meetings with local elected officials, holds regular meetings with its Toronto Liaison Committee.

If I could briefly comment on the Toronto Liaison Committee because I think this is a very valuable tool.

This committee was organized in 2013 and serves as a forum for the exchange of information and ideas between BWXT and the community. It allows the community to meet BWXT staff to discuss operations, receive updates on

topics such as emergency planning and environmental monitoring.

In addition, it provides the opportunity for feedback the other way; for BWXT to listen to, hear and recognize community priorities and concerns.

In response to the recent increase in Peterborough, BWXT has committed and is currently working to establish a similar Community Liaison Committee in Peterborough.

In summary, BWXT's commitment to excellence and safety and environmental protection, as well as its actual operation performance at both facilities over the life of the current licence period, demonstrate that BWXT is qualified to implement the activities outlined in the application.

In our view, BWXT has clearly demonstrated excellent practices in their ability to safely and reliability to carry out their activities.

The application and supporting documentation reaffirm the commitment to the protection of employees, the Canadian public and the environment.

The Canadian Nuclear Association supports this application for a ten-year Class 1B licence for

continued operation of BWXT's Toronto and Peterborough facilities.

I would like to close by thanking the Commission for giving us the opportunity to present, and I look forward to any questions you might have.

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

I will start with Dr. Lecroix.

**MEMBER LACROIX:** Thank you, Mr. Coupland, for your presentation.

The Canadian Nuclear Association is in the business of promoting Canada's knowledge and knowhow in nuclear science and engineering and unclear technologies, and on the other hand BWXT is in the business of producing or manufacturing nuclear fuel for CANDU reactors.

In spite of the fact that BWXT knows its stuff, they have the knowledge, they have the knowhow to manufacture the nuclear fuel, they still have difficulties making connection with the local people.

I was wondering, at the Canadian Nuclear Association you do have experience in communicating in nuclear technologies. So would you have any advice or recommendations that you could make to BWXT?

**MR. COUPLAND:** Thank you.

Yes, communication, obviously there's been a great deal of discussion over yesterday and so far this morning on that. I think it breaks down -- and BWXT and the nuclear industry as a whole faces the same sort of challenges that BWXT faces here. And we do work with our members at the CNA as much as we can on a variety of ways.

There are really two challenges, as I see it. One is getting our message out and notifying people of the presence and activities of our industry. You know, that's particularly challenging, perhaps more challenging here for BWXT in an urban centre where you have a lot of changing population in a changing community as opposed to perhaps the Bruce site where it is a much more stable population, smaller population, easier to reach out to.

So there are some challenges to that.

I think BWXT has done a good job of increasing its program. I think they have indicated that they need to do more.

I think MPP Stiles had a couple of interesting comments.

I have a background in politics before I got into the nuclear business. One of the things that we found in campaigning during the business of reaching out to

people is that door knocking helps.

I think distributing of fliers is important. It's a good way to get out to people. I think you need to kind of perhaps do it. Rather than do it by Canada Post I would do it by actually hiring people to deliver the individual flier through doors. That way people actually get to look at it as opposed to collecting a bundle, which most times goes straight into the recycle bin.

You can use phone dialling companies to let know of various events, pass on information. Again increasingly people are just hitting the delete button when those come, but you continually try to reach out.

I also think social media is very important in terms of reaching out on that.

We also have an organization we work with. Ontario's Nuclear Advantage works through a lot of social media, does a lot of events. A lot of education we're working on as well.

There's really no silver bullet. It's just continual outreach; no shortcut.

The second challenge that I wanted to -- and this is getting a bit of a long-winded answer here.

The second piece -- because I think it's extremely important and we saw it clearly yesterday.

The second challenge is once we reach people -- and I think this might be more difficult -- is dealing with the fear and apprehension around radiation. We try hard to educate people but there is a clear misunderstanding and apprehension that's very real around people.

I was struck by one of the intervenors yesterday. I think it was Mr. Fernandes that talked about he wouldn't let his son play in a playground anymore.

I mean, the data is very clear that there's no risk. We all know that there's no risk, yet he was very genuine and very clearly and sincerely concerned about his son.

My thinking is education, but I don't know how to break through that. I actually spent a lot of time trying to think about that last night, because I found it troubling that there is clearly no risk on all scientific based evidence. But the gentleman was genuinely concerned and scared.

So that's something that we have to tackle. I really think it's through continual outreach,

through public education. We're working on programs at the CNA to do that. I think we're far ahead of where we were five years ago. Five years ago we were further ahead than we were five years before that, but we still have a long way to go. And that's a big part of what we do at CNA.

Sorry, that was a bit of a long-winded answer.

**THE PRESIDENT:** Thank you.

Dr. McKinnon.

**MEMBER MCKINNON:** Thank you for your comments. It's always good to hear about organizations with outreach.

What I heard was very many of the similar techniques you are using as the company is using and CNSC is using, and what we have heard in this meeting from the large number of intervenors who have presented and sent in letters is that it's not really working.

So there is a lot of doing the same thing and thinking it might be working. So again how do you measure whether you are being effective? How do you determine that? And how do you reach the people who might be initially sceptical?

I see a lot of the outreach methods that

you mention might work very well on people who are, you know, receptive and would be willing to read the data.

But let's say a busy resident: I don't look at all the fliers that come in, I'm pretty sceptical. How do you convince me?

**MR. COUPLAND:** Ultimately it boils down to finding an opportunity to have a conversation. It's difficult. People's lives are busy. It's difficult to reach out and to get to people.

The techniques I talked about are the ones that are used. I'm not sure I have any other thoughts on that, other than continuing to apply those methods on a frequent basis, trying to set up opportunities to meet with people and make them aware of where you are, what you're doing. There's times to meet and make them aware where they can get information and frankly be available when they want to meet.

I'm not sure there is a silver bullet or a simple solution. It's just continual outreach and time-consuming hard work. I'm not sure there is a simpler way to do it.

**THE PRESIDENT:** Dr. Demeter?

Dr. Berube?

**MEMBER BERUBE:** Thank you for your intervention. It was actually quite interesting.

I believe I heard you say that you took it upon yourselves to do an independent audit of discharge limits and I think that's why you have the environmental Ph.D. with you. Is that correct?

**MR. COUPLAND:** No, we didn't do an independent one. I referred to the one that was done by the Peterborough Health Authority.

**MEMBER BERUBE:** Oh, I see; okay. That's my misunderstanding. Thank you for clarifying that.

In looking at that data -- because you are looking at a lot of data -- the source data is from that particular source? Or what data did you examine exactly?

**MR. COUPLAND:** Adrienne, I will hand it over to you.

**MS ETHIER:** The data that was reviewed comes from the BWXT annual compliance reports for the risk assessment and other publicly available data that we could find.

**MEMBER BERUBE:** Was that summary data or raw data that you were looking at?

**MS ETHIER:** It was summary.

**MEMBER BERUBE:** Okay. Thank you.

**THE PRESIDENT:** Well, thank you very much for your intervention.

Any other comments? No.

Okay, thank you.

You were going to say something?

**MR. COUPLAND:** I would like to make one last comment.

I just want to say a few words on behalf of the nuclear industry.

We are proud of our industry and of our commitment to safety and to the environment. I know there's a lot of concern in the public and people aren't familiar with the industry. But I would invite the public to compare our industry to any other industry. Look at our environmental or safety track record on any basis you would like and compare us with any other industry that's out there. I think you will find that our track record compares favourably to all the other industries in this country.

I would be happy to have anybody take that comparison and have that discussion. Thank you.

**THE PRESIDENT:** Thank you.

**MS ETHIER:** I would just like to say from years in risk assessment that perceived risk is real risk, and that this perceived risk will trump the measurable risk that they can find in the environment.

It needs to be addressed. It's a problem that's connecting risk assessment in the nuclear industry in general and it comes down to communications.

I have seen with the Ottawa Riverkeeper, as Pippa Feinstein was mentioning, to have NGOs with expertise who can provide critical examination of the data independently does provide good weight of evidence for the public from a source that's independent from the CNSC and independent from the industry, and independent body that they can trust to help break down the barriers.

**THE PRESIDENT:** Thank you. I hope you stay around for the next intervention because I think she makes some excellent points around how you build public trust.

So with that introduction our next presentation is by Ms Margaret Smith, as outlined in CMD 20-H2.142.

Over to you, Ms Smith.

**CMD 20-H2.142**

**Oral presentation by Margaret Smith**

**MS SMITH:** Thank you.

For the record, my name is Margaret Smith. I thank Ms Velshi and the Commission for convening a hearing here in our neighbourhood.

Today I will not be addressing any aspect of the BWXT technical operations or its environmental safety and human health performance. I am satisfied that the plant is well regulated and has a long record of safety and environmental responsibility.

The purpose of my presentation is twofold.

First, I wish to commend BWXT for their improved public information program.

Second, I would like to suggest ways that could improve open and traceable community relationships which I believe the CNSC should encourage through this licensing process.

I first became involved with the then GE-Hitachi plant in 2013. In late 2012 news reports identified community concerns about the Lansdowne Avenue plant's operation. Public meetings were held and in

response GE-Hitachi hosted a public open house and organized a Community Liaison Committee, of which I am a member. The level of community concern ultimately led to the CNSC public meeting in December 2013 in Toronto.

As much as GE Hitachi recognized the seriousness of public concerns it resisted a full community relationship building approach, frustrating many of us on the CLC.

Local operations staff were given responsibility for the CLC instead of community relations professionals. Several ideas for community outreach were suggested but most were not acted on.

GE Hitachi staff were very receptive but could not seem to get senior management approval. This situation was improved somewhat in late 2015 when responsibility for the CLC was passed to a manager for community relations and communications, however, this person was based in Peterborough. The work was now seen as proactive rather than reactive.

CLC members recommended a community barbeque which was initiated in 2015 and was well received.

The CLC also recommended public attitude surveying in the local community area to better appreciate

local concerns and preferences for engagement. However, a big -- big changes started happening only after the December 2016 acquisition of GE Hitachi by BWXTNEC.

Senior BWXT management attended CLC meetings to be part of the conversation and to assure us that stewardship is one of BWXT's core values aiming at commitment to the communities in which they operate. The website was improved, it was continued, community outreach was initiated in earnest.

My understanding is that many of these activities occur in Peterborough with the exception of the community liaison committee, however, Peterborough will soon have a CLC, too.

In January 2019 a new BWXT staff member took over the CLC -- the manager of communications and government relations -- and again this person is not based locally but is in Cambridge.

In spite of these good intentions in Peterborough and in Toronto, BWXT faces considerable negative public reaction to their relicensing application. It is important, therefore, to consider what else could be done to ensure community knowledge and confidence in BWXT's

operation.

In the BWXT license renewal application they set out in the public information program that they are committed to connecting with the communities in which they operate in a timely, transparent and meaningful way, and recognize that the most effective way to build and sustain public trust is to maintain environmental excellence while fostering an atmosphere of openness and transparency with stakeholders and other interested parties.

I agree that public trust is essential and bears directly on whether or not the public believes what BWXT says. However, research and experience clearly indicates that building and sustaining public trust requires more than providing information in a timely manner.

When dealing with detailed technical information sometimes it is hard to be confident that one has all the necessary information, or to feel confident to be able to differentiate between conflicting information. Nuclear information is already value-laden. Sometimes the public may not be certain what to believe and they may decide who to believe; who can be trusted?

In order for the public to trust a company it must demonstrate that it shares the values of the public; that it is open and is seen to be open and inclusiveness -- inclusive in its dialogue with the community; that it listens and hears the views and concerns of its community and demonstrates that understanding in its actions. All these actions can help to build community trust. For BWXT or any nuclear entity how trust is earned is more complicated than simply being open and transparent.

Voluntary community stewardship activities are important in determining whether a company is perceived as trustworthy and credible. These activities include actions seen as beyond what is required such as building relationships with various community stakeholders.

Stewardship activities can demonstrate that the company understands the community's needs, is concerned for them, and shares their values.

BWXT states that it seeks to learn more about community priorities, interests and activities and improve how BWXTNEC shares information about work at the Lansdowne Avenue facility, health and safety initiatives, and community activities. For the first time, BWXT undertook a public attitude survey conducted by IPSO in

October and November 2018. The stated objective to the survey was to understand the level of awareness about the plant among neighbourhood residents.

A survey was conducted in Toronto and Peterborough among residents who live in proximity to the facilities. The results are based on only 149 responses from the Toronto area and 203 responses in Peterborough. The results indicate the following:

17 percent of Toronto respondents had recently heard about BWXT and the majority through company newsletter, flyer, a brochure, or the community barbeques.

Disturbingly, over half of Toronto respondents say they have never heard of the organization or that they are not at all knowledgeable of BWXT.

I believe that undertaking the survey is a great first step for BWXT. The results indicate a baseline and much room to improve local awareness and involvement. These results also suggest more than just providing information is needed. Although BWXT has a much different approach to the communities in which it operates than did GE Hitachi there's clearly a need to continue to improve. More work needs to focus on stewardship activities and building trust. An integrated communications and community

relations plan is needed. A strategic approach would see the coordination and integration of information programs, sponsorship programs, and community partnerships.

What is now characterized as charitable giving should be integrated within a broad stewardship function. BWXT should demonstrate that it takes its local community seriously and wants to build strong community relationships by assigning dedicated communications and community relations staff to each of its plants in Toronto and Peterborough. Locally based managers could continue to develop a better in depth understanding of its influence area, attend local meetings, build personal relationships, and expand its stewardship activities.

The community liaison committee could better be shaped to reflect the local community. As relationships are forged, direct invitations could be extended to community groups and partners to send representatives to join the CLC.

The CLC could be a resource in the future to help design any follow-up surveys and to discuss results. Local residents have insights into local issues and could suggest ways to improve community relationships.

Members of the CLC could help to provide

feedback in the development and execution of an integrated community information and stewardship plan.

The CNSC's task is to ensure the safe use of nuclear energy and materials protecting human health and the environment. To that end, the public information program should be reconstituted to ensure a meaningful community relationship that helps to build trust and confidence in BWXT's operation.

In summary, that plan would come comprised an integrate a strategic communications and community relations plan, comprising,

(a) information programs, sponsorship programs, and community partnerships;

(b) dedicated communications and community relations staff in Toronto and Peterborough; and,

(c) a more dynamic role for the CLC.

I believe that these measures could improve open and traceable community relationships. I do believe the CNSC should encourage these objectives through this licensing process.

Thank you.

**THE PRESIDENT:** Thank you very much. And before I turn it to Commission members, maybe I'll ask BWXT

what's your reaction to the recommendations by the intervenor on how you actually build relationships and trust in the community.

**MR. MacQUARRIE:** It's John MacQuarrie, for the record.

Ms Smith has been part of our committee, as she noted, for quite sometime. She's been quite a helpful member of our committee and the advice she's given us in the past has been helpful, and what's she's given us today is equally helpful and so we will take all of that into consideration as we put together a plan.

We obviously need to change our approach and so we'll -- with a sense of urgency, put together that plan. And I think she's made some good points here that we agree may be more effective than what we've been doing in the past.

**THE PRESIDENT:** I think she has also volunteered to help you with the plan, as a member of the CLC.

Dr. McKinnon?

**MEMBER MCKINNON:** Thank you, a lot of excellent comments on engagement -- very good suggestions.

I was -- I'd like to take up the point

that you mentioned about the community liaison committee and you felt that in some instances it's not really paid attention to and really the comments are not implemented or acted on by the company, so the question I have to the company is, can you give me some examples of you know discussions or suggestions that have come up in the CLC that you have acted on?

**MS CUTLER:** Natalie Cutler, for the record.

We have -- at every meeting that I have attended, we ask members, what are you hearing in the community; and up until our most recent meeting at the end of last year we hadn't been hearing any opposition, and so -- but we want to hear that, you know, if there's concerns we can address those.

We also -- we poll the committee members on what organizations are you aware of that -- that you know are needing support or may be interested in -- in being part of this discussion. And we do take that information and help inform us to engage with those organizations on in perhaps support and reaching out. So those are some examples of ways that we engage the members on feedback.

**THE PRESIDENT:** Dr. Demeter?

**MEMBER DEMETER:** Thank you for your intervention; it was a well-considered analysis and it was very informative.

I have a sort of broad-stroked question for staff. So what I found in numerous hearings is that it is not uncommon to have a mad scramble as the licence becomes up for renewal to have massive communications and meet the regulator and emails going out and sort of -- and this isn't unique to this hearing because I've seen other ones. It begs the question that you know there's been 10 years since the last hearing, and it seems to be a really concentrated effort to have all the communications in the six months before the hearing.

So what does CNSC do relative to the requirements of the licensee, either the public disclosure requirement -- how do we spread that out over the licence period versus this concentrated batch? And then there's always, well, we'll do better and we'll do this and do that, but it's been 10 years, so how do we spread that out?

**MS TADROS:** Haidy Tadros, for the record.

So as you've rightly mentioned, the public information disclosure program becomes compliance criteria

that we use in the *Licence Condition Handbook* and, similar to any other program, we conduct inspections to ensure that BWXT is informing the public adequately. So I'll ask our communications specialists who look at the public information and disclosure program and inspect it to provide some answers as to how we spread out our knowledge of what the licensee is doing.

**MS GERRISH:** It's Meghan Gerrish, for the record.

We do review BWXT's public information and disclosure program on a yearly basis. It comes under annual compliance reporting, and we review the program on paper.

We review updates that they have made to their program and we expect that BWXT every year provides updates to the CNSC about their public information program, what's been done, what are they hearing, polling results, info requests that they get from the public; we review all of that data and review it against the REGDOC 3.2.1 Public Information and Disclosure, to ensure that they are meeting the requirements of the program.

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

I think earlier Dr. Berube spoke about

what is the best practise that exists. With respect to the community liaison CLC, we have licensees, I'm going to mention it -- and NB Power is very successful with the community surrounding their -- their plant, which is an NPP.

I think there is lots to be learned from them, and I commit to the Commission as the -- your question is, what is the CNSC doing above and beyond the licensee or the applicants here before you? Well, listening to the discussion and conversation, for us at -- and, NB Power, I'm going to use them as an example -- staff do attend sometimes occasionally during the year, at least a minimum of twice or three times a year, with the applicant or the licensee engaging with the community.

So we have a role to play with a presence in the community, so we will have to look at the program itself, what we can contribute for the trust building of the community itself, and we're going to have to work together with the licensee and members of the community to see what their needs are so we are able to provide them with our assistance and presence and clarification that's being done.

So we're building -- we heard everybody

and we're going to look at different plans so that we're able to engage with the public and even though it gives the perception that all the communications is jammed over the last six months, it's ongoing, but we have to look at it how much more effective it can be.

**THE PRESIDENT:** Dr. Berube? Dr. Lacroix?

Okay, thank you very much. Do you have any last comments to make, Ms Smith?

**MS SMITH:** No, I just thank you for the opportunity. I appreciate that BWXT really does try to be more effective but as we've heard from the many presentations here yesterday and some today, that there are real concerns and I think that it's hard for corporate groups to go out into the community and do the door-to-door work and to meet up with people, groups and organizations, stakeholder groups, in their venues, and to go out to them to reach out to do that community building.

It's not seen as what the company is there to do. It's there to do, you know, the pelleting in this case. And so it's a big leap, but it's really worth it, particularly in nuclear because nuclear has -- it's value laden and people bring a lot to it.

So I think that the situation can be

overcome but it will take a lot of hard work in getting outside of their comfort level.

Thank you.

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

We'll take a 15 minute break and reconvene at 10:45 a.m. Thank you.

--- Upon recessing at 10:29 a.m. /  
Suspension à 10 h 29

--- Upon resuming at 10:47 a.m. /  
Reprise à 10 h 47

**THE PRESIDENT:** The next presentation is by Ms Hannah Conover-Arthurs, as outlined in CMD 20-H2.23.

Ms Conover-Arthurs, over to you.

**CMD 20-H2.23**

**Oral presentation by Hannah Conover-Arthurs**

**MS CONOVER-ARTHURS:** Thank you.

I just have a short presentation, a couple of things I wanted to say.

So my name is Hannah Conover-Arthurs. I have been a resident in the Devonport area for seven years now. I moved into the neighbourhood so I could be close to my work, a little bar on the corner of Dupont and Campbell, just down the street from the BWXT plant. I would bike past the plant every day, unaware of the company's operations.

After two years of working at the bar, a friend mentioned that they process uranium at the 1025 Lansdowne site. I was shocked and horrified that this site handles 53 percent of all the uranium used in Canada's nuclear reactors.

Over the last couple of years I have seen the neighbourhood grow as more and more condos go up. As I had conversations with people in the area, I realized many are unaware of BWXT. There are hundreds of new residents moving to the neighbourhood every year. It makes me wonder if landlords and developers are educating new residents about their property being next to a potentially hazardous nuclear site.

BWXT Toronto is permitted to dump 9000 kilograms of uranium into municipal sewage and 760 grams into the air annually. If exposure to radioactive

particles has a carcinogenic effect, how can anyone in the neighbourhood feel genuinely safe from this kind of poisoning?

If a train derailed next to their hydrogen tank, how would the community respond to this emergency? Even if the amount of uranium released from the site is relatively low, any exposure to radioactive particles can be dangerous, especially to those at higher risk like women and children. If there is a risk associated with uranium exposure, then we should limit the risk to zero.

I do not consider nuclear as a green energy solution. If there are genuinely sustainable options for our grid, why would we lock ourselves into 10 more years of dangerous, dirty energy?

We all witnessed the slipup in Pickering. Here in Toronto we are also at risk if there is an emergency at the Pickering plant. If anything went wrong at 1025 Lansdowne, it would be catastrophic for the entire GTA. Knowing all this, why would we continue to put ourselves, our environment and our futures at risk?

I love this neighbourhood. I raised my family here. I do not want to put them at risk. An unfair burden is on all the residents of Davenport. Closing this

site provides our community the opportunity to pivot to a genuinely green sustainable grid that does not rely on harmful radioactive energy.

Thank you.

**THE PRESIDENT:** Thank you.

--- Applause / Applaudiseements

**THE PRESIDENT:** Please...

Dr. Demeter...?

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

Have you had any opportunity to attend any of the open houses, the meet the regulator, to tour the plant?

**MS CONOVER-ARTHURS:** No.

**MEMBER DEMETER:** What would be the reason for you not to get better informed at those venues?

**MS CONOVER-ARTHURS:** Since I have lived in Davenport, really there has been no communication about what happens at BWXT. The only reason that I was made aware of it is because of environmental circles that I am a part of and other people in the community raising concerns.

I pass by it all the time, constantly, but I was never made aware of any outreach that was being done

by BWXT and since I have known about it I have not tried to go and visit the site or get inside or find out what community outreach they are trying to do.

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

Dr. Lacroix...?

Dr. McKinnon...?

Okay. Well, thank you very much for your intervention.

The next presentation is by the Rockcliffe-Smythe Community Association, as outlined in CMD 20-H2.132.

Ms Miriam Hawkins will present this submission. Over to you.

**CMD 20-H2.132**

**Oral presentation by the**

**Rockcliffe-Smythe Community Association**

**MS HAWKINS:** Thank you very much.

I have been watching the proceedings for the last couple of days and some things have been reassuring and some things have been alarming.

I have a background in both media

relations and in economic impact studies, in particular having toured the Gentilly site back in the '80s and watched the progression of the nuclear industry.

You know, there are arguments to be made for pivoting. There are arguments to be made for all the different things that have been brought up by community groups.

I actually understood that in fact there was very little done in the way of media relations on the part of the CNSC. There should actually have been as part of their mandate -- the requirement to inform the public is actually a very basic part of the mandate of the CNSC and absolutely no media relations has been done.

There is no media here, there is no media coverage, there is no one here. There was no one at the meet the regulator. I was challenged as to why there were no people there. I was challenged. I barely found out about it myself.

I think it is actually -- I lived on Perth Avenue, which is within a few hundred metres of the site for a number of years. I was unaware of what was happening there. I am sort of embarrassed because I like to think of myself as a well-informed citizen, I try to follow the

media. There is absolutely nothing about this in the media at all and that's the regulator's job. You are putting it onto the company. The company can do that if it wishes, but it is the regulator's job.

So as a representative of my community I have a lot of concerns about health impacts and lack of studies or data. There is no data supplied by anybody.

It's interesting that if you go on to the Cancer Care Ontario website that you will only see results by health units, which can comprise entire swaths of the province. Seventy percent of the province is collapsed into one single health unit.

So to get results for any of the areas or for any -- we don't know where the effluent is being studied, we don't really know anything. We don't know where the waste is going, we don't know what is happening to the waste.

I actually witnessed before this regulatory body long before any of you were here. I don't know if any of you were on this Commission 25 years ago, but there has been no plan for the waste.

So if you want to talk about lifecycle of this industry, we have alternatives. No one has

mentioned -- we are always comparing it to petrochemical, fossil fuels and the like. No one is talking about renewables. No one is talking about hydro. No one is talking about Quebec and Manitoba Power.

This industry is basically sailing on a wing and a prayer. I think this particular plant is vulnerable to terrorist attack. I think if anybody wanted to take out the hydrogen tank it would only take a drone and drones can carry 400-kilogram payloads.

I know I'm sounding alarmist, but I am alarmed. Uranium isn't as bad as some of the other -- I know that half the lung cancer rates are from radon in our basements. You know, non-smoking cancer rates, half of them are from radon.

I understand that there are other sources in the environment, but as everyone has said in the past, all the community groups, it is really not about whether you inform us as to how good a job -- the company is doing a very good job from all accounts. It is doing it according to its licence agreements and the requirements are changing, as you've pointed out, but it is in a dense area.

Ideally, if you were going to process all

this fuel, if you were rewriting the regs -- we hear a lot about REGDOCs. Are we going to have new regulations that would require new such facilities to not locate within city boundaries and within highly populated areas?

If there were an explosion of the tank, we have already heard from Toronto Emergency Services that there has been no plan for anything other than the regular approach to fire response. There is no approach for an explosion either listed by the company or the Emergency Services. The federal government has shown no leadership in terms of emergency planning. There is really nothing in place that would provide the public with any sense of what to do in case of emergency.

We are all wondering whether we should have a face mask for COVID and yet nobody seems to be looking at the worst-case scenario. The worst-case scenario is not a train derailment and fire. The worst-case scenario is an explosion. So then what happens? If the building is levelled, what happens? What does the neighbourhood do?

I'm shocked that nobody has looked at this. Nobody has looked at what to do in case of an actual worst-case scenario. It hasn't been studied. We have only

looked at fire. And if people are saying that trucks are parked beside the hydrogen tank and they are trucks full of uranium and there is a potential for any kind of contact, it just doesn't make any sense to me. I heard that the curb boundaries and poles that are protecting the tank from trucks accidentally hitting them, it hasn't been studied whether this is safe or not, whether this is even adequate.

There are so many questions and so many gaps left. The 10-year period between licence renewal reviews, it doesn't allow us a chance to look at any of these things in any finer detail as we move forward.

The public and the community at large need an opportunity to work with its Emergency Services Units, to work with the company, to work with the media, to do all of these things that people have discussed and to bring this right up into the forefront and not be running what I think one of the first presenters yesterday mentioned was a stealth operation.

Four thousand people in the neighbourhood is not adequate. There are tens of thousands of people that live around this plant and if it's a good story to tell there should have been no reason not to tell it long ago and to share with the community what the Commission --

what this hearing process is about.

There is one lady that has come in here from Orillia because she knows what's going on. I don't see anyone else here. Are they all watching at home on webcast? I highly doubt it. I don't think you -- I think if you were to look at your hits for this particular webcast, I think you are going to find as of today it will be extremely low. It might grow over time, but your hits for today will demonstrate the lack of penetration that you have had in terms of media outreach and public education.

It is the Commission's job to do public education. I don't really fault the company. They are burning...

One of the things I found very interesting -- and I couldn't find a map. I went to recently -- as a member of the Rockcliffe-Smythe Neighbourhood Improvement Area Planning Table, we had asked for -- we noticed that there are some health impacts in our community. We don't know why, we don't know how it turns into emergency admissions in hospitals. There is only the one way of finding it out. We can't look at cancer rates. There is no microscopic or regional analysis cancer rates. We know kidney rates have -- kidney cancer rates have

doubled. That is on the Cancer Care website.

What isn't available that I could find readily to share with you was a very interesting thing. The Ministry of Environment brought out a map for us to look at where the hotspots are for airborne pollutants and what we found was along the 400 series highways, as you would expect, with nodes around the intersections and the on ramps and off ramps, and a dot at Lansdowne and Dupont. And what was that red dot? No one could tell me.

So we know that there is high combustion, high heat combustion and there must be some sort of reason that we see a pinpoint on the map of some sort of air pollutants.

We also -- I am very confused also. I have heard so many things about one particle causing cancer, but we don't know for years and years to come, so we can never really measure it.

With COVID we can go in, we can find it, we can treat people, isolate them and you're done. It's all done in the few weeks that it takes for a virus to affect the body.

We don't know these long-term effects of the nuclear industry. We don't know anywhere to put the

fuel. We are pumping this stuff into the air. How many -- I calculated that if it is 1.75 kilos a year, we are talking about more, it's almost a couple of trillion particles are released every year.

Particles don't always settle into the sediment, you know. They're going around in the air. Whether it's in the water, I didn't hear anybody explain how we are okay with simply settling out particulates in the water. No one has talked about the solubility of any of this stuff.

So yes, it might settle out in particulates, the water might have been reaching its allowable levels to be released into the environment, but we didn't necessarily -- what happens to the dissolved particles and where do they go? Are they -- basically we are saying they might settle out in the sludge or they might be going into the drinking water.

We were told that even though it was in a storm or a rain event or some such thing that nothing could have been released into the stormwater system. I also reject that. We know very well that Toronto stormwater and sewers are always in a storm creating overflow issues and it goes straight into the lake.

So there are so many questions and issues and unanswered questions, although I am satisfied that the company is operating in a very responsible way, according to its regulatory requirements. It appears that apart from a spill and a few things that might be out of the ordinary, you might say that this is an exemplary company. But really, the whole thing is actually quite dangerous, as we see.

Any bad accident that hasn't been planned for, I wouldn't want to send my Emergency Services into that company if there was a fire. I don't think it's fair to put that on our firefighters. I think we're just not thinking this through, unfortunately.

Although I am assured that there is no business case to move the company at present or to end its licence and that it would be not a comfortable decision for the company, in fact what should be on the table is not a preliminary decommissioning plan, it should be a completed decommissioning plan at all times and it actually should be very clear how we are going to get out of this.

If in fact the Commission so chose and if the weight of public opinion alone had anything to do with it and if the public even were here and knew about any of

this, you might in fact find that the public opinion would weigh in favour of the closing of the plant. But I only see a few old friendly faces that I remember from my time in the environmental movement and it is just not okay that I am relying on a few people that have tried their very best to understand the science to be my protector.

I have heard the Commission ask questions of the expert. I have heard the expert answers. The answers become very short. I don't get the detail but I'm looking for.

I'm sorry, I have run out of time.

--- Applause / Applaudissements

**THE PRESIDENT:** No applause. Please, no applause. Maybe you weren't here at the beginning of the hearing. No applause, please. We need to carry on with the proceeding.

Thank you. You have raised many, many points, new ones, and so let's get on with the questions.

We will start with you, Dr. Berube.

**MEMBER BERUBE:** Well, here the intervenor is discussing the belief that an explosion is probably the biggest problem at the facility. We have discussed this already a few times I believe.

However, she did raise something that is kind of interesting actually and something that we haven't discussed yet and that is the barrier protection around the tank in terms of certification, how much can it take, how do you test that, what are the standards that barrier protection around a tank like this must meet.

BWXT, could you...?

**MR. SNOPEK:** Dave Snopek, for the record.

The hydrogen tank, as I mentioned I think yesterday, is sited according to National Fire Protection Association NFPA 55, which has certain standoff distances. It also has certain distances to be maintained to combustible materials in buildings.

Part of the way that we do that is we exclude parking from the area and we do that with a curb, and we exclude combustible material from the area, including vegetation, by infilling that area with large, kind of coarse, aggregate or stone. So it is not something that you would intentionally drive into because you have the curb.

In addition, around the tank there are bollards which would be providing visual and mechanical protection of the tank. Should somebody have gone up on

the curb, they would strike that bollard around the tank itself and all of the piping associated with the tank.

So there are kind of several layers of visual and mechanical barriers to somebody driving a vehicle into the tank for example.

**MEMBER BERUBE:** So you have a defence in depth approach basically, that is the way you are looking at this thing. But just out of curiosity, I mean like you said there are concrete posts that are basically surrounding the actual tank itself as a means of protection as well, I would take it. Is there actually a standard for that kind of thing? I'm not aware of one myself, but maybe you know.

**MR. SNOPEK:** Dave Snopek, for the record. I don't have that information. That is something we can look into.

**THE PRESIDENT:** Dr. Lacroix...?

**MEMBER LACROIX:** Thank you, Madam Hawkins, for this very emotional statement.

You have raised a number of points and I read in your written submission that your organization has assessed the risk-benefit of continued operation of the plant.

**MS HAWKINS:** Excuse me. We are not in a position to do risk-benefit analysis.

**MEMBER LACROIX:** Okay.

**MS HAWKINS:** I myself have done economic impact analysis for the energy sector in the past, but that doesn't mean that my organization has the capacity to do any analysis.

**MEMBER LACROIX:** Okay.

**MS HAWKINS:** But I am sure that there would be organizations such as have been mentioned already this morning --

**MEMBER LACROIX:** Okay.

**MS HAWKINS:** -- that would be happy to take raw data and do something with it. But we lack raw data, as has been pointed out, and we only get aggregate data. And the province aggregates its own cancer statistics for example on such a wide scale that we really have no way of analyzing much at all.

**MEMBER LACROIX:** Okay.

BWXT, I guess, has already agreed to make their data available to the public.

**MS HAWKINS:** I heard.

**MEMBER LACROIX:** So you could use these

data. Thank you.

**THE PRESIDENT:** Dr. McKinnon...?

**MEMBER MCKINNON:** Yes. Thank you for raising a lot of interesting and important issues.

I see we have the Fire Chief here, so I would like to ask him a question related to what you had mentioned in connection with there being any incidents for which he would be fearful of sending crews in to manage any incidents. And we know from the discussion yesterday that the fire department and the company are in fairly regular contact and aware of various scenarios being planned, but could you comment on risks and any -- and the fear issue that was raised by the intervenor, please?

**MR. JESSOP:** Yes. Thank you again. Jim Jessop, I am the Deputy Fire Chief of Operations for Toronto Fire.

So Toronto Fire Service has worked, as we do with all unique risks, and there are dozens across the city, with the BWXT over the last, you know, decades. Our most recent standard operating guideline was updated in 2018 and I can tell you that we actually know which floors we have to wear breathing apparatus on, which floors -- they have different levels of contamination, and as the

person ultimately responsible for the firefighters responding, both from a moral perspective but also under the *Occupational Health & Safety Act*, I would not be doing my job if we had not taken the appropriate measures in preparation.

So I can tell you Toronto Fire Service will respond, as we do to all risks and fires and explosions and leaks across the fourth largest city in North America. Our staff are well trained, we are well equipped and we -- for your benefit, for example, because there is a lot of questions about the tank, our guideline in working with BWXT actually breaks down, you know, what we would do with each type of issue with the tank: so if there is a leak, if there is a fire under the tank, if there is a fire above the tank.

So we have looked at as many scenarios as possible, we have trained our staff, we have unique response protocols based on the call that would come in, as again we do for all unique challenges. Unfortunately, I am not in a position, you know, as an emergency responder to contemplate, you know, all scenarios. All I can tell you is that we have looked at everything that we think is reasonable that could happen, that historically has

happened, you know, in other sorts of unique challenges.

We continually reevaluate, we continually upgrade and we continue to work with BWXT in terms of new information if it comes our way. So I have no concerns at this point in sending my staff into either fires, hazmat calls or medical calls to this company, nor any other building in the City of Toronto, because, you know it is incumbent upon us when we are aware of unique challenges that we take additional measures, which I can tell you we have.

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

**THE PRESIDENT:** On the issue that the intervenor raised of perhaps a terrorist attack and an explosion that may bring the building down, have you looked at that particular scenario?

**MR. JESSOP:** So that is something that for this specific building the answer is no, but we don't look at that for any other building in the City of Toronto. We don't contemplate -- we don't have the ability nor the resources to look at every sort of worst-case scenario for every building. So, you know, for example, we haven't done that scenario if the CN Tower collapsed and there was a massive explosion.

We have our general guiding principles, we have our escalating alarm levels, we have our unique response protocols and apparatus such as heavy rescue squads, high-rise units and hazardous materials trucks, but we are not in a position, nor what I suggest is any fire service in North America, that could look at every single building and contemplate the worst-case scenario.

We have responded to explosions in the past across the city, we have responded to fires, we have responded to hazardous materials calls and CBRNE calls, and what I would say is our general protocols, with a sliding scale in an escalation up, in terms of additional resources and bringing in additional expertise, whether it's through mutual aid, whether it's through our agreements with the provincial government, with the Emergency Management Ontario, the Office of the Fire Marshal, the OPP, Toronto Police Service and their special units, we do this and we plan all the time.

The message I want to get across is not only for this specific building but for any building that, you know, we are as prepared as we can be. We take this role very, very seriously, but unfortunately, ma'am, as you know, we can't always look at the worst-case scenario for

every building all the time.

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

Dr. Demeter...?

**MEMBER DEMETER:** Thank you for your intervention. I am going to leave one question for Public Health when they are here this afternoon about your cancer rates and clusters, noting that the smaller you go in looking at cancer rates, the more unstable the results become because they are small numbers. So I am going to ask them how granular versus just -- health units, how granular their data can be.

I think it's important when comments are made about risk that they be put into perspective, because you write some people are listening, some people are here and some people will watch the archive. You talked about the risks of radon with this plant and we had two discussions yesterday --

**MS HAWKINS:** (Off microphone) nothing to do with the plant. That was my point and in fact I understand that's the point.

**MEMBER DEMETER:** So what did your comment on radon have to do with the plant?

**MS HAWKINS:** I'm trying to explain that I

understand that in fact we do have environmental sources that in fact are causing lung cancer in our homes and that that is a grave concern that could be easily and equally serious to any kind of pollution impacts of such a plant should there be an accident or on a daily basis that we don't know about. I'm trying to show that I actually appreciate the science that has been discussed and demonstrated and is available to the public. I understand.

**MEMBER DEMETER:** Okay. I just wanted to make the public understand that I agree that the majority of non-smoking-related cancer and lung cancer is related to radon in residential homes and basements --

**MS HAWKINS:** Yes, you are repeating my point.

**MEMBER DEMETER:** -- but there is no radon emissions --

**MS HAWKINS:** I understood that.

**MEMBER DEMETER:** -- from the plant.

**MS HAWKINS:** Yes.

**MEMBER DEMETER:** -- to correlate to that.

**MS HAWKINS:** Yes. That wasn't my point.

**MEMBER DEMETER:** Thank you.

**THE PRESIDENT:** Ms Hawkins, you mentioned

about maps that show what the pollutant levels are in the city and we have heard many intervenors raise concerns that they were unaware of a nuclear facility in their neighbourhood, that the developers or the real estate agents don't advise them of it and that information is not readily available.

I don't know if when we get someone from Public Health whether they will be able to answer this, but are you aware whether the City of Toronto has interactive maps, that if I were to put in my postal code it would tell me, here are all the industrial installations in your neighbourhood? Is that something that is readily available?

**MS HAWKINS:** I'm not an expert. I know that I tried to find it on the Internet. I was unsuccessful, but it doesn't mean that something isn't around. Actually I think it's a provincial issue and I think it has to do with -- it's actually a dataset that is published. I don't think it's actually a map. But when I asked the provincial representative what the point was that I identified as a hotspot, along with the 400 series highways, at Dupont and Lansdowne, nobody could tell me.

**THE PRESIDENT:** Thank you.

And then another point that the intervenor mentioned is about this lack of penetration and we kind of see that with the attendance here and if you have looked at how many hits have been on the webcast and if that's low. We have had a record number of interventions for this particular hearing. So maybe I will ask this of the CNSC staff and around media interest or lack of interest.

What does the CNSC do to try to get media to be here and try to disseminate information about this particular hearing and what is being discussed?

**MS TADROS:** Haidy Tadros, for the record.

So I will pass that question to our Communications Specialist who look at providing the coverage that we typically would put out before licensing renewal.

**MS GERRISH:** Meghan Gerrish, for the record.

The CNSC does have an active media relations team dedicated solely to media relations. In fact, leading into this hearing we have had 21 media requests to do with the BWXT hearing and all 21 of those requests were from either the Toronto Star or the Peterborough Examiner. So that is something that we

actively respond to those inquiries.

And today, in today's news clippings alone we are in the Toronto Sun as well as the Toronto Star. Yesterday on the hearing we had OMNI present as well as the Toronto Star and a few independents. And in addition, the media is encouraged to follow the webcast, so they are able to watch it and collect their coverage that way.

We have a team back in Ottawa right now collecting the webcast stats, if you will, so I can provide that information later on.

And in addition to just the response to the media relations -- or to the media requests, we actively write letters to the editor, respond to opinion pieces and engage with media that way. So there is quite a bit to do with the media relations from CNSC.

**THE PRESIDENT:** Thank you.

Chief, did you have something you wanted to add?

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

I omitted to also highlight that Toronto Fire Service, again being specific, this is for the entire city, but we also, in response to some of the questions regarding -- you know, I have heard chemicals and I have

heard collapses and explosions. So it's important to note that Toronto Fire Service is also contracted and provides both the Provincial Chemical, Biological, Radiological, Nuclear and Explosion Unit for the province, so we are under contract from the Province of Ontario. We have the specialized team that responds not only within the City of Toronto but is available to every other jurisdiction within Ontario through an agreement. So we have that expertise in-house.

And then secondly, we are one of the few Canadian cities that actually has what they call the HUSAR team, so the Heavy Urban Search and Rescue Team, which would be deployed for building collapses and so forth and so on.

So these are in addition to our normal response resources, but I just thought for the Commission's benefit it's important to highlight that, you know, the two specialized national and provincial teams that deal with sort of special low-frequency, high-consequence events both reside within the Toronto Fire Service.

**THE PRESIDENT:** Thank you.

Ms Hawkins, any last comments you want to make?

**MS HAWKINS:** Well, I do appreciate that there is limited time and I actually have more questions. After hearing all the presentations and all the answers and all the Panel's questions, it leaves more questions.

I am concerned that after all these years the CNSC has not reached out to the community, as is its mandate. I have heard you reiterate that you are going to do a better job.

I asked at the meet the regulator meeting -- which I found out about with a few days notice, and the requirement to apply to be here today with just a few days notice. That is obviously unacceptable. But even at the meet the regulator event, I was challenged as to why there were no attendees.

It is not my job to figure out what are my local issues, what are important 10-year decisions that we are making. There should have been a long process where the public would have been invited to take part in and review all of this material, either to allay concerns or to focus our attention and energy on the unanswered questions in time to make a fair decision about a licence renewal, not to be sort of under the gun and at the end of the wire, with nobody around to even talk about it.

I don't feel qualified to be here, although I am trying to represent my community, which is adjacent to the plant and the Davenport community. I'm not really qualified, although I have a sense that because I am challenged to be the one that does your PR and that I am hearing about more PR than about evidence-based review. It's not a PR job that we are looking for, it's evidence-based review.

We are lacking evidence, we are lacking review time, we are lacking notification and so really this is a rubberstamp and everybody who will be watching this and everybody who is analyzing this feels that way if you are part of the community that is looking for a role to play. I would like to have a more informed role to play. Unfortunately, I can only deal with what I am given at the last minute by fellow members of my community who are only little better capable of making these kinds of insights with a similar lack of data.

**THE PRESIDENT:** So, Ms Hawkins, just to say I mean I very much regret that you think this is just a rubberstamp and that we are just going through the motions, because we seriously are trying to probe the issues.

And I also want to highlight that once the

licence is issued, that doesn't mean it's there. If there are issues that arise, if members of the public, once they have the information they need -- and BWXT has made a commitment to provide more information -- that based on your analysis or some of the other expert intervenors we have had, their analysis identifies areas of concern, there is nothing stopping the Commission to revisit the licensing decision. So I entreat you to continue your vigilance on this because it is very much appreciated. So thank you for your intervention.

**MS HAWKINS:** Thank you for pointing that out. That is actually refreshing to hear.

**THE PRESIDENT:** Our next presentation -- excuse me.

**MR. LEBLANC:** We just want to verify if Ms Juhasz is in the room. We have not been able to identify her this morning.

No. So her intervention will be considered as a written submission and we will ask the Members at the end of the day if they have any questions on this particular matter.

So the next, Madame la Présidente...?

**THE PRESIDENT:** So our next presentation

is by Ms Janine Carter, as outlined in CMD 20-H2.65.

Ms Carter, I don't know if you were told that when we heard yesterday that you weren't going to be able to make an oral presentation we had treated that as a written submission.

**MS CARTER:** Yes. Yes.

**THE PRESIDENT:** But the floor is yours --

**MS CARTER:** Thank you.

**THE PRESIDENT:** -- to make your oral presentation.

#### **CMD 20-H2.65**

#### **Oral presentation by Janine Carter**

**DR. CARTER:** Thank you.

So I am Janine Carter, I am a local resident. When my family and I moved into this area in the 1990s, it did not occur to us that there might be a nuclear facility nearby. If we had thought about it at all, which we did not, we would have thought that surely the powers that be would not allow such a thing in a heavily populated area in the biggest city in the country. And even if they had, surely people would know it was there.

That this facility has been allowed to operate since 1965 is a gross failure of responsibility by all levels of government. That it has done so mostly in secret clearly demonstrates that someone knew it would be a problem to do so openly, because people would object. Now that we know we are objecting. People in Peterborough are objecting just as strongly about the sister plant there.

As it happens, I used to live very close to the plant in Peterborough and attended some classes at the primary school, which is right across the street. We were not aware of what was happening there either.

And as if this weren't enough, my father was a nuclear physicist and worked at a nuclear plant until I was five years old. I have been plagued by this technology my entire life.

My father died 21 years ago of a very aggressive kind of cancer. I am a cancer survivor and so is my mother. Two of my children are currently experiencing severe health problems and the third had learning problems in school and was in a special education class.

Uranium is one of the most toxic naturally occurring elements. As I said, it is both a heavy metal

like lead and also radioactive. More dangerous elements such as plutonium and polonium are products of nuclear fission and only exist as a product of a nuclear bomb or a nuclear reactor.

The problem starts with the mining of the uranium. This involves using and therefore polluting huge volumes of water and also dealing with uranium-238, which remains when the uranium-235, which is only .7 percent of the ore and is the isotope needed. When this is removed, the U-238 must be disposed of.

This depleted uranium, which is very dense and can penetrate tanks, has been used in the military, for example in Iraq, with devastating results. I once had photos sent to me of babies born after the Gulf War. The babies all had severe deformities and they were all born to U.S. soldiers who had served in Iraq. One can only imagine the effect on the local residents.

Much uranium mining takes place on indigenous territory, first in the Southwest United States and later also in Canada. On February 29th, 2008, Robert Lovelace, former Chief of the Ardoch Algonquin First Nation and currently an instructor at Queen's University and Sir Sandford Fleming College in Peterborough, was sentenced to

six months in jail. His crime was trying to stop Frontenac Ventures from mining uranium in Sharbot Lake, which is part of the Ardoch Algonquin territory north of Kingston. People living there had had their water supply rendered undrinkable and were suffering from cancers and other diseases from long-term exposure to the uranium.

The story is the same for other territories that have been subjected to uranium mining.

After the uranium is mined it is processed so that it can be used to fuel nuclear reactors. The closest reactors to us are the ones at Pickering and Darlington. These are both between here and Peterborough and both on Lake Ontario. At the Lansdowne Plant the uranium is put into pellets and in Peterborough these are bundled to be ready for the reactor. For us local residents the main danger is that we might ingest or inhale uranium particles, which can then stay inside our bodies, emitting radiation which can damage our cells, causing cancer or other diseases.

It is impossible to say that any one particular case of sickness was caused this way as we cannot trace the uranium through our body and the health effects may not become apparent until many years later.

What can be done is to show that more cases have occurred than would be expected.

We do know that radiation is bad for human health. High doses can kill quickly, but any dose is harmful. This has been proven by researchers such as Walter Sternglas and Rosalie Bertell. One thing they found was that radiation speeds up the aging process so that people may get sick at a younger age. It is most dangerous for the very young, especially the unborn, and for people whose health is already compromised. Any kind of radiation is harmful, including medical and dental X-rays and naturally occurring radiation. There is no safe dose.

As Rosalie Bertell says in her book, "No Immediate Danger", workers, military service personnel and the general public have been given the impression that exposure to radiation involves a slight risk of dying of cancer and that one's chances of escaping this are better than the chances of escaping an automobile accident. The probabilities of early occurrence of heart disease, diabetes mellitus, arthritis, asthma or severe allergies, all resulting in a prolonged state of ill health, are never mentioned.

Most people are unaware of the fact that

ionizing radiation can cause spontaneous abortions, stillbirths, infant deaths, asthma, severe allergies, depressed immune systems with greater risk of bacterial and viral infections -- think Coronavirus -- leukemia, solid tumours, birth defects or mental and physical retardation in children. Most of the above-mentioned tragedies affect the individual or family unit directly and society only indirectly.

Dr. R. Mole, a member of ICRP and the British NRPB, stated:

"The most important consideration is the generally accepted value judgment that early embryonic losses are of little personal or social concern."

There are similar value judgments made with respect to other health effects. The health problems are externalized, i.e. placed beyond the responsibility of the government, and they are borne by individuals and their families.

Finally, the uranium is sent to the reactors where it is used as fuel to make electricity. The electricity is generated by boiling water with the heat generated by the fission reaction. This has been described

as being analogous to using a chainsaw to cut one's toenails.

Most of the electricity we use in Ontario comes from these nuclear reactors. There are many associated problems, including radioactive waste, release of radiation into the environment and the risk of catastrophic accident. It is also a very expensive way to generate electricity and is the real reason for rising hydro bills.

There is simply no good reason to keep these reactors running when there are cheaper renewable ways to provide electricity. They should be decommissioned and soon as possible and then there would be no need for the uranium processing plants.

In conclusion, these two uranium processing plants, one here and one in Peterborough, are a danger to the health of us local residents and should not be allowed to keep operating. The licence renewal should be denied for both.

The situation at the Lansdowne Plant is made worse by the proximity of the railway tracks, which frequently carry freight trains with explosive cargoes. Add to this the tank of liquid hydrogen, also highly

explosive, and you have the potential for a really horrible accident where we would all end up covered in uranium dust. This is a completely unacceptable risk. These plants must both be decommissioned starting immediately.

--- Applause / Applaudissements

**THE PRESIDENT:** I will not remind you again. There is no applause allowed, please.

**UNIDENTIFIED SPEAKER:** (Off microphone)

**THE PRESIDENT:** It's not a discussion, I guess it's the interpretation. Perhaps you can move further ahead.

Thank you for your intervention.

Why don't we start with Dr. Lacroix.

**DR. CARTER:** By the way, I am Dr. Carter. I am a doctor, too.

**THE PRESIDENT:** Dr. Carter, thank you for your intervention.

Dr. McKinnon...?

**MEMBER MCKINNON:** Yes. Thank you for your comments.

One of them related to the current case is the depleted uranium. I have a couple of questions.

The first is to the company. What is the

approximate proportion of depleted versus natural uranium that you deal with?

**MR. RICHARDSON:** So my name is Ted Richardson, I am the Director of Fuel, for the record.

So just so I understand your question, are you asking the amount of depleted that we manufacture as opposed to regular uranium? Is that the question?

**MEMBER MCKINNON:** No. I think the concern was the effects of depleted uranium, so I was wanting to raise the issue of -- we know that you do use depleted uranium in your manufacturing. So in what proportion compared to natural, undepleted uranium?

**MR. RICHARDSON:** So in a given cycle of demand from our customer, it is approximately once in five years that we will make a small run of depleted fuel. So that would be equivalent to, I would say, 2 percent of the demand that we make over that period of time, just quick math, or less.

**MEMBER MCKINNON:** So just a tiny amount?

**MR. RICHARDSON:** That's correct.

**MEMBER MCKINNON:** And I have a question for CNSC. If you could comment on the health effect exposure of depleted versus the current -- the natural

uranium that is currently used in the plant?

**MS TADROS:** Haidy Tadros, for the record.

I will ask our colleagues in Ottawa, health specialists, to take this question.

**MS RANDHAWA:** Kristi Randhawa, Radiation and Health Sciences Officer, for the record.

So in terms of the health effects, the differences between depleted uranium and uranium, there is not a large difference. I know the intervenor had mentioned studies on Gulf War veterans and that was to do with depleted uranium. So there have been several studies on health pathologies among veterans with potential or no exposure to depleted uranium as the comparison group and there have been no clinically significant pathologies related to this depleted uranium which has been found in these veteran cohorts.

So once again, the health effects for uranium and depleted uranium would be similar.

**MEMBER MCKINNON:** Thank you. That's all.

**THE PRESIDENT:** Dr. Demeter...?

**MEMBER DEMETER:** Thank you for your intervention. I'm not sure if you were here yesterday and heard --

**MS CARTER:** No.

**MEMBER DEMETER:** -- the discussion. So I think it's important, given the list of radiation-induced issues that you've brought up, to -- and I have the same concern to quantify the public exposure from this plant to see if it's safe.

And we had a long discussion yesterday that looked at the radiation dose emitted to the public. And it equates to one tenth to one one-hundredths of a chest X-ray. And it's three to four orders of magnitude less than background. So when you're looking at the effects of this incremental radiation dose to the public, it has to be put in that perspective.

And I think it's important to provide the information based on the data. And we had a long discussion on how they calculated that yesterday, which I suggest you listen to if you have concerns, both internal and external dose. But that is the amount of public dose from this operation.

So the risks have to be put in association with that amount. And I think it would be hard to -- I haven't seen the evidence for all the other ailments you talked about in relation to radiation exposure with these

levels of doses.

So I just -- I make sure that people are not overly high anxiety or fear with that, that it has to be put in perspective with the data that's been presented. And we can challenge the data, but that is what we've been presented.

**THE PRESIDENT:** Dr. Berube?

Dr. Carter, any final words from you?

**MS CARTER:** I understand that this hearing is about this local plant, but it is all connected, okay. So that was my point. We should close the nuclear reactors; we don't need them.

And there is documented health effects, okay. Other people have written books. I would refer you to the books by Rosalie Bertell, for example, and Alice Stewart way back proved the health effects of radiation. There is no safe dose.

**THE PRESIDENT:** Thank you for your intervention.

**MS CARTER:** Thank you.

**THE PRESIDENT:** The next presentation is by Ms. Janet McNeill, as outlined in CMD 20-H2.173 and 20-H2.173A.

Ms. McNeill, over to you.

**CMD 20-H2.173/20-H2.173A**

**Oral presentation by Janet McNeill**

**MS McNEILL:** This is the 12th or 13th CNSC hearing I've intervened at. It could be even more; I've lost track.

I love to quote Dr. John Gofman about nuclear hearings. Gofman was both an MD and Ph.D. and had helped isolate the first milligram of plutonium for the Manhattan Project. When he later came to realize the serious health impacts of radioactive exposures, he became a vocal, persistent foe of the entire nuclear energy paradigm. He once said,

"There has not existed the slightest shred of meaningful evidence that the entire intervention process in nuclear energy is anything more than the most callous of charades and frauds,"

-- which means that all of what is taking place here this week is really actually just theatre.

And that's a bracing, sobering thought. It makes me wonder, Am I insane, doing the same thing over and over and expecting different results? But I don't really expect different results; it just seems to me that it still matters to show up and speak the truth.

Now, I've dressed up in a kangaroo suit on several occasions at nuclear hearings. You may know that, you may not, I'm not sure. I've also worn an elephant outfit a time or two for some Pickering-related events, to make the point that there are elephants in the room when it comes to nuclear issues.

Here are a few current elephants in the room. This is a big one: Many may not be aware that WHO, the World Health Organization, and the IAEA, International Atomic Energy Agency, made a deal back in 1959 that ensured that health impacts of radioactive exposures would not be studied. The world's supposedly leading health organization made a deal with the global nuclear agency to ensure that the health impacts of this industry would remain unexamined by the world's so-called public health agencies for the convenience, obviously, of the nuclear industry. I'm not making this up. It's a pretty big deal, this deal. And I have told the medical officer of health

of Toronto about it, but I don't think she was really listening.

What it means is that everything that has been said here by CNSC and Toronto Public Health regarding health matters has to be viewed through that lens. There is no evidence of health effects if you don't study them.

Another elephant: Derived release limits, or DRLs. CNSC and BWXT claim the company never comes even close to exceeding their release limits. Number one, the DRLs are set by the company, so what we have is the fox minding the hen house. And number two, the DRLs are deliberately set so high, the company could never possibly exceed them.

Elephant number three: CNSC got a very bad report card from the federal Auditor General in 2016 for the quality and frequency of its inspections. Quoting the Globe and Mail:

"The federal agency charged with ensuring the safety of Canada's nuclear power plants is unable to prove that it is inspecting those facilities often or thoroughly enough or that it has the number of staff

required to do the job, says a new report by the Commissioner of the Environment and Sustainable Development....

The audit found that 75 per cent of inspections carried out by the CNSC were done by an inspector who was not following an approved guide.

'It's a bit like an airplane pilot who doesn't go through his check list before taking off,' said the commissioner. 'That means that the commission can't tell us, and show us, that they are covering in their site inspections all of their requirements.'"

Elephant number four: Earlier that same year, several CNSC staffers had written a letter in which they made it clear that the Tribunal Members, the Commission Members, Commissioners, do not always receive full information about things the staff is aware are going on and thus are making very weighty decisions indeed based on incomplete information.

This, to me, is downright scary. It's the sort of scary that could keep a person up at night if one was the sort of person who was kept awake at night.

Now, let's talk about emergencies. Note that potential emergencies are not the only thing that concern me about BWXT, which I made clear in my letter that I sent in five weeks ago, but the word "emergency" comes up a very large number of times in the reports prepared for this hearing: in BWXT's, 39 times; in CNSC staff's CMD, 72 times; in the CNSC compliance inspection report, 107 times. So we can see that there really is some serious stuff to consider here.

I'm concerned that BWXT reported six unplanned incidents while CNSC staff said there were 22. That sort of inconsistency is worrisome and results in a serious loss of trust.

You try to read the documents, and it's kind of like going down a rabbit hole, trying to get it all straight. It began in 2016 and ran all the way through to early 2019, when CNSC produced its compliance inspection report. That report is not online, by the way, and I only knew to ask about it because I've been paying attention to the issue of nuclear emergencies for quite a few years now,

working with the Durham Nuclear Awareness Group.

So:

"In March 2017, CNSC staff issues eight enforcement actions of non-compliance to BWXT related to the effectiveness and implementation of the Toronto facility emergency response program. These originated from an inspection in October 2016."

(as read)

Eventually, what resulted were substantial changes to emergency procedures and plans at BWXT. There were inspections by CNSC, exercise with Toronto Fire Services and Paramedic Services. There were even two Toronto Fire Services personnel contaminated during an exercise, apparently. But we can't find out the details, because everything seems to take place under a shroud of secrecy. If everything is so safe and transparent, why all the secrecy?

A big finding for me was in that CNSC compliance inspection report, the one that isn't online, in which it is made clear that BWXT really dragged its feet in dealing with the things, those unspecified things that CNSC

had found in October 2016.

In January 2019, this report, mentioned in an offhand way in the matrix section on page 22 -- it's right here -- that the only acceptable exception to the requirement would be when immediate action was required to prevent a catastrophic incident from occurring, which seems to suggest that the possibility of a catastrophic incident there does exist.

And CNSC makes just one recommendation to BWXT, namely,

"BWXT should review recommendations from its full report and implement self-identified improvements to its emergency preparedness program" (as read)

-- but then goes on to say:

"Recommendations are not required to be implemented." (as read)

And I'm not making that up, either.

A quick word about social licence and then some questions.

To quote the intervention letter from Peterborough's CARN, Citizens Against Radioactive

Neighbourhoods:

"To achieve a social licence, the project must engender trust, advance transparency and meaningful public engagement, and protect health, safety, and the environment." (as read)

In CARN's view, none of these preconditions have been met.

I submit that BWXT has not met the preconditions for social licence here in Toronto either.

And by the way, if you want to let everybody know the facility exists, all you need to do is put up a great big sign out front saying what the company is doing there. No big deal, no big expensive studies needed, just a great big sign, and then people will know.

Ten questions I want to pose to BWXT and CNSC:

Can you explain the inconsistencies in reporting of incidents between BWXT's submission and the CNSC staff submission?

Can you lay out exactly what all these incidents were, not just the six that BWXT claim, but the

22 referenced by CNSC?

Can you explain what led to the company deciding to install an emergency operation centre trailer outside building 9, and why you decided to separate the emergency plan from the fire protection plan?

Can you explain why it took so long -- from 2016 to 2018 -- for the company to deal with whatever it was that CNSC uncovered in 2016?

And why did CNSC not put the compliance report online with other reports for this hearing?

And why can we not get any information from Toronto Fire Services?

And why we should trust your emergency plans when we were told in 2013 that everything was safe, yet since then, all these 22 incidents happened, massive changes to your emergency plans became necessary, yet nobody will give us any details?

Can you tell us what a catastrophic incident that might potentially occur at 1025 Lansdowne would look like?

Can the Tribunal Members -- I think this has been asked to you at other hearings, and I may have even asked it myself at a Pickering or Darlington

hearing -- can the Tribunal Members tell us how close the nearest facility is to their homes? Do you folks live, you know, in close proximity to a nuclear facility? So many of us seem to wind up with dangerous nuclear facilities near us that we just did not know were there.

I believe that this facility should be shut down -- the sooner the better -- and then properly decommissioned at company, not taxpayer, expense.

A great quotation I came across several years back goes like this: "No matter how far you've gone down a wrong road, turn back." I really think it is time we turned back.

And I'm done.

--- Applause / Applaudissements

**THE PRESIDENT:** Thank you for your intervention.

Dr. McKinnon? Dr. Demeter?

**MEMBER DEMETER:** Thank you. Maybe staff can help reconcile the intervenor's concern about the reporting of incidents between the six for BWXT and 22. I couldn't quite figure out where they came from, so maybe are they apples and oranges or are they talking about the same thing?

**MS DUCROS:** Caroline Ducros, for the record.

From what I understand, it's from -- the reporting requirements in our regulatory document specify what has to be reported, what's an event that has to be reported. We have 21 reportable events over the past licence period, and we discussed that in the supplemental, what they are.

I think that's where the discrepancy in numbers are. There are certain incidents that happened that aren't reportable events because there's no safety significance or health risk of those events. They could be just minor, non-reportable, not at the level that's required under the regulations.

**MEMBER DEMETER:** There's 21 events, not all of which are considered reportable events, but there in the supplementary --

**MS DUCROS:** No, there were 21 reportable events.

**MEMBER DEMETER:** Twenty-one reportable events.

**MS DUCROS:** Yeah.

**MEMBER DEMETER:** And did BWXT in their --

I'd have to look through, but did you comment on 21 reportable events or six reportable events?

**MR. MacQUARRIE:** It's John MacQuarrie.

So in our CMD -- so we reported all of those events. But in our CMD, we provided a summary of our view of the most significant events, and I think that's what this intervenor is referring to is the number that we have in our CMD is different than the CNSC staff CMD.

**THE PRESIDENT:** So then going forward to not create the kind of confusion or doubt that that raises in intervenors' minds, how do we make sure that the appropriate consistency is there or the qualifiers are there so that people don't think either the CNSC hasn't got all the information or BWXT is not reporting them all?

So maybe I'll start with staff first.

**MS DUCROS:** Caroline Ducros, for the record. I'll start and I'll pass it over to the project officer afterwards.

A common theme is how do we communicate better. And so we will take that back on how to communicate this better.

For reportable events, we do report to the Commission on these in the regulatory oversight reports.

If it's a greater event that's necessary to have a particular dedicated session with the Commission, we will do that.

We have put in our last regulatory oversight report and also in the supplemental CMD for this hearing what is a reportable event and what they were.

So I'll pass it over to Mr. Julian Amalraj if he has anything to add to that.

**MR. AMALRAJ:** Julian Amalraj, for the record.

It is CNSC's requirement that they document all aspects in terms of lessons learned in OPEX associated with unplanned events or incidents within the plant. And that is a requirement under our OPEX provisions. And the licensee maintains details databases associated with all types of events, including near misses and all.

We have a regulatory document 3.1.2 that provides consistency in terms of what is the expected reportable events and what should be reported to the CNSC, and associated in terms of how we report back and publicly.

So the discrepancy and inconsistency here is noted, and I think we do necessarily have to improve

that particular part in terms of consistency of how we describe the events.

**THE PRESIDENT:** Thank you.

Dr. Berube?

**MEMBER BERUBE:** Thank you for your submission. There was a lot of information in that. But I believe I heard you say at one stage that you believe that the DRLs are determined by industry. Is that the case?

**MS McNEILL:** It took me by surprise, because usually CNSC says -- usually you'll read in reports that the regulator has set the DRLs.

**MEMBER BERUBE:** Uh-huh.

**MS McNEILL:** But I've done a lot of work out in Durham region, and I heard someone from OPG once admit that, yes, OPG sets the DRLs for their stuff. So then I was paying attention to the DRLs for this hearing, and I actually found BWXT admitting that they set the DRLs. I've got the page reference here. I'll find it if you like. That surprised me, they actually said they set the DRLs.

**MEMBER BERUBE:** So CNSC, would you mind highlighting how the DRL process is actually put together and basically how that comes about. What's the evolution

of that?

**MS SAUVÉ:** Kiza Sauvé, for the record.

So the licensee is required to follow standards. The DRL standard is N288.1, and that refers to the methodology used when you're looking at a radioactive concentration. So we were looking at earlier the 9,000 kilograms. That was back-calculated to determine how much can be released that will give you a 50 microsievert dose.

Going forward, we're looking at an exposure-based release limit. The process is still the same in that the licensee follows a standard, submits that information to the CNSC staff. CNSC staff review that. Sometimes there's letters that go back and forth to ensure that the standard was appropriately used and met, and then those release limits are put into the *Licence Condition Handbook*. And in this case, they're being proposed to the Commission as part of the release limits for the facility.

So yes, the licensee does do the calculations. But it is CNSC staff that reviews that and confirms it.

**THE PRESIDENT:** If you can find the reference in -- I think -- oh, good.

**MS McNEILL:** Yeah, I just didn't bother

using the time to say it out loud. It's on page 30 of BWXT's CMD.

**THE PRESIDENT:** Thank you. We may want to look at that and --

**MS McNEILL:** There's also not just the issue of who sets the DRLs, but that they're set so absurdly high. I've been aware of this for a lot of years. My colleagues Ole Hendrickson and Anna Tilman for other hearings have said they're set so high, you know, the company's never going to exceed them. So then it sounds like, Oh, aren't we great? We didn't come anywhere close to our release limits. Well, that's because your release limits are set so high, so it's a bit of a joke.

**THE PRESIDENT:** Question for staff: One of the other comments the intervenor made was the WHO and the IAEA declaring that there will be no study of health impacts of radiation. Can you comment on that?

**MR. RINKER:** Mike Rinker, for the record. So what I will comment on is the science of the health impacts of radiation on people is dealt with under the United Nations Scientific Committee on the Effects of Atomic Radiation. Multiple countries, independent of industry, send their best scientists to this

committee annually. That forms the basis of the policy direction that the International Commission on Radiological Protection develops for radiation protection, and those are developed into IAEA standards and technical documents and form the basis of our radiation protection regulations.

So I would say that the health impacts, the environmental impacts of radiation is very well studied.

**THE PRESIDENT:** But have the WHO and IAEA publicly stated that they would not study health impacts? Or is it to say, We're not studying it because there's another UN agency that's doing it?

**MR. RINKER:** Mike Rinker, for the record. So this topic has been raised at previous hearings. We've looked into where that was documented, and we haven't found that, any of it.

**THE PRESIDENT:** Ms McNeill?

**MS McNEILL:** I can show you the agreement. It's linked in a posting on the Durham Nuclear Awareness site. I've been careful to link it there so people can read the agreement themselves. They're basically saying -- WHO is saying to IAEA and IAEA is saying to WHO, We won't undertake anything unless we've agreed with one another

first.

Well, I think the average citizen would be very surprised to hear that the world's leading health organization, which of course I don't place any trust in because of this, but the world's leading health organization has made a deal with the global nuclear energy -- or global nuclear organization. They made this deal in 1959. That's why there's so little science.

There is science from other groups. I mean, there are other groups in society who are keen to study this. But you know, if you go ask your Durham Regional Medical Officer of Health about any studies, he's going to give you some ridiculous hopeless study that -- and will pretend that he's not aware of other science.

The previous intervenor spoke about Rosalie Bertell's work in *No Immediate Danger*. These things are well known. But it's easy for the nuclear community to say there aren't health impacts, because of the deal. So.

**THE PRESIDENT:** So maybe I can ask staff to find the source of that and see how we can make sure that these international bodies clarify their positions.

Dr. Lacroix?

**MEMBER LACROIX:** Thank you, Mme McNeill, for your presentation.

One of the most interesting features of your written submission is that you provide us with a list of concerns. And I found it so useful, that I even print a copy of it, and it has become my checklist. So when I go through this list of concerns, most of them have already been addressed during this hearing.

And one of these concerns, however, I would like you to provide us with more specific information. It's about the incredible claims being made about environmental and health impacts. Could you be more specific so that I could use this information and use it in the final decision?

**MS McNEILL:** Well, everything we've been hearing for the last couple of days has been there's no health impacts, there's no health impacts, there's no health impacts. And it's just not credible.

You know, those of us in the community know that there are health impacts from radiation, obviously. And to say that there aren't is -- you know, you've got this whole neighbourhood around this plant. And understand, I don't live in the neighbourhood here. I'm

from a different part of Toronto. But people here are really concerned about their health. And to just say there's no health impacts from exposure to radiation flies in the face of reality.

We have -- there's all kinds of science out there that says there's no safe level of exposure. And we know that you can inhale one -- I understand that you can inhale one particle of uranium dust and it can lodge in you.

And it's not going to happen to everybody, as Gordon Edwards has pointed out. This is not going to happen to every individual.

But say you're a little kid and you live in the neighbourhood and you inhale a particle of uranium dust -- which, frankly, is going to get up the stack. It's going to get through the filters. It's in nanoparticles, for heaven's sake. And to deny that is flying in the face of reality.

So here you have a uranium dust particle that lands in a child or an adult or whoever it may be. And as the previous speaker said, there's no smoking gun, because cancers take a long time to form, cancers and other health effects take a long time to manifest themselves.

So.

But just to say there's no health impacts from radiation, there's tons of science out there. It may not be from the WHO, and it may not be from the nuclear industry, but there's lots of science that tells us about health impacts.

And people really need to look into the health impacts of depleted uranium. If your stomach is up to it, I caused someone to practically have a meltdown one time suggesting she look at pictures of children born in Iraq who had been exposed to depleted uranium.

These things are real. We can't just talk them away or say people are too anxious. These things are real, and there's lots of documentation. I don't have stuff right handy with me. I have a stack of books at home. I wish I'd thought to bring some of them.

I mean, think about Dr. Gofman, who was part of the Manhattan Project, and then he started studying health things. He was already a Ph.D. He became a medical doctor. He was learning about effects on the heart, and he became a vocal anti-nuker after that. I mean, when was Gofman doing this? The Manhattan Project was in the '40s.

These things have been known for a long

time, is my point. And there's -- if you really -- if you want, I'll find some studies. I'll go home and dig up some studies and send them to you. I'd be happy to do that.

**MEMBER LACROIX:** Uh-huh, yeah, I would appreciate that.

**THE PRESIDENT:** Okay. If you could them to the secretariat, thank you.

**MEMBER LACROIX:** Yeah. Thank you.

**THE PRESIDENT:** One of the recommendations -- this is for BWXT, and likely some of us were even thinking about this -- is about the signage outside your building and why not have something more conspicuous that's -- you know, so that this misperception that maybe you're operating in sleuth and under the radar, just, you know, just dispel that. Be out there. This is who we are and here's what we do.

**MR. MacQUARRIE:** It's John MacQuarrie.

I'm happy to be more transparent. Just for your awareness, there are two significant signs that face Lansdowne that have our name, and our name is BWXT Nuclear Energy Canada. And so those I think are quite visible.

However, we've taken to heart what we've

heard, and we can make that more obvious what we do in some way. If we need to put the word "uranium" there, we can look at that as well.

**THE PRESIDENT:** Thank you.

Ms McNeill, to you for final words, please.

**MS McNEILL:** Probably a bit scattered, because I prepared final words last night, and of course more things are coming to me this morning.

I think BWXT has kind of glossed over the lack of transparency in reporting of events.

And you know, we don't have to say it again, really. Nobody knows the place is there, so something has to be done about that.

It feels like a lot falls between the cracks here. And something people don't talk about -- not just with nukes, but with everything -- it's synergies. Things interact together. Things get together and have synergies. Things come off the top that you didn't expect. So adding -- all these pollutants add together. And there's a real simple way of getting rid of it, and that's to pay attention to the precautionary principle and prevent it.

But I'm aware of the great Upton Sinclair quote:

"It is difficult to get a man to understand something when his salary depends upon his not understanding it,"

and suspect it may apply to a goodly number of people in the room.

And this is just naive me, you know, I really wish that human beings cared more about each other than we do about money. You know, here I am, all these years old, and I'm still wishing that. If we really cared more about each other and human health and the health and safety of our children, we would not be placing so very many people in this neighbourhood in Toronto in danger with all these risks for the sake of a mere 50 jobs.

If the company shuts down, there will be no risk, not just the very, very low risks that BWXT likes to talk about. No risks. So I really ask you to shut it down, please.

--- Applause / Applaudissements

**THE PRESIDENT:** Thank you. Thank you for your intervention. And we'll take a break for lunch and

resume at 1:15. Thank you.

**MR. LEBLANC:** And just for the record, I indicated earlier in my opening remarks that we had done all of the written submissions, which is not right. It was all the written submissions coming from Toronto residents dealing with the Toronto facility. We have more than 120 written submissions that have been filed and will be addressed in Peterborough.

Thank you.

--- Upon recessing at 12:05 p.m. /

Suspension à 12 h 05

--- Upon resuming at 1:15 p.m. /

Reprise à 13 h 15

**THE PRESIDENT:** Okay. Good afternoon, everyone.

Our next presentation was to be by Ms Lana Kouchnir, who has not been able to join us, so we will do that as a written submission at the end of the hearing.

So the one after that is a presentation by Mr. Chris Muir as outlined in CMD 20-H2.169.

Mr. Muir, the floor is yours.

**CMD 20-H2.169**

**Oral presentation by Chris Muir**

**MR. MUIR:** Thank you.

First off, let me thank you all for the opportunity to speak in front of this committee.

I come with the understanding that nuclear energy, for better or for worse, is a crucial component in the current energy landscape of Toronto and Canada as a whole. I'm well aware we simply -- can't simply shut down the BWXT uranium processing facility without a sound relocation plan.

So why not consider Bridle Path, York Mill-Sunnybrook neighbourhood, nearly a tenth of the population density, large plots of land, way better median household income, minimal risk. Heck, there's a hospital right next door in case of emergency, and I'm sure the residents would be more than happy to deal with uranium processing.

Drake lives there. You could recruit him as a community liaison.

If this seems like a joke, why? Why does

it make any more sense to keep the plant near a bunch of new families and under-served community members that don't have the time or privilege to come stage an intervention?

We should really take a step back and ask ourselves why on earth is a uranium processing facility, no matter how safe, a logical idea in our neighbourhood?

My wife and I moved a block away from the plant in 2015 and, at that time, we were both aware that we were moving in next to a pelleting facility, so our bad. But after looking at 77 houses, we really couldn't afford any other house in the city, so Toronto's bad, I guess.

We researched the dangers of uranium dioxide and alpha, beta and gamma radiation and came to the somewhat uninformed conclusion that the plant was, indeed, safe-ish, but this self-research approach has proven more and more necessary in the subsequent years, primarily when we found out that BWXT's operating licence was up for renewal.

Trying to get answers beyond what has been offered up on BWXT's web site hasn't been easy, which is unfortunate. I failed math and never took physics, so ginning up on the nuclear industry and having to scrub through densely-worded reports, obscure charts and acronyms

upon acronyms upon acronyms was difficult, to say the least.

And I'm a university graduate. I work freelance. I have the time to try and figure this out.

What about someone without English as a first language that works full-time and can't afford to deep dive on the nuclear industry? How are they supposed to know what the risks are? How are they supposed to get involved?

The community outreach and public clarity on the part of the CNSC and BWXT has been inadequate at best, and comical at worst.

At our previous meeting in January, members of the CNSC said, and I'm paraphrasing here, that they lacked the resources for any sort of media campaign or fundamental community outreach strategy due to funding, and yet we are presented with these free branded headphones at the event. How much did these cost?

I also noticed the scale and scope of this event as well as the multitude of staff members and experts flown in, teleconference, translators in soundproof booths. What is the budget for this event?

Could some of this spending have been

better used to inform the community as to the intervention process and/or the impending licence renewal?

Look around at the amount of attendees here and ask yourselves if this seems like a successful public engagement. The message the CNSC seems to be sending the community through this somewhat elusive intervention process and opaque information sessions is that the onus and responsibility is on the residents of Davenport, Wallis, Emerson to stay informed and self-educate on the topic of residential uranium pelleting.

In terms of BWXT's community outreach, I'm sorry, but who in their right mind would ever want to attend a barbecue at a uranium processing plant? It's like something out of "The Simpsons". And yet while there are large banners advertising the barbecue all across the building twice a year, less noticeable was the small sign in an inconspicuous location mentioning this intervention process.

I have never met a community liaison member. Other than activists like Zach Ruiten, I have never had my doorbell rung or received any sort of phone call or pamphlet.

I live within 100 metres of the plant. I

only know about this intervention process because I have a family member that works for OPG.

With the lack of options for involvement and/or education, unless you count the barbecues -- and again, good luck. That's like holding a pie-eating contest in an asbestos plant. Most of the community has been left to their own assumptions.

On one side of the conversation, you have a group of people saying that one single particle of uranium dioxide is enough to give you lung cancer, and on the other side you have CNSC and BWXT saying that not only is the plant safe, but out of an annual 700 billion milligrams of uranium processed at the factory, the emissions on the air is on a level in the single digits of milligrams.

This is far below background radiation and, in fact, and correct me if I'm wrong, but the levels of uranium around the plant are actually lower than normal levels found around the city.

BWXT's emission levels are less than a grain of sand per cubic metre over a year. Essentially, I'm letting orders of magnitude more material into the environment when I lift one of those leaky kilogram flour

bags off the grocery store shelf.

Numbers like these help foster the impression that there's an inherent lack of transparency or, worse, something is being covered up. This leads people like me having no clear or balanced source of information coming to their own conclusions, making up their own theories, and trying to make sense of the situation for themselves.

I have questions.

For example, in the BWXT slide that was handed out in the case of a complete structural collapse of the facility, the maximum concentration of uranium dioxide is, and I quote, 3.0 milligrams per cubic metre. Out of 700 billion milligrams, almost half a teaspoon.

A catastrophic fire gets up to 6.1 milligrams, just a little over a teaspoon. Really?

This doesn't seem believable to me.

What does a "catastrophic fire" actually mean, by the way? What does it mean for me and my family? What does 6.1 milligrams actually look like in practice?

Does it mean my daughters, age four years old and six months old, get cancer? What's their life expectancy? What is my property worth after a catastrophic

fire?

Let's talk real human impact here.

Does BWXT actually think that in the case of a catastrophic fire of 700 tonnes of uranium dioxide we'll still be dealing in milligrams?

As a community member, it feels as though the only way to get a sense of the actual risk involved with living near this plant is by asking the right questions, and so I'll ask BWXT one more time, what is the worst that could happen.

And I would appreciate the utmost clarity in your answer, not a re-direct to your safety protocols or how unlikely such an event would be, the worst event. A total disruption of all 700 billion milligrams of uranium dioxide into the neighbourhood, 700 tonnes.

Please don't tell me it's impossible.  
Tell me what that would look like.

The CNSC is not communicating effectively.  
Neither is BWXT.

There was a lot of mention about CNSC and BWXT as having a social media presence. This is ridiculous, in my opinion.

I'm worried about climate change, and this

doesn't mean I'm going to follow Exxon Mobil on Twitter or friend Chevron on Facebook. You need to do better.

The responsibility for community engagement is yours, not mine. You need to come to me, the entire community in person. You need to be more transparent.

BWXT needs to label the warehouse housing uranium as such, clearly, so the community can see. If it's safe, then at least let people know what's being stored there. If it's a security risk, why?

Label the explosion hazard along the fence. If it's enough to smash windows, it's a risk to people walking along the fence or parking their cars along the street adjacent to the fence line.

There are nuclear signs on the interior doors leading into the warehouse. Why don't we put them on the exterior facing the community?

The sign outside of the plant reads, "BWXT Nuclear Energy Canada". Why not "BWXT Uranium Processing Facility"?

And whose idea was it to build the plant in the neighbourhood in the first place?

I've heard it mentioned that this was an

industrial neighbourhood at the time, but I don't know about everybody else. My house is 120 years old, pre-dating the plant by a long shot.

Why not the Bridle Path? Is it because this has historically been a lower-income immigrant neighbourhood? Is it that the citizens just don't have the money or status?

What about 1011 Lansdowne Street? Is the CNSC aware that some of the city's most vulnerable citizens, including clients of CAMH who are transitioning into independent living spaces, are living right next door?

What is the emergency plan to evacuate these people, and is there a plan?

There's been a lot of talk about third parties independently verifying just about every aspect of emissions on behalf of BWXT. Who are these third parties? What are their motives? Are they truly independent, and how are we to know as a public?

How do we know if the five sensors placed around the facility can accurately monitor uranium released into the air? How do we know what direction the uranium dioxide would leak out of the stack, especially when they're in the single digits of milligrams? Is this

contingent on wind direction?

What does a clean-up look like after the plant has been decommissioned?

If BWXT goes bankrupt, who's responsible for ensuring the community's safety during the decommissioning process? What's the financial guarantee, and how is that spent?

Finally, does it really make sense to continue operating a uranium processing facility in a neighbourhood of over 40,000 residents? Honestly, it seems like this is a foregone in BWXT's favour and, if so, what is the point of this intervention process?

Are you already committed to this deal financially? Can we really change the CNSC's mind more than the millions or billions of dollars attached to this deal?

What about my daughter, who spent her whole life playing in our backyard with the warehouse clearly visible at all times? Can she change your mind?

What are the odds that CNSC denies the licence renewal of BWXT? Because from where I'm sitting, it seems like these odds are far, far lower than the purported odds of anything ever going wrong.

Thank you.

**THE PRESIDENT:** Thank you.

Dr. Lacroix.

**MEMBER LACROIX:** Thank you for your presentation.

This is a question for BWXT. I just wonder if you could tell us that the UO<sub>2</sub> emissions are monitored 24 hours a day on a continuous basis? Is it the case?

**MR. SNOPEK:** Dave Snopek, for the record.

Yes, we monitor our stack emissions 24 hours a day and our boundary monitors at the periphery of the facility are also collecting 24 hours a day.

**MEMBER LACROIX:** Thank you.

**THE PRESIDENT:** Dr. McKinnon?

**MEMBER MCKINNON:** Yes, I thank you for your points.

One of the points you mentioned in your written submission was if there was a fire and the incompatibility of the treatment methods for liquid hydrogen, which would require water, and uranium dioxide, which would need powder.

So the question for the company is, has

that scenario been examined and possibly discussed with the fire department? And is it an issue?

**MR. SNOPEK:** Dave Snopek, for the record.

There are no restrictions in our facility from the use of water for firefighting purposes. Our sprinkler system is a water-based system. There is no restrictions on the fire department using water in the facility.

I think there's -- there's maybe some misunderstanding about the uranium that we use. It's an oxide of uranium. It's uranium oxide. It's not uranium metal.

In the case of metal fires, yes, you avoid using water. We don't have uranium metal. We have a uranium oxide powder.

**THE PRESIDENT:** Dr. Demeter?

**MEMBER DEMETER:** Thank you very much for your intervention.

You may know or may not that there have been extensive discussions about communications and a lot of gaps have been identified for both -- for everyone involved in this, so I take those messages to heart.

I was going to ask BWXT about their

worst-case scenario slide relative to catastrophic fire just so that I could clarify the values. It's slide number 36 of your presentation.

So it talks about the maximum concentration of uranium dioxide at an off-site location in milligrams per metre cubed, and the value is 6.1. I want to get a sense of magnitude of duration.

Is this 6.1 for how long? Is this 6.1 for how far out? What is the distribution of this 6.1? What does it mean to a neighbour?

Is this just across the fence or does this go for five blocks, and for how long, in this worst-case scenario?

**MR. MacQUARRIE:** It's John MacQuarrie.

So that analysis was prepared for us by Arcadis, and so I'm going to ask Doug Chambers, who's Vice-President with Arcadis, to give you the detailed answers.

**MR. CHAMBERS:** Doug Chambers, for the record. Thank you very much.

My bronchitis is still here, unfortunately, so I apologize.

Basically, let me start, we -- when we did

the analysis, we looked at a wide variety of events that could probably or possibly trigger such an event. We looked at chemical reactions, equipment piping failure, operational malfunction, train derailment, airplane crash, external fire. Basically everything we could think of.

And for completeness, we looked at a combination of fire in the filter bank, fire in the receiving and storage area, explosion in the receiving and storage area, fire explosion in the furnace room, fire in the sort and stack area, so pretty well every place you'd have an inventory of uranium.

And I won't go into the probabilities, but we can talk about that if you want.

Basically, for modelling because in a fire, fire generates its own micrometeorology, so the standard models aren't really appropriate. We used a model called CALPUFF, which is widely used, and actually can take account -- it's almost like a CFD model, computer flow dynamic model, and it allows for configurations of buildings and things that might be in the way.

In any event, when we -- when we did our analysis, we looked at a variety of references about how to calculate a source term in combination of a fire.

Uranium doesn't just magically all go up into the air and there's different factors that you take into account that modify how much uranium is potentially released and available for dispersion in the atmosphere.

And we looked at factors such as USDOE, which has a lot of experience in this area. For example, they have a handbook, "Airborne Release Fractions and Rates in Event of Fires and Accidents".

And so we tried to follow well-accepted literature.

In any event, when we -- when we looked at all this stuff, we came up with numbers for different accidents. The maximum we could conceive is almost all these accidents, we thought, would have very low potential for release of uranium about an hour.

There was one accident we thought might last for two hours with sustained concentrations, and the concentrations decreased rapidly with distance from the fire.

So basically, the maximum concentration that would be in the order of six or seven milligrams per cubic metre. It's not enough for chemical toxicity and if you run it through the dose calculation, you get a dose of

about three millisieverts, which is -- which is I think the kind of number that was on the slide yesterday.

And for the dose calculation, we assumed a breathing rate of 1.2 millisieverts -- pardon me, 1.2 metres cubed per hour and the concentration and dose factors, which I think are the same as your staff would use, which are from ICRP 119, I think, which is a consolidation of dose factors.

So that -- more or less, that's how we did the calculations.

**MEMBER DEMETER:** So I just want to translate that.

So the maximum concentration in a fire will be in close proximity to the event at 6.1 milligrams per metre cubed, and you're saying in a matter of hours that should dissipate and there would have to be some consideration of wind direction, weather conditions. I suspect for first principles rain would actually reduce this because it would put it down.

But is this a uniform distribution around the event because it creates its own micrometeorological situation, like you said?

I want to know the six -- what -- 6.1 over

a block or 6.1 over five metres? What is the distribution, the fallout?

**MR. CHAMBERS:** Doug Chambers, for the record.

Basically, modelling is typically done in units of five or 10 metres, so you produce a concentration profile. And the -- basically, you'd have to be standing effectively at the fence line for the whole two hours and not move in order to breathe in the 7.2 or whatever, the six or seven milligrams per cubic metre. And that's an unlikely situation in itself, frankly.

But basically, as you move further away, concentrations decrease.

**THE PRESIDENT:** So let me make sure I've got that.

What you're saying is that the maximum will be like at the fence line maybe for whatever duration it's for, but will result in a total dose of three millisieverts?

**MR. CHAMBERS:** Yes, and I may not have the exact number in mind, but it's in the order of two and a half to 3.2 millisieverts.

**THE PRESIDENT:** And -- yeah. So that's

someone who's exposed to that like 24/7?

You know, for the intervenor who's concerned about him and his family, this worst-case catastrophic event, what does that really mean for them?

**MR. CHAMBERS:** What it really means is the concentration of uranium that someone at the fence line would breathe would be, at most, in the order of six milligrams per cubic metre and the concentration would decrease quite rapidly with time and with distance.

So basically, we do make the assumption that someone is not going to be standing in a cloud of smoke and they would remove themselves. But basically, the longest we could see it lasting would be -- most of them are actually an hour or shorter. The longest one we could visualize would be two hours.

**THE PRESIDENT:** And how much of this 700-tonne inventory in your scenario would be released?

**MR. CHAMBERS:** I don't have the number in front of me, I could look it up, but a small percentage because not all of it -- most of it's encapsulated and not all of the -- for example, the -- for example, pellets -- some of the pellets will decompose in the heat, but not all the decomposed pellets will get windborne or be lifted into

the air.

So it's a small fraction of the total that's potentially available to be dispersed in the atmosphere.

**THE PRESIDENT:** And does your assessment also then look at when this dust deposits and contaminates the soil? What would that look like?

**MR. CHAMBERS:** We didn't look at that aspect of it.

**THE PRESIDENT:** So that would be a potential consequence for the community, that they may end up with contaminated backyards.

**MR. CHAMBERS:** It's possible, but the contingency is the fact that uranium is easy to find and it's easily cleaned up if you did have such a circumstance.

**THE PRESIDENT:** Dr. Berube.

**MEMBER BERUBE:** I just want to go back to the stack monitoring just for a second, if you would.

You're doing continuous stack monitoring. You've said this already; correct?

**MR. SNOPEK:** That's correct.

**MEMBER BERUBE:** What instrumentation are you using? How often do you calibrate this?

**MR. SNOPEK:** So the stack monitoring is conducted by drawing air from the stack after the filter across another small filter that's capable of trapping the material on it, so we run that typically for one day, although over the weekend it would be two or three days.

So we do that basically every weekday morning and we pull the filter. We calibrate our sample pump flow, I believe, on a quarterly basis to make sure we understand how much flow has gone through that filter, because it's used at the downstream calculation.

We then take the filter and we count it in our lab the same day. So we get our first results to understand what the emissions were over the previous 24 hours. That allows us to apply our action levels and our internal control levels, if required, to intervene very quickly.

The filters over the course of the week get consolidated. So we then send a whole vial of all filters for the one stack for neutron activation analysis to get a very accurate assay of the amount of uranium that's on the filter papers.

That is used to report the grams of uranium that are released over the course of that week, and

then over the course of the year, and that's the number we see in the Annual Compliance Report.

So that's done at McMaster with neutron activation analysis and it's very accurate.

**MEMBER BERUBE:** So your own lab can give you an indication within 24 hours and then you would have absolute confirmation within a week.

**MR. SNOPEK:** That is correct. So the number we get within 24 hours is our first indication. It's quite accurate as well. Because we're measuring very small amounts for the purposes of quantifying the exact number of micrograms actually, we use the neutron activation analysis measurement.

**MEMBER BERUBE:** Do you have any kind of alarm on the particular extraction pump that you're pulling air with, or do you just have regular operators that go and check on this on a daily basis? Is that it?

**MR. SNOPEK:** We do have to extract the filter paper manually by our staff and then count it. So there's not an alarm on the actual stack itself.

**MEMBER BERUBE:** Okay. Thanks.

**THE PRESIDENT:** A question for staff, and we've heard this from other intervenors before as well

around the adequacy of advising the community of this hearing and the small numbers that have participated here.

Can you just walk us through again what exactly is it that's done to advise the community of the hearing and, based on what you've heard, what would we do differently going forward?

Do you have any sense of how many people have actually tuned into the webcast and follow it there?

**MS TADROS:** Haidy Tadros, for the record.

I will start and I will ask Dr. Caroline Ducros to maybe walk you through some of the activities she has been involved with.

So when CNSC staff are preparing for a hearing, what we do is we co-ordinate with the Secretariat. There is a Notice of Hearing that goes out indicating when the hearing will be, the location of the hearing, the duration of the hearing.

Before the actual Notice of Participation does go out, CNSC staff have an engagement strategy in place whereby we use various mechanisms to talk about the information that will be shared, the application received, the assessment CNSC staff do and the impact that that assessment will have on the community, try to give some

information on the effects of the facility itself in the community.

So those mechanisms include webinars. We've had very successful webinars in the past where we, again using our subscriber list -- I'll get to the improvements potentially. So using our subscriber list we put out information and to say please register, here is what we're going to talk about, here is the agenda.

So that is very interactive, a webinar series.

We also have, as the Commission Members have heard today, the Meet the Nuclear Regulator sessions. So depending on the facility, those sessions can be one session, two-day sessions. We try to have English sessions and French sessions, morning sessions, evening sessions, to meet the needs of individuals who can make it at different times.

This is where Dr. Caroline Ducros can talk a little bit about her experience about the sessions.

So maybe I will do that and then we'll come back and address the other two questions.

**MS DUCROS:** Caroline Ducros, for the record.

So that is correct. We don't focus everything right up to the hearing. I think your question is, though: What has been done in the lead-up to the hearing?

I just want to put the context, that throughout the licensing period we do go into the community and we go to the Community Liaison Committee meetings and to the BBQs and other events, open houses, that are hosted.

Leading up to the hearing, as Ms Tadros has said, there was the push out notification in June. It was the announcement notice for the hearing and there was then the nuclear regulator sessions in Toronto and Peterborough.

We know from the sessions that we could have done -- we need to improve how the message gets out that the nuclear regulator sessions are happening. We tried at those sessions to explain who the regulator is, what we regulate, what our mandate is and how to participate in the hearing process.

**MS TADROS:** Haidy Tadros, for the record.

As Dr. Ducros mentioned, the specific Meet the Nuclear Regulators sessions for these hearings today, again the venue of those sessions is usually a very quick

presentation done by CNSC staff. Then we try to have kiosks available where our technical folks that are specialists in environmental protection, radiation protection, the hearing process itself, communications, they are all involved in one-on-one discussions really with the people who come to the sessions, notwithstanding that we probably will not get everyone. And this comes back to the improvements.

I mentioned a subscriber list. One of the things that we need to think about is a subscriber list is very much putting the onus on individuals who want information to connect with us. We've heard today that there are individuals who want information that are not connected to us. So how do we reach them?

So we will be looking at how we get information out beyond our subscriber list.

We use social media and we have several information pieces on our social media, whether it be Twitter, we have a LinkedIn page and we advertise the community's proceedings on our LinkedIn page as well.

So there are a lot of mechanisms, not to say that they are fulsome or comprehensive. I think it was Mr. Jammal who said there are continuous improvement

opportunities that we can build into the system to speak specifically to those individuals who do not know about us or have not subscribed to our web page or don't have LinkedIn.

I think I've answered all of your questions.

Was there a third one?

**THE PRESIDENT:** So a couple more.

One was: Do we have any sense of how many people have logged into the webcast yesterday and today?

**MS TADROS:** Haidy Tadros, for the record.

So yes, we were looking into that and our Communication specialist will have that number for you.

**MS GERRISH:** Meghan Gerrish, for the record.

I just wanted to add since the original Notice of Hearing came out in June 2019, we have sent out nine separate messages to our subscriber list, which contains members of the media, members of the general public and many of the intervenors that we have with us at this hearing.

For the individual website clicks, I have data provided to me from CNSC staff in Ottawa, and the

numbers indicate that we have had 577 unique page views external to CNSC employees on the webcast.

Now that means that there were 577 different clicks through our CNSC website. That's how I can explain this data.

And at any given time on Monday there were approximately 255 different users clicking into the webcast and on Tuesday until noon there were approximately 225 viewers looking at the webcast.

Now those viewers are streaming in and out. The numbers fluctuate quite frequently. That's why I give you an approximate figure.

**THE PRESIDENT:** And how does that compare to the normal traffic on the CNSC website?

**MS GERRISH:** Meghan, for the record.

I think it's pretty substantially higher than normal traffic on the website. However, if you want a comparison from say Friday or last month or any other time, I can get that data as well.

**THE PRESIDENT:** That would be helpful.  
Thank you.

Mr. Muir, any final comments, please?

**MR. MUIR:** Thank you.

Yeah, I just basically want to know who here is going to be held accountable if there is an accident? Ultimately the irony here is that everyone has the ability to step down, resign from your jobs if there's a catastrophic event. I can't walk away from my family's health or my home, unfortunately.

That's it.

**THE PRESIDENT:** Dr. Demeter, you had something you wanted to say?

**MEMBER DEMETER:** I have to revisit the catastrophic scenario based on the information that was provided.

I think it would be very helpful to residents, based on what you've told me in the worst case scenario, if you put yourself in the immediate vicinity of the catastrophic scenario, you would exceed the annual public dose limit, if you stayed there for the two hours.

The recommendation on these scenarios is that there is no need for evacuation or shelter in place.

Then you talked about time and distance as mitigating factors. It would be really helpful to have a graph that looked at the point source of this and the closest resident and then go beyond that -- so that it

includes the closest resident -- to understand what the milligrams per meter cubed would be to the closest resident and if they stayed there for two hours on their porch, because you're not talking about sheltering. So what their dose would be, because you've exceeded their dose limit if they are in close proximity to the event.

Nobody is going to be standing in a plume of smoke. I understand that. But I think it would give a better sense of assurance or comfort to those around to understand how that impacts them because they are not going to be standing in the middle of the fire.

And to say your model would suggest the closest place maybe is 50 meters, or whatever it is, this would be in the worst case scenario, the one in 14,000-year event, this is what would happen to you if you were on your porch.

I think that would be very helpful.

**THE PRESIDENT:** Mr. Muir, before I get to you, staff, have you independently reviewed BWXT's assessment and confirmed it for appropriateness?

**MS TADROS:** Haidy Tadros, for the record.

We certainly have and we have our specialists in Ottawa who can speak to exactly the scenario

they had worked out and what effect, if any, was determined.

So I will hand that over to our safety analysis specialists in Ottawa.

**MR. BURTON:** It's Patrick Burton, for the record. I'm the Acting Director of the Physics and Fuel Division here at the CNSC, which is the division responsible for the safety and control area of safety analysis.

It is correct to say that CNSC staff reviewed and accepted BWXT's safety analysis report in which all of these various scenarios, including worst case scenarios, catastrophic fires, are included.

Actually, I'm really grateful that BWXT put those numbers into their deck. The document we have before us is protected, so they were able to release that information to the public more easily than us. So I feel like that's a strong transparency measure.

As far as the numbers that are in that document, when we assessed it we assessed that BWXT compared those numbers against an appropriate internationally recognized standard. The standard that they used is called the Emergency Response Planning

Guidelines and they are intended to be used in an emergency.

I think underlying this whole discussion is the idea that this is a number that is only acceptable in the context of an extremely, extremely unlikely emergency.

So the acceptance criteria that we have used, that they have used that we have accepted, is a level at which the maximum airborne concentration it's believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms.

So I hope that's clarifying. Let me know if you have any further questions.

**THE PRESIDENT:** No, that's good. Thank you.

The organization ultimately accountable for the safe operation of the facility is BWXT.

So over to you, Mr. Muir.

**MR. MUIR:** Yes, I just wanted to piggy-back on your point and just kind of one last little point about these models and the way they're being constructed.

You get the sense of this engineering oversight of, you know, what happens. Like someone would be ridiculous to stand at the fence and, you know, huff smoke off of a burning uranium warehouse. But like you pointed out, what about my daughter that's asleep in the middle of the night with the window open like not 50 meters away from the fence line?

Like there's a human impact here that I feel like these models that we're doing are not accounting for, you know.

This word "unlikely" keeps coming up and I feel like that's symptomatic of every single nuclear catastrophe. There's always this unlikely event that engineers have deemed completely improbable, but there's a human element here that is giving us the risk, and there's a human element that we're not accounting for when we're building these models, like sleeping children with the windows open right next to the facility. And that's the problem with this whole thing.

But thank you for the time. I won't take any more time.

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

The next presentation is by Mr. John Gibb, as outlined in CMD 20-H2.192.

Mr. Gibb, over to you.

**CMD 20-H2.192**

**Oral presentation by John Gibb**

**MR. GIBB:** Is this thing on? Okay.

I do not support approval of BWXT's renewal application as presented to the CNSC and the public.

I watched yesterday's presentations to the CNSC Commission at home. The trend developed early and continued wherein the specific questions and concerns raised before the Panel were met with relatively general statements and unsubstantiated assurances of safety by staff identified as having expertise in each area of concern.

Should an emergency occur which may harm BWXT employees, the public, Toronto Fire Services or other responders, I feel the CNSC and BWXT would be hard-pressed to develop a due diligence defence.

During my time I will attempt to

adequately articulate, briefly of course, the following summarized concerns which support my firm recommendation that any application approval be conditional and temporary only.

One. We've heard about lack of transparency by many folks, so I'll go brief on this one. I will say that I have printed out ten e-mails from last Monday, the 24<sup>th</sup>, up until yesterday between myself and BWXT's communications staff. Totally unsatisfactory.

On Monday I said: Good morning. In order to properly consider the request for a 10-year operational continuance for the 1025 Lansdowne -- I won't read the whole title; we know what the application is called -- it is necessary to have access to the following documents listed as references in Section 4.0.

I won't read them out to burn up my time. I asked for six of them: No. 31, 32, 44, 46, 50 and 52.

Note that 52 is Toronto Pellet Operations Fire Protection Program 2018. Please provide a link to these documents as soon as possible.

None of those came to me.

The only thing that went on the website that was talked about, and a gentleman here wasn't sure

when it was posted. It was posted on Friday, the summary. That was due to my tenacity not taking the initial, you know, we're working hard -- sorry, I don't mean to be critical to the staff. They are very busy.

Here's my response as of yesterday morning: Thank you -- I won't name the staff. It is apparent through your communication that BWXT made no timely attempt to ensure the documents upon which their application is based would be made available to those participating in the hearing, other than staff of the CNSC. In fact, the emergency plan summaries you forwarded on February 20<sup>th</sup> would most likely not have been created and posted without my direct involvement. And I said this level of transparency in matters of public and environmental protection is unacceptable.

That's one.

Concern two. Adherence to risk analysis without incorporating the precautionary principle as recommended for prenatal and postnatal vulnerability.

Built into this -- many people have done this and it's no offence and respect to all of you. I'm not yet convinced that you are applying the Golden Rule here. You have to have the ability to empathize. How

would you feel if you were the subject or, as industry sometimes calls it, the receptacle -- not a human being, the receptacle -- for these exposures? Would you be satisfied that you're being told it can't harm you or your children?

You have to look in the mirror. If you can't, you need to cover that mirror right up or recluse yourself from these proceedings, both organizations.

That's serious. The Golden Rule should apply here.

I have done my own research. I won't read them all to you. If you ask me after my ten -- I'm watching -- you're welcome to ask me to go into more depth, any of you.

American Journal of Public Health, 2001: Precautionary principle also applies to public health actions. It asserts that the burden of proof for potentially harmful actions by industry or government rests on the assurance of safety and that when there are threats of serious damage, scientific uncertainty must be resolved in favour of prevention.

Briefly, International Journal of Hygiene and Environmental Health, 2007, titled: Children's

Environmental Health and the Precautionary Principle. Given the complex nature and uncertainty of environmental risk to children's health, a precautionary approach is warranted.

These are little clips. We don't have time to go through all of them.

Risk assessment for children and other sensitive populations. Children form a unique sub-group within the population who require special consideration and risk assessment. They are not little adults. Their tissues and organs grow rapidly, developing and differentiating. These development processes create windows of great vulnerability to environmental toxicants. Traditional risk assessment has generally failed the special exposures and the unique susceptibilities of infants.

Now please think of your own. Can I see hands? How many parents do we have here, CNSC and BWXT? Okay. This is your child.

Children's Health, Environment and Public Health Issues and Challenges for Risk Assessment. Uncertainty and safety factors that are protective of children must therefore be incorporated into risk

assessment. When data on developmental toxicity are lacking or where there is evidence of developmental toxicity the adequate protection of children against toxic agents and environment require fundamental and far-reaching revisions of current approaches to toxicity testing and risk assessment.

Number three. Claims of scientific proof and inclusion of all known risks of UO2 inhalation not informed by research per ultra-fine particulate breaching of the placental and brain barriers.

I've got documentation that shows that the particulate size breaching the hepa filter coincides with the particulate which has been found to cross the placental barrier to the fetus and also through the nasal olfactory route to the brain.

Health effects of prenatal radiation exposure. The fetus is most susceptible to radiation during organogenesis, weeks two to seven, and in the early fetal period, eight to fifteen.

What have we got here?

The risk of cancer is increased regardless of the dose. Okay?

This is in the American Family Physician,

2010, two medical officers in the United States Armed Forces.

Environmental Research, 2019. Prenatal exposure to fine particulate matter, maternal haemoglobin concentration and fetal growth during early pregnancy associations, etc.

Fetal essential organ development is completed during early pregnancy, important for postnatal health. However, the effect of exposure to fine particulate matter -- as we are dealing with here -- during early pregnancy is less studied and the related mechanisms are largely unknown. 2019.

Inter-nasal exposure to uranium results in the direct transfer to the brain along olfactory nerve bundles. Uranium olfactory uptake after inter-nasal exposure raises some concerns for people potentially exposed to airborne radionuclide contamination as the brain could be a direct target for those contaminants.

So we're thinking vulnerable population: infants.

Environmental Health Perspective, 2019. Again evaluating this same concern. I won't read the whole title.

The brain is presented as a direct target of ultrafine particulate.

Lastly -- and I am running out -- but I am most prepared to handle questions on the danger of uranium dioxide as far as a combustible metal and an explosive. The gentleman on the end, I'm sorry, I forgot your name -- yes, sir. I watched yesterday with great concern when you answered a question without, my apology, sufficient background; that you thought that the uranium powder here was not combustible. They have Class D flammable metal extinguishers at this site for that reason and that reason alone.

Uranium dioxide is a pyrophoric metal. I've got documentation there. It can combust in the presence of oxygen if the powder is (0:52) available. It also, as most metallic powders, is subject to a dust explosion which in this case has the value added of sending radio-nuclear -- radioactive dust out.

OSAH, *Occupational Safety and Health Handbook* clearly delineates this, and if you're not familiar with explosions of dust, there's usually two. You have the initial explosion which raises all the dust that hasn't been brought out -- think of your barrels that may

be available to be opened under -- under circumstances like that.

Your second explosion is usually the worst one. That's the one that blows out walls, etcetera.

Finally, boiling liquid expanding, vapour explosion is a truth that for your hydrogen tank, that's called a bleve. When flame impingement hits particularly the air space surface above the cooled, compressed gas liquid, when that erupts you have immediate release, tremendously fast expansion. The rate of combustion can produce a true detonation versus a deflagration explosion, which means the progression is moving faster than the speed of sound. You will have a shockwave and resulting damage.

I'll stop there. There's more but -- okay.

**THE PRESIDENT:** Thank you, Mr. Gibb.  
Dr. McKinnon?

**MEMBER MCKINNON:** Thank you for your points. Again, I would like to raise one of your points, since we have a deputy fire chief here, in connection with the potential for dust explosions and also the flammability of uranium dioxide powder, if you could address those points?

**MR. JESSOP:** Yes. Jim Jessop, again, Deputy Fire Chief Operations, Toronto Fire.

Certainly dust explosions are a risk that Toronto Fire is aware of and deals with in countless businesses, certainly not this is the only one; they are very common or have been common in grain silos, woodworking facilities. Certainly that is why the *Fire Code* requires specific requirements even in high school shops when you're -- you know when you're sanding and you're cutting wood. So that's certainly not unique to this property. It's something that you know the Fire Service trains for and deals with candidly as a matter of course.

I will state, though, I am not an expert in metal fires, so I'm not going to make any comment on that. It would not be appropriate at this time. I don't have my manual with me and I have learned long ago never to go off memory, so on that case I'm not going to comment on what classification of specific metals is combustible, is not combustible; it just would not be appropriate for me to provide you that information without that in front of me.

But, again, from a dust perspective, that is not uncommon. Certainly we've seen those across North America. Again, low frequency, high consequence,

certainly. But, again, that is why there are provisions that are put in place, and in fact I've referenced the ERP in the *Standard Operating Guideline* that we have developed with BWXT over the last number of years, and in fact dust collection and dust risk is actually part of that, so that has been identified.

**THE PRESIDENT:** Dr. Demeter?

**MEMBER DEMETER:** Thank you. I have a question for one of the CNSC staff, but I'll clarify a comment that was directed to me earlier. I totally agree that any dust kind of scenario whether it's grain dust, wood dust, metal dust has the risk of a fire and explosion.

The comment I made and I'll ask for -- seek for whether there's value in it, that uranium dioxide in and of itself does not spontaneously ignite when exposed to natural air. Please correct me if I'm wrong.

**MR. SNOPEK:** Dave Snopek, for the record.

That's correct, the uranium dioxide that we get from the supplier in Port Hope is not -- not a flammable pyrophoric material. It's very clear on the MSDS for the material that we get, it's not a flammable material.

**MEMBER DEMETER:** Is that related to it

being calcined, or is it related to it not being an elemental form of uranium versus a uranium dioxide?

**MR. SNOPEK:** Primarily the reason is because it's not a metallic form.

The intervenor talked about you know Class D Metal fire extinguishers, which we do have in one small area of the facility. It's not for uranium; it's for actually when we cut -- when we manufacture the bundles we make tubes and we seal the pellets in the tubes. When we have to do a rework we want to recover -- for example, if that particular element doesn't meet quality requirements we want to recover the material out of that tube and either reuse it or recycle it, so we have basically a can opener type thing that opens the end of the tube and it has the potential to generate shavings of zirc and that is a flammable metal. So that's done in a very small area of the plant that's done in campaigns and the Class D fire extinguisher is present for that zirconium risk.

**MEMBER DEMETER:** Thank you. I wonder if CNSC can address the two health issues that were raised, one is, transplacental transfer of uranium that's inhaled, and one is the blood brain barriers, if from first principles there was a significant cross to blood brain

barrier or are there any neurological risks or brain cancer risks that have been demonstrated in populations that might have been exposed to much larger amounts of particulate than this scenario that we could derive some data from?

**MS TADROS:** Haidy Tadros, for the record.

I'll ask our health specialist in Ottawa to take that question.

**MS RANDHAWA:** Kristi Randhawa, Radiation Health Sciences officer.

So speaking to hereditary affects, we have seen some effects demonstrated in animals but an increase in the hereditary effects in humans populations, cannot be attributed to radiation exposure.

So we are aware that children, foetuses, embryos, they may be more sensitive to some types of cancers such as leukemia, but the ICRP's system of protection, which the CNSC bases the dose limits on, have been developed to protect all members of the population, so this includes the embryos, foetuses, young children, pregnant woman, and these dose limits are set conservatively to take into consideration all those uncertainties in those studies that we speak of.

In terms of exposures to uranium as

mentioned previously the research has only shown effects to the kidneys. We have not seen effects in terms of cancers; that includes those hereditary effects, so no hereditary effects, no cancers in children due to exposures to the mothers, also paternal exposures.

Also, the ICRP has biokinetic and dosimetric models and dose coefficients for the embryo, foetus and newborn as a result of intake of those radionuclides by the mother, so intake of uranium. So the models are protective of this, and we do not see any health effects of uranium exposure. There's no evidence for that, at least in the health studies.

**THE PRESIDENT:** Dr. Berube? Dr. Lacroix?

**MEMBER LACROIX:** A quick question, either for staff or for BWXT. Could someone define to me what is pyrophoric substance, and is UO<sub>2</sub> a pyrophoric substance? And, what is the ignition temperature -- autoignition temperature of hydrogen compared to gasoline, for instance? Three questions.

**MS TADROS:** Haidy Tadros, for the record.

So perhaps our specialist in Ottawa can provide those -- those answers for you.

**MR. BOUNAGUI:** Zaq Bounagui, technical

specialist, for the record.

So, for the pyrophoric, it's -- it is liable to ignite spontaneously or on exposure to air. So, that's the definition of pyrophoric.

For the other information, we'll get back to you on it.

**MR. AMALRAJ:** Julian Amalraj, for the record. Could you please repeat the second and the third questions again?

**MEMBER LACROIX:** The second question was, is uranium dioxide a pyrophoric substance?

**MR. AMALRAJ:** No. Uranium dioxide is not pyrophoric. Uranium metal is.

**MEMBER LACROIX:** Okay. And my third question is that what is the autoignition temperature of hydrogen compared to gasoline, for instance?

**MR. AMALRAJ:** We will get back to you on that.

**THE PRESIDENT:** A question for BWXT. Mr. Gibb mentioned that he had requested a number of documents a while back and has not got a satisfactory response.

Given what you have heard over the last day and a half, I think this is an area you need to put a

greater effort in, unless there were, you know, legitimate reasons why you were not more responsive. Can you comment on that, please?

**MR. MacQUARRIE:** It's John MacQuarrie.

So we received the requests about a week ago. They were for documents that are generally internal documents, very technical; they have things like employee names. There was a reasonable volume of those.

We have intention to share those documents, but we do need a bit of time to review those appropriately and to make sure that we're not releasing information that we shouldn't be releasing. So, there's no intention to not share information, but we do need a bit of time to be able to do that.

**THE PRESIDENT:** And I'm not sure if you conveyed that to him that you just need more time and you need to make sure you've redacted you know personal information and so on, as opposed to them you know feeling like they're left to dry, not knowing if they're going to be getting anything from you.

**MS CUTLER:** Natalie Cutler, for the record.

That is correct, we did explain that we

are developing summaries and take this request seriously, and his request is important to us, and we will be getting back to him.

Thank you.

**THE PRESIDENT:** Thank you. Mr. Gibb, last words from you?

**MR. GIBB:** Hello again. A quick comment on the matter of the communication. It wasn't till Friday that any single message indicated a security concern as far as releasing the information. It was only when I kept pressing that's when it happened.

Now, a question, too, if you could try -- if you choose to direct this to Mr. Julian Amalraj, this relates to January 25<sup>th</sup>, 2019 *Compliance Inspection Report* wherein it was noted that a hydrogen shutoff was not completed in a timely manner during a drill.

If he could think of the initiation of the drill as time zero, at what time after that was the shutoff valve activated? So hold that one.

And, very briefly, I have concerns about the integrity of the air sampling program. To me, it appears compromised. Industry self-monitoring always raises questions about the representative nature and the

accuracy. No one has yet discussed the fact that there, on your mapping, there are four off-site sampling locations. Unless they have been removed and shut down, there's been no discussion to the community that you've been sampling away from the plant. You always refer to border.

I was hired in 1979 by GE at that time as the first four person group to do onsite and border sampling. Any particulate on a border sample confirmed the particulate was leaving the property, simple as that.

The location shown on the map, approximately to the scale, the four of them, there is no location less than approximately 500 meters from the plant. That's two. Two are approximately 800 meters from the plant.

My concern is this program design permits plausible deniability for public exposure in less than 500 meters from the facility. Are those sampling sites still operating or has it been taken down, because they show within the last couple of years data that you can click on and see the location of these sites.

Thank you.

**THE PRESIDENT:** Thank you, and while we get staff ready to answer this, maybe I can invite folks

from the Ontario Ministry of Environment to come to the front, and now is probably a good time for us to ask you some questions around the environment around this facility.

So the first question is around the *Compliance Inspection Report and Shutoff Valves*. Can you comment on that, please?

**MR. AMALRAJ:** Julian Amalraj, for the record.

During our inspections, we look at a variety of aspects of what we expect our licensees to do. In this particular case it was a human factors aspect where the command centre of the emergency response was expected to ensure and direct that the hydrogen shutoff was done appropriately and in a timely fashion. So the observation was associated with the timeliness and the operation of the licensee's emergency operation organization in terms of an extremely improbable event or a design-basis accident, which is what we usually test in these major exercises.

It is to be noted that the primary response of any event is from the Toronto Fire Service, they are the primary responders, right. And the associated support activities, the licensee is supposed to do, and they are supposed to do it in a fashion that meets our

expectation and the regulatory requirements is what we are assessing, not essentially the emergency response itself.

And the observations -- again, the human factors aspect in this particular case, or the incident that we observed, and we go by what we observed, there was a delay in terms of how fast we expect the licensee to shut of the hydrogen, and that is where the observations came from.

And, subsequently, the licensee has taken action and has demonstrated in terms of what they do. And I do want to make a point on that in that actual responses in terms of one of the events that was discussed, which was a fire in 2017, there was an immediate response. So, we do know and we do benchmark against what the licensee typically does and whether there will be any impact. But we are assessing a variety of aspects and we're very strict about it. So, when we notice even the slightest deviation from what our expectations or how fast or how a licensee should respond, we will take action. And so the inspection observations and the associated enforcement actions were based out of that.

**THE PRESIDENT:** Thank you. And on the second one on the air sampling program, the adequacy of the

location of the monitors, can you comment on that, please?

**MS SAUVÉ:** Kiza Sauvé, for the record.

So I'm going to speak both to the air sampling done by BWXT, and then I'm going to move to the independent environmental monitoring program as the four locations on a map that are clickable online must relate to our independent environmental monitoring program.

In terms of the air sampling done by BWXT the guideline is actually based on the point of impingement. And what that means is where the air is kind of leaving the site, getting closest to the ground. And so those are the boundary monitors that are being -- that are used.

I would also point out that BWXT has an environmental compliance approval from the MECP and in that approval they are also required to do third-party stack testing. So, during inspections CNSC will review the reports from these third-party audits and so Lehdner, was the name L-E-H-D-N-E-R was the independent contractor hired by BWXT to do this stack testing. So CNSC reviewed those reports during inspections.

In terms of the four points doing the independent environmental monitoring program, they are

further from the site and as we've discussed the program before the intention is to do some air sampling in the public area, so in parks, in publicly accessible areas, so that's why they are further from the site to kind of give another approach to some air sampling nearby.

**THE PRESIDENT:** So given that we've heard from some intervenors who live very close to the site and that the 500 meters may be rather far away, is that something for you to reconsider that you need something closer to the facility?

**MS SAUVÉ:** Kiza Sauvé, for the record.

So when we're looking at where we're doing our air sampling, we will take that into consideration. Often we're looking for an area where there isn't a big building nearby, so we're actually getting an airflow, or -- and we're looking also at the wind direction. So we are trying to do the best spot possible, but we are listening and hearing at this hearing.

**THE PRESIDENT:** Okay. And so I'll ask the first question and then my colleagues will jump in for the Ontario Ministry of Environment. We had an intervenor early this morning talk to us about a map that showed air pollution results around the city and the Lansdowne Dupont

area was identified as one with -- and I'm not quite sure what the pollutant was, but it had a red dot, and -- and she wanted to get some more details as to why it was kind of flagged as having high levels of pollution but didn't get any satisfactory responses.

Can you shed more light on that?

**MS CAICADO:** For the record, Jimena Caicado, with the District Manager for the Toronto office with the Ministry of Environment.

Over there with the Webex is Todd Aaron, who is a terrestrial assessment supervisor. I'm not sure if Todd may be able to answer this question, since it's a measurement that we take. Todd, will you be able to answer this?

**MR. AARON:** No, I will not.

**MS CAICADO:** We'll take this back to our office with the Environmental Monitoring and Recording Branch and we'll get back to you.

**THE PRESIDENT:** And if you want more details as to what concerns and questions the intervenor had raised, if you can maybe check with Louise Levert at the back, she'll hopefully try to connect you with them.

Anyone here with questions for Ontario

Ministry of Environment at this point? But we'll probably come back to you later.

Thank you. So, Mr. Gibb, it's over to you.

**MR. GIBB:** My apologies, I didn't mean to speak over you. Is it okay to make one last statement, very briefly?

**THE PRESIDENT:** Okay. Thirty seconds.

**MR. GIBB:** On thing that has not come up when we talk about worst case scenarios, and I'm speaking from experience in the fire service, municipal, provincial, federal level, and related. There has been no description of an attempt to overlap worst case scenario with worst case response capability and timing, i.e., ice storm, blackout. These are times when BWXT employees will be entirely on their own and there's clearly a potential delay in the timing of the response by Toronto Fire and the capability. That has not been demonstrated in any of the discussions whatsoever.

**THE PRESIDENT:** Okay, a fair point. We'll ask the chief, he's still here. Maybe you can shed some light on that?

**MR. JESSOP:** Thank you again. Jim Jessop,

Toronto Fire.

So the question regarding overlapping timing response worst case scenario is something that, candidly, Toronto Fire Service nor any other fire service that I'm aware of, does on a building specific case.

We respond fluidly and dynamically, and it is impossible for us to look at every single scenario in terms of traffic patterns, ice storms, so forth and so on.

So all I will say is we have our escalation levels. We have our -- you know, all of our training for this specific building. As I have stated a number of times, we have our response plan and our guideline, but there is not a single property in the City of Toronto where we will look at everything from worst case scenario of traffic lights stopping and ice storms coming and staffing rules. It's just -- it's an impossibility.

**THE PRESIDENT:** Okay, thank you. And thank you for your intervention, Mr. Gibb.

**MR. GIBB:** Thank you.

**THE PRESIDENT:** The next presentation is by Mr. Chaitanya Kalevar, as outlined in CMD 20-H2.203.

Mr. Kalevar, over to you.

**CMD 20-H2.203**

**Oral presentation by Chaitanya Kalevar**

**MR. KALEVAR:** I have a suggestion for the CNSC. You just heard before that even this site has no sign saying that it is a nuclear site, or something to that effect.

I'm sure there are many sites you have licensed across Canada. I suggest you should have a standard sign with your licensing requirements and when the licence is over, and maybe even a date, maybe a year ahead or six months ahead, where public can actually start talking to you and where to contact you. I think it should be a CNSC sign, rather than a sign of the BWXT. And that's my first recommendation, across Canada, for all sites. I don't know how many sites are there. Probably a hundred, anyway, from the number of emails I get from you.

Anyway, having said that, let me just comment on a few things I saw and then I'll get into my presentation.

This morning, the chief made a presentation. And I asked for his card. He said he would get me after the lunch, because he didn't have it right

then. I haven't still got it. I asked him after lunch. That's besides.

I think what was a surprise to me that the chief said that we don't have plans for every building everywhere on how it goes on. Then he also came down specifically on the CN Tower, saying, Oh, we don't have anything for CN Tower. What happens if it collapses?

Personally, I think CN Tower was an ego boost for Toronto. Yes, we have a tall building, we can build a tall building, or something like that. I don't care if the CN Tower collapses. But I do care if a nuclear site blows up. I mean, it is important that we treat the nuclear site and I hope the chief treats the nuclear site little different than CN Tower or any other building.

I think there is a sense of nuclear age which has not percolated our fire chief yet. And I think this probably, if it is true in Toronto -- we are right next to Pickering and Darlington -- it is probably true across Canada. And I suggest that the fire chiefs across Canada be educated on the sense of nuclear age and the nuclear facilities that you have licensed. And you should communicate with all the fire chiefs across Canada, saying, Hey, we have licensed this site and we want you to deal

with situations on this site this way, that way, whatever the way we might come up with. So that's my broad Canada-wide presentation, if you like.

Okay. How did I get into this stuff, anyway? Well, I graduated in India in my engineering degree way back in '63. And my first job was with the CANDU nuclear reactor in Trombay, India. Surprise, surprise, within a few weeks, there was a meeting called where they said, Hey -- and of course Indians at that time, they know how to operate the CANDU reactor. Say, Hey, experts are coming from Canada, United States, and all that to teach how to operate the CANDU reactor.

And I heard about the meeting. I was very curious what the hell is going on -- I'm very curious all the time. So I asked my boss, Can I attend the meeting? And the chief engineer said, Okay, you can attend, but don't ask any questions. I guess I was known then too. So I said, Okay, fine.

He came back after a week, and then I asked, Can I ask you a question? He said, Sure. And I told him, Well, what are you going to do with nuclear waste? That was my first question. And my chief engineer smiled with his reverence for the CANDU reactor makers and

designers and said, Don't worry about it. They're smart engineers in Canada and the United States, and they will have an answer for you in five or 10 years. That was his response.

I was shocked. I said, "Okay." Maybe they're smarter than me two times. What does that mean? If I write an exam with the other guy, if I finish it in two hours, he will finish it in one hour. Okay. Will that change the answer? Clearly, it doesn't change the answer. And so my curiosity was up.

And luckily, I was a good student, so I applied to University of Waterloo and I got a scholarship and I came. And when I came, I started of course poking around, as curious as I am. There was no answer on the campus.

So I started getting involved with Ontario Hydro at that time. And I found out that they were building these plants so close to Toronto. I started saying, Hey, what the heck are you doing? Why are they building these plants so close for Toronto? They said, No, no, it's transmission loss. I said, Okay, but you can also pick another lake. Maybe you can have some transmission loss extra, but yeah, build it somewhere a little further

away. And there are a lot of lakes. Build in a lake which is stationary. Well, they won't accept that, for some reason.

So finally, I got into conversation with some colleagues of mine from Ontario Hydro at that time, young engineers. And one of them said, Look, Chai, if you put these plants on a stationary lake, all the leaks will add up and the radiation level of the lake will keep on going up. So what was the reason of putting it on Lake Ontario? That the radiation will leak out through to Atlantic Ocean.

So dilution is the solution of nuclear radiation and waste. That is what is being done or has been done. All our nuclear stations are on the lake so that dilution continues. So what is the CANDU way of dealing with nuclear waste? Dilute it in Atlantic Ocean. Who will find out? So if Fukushima is doing a good job in Pacific, we have been doing a good job in Atlantic for 50 or more years.

This is no way to treat the planet. It is outright irresponsible. I mean, I can't believe that this is what is happening for such a long time.

Anyway. Perhaps you know that the World

War ended with a bang, or perhaps I should say two, Hiroshima and Nagasaki. Where did the uranium in Hiroshima and Nagasaki come from? Some of you may know it came from Saskatchewan under the leadership of Tommy Douglas of the NDP, great NDP premier.

So that's how Canada has been operating for quite some time. So, okay. So what do we do? So that is now our situation here.

Of course you have heard from many people before me that there is widespread concern in the community about this location. Okay.

As I said, I have been active in Pickering and that area for a while. And there are many presentations I make along those lines too. And so my gut reaction was, okay, when I was buying a house, I said, Okay, I'm definitely not buying in the east of Toronto. So I came here in the west and bought this, my house. Right? Even I didn't know this plant existed. And here is an active nuclear activist kind of person. We didn't know. So I escaped from Pickering to jump into BWXT or whatever you call it. We have a problem. You have to make these signs big enough that nobody in the neighbourhood misses it. Okay, that's one.

Okay, so I got in here. Now let's get it straight. Perhaps you are aware in the last 10 years all these big towers have gone up here nearby. And big development have happened just across the street on Lansdowne, just across the street. Many people bought those homes in last decade. They didn't know they were buying next to BWXT nuclear site. Like I didn't know. I'm at least still further away, on the other side of Dufferin, well within a kilometre.

So okay, I hold CNSC responsible for this ignorance, firstly. I must say that very clearly. Okay. Now I think --

**THE PRESIDENT:** One minute to sum up, please.

**MR. KALEVAR:** Oh, it will take longer. Okay. Okay, quick. I will try.

I have a book here. It's called, *Climate Change in the Nuclear Age*. And it deals with that issue that Janet brought out first about IAEA and WHO marriage. It's disgusting. I mean, WHO should be completely independent of IAEA. I mean, on page 110, there's a summary of this ugly relationship, unhealthy relationship.

In our age of iPhones, where we can get

pressure, temperature, any city anywhere, why can't I get the radiation level in Toronto or any city anywhere? The radiation level in all cities is going up. But we are not told. We can't even get it here.

The city of Toronto is outright negligent. Why is there no monitoring equipment on the eastern border with Pickering, so if anything happens to Pickering, we'll know? Why are public buildings like the city hall, community centres, schools, colleges don't have equipment to measure radiation levels? I mean, are we not concerned about the schools and community colleges and even libraries where people gather? If we can't put it on the phone, why not -- I don't say -- I don't think it's not something that can be done -- but why not at least public institution we have radiation levels reporting?

It is as if we are a nuclear age and we are keeping the population completely ignorant of even the radiation levels that is around and increasing every day, every second.

**THE PRESIDENT:** So Mr. Kalevar, last 30 seconds, please. And then we'll open it up for questions.

**MR. KALEVAR:** Okay, fair enough. So last 30 seconds.

I have this book. I will be glad to give it to you. If you want more copies, of course, I will be -- I don't have them. But I'll be glad to bring it to your seven members or maybe even some of the staff here.

So that's my presentation.

**THE PRESIDENT:** Thank you for that. And if you can give them to Louise, she'll make sure we get them. Thank you.

**MR. KALEVAR:** Sure, sure.

**THE PRESIDENT:** So let's open it up for questions. Dr. Demeter?

**MEMBER DEMETER:** Thank you very much for your presentation. I have no specific question, but Dr. Navarro's here. At the end of this round before the next speaker, I'd like to ask a question for follow-up from the morning.

**THE PRESIDENT:** Okay.

Dr. Lacroix?

**MEMBER LACROIX:** Thank you, Mr. Kalevar, for this presentation. One of the questions that you've raised in your written submission is that are all nuclear operations in Canada insured under the *Nuclear Reliability Act*. This question has been discussed already, but for the

purpose of informing the general public and for our own understanding, could CNSC tell us in a nutshell what is the purpose of the *Nuclear Safety and Control Act* and what is the purpose of the *Nuclear Reliability and Compensation Act*?

**MS TADROS:** Haidy Tadros, for the record.

So I'll take the *Nuclear Safety and Control Act*, because that is the act that prevails our activities, and we have representatives in NRCan who can speak to the NLCA, as they are the ones who administer the NLCA.

So the purpose of the *Nuclear Safety and Control Act* is to prevent the unreasonable risk of radiation to the health and safety of people and the environment, to ensure Canada is abiding by its obligations internationally with regards to non-proliferation and weapons, and particularly to be able to disseminate scientific and technical information. So in general under our mandate, that is what we try to do.

So with that, maybe I can ask NRCan to provide their response to the NLCA.

**MR. FAIRCHILD:** Good afternoon. Jamie Fairchild, Natural Resources Canada, for the record.

Pleased to speak to the *Nuclear Liability and Compensation Act*. It's the legislative framework in Canada for third-party civil liability in the event of a nuclear accident. So it establishes the standards, defines nuclear installations, identifies material that would fall within the purview of the nuclear liability regime in the country.

**THE PRESIDENT:** Dr. Berube?

**MEMBER BERUBE:** Thank you for your presentation. I especially enjoyed your history of how you got into this and what it really means to you. It's nice to have those kind of stories.

I have a question for the deputy chief, since we still have him in the room, pertaining to your disbelief that there isn't a plan for every building in Toronto. And I just have a couple questions for the chief in that regard. It's more of an extension of the last intervenor as well.

So Deputy Chief, obviously, you wouldn't have the resources to look at every building in Toronto. That would be an impossible thing to do.

**MR. JESSOP:** Yeah, Jim Jessop, Toronto Fire. That's absolutely correct.

**MEMBER BERUBE:** Yeah, so but you obviously would have a list of high priority installations that you would need to have a plan for?

**MR. JESSOP:** Absolutely, and as I've noted over the last two days, we do have an emergency response plan that has been developed and continues to be updated with BWXT as well as a specific standard operating guideline that prescribes specific provisions in terms of different responses within this building, A, to protect the public, but also B, to protect the staff in the building and my firefighters.

So we do not, as I've said, do, you know, some of the risk assessments that have been suggested in terms of, you know, worst-case scenarios, because that's just not something that we do.

But certainly for this building, we absolutely do have and we have had for a number of years familiarization tours, standard operating guidelines, and joint emergency response plans with the company.

**MEMBER BERUBE:** Okay. Now, the other question I have is we've brought up this idea about a storm, something of this nature, that's very, very -- really puts a lot of strain on your resources, right, your

availability and stuff like this.

So obviously you have an emergency priority list, too, for certain facilities, I would think. And so you use that to determine which facilities are going to get attention first under those conditions?

**MR. JESSOP:** Yeah, so again, thank you for the question.

So we have a number of internal protocols, obviously. So for example, one of the protocols we have is called the Severe Weather Protocol. So for example, the last ice storm or wind storm we had last year, when our resources were taxed and we were actually stacking calls, much like Toronto Paramedic Services and Toronto Police, what we do at that point is we start prioritizing based on risk. And we provide our communications captains and our dispatchers and we embed what we call a platoon chief, so a senior operations chief officer actually goes up into the command centre where the 9-1-1 calls are being sent to us, and they will prioritize the calls.

So for example, if it's wires down on an isolated street, we will not be sending resources, as opposed to call to Sick Children's Hospital or a call to a nursing home or a call to a facility such as BWXT or for,

you know, a comparable, to be very honest -- because we've heard about this hydrogen tank throughout the last two days -- our water filtration plant, for example, that cleans the water of the City of Toronto has a chlorine tank very similar to what you're suggesting in terms of size. And from what has been explained to me -- and again, I do not profess nor suggest that I'm an expert in chemicals -- but certainly what has been suggested to me is if that ever had an incident, that does a lot more damage than anything else in terms of the chlorine gas that would be released.

So obviously we do prioritize. And you know, in the event that we have a major fire, you know, like we had the Gosford fire just before Christmas where we had almost half of our resources there, we do prioritize our responses based on the risk, and discretion is given. And we have internal protocols, again, escalation levels where senior officers will enter the communication centre and start allocating our resources.

**MEMBER BERUBE:** Just one other question for you. You have the emergency response unit for biological, chemical, nuclear response. Could you give me an idea what the proximity from this facility is of that particular group of people?

**MR. JESSOP:** Yes, certainly. So as noted earlier, Toronto is one of the few cities that has what we call our provincial CBRNE team. And so not only it's a service that provides to the citizens in Toronto, but also we are on contract with the Province that we will respond out to any city that needs our assistance.

That team is not centrally located in one fire station. So we have a number of firefighters that are trained to the NFPA 1072 HAZMAT technician level across the city of Toronto. We do have two dedicated hazardous materials trucks. One is at Adelaide and John, and the other one is in the vicinity of Jane and Finch. So those are the two main trucks we have. But the firefighters collectively are dispersed across all four shifts and across multiple stations so that in the event something does happen, we can draw from a pool of resources.

**THE PRESIDENT:** Dr. McKinnon?

**MEMBER MCKINNON:** Yes, thank you. I'd like to address one of the questions you have in your written submission. You mentioned that CNSC allows BWXT to self-report its own emission levels. And that might sound odd. So I'd like to address that, because establishing the reliability of monitoring I think is a very important

point.

And one of the previous intervenors also mentioned, you know, the company was using third-party providers to design a monitoring system, for example, or a monitoring program.

So I'd like to ask the staff of CNSC: number one, when there is a third party involved in developing a monitoring program for one of the licensees, what checks you do on that to establish whether it is viable or not? And secondly, when it comes to the data that's being collected by the company, by the licensee, could you describe the types of checks that you do to establish the reliability of those?

**MR. McALLISTER:** Andrew McAllister, director of the Environmental Risk Assessment Division.

So typically, a lot of times licensees will engage with contractors or consultants to develop the necessary documents. Depends on the resources internally to a particular licensee. But what we do have and the expectation we have, and you've heard us make reference to it periodically, is a series of CSA standards regarding different aspects of our environmental protection framework.

So one of those is on environmental monitoring programs. And so that would be an example where we would get a product from a licensee, and we would review that product relative to that standard to ensure it's in compliance with that standard, as well as bring whatever expertise that we have in-house needed to review, say, some of the more technical aspects, whether it be air, soil, groundwater, or what have you.

The other aspect within the standard is the need for ensuring QA/QC and other sort of checks and balances in there to ensure that the data is collected appropriately and analyzed, and as such.

And again, all I would say lastly is you have heard mention of our Independent Environmental Monitoring Program. Again, that is just another check that we do and use the results of that to compare to the licensee's information to ensure that they are in the same range.

**MEMBER MCKINNON:** Thank you.

And is there a requirement for the independent contractors to be professionally licensed in developing programs when they provide advice, just as another quality check?

**MS SAUVÉ:** Kiza Sauvé, for the record.

So when we are reviewing documents from a licensee, there is a cover that says it came from Arcadis as an example, or the licensee. We treat it as a document from the licensee and we are reviewing it against that standard, the CSA standard.

**THE PRESIDENT:** Mr. Kalevar, you didn't mention that in your oral presentation today, but in your written submission you had said you would like to see the inside of the plant and --

**MR. KALEVAR:** (Off microphone) the liaison committee or something. But that's besides -- yes?

**THE PRESIDENT:** I don't know if you were following the hearing yesterday, but BWXT had said that --

**MR. KALEVAR:** Anybody can.

**THE PRESIDENT:** -- they welcome people --

**MR. KALEVAR:** Yes.

**THE PRESIDENT:** -- who want to see the inside and there is going to be a callout for CLC members. So, yes.

While we have again the Ontario Ministry of the Environment here, there have been a number of discussions around how much oversight there is of this

facility in what goes out in the environment. So you haven't been here to provide your personal reassurance, but maybe if you can share with us the kind of oversight you do of the facility, the relationship and collaboration you may have with the CNSC, and if there are any concerns that you have about the facility and its impact on the environment or, you know, just provide reassurance to members of the public here, please.

**MS CAICEDO:** Thank you.

Jimena Caicedo, for the record.

The Minister regulates the air emissions from the facility as well as any management of the waste that is non-radioactive. So for air emissions, the Ministry has to issue an environmental compliance approval for the facility. Through that there is an engineer who will review the process, will review the documents to make sure that their emissions meet our standards.

Once the ECA, which is the short term for environmental compliance approval, is issued, then it comes to our office, which is our district office. We then take compliance activities to ensure that the company is operating within those parameters.

To do that, we inspect the sites to ensure

they are meeting the standards and we review the emission summary and dispersion model report that the company is required to submit to us. They have to prepare it on an annual basis. We review that those reports are in fact reflecting the operation and they are meeting our standards.

In terms of waste, we also -- the facility is required to register under the Hazardous Waste Information Network for subject waste that is non-radioactive. We make sure that they are registered and their waste is being transported by an approved carrier and disposed of by an approved facility.

We can say that up to date the company is in compliance with those requirements and we have no concerns from their facilities.

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

Dr. Demeter, is now a good time for you to ask your question of Toronto Public Health?

**MEMBER DEMETER:** Yes. I would like to ask Dr. Navarro some questions.

Thank you very much for being here. We appreciate it.

We heard yesterday that the cancer statistics for around the facility were favourable compared to the province and someone asked today how granular that is, like how precise a catchment area that those figures were coming from. So I thought I would ask you that question as well as whether you have any sense from health status reports on prenatal, perinatal and postnatal health status indicators from the area relative to low birth weight, premature births. I know the health status report usually has cancers as one thing, but there are a lot of other indicators. Are there any outliers for this community, especially as close to the facility as you can get?

**DR. NAVARRO:** Christine Navarro, Associate Medical Officer of Health at Toronto Public Health.

So what we have available on our website is under the Population Health Status indicators and that data can be searched by neighbourhood, by -- it's on our public website.

With respect to the cancer statistics that I mentioned yesterday, this is based on data from hospitalization discharges, so the discharge abstract summary which is available for all hospitals in Ontario as

well as the Ontario mortality database.

For the granularity, it is broken down. You can go onto the website and select whatever neighbourhoods you are interested in looking at.

This is for Dovercourt-Wallace Emerson-Junction neighbourhood. I don't have the population size, but when you go on to that website you can see sort of the boundaries around which that map is drawn.

So, for example, the all cancer mortality for that neighbourhood is 158.4 per 100,000 population and that is lower than for the rest of Toronto, minus this neighbourhood, which is 164 per 100,000 population, and for the rest of Ontario, without Toronto, is 196 per 100,000.

Now, we know that cancer is a multifactorial process. We know that all cancer captures many things. There are many reasons for differences in cancer across neighbourhoods, across the province, related to not just environmental exposures but also sociodemographics, access to screening, cancer screening, et cetera.

Now, you asked about other health status indicators. It's very limited what is available on our population health status indicators website. This is

something that -- a new initiative that we have put in place, I believe it was in 2018. So we have very limited indicators right now, mostly focusing on -- most of the indicators on there are adult chronic disease indicators, because those are most easily accessible at the neighbourhood level through the hospitalization and mortality databases.

So I don't have any data at the moment. I can check back with our Child Health and Development colleagues to see if they have any more neighbourhood-level information about prenatal or reproductive or early childhood markers. By neighbourhood, they may have that available.

**MEMBER DEMETER:** That would be very helpful and thank you very much.

**THE PRESIDENT:** Thank you.

And thank you, Mr. Kalevar, for your intervention.

The next presentation is by --

**MR. KALEVAR:** Can I reply?

**THE PRESIDENT:** Of course.

**MR. KALEVAR:** Everybody gets it.

**THE PRESIDENT:** You get it, too.

**MR. KALEVAR:** Thank you.

--- Laughter / Rires

**MR. KALEVAR:** Okay.

I welcome BWXT to Canada. In Canada we still don't have a southern wall, so thank you for coming.

The fact is in Canada we also have a *Charter of Rights* and responsibilities and under the *Charter*, section 7 gives us a right to life, liberty and security of the person. I don't think it will be an exaggeration to say that many people in this community feel their security of person is challenged, my needs, if nobody else's. So under the section 7 of the *Charter* I will be challenging you in the courts, Federal Court, well, for violating my security of person. And I think you should not or cannot proceed with licensing this site. You might delicense it, but licensing this site you cannot do until the challenge is heard and I would like you to keep that in mind.

I'm sorry I'm a little bit under, so I have not done all the work for the challenge, but I am getting better and I will be doing it and I suggest you do not proceed with licensing it because there will be a *Charter* challenge in the Federal Court.

**THE PRESIDENT:** Okay. Well, thank you for the heads-up.

So moving on with the next presentation by Ms Anna Tilman, as outlined in CMD 20-H2.237 and 237A.

Ms Tilman, the floor is yours.

**CMD 20-H2.237/20-H2.237A**

**Oral presentation by Anna Tilman**

**MS TILMAN:** Thank you.

Can I beg your indulgence before the clock starts ticking?

**THE PRESIDENT:** Well, it depends.

**MS TILMAN:** Okay. There are two items.

First of all, I want to introduce Dr. Gordon Albright, who works with me on a number of these issues. We are both math, physics and chemistry people, so we have known each other for umpteen decades.

Secondly, a concern I have has to do with documentation and it is coming up recently because I was away in Montreal at meetings and I received the agenda, the new agenda, plus three submissions, one from -- I always get it wrong -- BWXT and from the staff. Now, that was

less than a week before the hearings were to begin.

We don't have that opportunity as public intervenors and there was no way I would be able to even go through those documents. Those of you who know the work I do know that I do go through your documents. There was no way I had a chance to update myself.

We as the public are subject to a deadline for submission. I had to ask for an extra couple of days. So we have to get our submissions in. The CNSC staff and BWXT should be getting them in at a specific time to allow us to review those documents. So unfortunately, my submission is based on previous material. I just wanted to clarify that as you start the clock. Okay.

**THE PRESIDENT:** Yes.

**MS TILMAN:** I hope I get this right. Okay. I would like to start right away.

You know the description of the facility. You know what it does, you have been hearing it all the time.

So looking at the application for the licence, there are several questions that I have about the application for the licence.

We talk about the licence for possession

and processing limits. Now, I find that rather different from other situations. For instance, how much UO<sub>2</sub>, how much uranium dioxide is actually being used in one year? I don't know from this. How was the supply of uranium dioxide being stored? How much is being shipped to a U.S. facility in North Carolina? So these are things I think it is important to know how much is actually being used. And I am trying to picture this facility and what happens with the UO<sub>2</sub> that is not being used. And how do you do the accounting for all that? That is one issue on there.

The other issue is what checks -- and I haven't found this -- are there, what quality control to ensure that the pellets are safe, that there isn't a fault in them? Everything that you manufacture there has to be some kind of quality control. I have not found that in the documents I have been able to read. We know that if a pellet is faulty and is in a reactor, there is a huge problem that can result with UO<sub>2</sub> being in the heat transport system of a reactor, so we certainly don't want that.

The same thing happens in terms of the Peterborough facility. I don't know what kind of quality control there is on the assembly into the bundles and

therefore, are there rejections, what happens to that material that may not be good? Not everything can be 100 percent and it has to be before it hits into the reactor, as far as I can see, because you can't catch them -- those mistakes will be bad.

So that slide is just merely to say that is what you are asking for, plus the authorization to do pelleting operations in Peterborough.

Now, you know what these facilities produce and how long they are gone, so I am not going to spend time on this slide because you already know this kind of information.

I find it very interesting the use of zircaloy tubes. I'm not sure what the alloy is that you use, whether it's tin, whether it's niobium or whatever. I would like to know that as well.

There is an issue in the assembly with beryllium that has come up and I will touch on that later. I understand, going back to some records, that at one point the Ministry of Environment, Ontario's Ministry of Environment was going to look at tightening up the beryllium levels. That's 10 years ago. I haven't been able to find out anything since then. Because I think that

is an important question, who is doing what. There were concerns even expressed by Cameco at the time that they would need to look at what would happen if Ontario's regulations were to make more stringent limit on the use of beryllium. I want to raise that now because it is all part of the operation.

Now, going back to one of the reasons that people like us, Dr. Albright and I, are here is to support the concerns of the community. We had intervened in the 2013 meeting as well. There are concerns because people don't know what they got into and there is a natural fear of being right adjacent to a facility of this nature, what is going on, how might they expose their children. You have heard that from some of the people that I could see from yesterday's interventions. Were the residents informed before moving into the area? That is something that should be considered in general by the City of Toronto, whatever. People should know what they are moving into.

Now, it is important that you value the concerns of community members coming forward, because they are the first receivers. They are worried about how they evacuate. It's only natural. If you live in Toronto,

which I don't, but if you do you know how difficult the traffic situation is, the trucks, all this going in with no idea about how much is going in at any one time. There's a lot of traffic, a lot of transportation and it's natural to have those concerns and they need to be heeded.

Now, something to -- the emergency measures I was going to mention, they seem to have been addressed to some degree in previous discussions, but I understand, I might be wrong, that BWXT just recently updated their emergency plan. I don't know, I haven't reviewed it, but I think it's important to look at it.

Now, in terms of licence limits, actually they are not relevant to the actual emissions they incur. We are not sure how some of these limits have been established and there is a lack of confidence in the oversight that CNSC is providing to ensure public safety. I think those are issues.

There are other issues in terms of how radiation protection is expressed in the units. The equivalent dose for example was set at 500 mSv per year. I don't know how that was determined and how would that level be considered to be safe, under what parameter.

In terms of Toronto, several years ago

there was an incident of an exposure, extremity exposure. You can see the number there. It's quite high, the highest level of all at that time. I don't know what has happened since then.

What bothers me was the response to this and this is where the danger of setting non-protective limits goes. If the dose represents 71 percent of the regulatory equivalent dose limit, it is well within levels known to cause health effects. Now, that's a rather disturbing response. That means -- that signals there isn't the kind of concern there should be. I would disagree with the level of 500, but I also disagree at putting it as a percent of a level. It should be a concern.

The other issues are our action levels. Action levels are not regulatory levels, as you well know, but they are indicators of a problem. And the most -- in these operations, be it Toronto or Peterborough, the hands, arms, skin seem to be the most vulnerable.

So when I looked up the action levels -- and I am not a fan of them, but I have to do it -- I noticed the difference between Peterborough and Toronto. Now, Toronto, the action levels, as you can see, are

lower -- sorry, are higher than in Peterborough. That might be due to the pellet-making operation; after all, they are having the UO<sub>2</sub>. Now, so far I haven't seen any indication -- BWXT is requesting pellet-making in Peterborough, but I haven't seen any change in the action level to reflect that.

So I am just questioning, regardless of what I think of these action levels, still there is a disconnect there. If they want to do it, they should look at -- you know, make it the same. Okay.

Now, I had one heck of a time working on this submission, I have to admit, and I ended up calling this deficiencies, as you can read.

I was unable to track specific modifications that have been made in the plant, how many pellets are made, I mentioned that before, how much is shipped. No explanation as to why the pellet-making has to increase by introducing the operations in Peterborough. That is -- I mean considering what is happening in the province and who gets the pellets in Ontario, which is Darlington and Pickering -- Pickering is slated to close -- they don't supply, as far as I can find out, the pellets to Bruce. Bruce, I believe, gets it from Cameco. So I don't

know what the need is and I am asking Commission Members to consider that. Why expand something, to how much, what level? I have no idea based on any of the numbers that are given in any report how much are produced, why the production should be increased.

Okay. Now, other deficiencies are health and safety, no tracking of it in the reports that I read, and these were the reports that were sent out with the initial call for the hearing. Limited information, if anything, on health effects for workers, worker protection requirements and in particular exposure to beryllium.

Waste. Waste, the Achilles' heel of the industry, is not addressed that I have seen. And, listen, I can't read all the 400 pages, but I tell you, you know, I haven't seen much mention there. There is a phrase called "miscellaneous contaminated material". What is that? That is not a proper scientific description of what is contained.

Okay. No indication of any improvements to the plant in the past 7-8 years and no revisions to the regulatory or action limits have been made. The one thing is no analysis of cumulative effects on the health and exposure to these chemicals. It is not the annual alone,

it is the cumulative as you go along. So that's an issue.

Okay. Now --

**THE PRESIDENT:** Ms Tilman, I will give you two extra minutes.

**MS TILMAN:** Oh, my gosh, I'm sorry. I didn't look at this thing. Okay.

Event reports, very poorly described.

I just have to say something. The CNSC report that had come out, the staff report had three separate reports in one with no common table of contents. It was "H" to go through that, okay. Very, very difficult to get information out.

The event reports are not succinctly described. The results are not described in either BWXT or the staff report.

Sorry. So beryllium, I just pulled this out to show one of the problems with the graphs is the peak is obvious, but there is averaging going on and averaging wipes out extremities. We need to have the extremities.

And the same thing -- I am going through this quickly -- again, looking at the licence limit and looking at the amounts, it's a disconnect. More work has to be done on cleaning this.

Do I have a minute on uranium health, please?

**THE PRESIDENT:** Okay.

**MS TILMAN:** Okay. I was watching some of this yesterday as well and the routes of exposure, so here is a summary.

Now, in terms of uranium, it is a very heavy metal. Let alone its radioactive properties, as a metal, the atomic number is 92, lead is 82, so we are talking about something heavy. It does bind to DNA, regardless of whether it is -- considering not even the radiation, it has effects of this nature.

A number of years ago, in 2008 in fact, the Ministry of Environment of Ontario was attempting to set a uranium-in-air standard. It didn't get it set, but one of the difficulties that they ran across, too, was the different species of uranium, like UO<sub>2</sub>, which is what we are talking about here. UO<sub>3</sub>, all the different compounds have different solubility levels, okay. They are either weak, middle or strong.

In the case of this facility, UO<sub>2</sub> is weak solubility, which means, yes, it affects the kidney, but it also affects the lungs for a very long time and that has

not been brought up in any of the health studies. The emphasis has been on the kidney. There is more than the kidney. So you have that there.

Sorry. Beryllium is something you need to pay attention to and it is the chronic beryllium disease factor. It is similar to magnesium. It can displace it from enzymes and the body has no means of controlling beryllium levels. This is critical, once inside it can't be removed.

I address this because of the workers that are exposed to this stuff. I don't know, with all this dust, what equipment -- I haven't seen anything about how they are equipped to handle this by hand. The fact is if they got the exposure in their extremities means their hands are involved or their legs are involved, or whatever the extremities are. What is mandatory for the workers to have at these places?

Okay. Now, there is lack of transparency, there is deficiency, there is the key concerns of residents and a public right to know supersedes industrial interests, and we have to have confidence that the CNSC is there to protect public safety. We need that -- people need that confidence. They don't need to feel that CNSC is just

going along with the show.

So we therefore say to continue these operations the way they are going is not a very good idea. So we are recommending that the Commission reject the licence as it is and deny the request to do pellet production in Peterborough.

And in working toward closure, no time limit could one think to give for this, but working toward closure they must be prepared to prepare a decommissioning plan and be subject to review.

And that I think is the end. I'm sorry, I had to go very fast.

**THE PRESIDENT:** Okay. Thank you very much for your submission, Ms Tilman. And you did say that you were watching the webcast or parts of it yesterday. Many of the issues or concerns that you have raised, things like how much uranium is stored or processed, how much of it gets shipped to the U.S., emergency plans, why the different action levels between the two facilities and why pelleting. It's not to duplicate, it's to consolidate them in one facility, so it's not to have increased capacity. But those things were discussed yesterday, so if we don't ask you questions it's only because we did get responses

and you will see it in the transcript or if you go to the webcast.

So I will open it up for questions and start with Dr. Berube.

**MEMBER BERUBE:** Well, thank you for your submission. You covered a lot of territory very quickly, so we appreciate your observations. It takes a lot of work to do that kind of thing, so it's good to have you here to discuss your concerns.

This is for BWXT. We have discussed the fact that you have the intention of picking up the manufacturing line here in Toronto and moving it to Peterborough, you are looking for that authorization to do that. That's correct?

**MR. MacQUARRIE:** It's John MacQuarrie.

There is no intention to do that, but if we need to we are asking for authorization to be able to do that.

**MEMBER BERUBE:** Okay. Okay. I just wanted to be clear on that just so we understand.

So one of the questions the intervenor has brought up here is the idea of quality control within that line. If it's actually going to be moved, it's obviously

important to maintain that. Right now, could you just quickly go through the quality control processes for your pellets as well as your encapsulation and bundling, if that's possible?

**MR. LEE:** Min Lee, for the record.

I will just go through a brief explanation of the quality control that we perform.

So quality is planned and documented as part of a quality plan that gets reviewed with our customers. When I mentioned earlier the N299 standard, it's a quality standard that was developed by the CSA for suppliers to the nuclear industry. In the case of our facility, this has had many decades of time to improve on and review, evaluate its effectiveness. The effectiveness and the performance is reviewed on a yearly basis as part of our management review.

We use a combination of automated inspection, human inspection and a collection of records that demonstrate that we are able to meet all our requirements that are specified by the end user, the utility. This process has proven to be extremely robust and which has yielded very low defect levels in reactor, as well based on customer feedback.

We put every possible rigour to ensure that we apply a very stringent and conservative approach to decision-making, which is what the regulators and our customers expect of us, and we apply that decision-making process to all the products that we make to our customers.

**MEMBER BERUBE:** Okay. I have some experience moving manufacturing lines. I can tell you it's not untraditional to do so. What processes do you foresee that you have to use in order to make sure that you are moving this thing if in fact that is the case, you intend to do that? Have you given that serious consideration at this point or are you just in the initial phase of this or where are you in that process?

**MR. MacQUARRIE:** It's John MacQuarrie.

We have not given -- put any detailed plan together in terms of moving the facility. Our view is that we really need to understand whether that is permissible before we spend a lot of effort on that and that is the intention why we have asked for authorization.

I would like to add to Min Lee's response about quality. Quality is one of the things I would say that I am most proud of in the business. So if you look at this fuel manufacturing business that has operated for many

years and has really been dialled down to a very high, exceptionally high level of quality, measured by fuel bundle defects in a reactor, which are fairly easy to detect, you know, this business has truly achieved the lowest level of defects that I think any business can achieve in terms of defect rate. And so, you know, I think we have all those systems in place, but the proof is in the actual performance. It's a very high level of quality and really very positive feedback from our customer.

**MEMBER BERUBE:** And you are confident that if you chose to move this and you were licensed to move this, you could do this in a safe fashion?

**MR. MacQUARRIE:** Yes. I have a high level of confidence that we would essentially employ the same high quality processes that we are using now and we would get the same output.

**THE PRESIDENT:** Dr. Lacroix...?

**MEMBER LACROIX:** Yes. Thank you.

Thank you, Madam Tilman, for this presentation, I really appreciate it.

You have raised a number of issues that have already been dealt with and I'm sure that in the next few days we will continue to address these interesting

issues.

One of the issues that we have not discussed yet, and I found it very original, is the fact that in 2024 the Pickering Nuclear Generating Station will shut down. What will be the effect on your commercial operation at BWXT?

**MR. MacQUARRIE:** It's John MacQuarrie.

So we make fuel at the moment for Pickering units, six reactors, and for four reactors at Darlington. So the Pickering volume or demand, if you like, represents just a little less than half of our business. So the impact is significant in that we will be -- you will see a dramatic reduction in demand.

Does that answer your question?

**MEMBER LACROIX:** Yes, it does.

**THE PRESIDENT:** Dr. McKinnon...?

**MEMBER MCKINNON:** Yes.

Thank you. You raised a lot of viewpoints in your submission.

I would like to follow up with the comment of Dr. Lacroix about the capacity.

So, you know, typically what percentage of your total production capacity is utilized currently?

**MR. MacQUARRIE:** It's John MacQuarrie.  
It's about 50 percent of our total capacity today.

**MEMBER McKINNON:** Currently 50.

**MR. MacQUARRIE:** Yes.

**MEMBER McKINNON:** And how does it typically fluctuate over time? You know, historically, has it been around that level?

**MR. MacQUARRIE:** Yes, it's quite stable. It has been at that level for quite a number of years. It doesn't fluctuate very much. Year to year it may fluctuate by 8 to 10 percent.

**MEMBER McKINNON:** Thank you.

You were asking about modifications and updates to the plant and I know in many industries the way to reduce worker exposure is to actually remove the worker and there's a lot of application of robotics and so on nowadays and that kind of modernization. Have you introduced any of these manufacturing methods to reduce exposure?

**MR. MacQUARRIE:** Yes. There's quite a level of automation in our business in particular operations. So for example in Peterborough where we

assemble the fuel bundles, it's a very highly automated operation where things like the appendages that go onto the tubes are done in automated cells; then the tubes are coated in an automated cell; then there is an automated line that welds the end caps onto the tubes; then there's an automated bundle welding assembly that makes the end plates welded to the fuel elements in the bundle. So a great deal of automation because of very high-volume throughput.

We continue to look for ways to automate. We are undertaking automation projects at this time. Generally, it is more about ergonomics and industrial safety, but there are sometimes radiation benefits to some of that as well and so we continue to pursue every opportunity to automate that we can.

**MEMBER MCKINNON:** Thank you.

And I have one final health-related question which I would like to direct to CNSC staff.

Ms Tilman brought up the issue of exposure to skin and extremities. It's very clear that, you know, limits for air and soil is something that can be measured directly, but when there has been an incident involving skin or extremities, how do you go about measuring or

estimating what the exposure has been?

**MS TADROS:** Haidy Tadros, for the record.

Our Radiation Protection Specialist, occupational radiation protection is in Ottawa and they can take that question.

**MS PURVIS:** Good afternoon. It's Caroline Purvis, I am the Director of the Radiation Protection Division, for the record.

With respect to the measurement of radiation exposure to the skin or the extremities, licensees will generally use extremity dosimeters on the hands to measure and monitor the doses of radiation received.

**THE PRESIDENT:** Dr. Demeter...?

**MEMBER DEMETER:** Thank you very much for your presentation. There is a lot to digest. I have a lot of questions about beryllium, but I am going to actually ask them in Peterborough, I'm not forgetting about them.

But I do have interwoven -- when you talk about the inventory and not knowing what it is, there is obviously a possession limit at any one time and your inventory will be fluid based on that, but my understanding is that you are routinely visited and inspected by IAEA and

our staff and at any point in time when you are inspected you have to produce documents that demonstrate what your inventory at that time is and account for all the motion in and out of your inventory. Is that correct? And how many times a year does IAEA come and quantify your inventory to see whether you can account for everything?

**MR. MacQUARRIE:** It's John MacQuarrie.

So yes, that is correct, that we at all times maintain a record of all of the uranium that we have in our business. The IAEA does an annual physical inspection of our inventory and they do sort of random short notice inspections periodically.

**MEMBER DEMETER:** And have there ever been any discrepancies between what you have on paper and what you have on file or has CNSC ever noted any discrepancies?

**MS TADROS:** Haidy Tadros, for the record.

We have our safeguard specialists who usually accompany the IAEA inspectors when they come and we had also provided a slide with regards to the number of inspections in the last 10 years that the IAEA has conducted inspections. So I will turn it over to our colleagues in Ottawa.

**MS BREAZU:** Hi. My name is Daniela

Breazu, for the record, and I am a Safeguards Officer.

Yes, we do accompany the International Atomic Energy Agency and any discrepancies we found we take a closer look at them to make sure that we have an explanation for each of them.

**MS TADROS:** Haidy Tadros, for the record. Perhaps we can give a description of what discrepancies, if any we have found recently.

**MS BREAZU:** Yes. Daniela Breazu, for the record.

So every year the facility, Peterborough and Toronto are separate, is doing inventory taking, followed up by inventory verification by the Agency. So at the beginning we take a look at the books and we verify also the physical evidence. So sometimes there are discrepancies in terms of let's say the amount of material which is in the books and because some of them are not an item facility, there is powder, there are small discrepancies.

**THE PRESIDENT:** I'm not sure that's terribly reassuring to us that there are discrepancies.

**MR. AMALRAJ:** Julian Amalraj, for the record. Maybe I can provide some context to it.

So there are two types of inspections that are done by the IAEA: the short notice random inspection, which is a very short notice to check that the material onsite is what they are supposed to have and they have the right amount of inventory; and then the physical inventory verification part, which is essentially a comparison between what on the books the licensee possesses and the actual, how much material they have for non-proliferation purposes.

And sometimes, due to the measurement to assess the quantity of uranium that is being processed, there are minor discrepancies in kilograms as to the actual inventory percent as they have verified versus what is percent in the books. And these discrepancies are usually accounted because of summation errors or accounting errors on paper, not the physical material itself. These are usually resolved between the licensee and the IAEA, and the CNSC reviews these things in detail and we maintain close oversight over that.

**THE PRESIDENT:** Did you say they're usually resolved or they're always resolved?

**MR. AMALRAJ:** They're always resolved.

**THE PRESIDENT:** Thank you. They are

always resolved.

Does anyone have any questions?

So, Ms Tilman, 30 seconds for you, because we do have some guests who have to leave and I want to make sure we give them an opportunity to say what they need to.

**MS TILMAN:** No, I appreciate the opportunity and that you have read the submission and understand the concerns.

In terms of inspections by CNSC, I meant to ask. I know that you have Type 1, Type 2 inspections. One is -- I think Type 1 is the more detailed. But you haven't been doing them very much lately for other facilities. I wonder if that was the type of inspection that was done here, so if it was a thorough inspection and is there a thorough accounting.

The other thing is how do you check for any pinholes in the pellets? Pinholes, because that's --

**THE PRESIDENT:** We will make a note of those questions and when there is time we will make sure that we actually get answers to those for the record.

**MS TILMAN:** Okay.

**THE PRESIDENT:** Thank you.

And I understand the Toronto Public Health

has additional information to Dr. Demeter's question that you would like to share with us, please.

**DR. NAVARRO:** Christine Navarro, Associate Medical Officer of Health at Toronto Public Health.

So I went back to look at the population health status indicator database that is available on the Toronto Public Health website. There are a few indicators. There is one in particular for early childhood development and then there are a few more for reproductive outcomes that I can talk about.

The early development instrument looks at a number of domains and children in kindergarten, so things like emotional maturity, language and cognitive development. So they administer this questionnaire to all kindergarten children in a classroom. So the percentage of children who are vulnerable on two or more domains is what is presented in the database.

So for the neighbourhood of Dovercourt-Wallace Emerson-Junction the percentage of children who are vulnerable is 19.3 percent versus 14 percent for Toronto versus 14 percent for Ontario.

Usually with the early development instrument, though, that is a more sensitive indicator of

differences in sociodemographics, so you see -- you tend to see the highest percentage of vulnerable children when you have children who are English or French as a second language or variation by income level. So there tends to be higher levels of vulnerabilities when you have lower income levels in a neighbourhood.

With respect to the reproductive outcomes, there were a few indicators that I can mention today.

For general fertility, so that is among women ages 15 to 49, the neighbourhood of Dovercourt-Wallace Emerson-Junction was the same as Toronto, the rest of Toronto at about 39 per 1000 and comparable to the rest of Ontario at 42 per 1000 for general fertility.

For low birth weight, which is defined as a birth weight of less than 5 1/2 pounds, for the neighbourhood it is 7.2 percent, for Toronto it is 7.8 percent and for Ontario it is 6.6 percent.

For small for gestational age, so that's in comparison to an average, so less than 10th percentile for weight, for this neighbourhood it is 9.5 percent versus 11 percent for Toronto and 9 percent for Toronto.

So they are pretty comparable. With both

low birth weight and small for gestational age, you mostly see the variation related to, say, ethnic status, especially for small for gestational age. The curves tend to compare against, say, a predominantly white population whereas if you have a high ethnic diversity in a population you do tend to get higher "small for gestational age" compared to that sort of standard or average weight of a predominantly white base population.

**MEMBER DEMETER:** Thanks very much, that's very helpful.

**THE PRESIDENT:** Thank you and thank you for the intervention.

We will take a 15-minute break and resume at 10 to 4:00. Thank you.

--- Upon recessing at 3:36 p.m. /  
Suspension à 15 h 36

--- Upon resuming at 3:52 p.m. /  
Reprise à 15 h 52

**THE PRESIDENT:** Okay. The next presentation is by Ms Jacinta McDonnell as outlined in CMD 20-H2.146.

Ms McDonnell, the floor is yours.

**CMD 20-H2.146**

**Oral presentation by Jacinta McDonnell**

**MS McDONNELL:** I would like to say thank you for the opportunity to speak about my concerns regarding a nuclear fuel fabrication facility that exists in my neighbourhood.

My 21 year old son and I live close to the BWXT uranium plant on Lansdowne Avenue. The recent community meeting that I attended was very informative, and when I learned of the dangers to the families with young children living close to BWXT, I realized that I must speak up against the renewal of the licence for this plant.

BWXT admits that airborne particles can expose members of the public via inhalation. This toxic, carcinogenic and dangerous facility should not be functioning in a densely-populated area.

A few years ago, I went to a presentation organized by Angela Bischoff of Ontario Clean Air Alliance, and it was there that I met members of a community close to where uranium is extracted. It was heartbreaking hearing

the stories of people who are suffering from illnesses, people who are not able to hang their clothing out to dry because holes would be burnt through the fabric and a story about how the roofs of buildings had holes where rainwater would flow into the building.

These alarming situations are all caused by toxic pollution from the nearby uranium mines.

I also learned that transporting uranium is extremely hazardous and no country has solved the long-term problem of how to store and maintain radioactive waste.

For three years, my son and I lived just outside Port Hope, where I learned about the concerns about becoming ill with cancer that residents there feared because of the nuclear power waste that is stored in that community.

Imagine my dismay when I discovered recently that a nuclear energy plant exists in the neighbourhood where I now live with my son.

Over the years, many local politicians have voiced their concerns about this uranium plant, formerly GE Hitachi, on Lansdowne Avenue. When Andrew Cash was a Member of Parliament, he said, "Davenport residents

have made it clear that they had not been properly informed of or consulted about the nuclear fuel production facility in their neighbourhood".

Jonah Schen, former Member of Provincial Parliament, Davenport, said, "We understand that GE Hitachi has hired a third party to conduct soil testing. Although GE Hitachi and the Canadian Nuclear Safety Commission have stated that there is no risk in the soil collected, the lack of transparency and public consultation by GE Hitachi prior to this discovery has not inspired confidence in our community".

Sherry Denovo (phonetic), former Member of Provincial Parliament, Parkdale High Park, said simply, "Shut it down".

It is unacceptable that a dangerous and toxic facility that residents have demanded to be shut down still exists here and, furthermore, has the audacity to be applying for a 10-year licence renewal. Where is the respect for the lives of those living close to BWXT? I've seen no respect.

There are also animals whose rights are ignored by mining companies and nuclear power plants. Their rights and indigenous rights are at risk.

In Nunavut, thousands of caribou gather to give birth every spring. Up until now, the Inuit and the caribou have been able to be victorious against uranium mining company Arriva, but if the demand for uranium increases, they may lose their rights to clean water, air and land.

In the February edition of "Orion" magazine, Mark Dowry wrote, "The prospect of uranium being mined there would mean a virtual death sentence for the already vulnerable caribou herd".

The Inuit's way of life would change drastically because they depend on caribou for food, clothing and shelter. We must work diligently to ensure that the Inuit and caribou are protected from ignorance and greed when safer and cheaper energy is available, as Ontario Clean Air Alliance has been saying for years.

We could go 100 percent renewable. We must look to alternatives that make more sense economically and environmentally.

A shocking story in the Toronto Star 10 years ago revealed that the Pickering nuclear power plant is killing fish by the millions. The marine life, including alewife, northern pike, Chinook salmon and

rainbow smelt are all killed when they are trapped on the intake screens or suffer cold water shock after leaving the warmer water that's discharged into the lake.

The 610-metre net that was put in place as a requirement for licence renewal is removed in the winter. It does nothing about the thermal pollution and it does not protect the larva and eggs.

I am sure that if more citizens in Ontario knew of this unbelievable situation, they would be demanding change now.

Most people don't want animals to suffer and die needlessly. This senseless killing of countless marine animals should end, and we should move to cleaner, safer power now. This situation has gone on for far too long.

Beyond the concerns I have been speaking about, I would like to ask a few questions.

What are the emergency plans in the event of an accident? How many people would need to be evacuated in an extreme catastrophe? Is BWXT insured? If the answer is yes, for how much?

If BWXT is insured, why is it acceptable that the public doesn't know?

Is BWXT doing proper public notification? If the answer is yes, how many people have been informed within a 500-metre radius of the plant?

Is there evidence that people have been informed? I would like to see the evidence, if there is any.

The train that derailed in Lac-Mégantic, Quebec, passed the BWXT uranium processing plant before the tragic disaster that killed 47 innocent people. If it had derailed close to here in Toronto, the devastation that would have occurred is unimaginable.

I can only ask, why are the lives of so many of us so meaningless to the decision-makers? I have news for you; we have rights and we will not stop fighting for them.

That is the least I can do for my son, everyone who lives and works in this area, and in memory of Carrie Lester, who devoted so much of her time and energy to shut down this facility that is part of an archaic means of providing energy to us. It is time to evolve.

**THE PRESIDENT:** Thank you.

Dr. Lacroix.

**MEMBER LACROIX:** Thank you for your

presentation.

One question that has been bothering me for the last two days is that are people, let's say, are reluctant to see BWXT to pursue its activities because it manufactures nuclear fuel or is it because it's an industrial facility which is located in a residential area?

**MS McDONNELL:** I would say for both reasons. I definitely feel -- I'm against nuclear fuel mainly because of where the extraction, so the mines, and what it does to the families and animals and so forth that live around the mines. And then, of course, the waste, what to do with the waste, how to store it.

Those are two serious issues, for sure.

**MEMBER LACROIX:** So what you're saying is that if they were processing, for instance, I don't know, making fertilizers or processing iron ore instead of uranium, you would still be against such a facility.

**MS McDONNELL:** Yes, I don't think any of those facilities belong in neighbourhoods where people live, definitely.

**MEMBER LACROIX:** Thank you.

You've answered my question. Thank you.

**THE PRESIDENT:** Dr. McKinnon?

Dr. Demeter?

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

So I wanted to -- we've had long discussions about communications and what -- whether or not -- I don't know if you had time to hear any of the previous discussions, but for the past two days we've had a lot of discussion about communications and notification of the neighbours about emergency planning, the hydrogen tank, worst-case scenario. And I do understand your bigger picture concerns, and although this hearing is based on this licence application and their activities, I can assure you that with other licence applications, whether it's mining or power generation, we have the same process of critiquing and going through and demonstrating the safety case.

So it may be out of scope for this particular hearing relative to the decision, but it is something that is taken into account when those licences are up.

So that's just to provide you that feedback.

I didn't have any specific questions, but just to let you know we have talked about a lot of the

things you've raised, and seriously, and we are aware of the other licensed activities and we regulate them to a safety criteria as well.

**THE PRESIDENT:** Dr. Berube?

Okay. Thank you.

Any closing comments you'd like to make, Ms McDonnell?

**MS McDONNELL:** No, I can't think of anything in closing. I just hope that we get good results.

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

Before we move to our next presentation, I understand the Ontario Ministry of Environment has an update on some information we'd requested earlier.

**MS CAICEDO:** Thank you. Jimena Caicedo, for the record.

We were trying to look at the map that was referring to by the intervenor, but we couldn't find that same -- that specific one, so it would be good if we can find the source so we can provide better information.

But can I say -- what I can say is that the Minister conducts ambient air quality monitoring at 38 quality health index reporting sites in communities across Ontario. Common air pollutants like ozone fine particulate

matter are monitored in real time at these monitor locations.

This information is publicly reported 24 hours a day, seven days a week through the Ministry web site, [www.airqualityOntario.com](http://www.airqualityOntario.com).

The Ministry under air quality network is part of the federal national air pollution surveillance program.

So once we have more information, we definitely can look into it.

**THE PRESIDENT:** Thank you. We'll try to make sure you connect with that person.

Our next intervenor's coming up?

Okay. Let me introduce you.

The next presentation is by Mr. Brad Blaney as outlined in CMD 20-H2.225.

Mr. Blaney, over to you.

**CMD 20-H2.225**

**Oral presentation by Kyle and Brad Blaney**

**MR. B. BLANEY:** Thanks.

I'm not going to -- thanks for, you know,

having the opportunity to speak. I'm not going to speak to my presentation, which I've already made in my written one.

I just sort of want to go over -- I saw some things which were very interesting, Ms. Tillman's notes and as well just some responses about, you know, the fact that here we are today, you know, in 2020 with a facility like this in a residential area inside Toronto looking for a 10-year extension.

It's just -- I mean, it -- under normal -- if it was a gas plant, it'd already be closed right now, but the fact is that for some reason or another, this has a life -- a life of its own.

Now, I'm an insurance broker. I'm into risk management. I sort of -- you know, I've picked apart several concerns about, you know, the -- you know, the 10 years, the last 10 years when the Austrian was here.

I was -- I also made a presentation. I can't believe it's been a decade and we're virtually back here almost reading the same stuff over and over again.

But what I did learn as I'm getting older is, you know, there's a few, you know, undeniable truths, and one of them is the speed of light. And I think we would all agree the speed of light is undeniable.

Everybody's got an opinion about whether or not, you know, radiation is bad for you or is good for you or that background radiation is similar to that which is the result of an atomic reaction.

You know, there's evidence, for example, and a concern I had in -- you know, in a presentation here and I just can't understand why the Commission continues to -- you know, radiation dose for -- radiation protection dose to public chart and you've got basically what amounts to be all manufactured -- man-made, manufactured radioactive isotopes, yet in the middle here you have average annual dose for natural background dose in Canada, 1.8 millisieverts.

You know, we've lived with that for billions of years. I mean, I'm not a scientist, but there's a heck of a lot of a difference between what comes out of a nuclear reactor and an isotope of potassium versus what is naturally occurring in a banana. And the fact that this continues to be sort of a partial truth, you know, I mean, why don't you just dispose of it?

The truth is, this stuff is either, you know, enriched and then goes through atomic reaction and is something or it's not. But to make people think that

there's a possibility that these two are similar, that's not true.

The other thing -- one of the other things, you know, I've learned is that, you know, like if you want to know how somebody behaves, you have to know first how they get paid.

I'm here for free, okay. I don't really -- I mean, personally -- you know, I'm a child of the atomic revolution. I can even remember going the very first day when Pickering got fired up, you know, 1,000 years ago. And yet back then, we -- like there was a pure, unadulterated understanding that some things that came out of that, you know, atomic reaction were very dangerous to human beings.

Since then, you know, quite frankly, I don't think we've even changed one iota about the way we dispose of anything or, you know, nothing really has changed that much, but the business has changed a lot.

Like I don't know who these guys are, this company, GE bankrupt, Westinghouse. A lot of these companies have been tied in to a lot of failed nuclear projects in North American.

I mean, I bet you if I went back to this

group here, there's some -- there's some, you know, sort of issues related to one rolling into another bad.

It's like the life insurance business. Sometimes you write a bad policy. It's so bad your company goes bankrupt and has to merge with another company so you don't go bankrupt.

But what's happening now is you see the -- you see in, for example, you know -- for example, a financial guarantee. I mean, I don't know how much that property would be worth if it could ever be reclaimed or decommissioned or whatever, but you know, we got, what, two million in cash and a \$46 million surety bond which, quite frankly, somebody says, well, all we have to do is they'll supply it within 90 days after the date.

Well, since 9/11 I can tell you no insurance companies do that any more. They cut the contract on the date it takes effect you want to issue the policy, not 90 days or three months afterwards.

But the fact that it's only 50-odd million dollars is laughable.

I mean, really, that should be -- I mean, I don't know what it would cost to decommission it if nothing bad happened and the -- and the facility simply had

to be decommissioned because they were no longer producing anything.

I mean, you know, these numbers probably are in the hundreds of millions of dollars.

Now, if you go further to your documents, apparently, although the CNSC gets to decide who uses the money to where, now there's a bunch of money -- if any -- there's any losses related to, say, an incident, let's say that tank blows up or something else happens, you know, you -- there is -- that's a nuclear event so nobody in the neighbourhood has any insurance because this is deemed to be a nuclear event and it's excluded.

So now the question is, how much do you have to pay for people's broken windows and all the other stuff and possible property damage and you have 50 million? Now you don't even have any money for decommissioning.

See, I'd put these guys on the hook for, I don't know, \$100 million.

You know, why not? It's a very simple thing. These companies have the money, they put it up. That way, if there is a failure, we don't end up chasing, you know, them around and trying to get the money from them because all they'll do is morph into another company and

then disappear.

So you know, we've got a big responsibility. It's very surprising that we're letting them off the hook with two million in cash.

I mean, I don't even think a house on that property, if they were to divide it, would go for a million and a half dollars, just one. So you know, it's a -- it just does not seem to make -- that part of it is probably something that the Commission should really hold the company accounting for.

And you know, the -- I think, obviously, the concerns about, you know -- about the -- whether or not, you know -- like if you look at the top-down view, as Ms. Tillman asked, why do we need a plant if they're closing Pickering in 2024. The reality is, this business is really very -- as soon as you know how people get paid, you have to know how they get -- behave.

And the idea is to never stop feeding the machine.

So for example, if -- let's just say this thing was to end today, we just stop Peterborough and stopped Toronto, okay. It'd be pretty simple. Darlington and Pickering close. It's over.

Now, the industry would say, "Oh, my God, we're going to be -- it's going to be freezing in the dark, everything's going to be happening".

Now, it may not necessarily happen. It may happen because we have a poor energy policy in the province. But the fact of the matter is, we would cease these operations.

This is the big problem. This is the hugest part. This is the biggest decision that's coming on, because if they could just say no, both those plants, it's over. I mean, unless they can make similar stuff over at the Cameco thing, I don't know how they could do that. But even changing fuel rod makers is a problem, as you know.

So it's one of those things where this is why it's not just about locally doing it; it's not locally, what happens to people locally. Like really, you know, if we were all doing our jobs, you know, we'd be holding these guys much more accountable rather than having some sort of symbiotic relationship where nobody really rats out the other guy or, you know, there's no whistle-blowers.

It is almost, you know, people come by here. I mean, when I hear if there's testing done over the

fence of the unit, like I mean bottom line is I'm assuming everybody knows. If it's aerosol that goes into the air, if the wind blows a certain way it may deposit, you know, a hundred yards down the way, it may deposit a mile down the way.

But anyone living next to this thing is obviously going to be exposed to the possibility of getting a sniff of some uranium dioxide, you know.

I guess the poor people in Peterborough don't realize that if they diversify, which again is the 30,000 foot view, I can see why the industry is doing it. They are now doing the pellet production at both Peterborough and Toronto. Right? Now that means the amount of effluent going in down the pipe is going to significantly increase in Peterborough. Okay?

But at least strategically you are diversified. If something goes wrong with this plant, at least you've got the fuel coming out of the other one.

Again, I understand that but that does not necessarily create a better situation, you know, for our communities. Personally, again, the last minute bottom line is you know what, it's not a cheap way of boiling water. There's lots of different ways to push turbines.

You know, this really is not a business about producing power; it's about keeping the reactors going.

We dump more power out of Pickering than we probably use, depending on certain times of the day.

It's not working out for the taxpayers. And as a taxpayer here, you know, and resident in Toronto, which I would actually say is why would anybody tolerate the continued processing of U-dust right in our own neighbourhoods? And they stand to lose much financial risk in their own loss of residential property and that type of thing. They can't do it. You've got to tell them no and that's it.

I will leave that with you. Thanks for the minutes.

**THE PRESIDENT:** Thank you for the intervention.

If I open it for questions, some of the concerns that you have raised, not only have they been addressed but let me just correct some of the misinformation that was out there.

One is around if BWXT decides they want to do pelleting in Peterborough, they would be shutting down the Toronto one. It's not to diversify; it's really to

consolidate, if they decide to do that.

And your second one was around insurance, a valid concern that many, many intervenors have raised.

The financial guarantee is only for decommissioning. It cannot be diverted for cleaning up in the event of an accident.

I thought I would just clarify that for you.

**MR. BLANEY:** So the taxpayers pay for that one. Right?

**THE PRESIDENT:** So that insurance issue is an issue. It's not the financial guarantee that would cover that.

So let me open it up for questions.

Dr. McKinnon.

**MEMBER MCKINNON:** Thank you for your comments. I have a question for CNSC and it's based on one of the questions that you had in your written intervention.

It's in connection with the nature of the sampling and inspection periods for the plant and whether they are on a co-ordinated basis. In other words, there will not be a surprise.

So the intervenors was wanting to know if

there was any randomness involved in that, if you could just describe that.

**MS SAUVE:** Kiza Sauv , for the record.

So in the intervention it was speaking about testing the local environment, which would be an independent monitoring program. We do do that on a bit of a planned schedule.

There currently is no notification given to the communities that we're coming. There is notification given to the licensee as sometimes we need to ensure that the licensee's security department, for example, isn't concerned about why we are right outside their fence.

In terms of inspections, I think I'm going to pass it back. I think it would be more appropriate to speak about when there's actually inspections that happen at the facility.

**MR. AMALRAJ:** Julian Amalraj, for the record.

In terms of inspections we have the option of doing a surprise inspection or a notified inspection, and that option fully resides with CNSC staff. It is not something that we discuss with the licensee or the licensee

is aware of.

We have a variety of aspects of our inspections and we have a ten-year compliance plan that we look at the overall facility in terms of what we regulate and how we do compliance verification. And on an as-needed basis sometimes we do some surprise inspections, sometimes we do mostly - most of them are notified inspections.

**THE PRESIDENT:** Dr. Demeter.

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

I was going to leave this question to the roundtable but I think it's opportune now. I am going to talk to CNSC staff about the financial guarantee and a question I had.

So the financial guarantee is in two components: a line of credit for \$2 million and a surety bond for \$46.1 million.

I want to know what happens -- and that's not money in the bank. That's a line of credit and a surety bond.

I want to know what happens if the Canadian arm of this company or if this company declared bankruptcy and goes under bankruptcy protection. Is there

any risk to either of those instruments, the line of credit or the surety bond, that we need for the financial guarantee?

**MS TADROS:** Haidy Tadros, for the record.

I will ask our specialist in Ottawa that looks at the company's PDP and financial guarantee to explain exactly what those instruments are used for and how they are determined but also to speak to your question with regard to the bankruptcy question.

**MS GLENN:** Good afternoon. My name is Karine Glenn and I'm the Director of the Wastes and Decommissioning Division.

So specifically regarding the types of instruments that are used for financial guarantees, that is up to the licensee to propose the type of instruments. We do assess the validity of that instrument. So from a financial standpoint, is the amount sufficient?

We do look also at the lending institution that puts up that financial guarantee. So if it's a letter of credit or if it is a surety bond, we will look at the rating of that institution to determine whether or not that lending institution is a reliable sort of lender, if you would like.

And then we look at the terms, the specific legal terms of those instruments. So we do have three-fold review. There's a technical review on the amount of the financial guarantee, there is the financial review to look not only at the amount but at the credibility of the lending institution and the economic assumptions that are used, as well as the legal terms of how the CNSC can access that document.

In the cases of facilities all but for the reactor facilities, the financial guarantee is there in the event that the licensee cannot do the decommissioning themselves.

So it is there in the event of bankruptcy. And it is there to protect the Crown from having to bear the financial cost of decommissioning the facility.

So in the case of BWXT, if they make a decision to shut down, for instance, and move their operations to the Peterborough site and then decide to shut down the Toronto site, they wouldn't be using the financial guarantee to complete that work. They would be funding that out of their own operational budget.

It is only in the event that they do not have the funds or that they become financially insolvent,

then we would have the financial instruments so the CNSC can access that money in order to ensure that the safe decommissioning of the facility takes place.

I'm not sure if that answers your question.

**MEMBER DEMETER:** I guess the really candid question is: Is the community or CNSC at any risk relative to access to these funds if the company becomes insolvent and goes bankrupt?

**MS GLENN:** So no, the reason, as I mentioned, the purpose of the financial guarantee is to eliminate that risk. We do have a number of provisions within the instruments themselves. There are terms within the instruments that say that if the lending institution is to cancel the fund or cancel the bond they must notify the CNSC in advance of doing so.

In addition, there are reporting requirements under the *General Nuclear Safety and Control Regulations* where the licensee has to advise the CNSC in the event that they become financially in trouble.

**MR. JAMMAL:** Ramzi Jammal, Dr. Demeter, if I may complement what Karine is saying.

Your question about the instruments. The

assessment, as Karine mentioned, there is a technical assessment where we go through a financial assessment. Our financial division looks at the instrument itself and its viability and our legal section looks at the instrument itself.

So there is always a review with respect to the financial guarantee. It's done on a cyclical basis. And as Karine mentioned, there is always a requirement under the *Act* and the *Regulations* for them to inform us if there has been any changes.

And what we present to you, the Commission, is approval with respect to the financial guarantee.

So it's always being verified. When I say always, it's on a frequency at minimum of every five years. But depending on the changes in the operations or any other changes, there is a review of the financial guarantee.

So you are quite sure with respect to the instrument. It's actually a bond that if they go bankrupt, then the CNSC will have access to the fund and only the CNSC has access to the fund.

**MS GLENN:** Karine Glenn, for the record.

If I could add, in addition to that the

licensees have an obligation on an annual basis to report on that their financial guarantee remains in effect, sufficient and valid. And in the case of institutions where the instrument is a surety bond, we request that they provide a rating of the financial institution on an annual basis for us to ensure that the financial guarantee still meets the expectations of the CNSC.

**MEMBER DEMETER:** Thank you. I just want to summarize what I've heard.

From what I've heard, based on these two instruments and the way they have been laid out and the obligations, there is no plausible scenario where should the company go bankrupt that we would still not have access to this money. That's an assurance that I've heard. Thank you.

**THE PRESIDENT:** Dr. Berube.

**MEMBER BERUBE:** Actually, I've got a couple of questions on that topic myself since it's obviously very important in these cases.

This one is for BWXT.

Right now you are underneath an LC for decommissioning the full amount at this point. Is that correct?

**MR. MacQUARRIE:** It's John MacQuarrie.

Yes, that's correct.

**MEMBER BERUBE:** So you are proposing going to an LC/surety bond split. Can you give the reasons for that?

**MR. MacQUARRIE:** Yes, I can. It's because the Letters of Credit tend to tie up a lot of our capital whereas the surety bond does not. So it provides the CNSC with the same assurance but doesn't impair our ability to do certain transactions that we prefer to do.

**MEMBER BERUBE:** So you need to free up capital at this point. This is really the reason for it.

**MR. MacQUARRIE:** In operating a business it's always important to have sufficient working capital and tying up a lot of it in that type of instrument is a challenge for a business. So we always look to minimize that.

**MEMBER BERUBE:** So a surety bond actually -- typically I'm used to seeing them in construction type projects. So this is a little different application of that.

One of the questions I have for CNSC is when we're actually structuring and looking at the

structure of the security bonds, have you actually used a security bond before as a financial instrument? Have you actually gone through all that due diligence to ensure that these things meet all the criteria of supporting back-up funds in the event of bankruptcy?

**MS TADROS:** Haidy Tadros, for the record.

So the short answer is yes and Karine Glenn can give you the criteria that we look at.

**MEMBER BERUBE:** Please.

**MS GLENN:** Karine Glenn, for the record.

Yes, this is not the only licensee that has proposed a surety bond as an instrument. So we have gone through that before.

As I mentioned, our lawyers take a look at it from a legal perspective to ensure that the bond is indeed payable, that it is payable only to the CNSC, payable upon demand, separate from the rest of the assets and the combination of instruments cover the full amount of the financial guarantee.

But our legal services will go through in detail and look at every single term of a proposed financial guarantee before it is even recommended to the Commission for approval to ensure that it is indeed

payable.

And as I mentioned, our financial advisors also will do a similar type of review where they are looking at it again from a financial validity perspective and a separation of assets perspective.

So the recommendation is that these are reliable instruments, otherwise, we would not be recommending to the Commission that they proceed with the approval.

**MEMBER BERUBE:** Just one other question pertaining to this of course.

In the event the bondholder goes bankrupt, are these products actually insured by another party on top of that?

**MS TADROS:** Haidy Tadros, for the record.

I will ask Ms Glenn to verify it to make sure, but at this point I think part of our criteria is to ensure that the creditor is a competent and credible creditor. How far we go into detail to verify who's holding what, perhaps Ms Glenn can provide us a little bit of detail on that.

**MS GLENN:** Karine Glenn, for the record.

I will have to consult with my legal and

my financial advisors on this one, and unfortunately they are not here right now. I can endeavour to get back to you later on this week.

As I mentioned, we do go through and validate that they are what we consider a Class A rated lending institution. We would not accept a bond from a lesser institution. We do have a list that we use of lending institutions from the Regulations that we look at.

We are in the process of revising our financial guarantee regulatory document. It has gone through public consultation and we've put in a lot more information regarding the type of lenders that we recommend for approval.

So again this also is the purpose of the annual reporting on the lender, to ensure that the lender continues to be rated at the top level of the lending institutions.

**THE PRESIDENT:** Dr. Lacroix. No?

Okay, thank you.

**MR. BLANEY:** I will say, first off, interest rates just dropped to the lowest point in the history of man. I mean, \$50 million is a drop in the bucket. If I've got somebody operating a facility who

can't come up with \$50 million cash to set aside to put on account of interest and avoid having an entire infrastructure attempt to determine whether or not, you know, a surety bond is going to pay and whether the financial institutions is backing it, it's crazy. \$50 million, boom, done, problem solved.

I know we have to think about how people will behave by thinking about how they get paid, because the bottom line is these corporations need to put as little capital as possible into their operations in order to make them money.

And when this group, because they're involved in decommissioning, when they get involved in decommissioning they'll be lining up the same way with a dirt cheap -- in fact, I'll bet the insurance premium cost for a surety bond is more expensive than the interest they would earn on \$50 million in the bank at prime rate.

It just does not seem to make sense.

Thanks a lot. Good luck with this one.

**THE PRESIDENT:** Thank you for your intervention.

Moving to our last oral presentation, I think, by Ms Belinda Cole, as outlined in CMD 20-H2.240.

Ms Cole, the floor is yours.

Your microphone, please.

**CMD 20-H2.240**

**Oral presentation by Belinda Cole**

**MS COLE:** A month ago, or maybe a bit longer, I thought why would I ever waste my time and energy at one more of these hearings?

I thought about it and I came up with two reasons. I have respect and admiration for the people in my community who stand up and speak and say this isn't okay. It's our community at risk. It's the safety of the people here.

And it's also for my kids. We live in the community. We're about 500 meters away. It's for my grandchildren. It's for people who are going to come up to me and say Belinda, you knew there was no safe level for alpha emissions and you knew they were coming out of BWXT. You knew there was tritium in our drinking water, not specifically from BWXT but from the nuclear chain, which we can't divorce it from. You knew there was no safe way to dispose of nuclear waste and that all the costs of

disposing of it go onto neighbourhoods like mine, like ours.

And they'll say so what did you do about it?

The reason I'm here is I want to say you know what, I felt like I was walking into 1984, the novel, or Alice in Wonderland. I walk in the door and I have a question for you at the end. We get searched. I'm wondering, does everybody in this room get searched or is it only the people on that side of the black line?

What I'm wondering about is we've got poison going into our community. We've got poison going into our air, into the soil, into the water and it's one the permit conditions that's certainly allowed by the CNSC.

So the damage is happening here but we're the ones who get checked out when we come in.

I was at the Pickering hearing. I walked in and I felt so intimidated. There were big guys in black clothes standing everywhere and I thought Holy Moses. I don't know about you. I don't know, I don't think we look that scary.

So I would ask you: Who gets screened here? This is not at all welcoming for citizens.

I don't want this pellet plant. I don't want a further licence for ten years. And I don't want the problem moved to somebody else's community. I don't want it moved to Peterborough. Their children are just like my children.

I find it -- like I say, I walk in and they say we will never compromise your safety. Well, a number of years ago we asked for the emergency plan and got a heavily redacted emergency plan. I checked it out. We called the three emergency numbers and nobody was at home. Nobody had any idea of what was going on.

At the last public meeting with the CNSC in our neighbourhood about a month ago I said what about the emergency plan, and the CNSC representative said oh, you know, that's a provincial duty. You have to check with the province.

This is what I see. Everything gets downloaded.

Plants like WBXT, they're licensed to operate. We pay the price in the community. We're the ones, the reverse lottery. Who's going to get cancer? We don't know. Who's going to get the body burden of alpha emitting radiation? We don't know.

The cost of waste disposal. They're not included in BWXT or any other operating cost. It's downloaded to our Fire and Emergency services, paid by our municipal taxes.

And it's also the danger. If something goes awry at the plant, they're the first responders. They're the people on the hook.

I have no faith in testing done by the proponent, by the applicant. If I was an applicant and I wanted something and I had my own people, who do you think I would hire? Somebody who's going to tell me information I don't want to know?

I mean, let's be real. Let's think about what we know about human behaviour. We don't ask -- if I want the cookies, you're not going to be able to say, 'Yeah, yeah, she'll get the cookies,' that's -- it makes no sense.

If it did make sense what a rigorous permit condition would really look like, would be there would be a fund for our community or Peterborough, wherever this is going on, before it shuts down, and that fund would go to the community to do their own independent testing. They would set the agenda for the meetings with BWXT and

the CNSC who would come and answer the questions, not with presentations, but answer questions on the agenda. And there would be -- the bond, all the information around this, the financial guarantees and that, let's see the decommissioning study. Let's hand it out -- let's put it out the public. We would be able to hire our own advisor to look at it and advise us. This would be an ongoing conversation.

There would be regular testing and not just testing for gamma radiation but for alpha radiation; that's what it would look like. That's pretty much it.

Just a couple of other things, I have a question to you all and everybody who is involved in any way as the proponent or the applicant, and also -- well, obviously not the applicant because people work here, but anybody around the CNSC. How many of you live within 500 meters or even two kilometers of any kind of nuclear facility, whether it's a uranium pelleting plant? So, how close? Would you have this in your own neighbourhood?

Something that I find really, really frustrating is nobody on that side of the line is paid. We spend hours. I have spent hours trying to inform myself about what the actual hazards are. It's very difficult.

And we spend time, we spend energy; we go to public meetings to try and inform ourselves. And we spend hours doing these submissions. We come and we sit and we wait and we listen; we spend hours. None of us are paid for it.

And, again, I hear several times -- I've been here since I think about two or two-fifteen, and I hear several times, 'Your concerns have been answered.' 'Oh, those questions have been answered.' 'Just go check out the transcripts when they're out there.' 'Just check out the videos.' I don't have two days. Where am I going to get two days to go check out the answers. No. The onus is on you. If people have asked questions, the onus is on the CNSC to say, 'These are your questions and we're going to find the information that we're referring to, and we'll get back to you.' That's what I would expect. That's public participation.

So in closing, you say, you know, I walk in here and I just feel like I'm in la-la land. 'We will never compromise your safety.' Yeah, whose safety? You're sure compromising mine and my community's.

Safe nuclear power? Nowhere to safely dispose of it, no way. Tridium in our drinking water. Safe nuclear power? Protecting Canadians and the

environment? Maybe I would just ask you what exactly that means to you because it obviously means something very different to me.

So thank you.

--- Applause

**THE PRESIDENT:** We'll start with you, Dr. Demeter.

**MEMBER DEMETER:** Thank you for your intervention and taking all the time and energy to review everything and bring your concerns.

I have a question for BWXT. The intervenor refers to an emergency plan that she got several years ago that had contact numbers that seem to be no longer in existence. Was there some change to -- can you -- you must have read the intervention, as well. Can you account for the changes in emergency numbers? Was there a change in agencies submitted with the provincial emergency planning transitions? What do you think?

**MR. SNOPEK:** Dave Snopek, for the record.

I believe the reference is to an emergency plan back in 2013. If memory serves, the appendix of that emergency plan had a number of contact phone numbers for CNSC, for example, Ministry of Environment, phone numbers

that would be potentially required in the event of reporting for an emergency.

If memory serves, that list is in that appendix, but it was made -- the list that we use in an actual emergency event is something called -- we call our Call Tree, and that is a card that we update on a quarterly basis to ensure that the most up to date phone numbers are always on that card. That includes agencies such as the CNSC and the MOE, but also the contacts at BWXT, the leadership, the specialist resources that need to be brought in in the event of an emergency. That part is updated on a quarterly basis for both sites, and the numbers are verified, and that is the card that would be used in the event of a -- or a phone number is needed.

**MEMBER DEMETER:** So are you saying that the numbers that were in the published plan she got were stale-dated and hadn't been updated?

**MR. SNOPEK:** Dave Snopek, for the record. That's correct.

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

**THE PRESIDENT:** Dr. Berube? Dr. Lacroix?  
Dr. McKinnon?

Ms Cole, you've got the last word.

**MS COLE:** I'm a slow thinker. I guess another question -- as I -- when I close my career, I want to be able to look back and say, 'You know what, I did my best. I've made lots of mistakes, I'm human, I had poor judgment, I had all sorts of things, but I did stand up for what I -- I tried to stand in what I believed in. And I tried to stand with some integrity.

And I would just say that my question I guess for all of you is, what does that look like for you? And, obviously, that's not a question I would expect that you're going to answer now, but it's just maybe the question I would leave you with.

Thank you.

**THE PRESIDENT:** Thank you for your submission. And I just want to reassure you, we hear your concerns. We do. I know that you may not think so. We do hear your concerns; we hear it in your voice. So thank you for coming today.

Our next submission is from an intervenor who couldn't join us in person, but he's going to try to join us via teleconference, Mr. Zach Ruiten, and his presentation is outlined in CMD 20-H2.166. We'll give him a few seconds to join us.

--- Pause

**THE PRESIDENT:** Okay, well while we're trying to link him in, we have -- Mr. Ruiter, are you there?

Okay, well, while we are trying to link him in, we do have two other intervenors who couldn't join us and so we're going to treat their oral submissions as written submissions. The first one is from Dora Juhasz and that is --

Mr. Ruiter, are you there?

**MR. RUITER:** Hi, yes I am.

**THE PRESIDENT:** Okay, over to you then.

**CMD 20-H2-166**

**Oral presentation by Zach Ruiter**

**MR. RUITER:** Thank you. Thanks for letting me speak. What we have here is two communities that both do not want BWXT uranium fuel fabricating to be emitting uranium into the air and down the water.

Peterborough, where you're about to go, is organized superbly to raise awareness and to make the opinions known of the community. And people in Toronto

are finding out more and more.

It is a shame that since 2010 when I was the -- when I was in Ottawa and we had the licence amendment for formerly GE Hitachi to process low enriched uranium across the street from the Prince of Wales Elementary School, we had that amendment revoked because GE Hitachi had a requirement to do public consultation, and we showed that they didn't.

And in that room in December 2010 I found out that there was a twin licence for the Toronto facility, and at the time Peter Mason, CEO, GE Hitachi told the Canadian Nuclear Safety Commission that they had gone above and beyond in their duty to consult the public. And his words were that their lack of response from the Toronto public in the 2010 licence renewal hearing meant that the public was satisfied. But the public didn't know. There was no sign on the GE Hitachi saying "Nuclear," and a lot of people thought that they were making air conditioners and televisions and things like that.

And I'm disappointed that again most of the reason why people found out was articles that I have written in the *Now Magazine* and pamphlets that were handed out to people in communities, not by GE -- not by BWXT, but

by people in the community.

And the fact that the Canadian Nuclear Safety Commission hasn't even advertised in newspapers is also troubling. But it points to a wider issue that's going on, is that the Canadian Nuclear Safety Commission is protecting the applicants; they are not acting like an actual regulator. They're protecting the applicant in every single way, and one of those ways is saying that the information about the insurance for BWXT is commercial and proprietary. We went over this in 2013 and there's no reason why.

The Canadian Nuclear Safety Commission is an independent regulator and it is ensured with protecting the health and safety of people in communities in which nuclear facilities that they licence operate. Would they not need to demonstrate that the facility is properly insured? So, I'm inviting the Canadian Nuclear Safety Commission to go further in its improvement of its transparency and really give the public the information they need to know even if it's damaging to the -- or potentially damaging to the image of the applicant.

I haven't had time to pay attention to what the hearings that are, going on right now, but the

fact that when we had a meeting in 2013 when the former Michael Binder was the president of the CNSC, and I asked simple question like, you know, How do you verify your emissions monitoring? And they said it was independent third parties and those third parties -- the name of those third parties are confidential.

We're still dealing with the name of the insurance company is confidential. We're still dealing with the fact that we don't have a full completely detailed report from BWXT on what happened during the fire in 1999. People want to know that they are safe. So, what's happening here is that we have approximately 50 percent of the Canadian nuclear fuel cycle coursing through a highly populated residential area. And they are potentially wanting to duplicate it or move it to across the street from an elementary school where there is a legacy of toxic pollution from uranium, beryllium and other contaminants such as PCBs. It almost has nowhere to go.

So, you have proven in Toronto people will know and they won't be happy. But, it's actually time that we give the nuclear industry an off-ramp. So, I don't see the people of Peterborough accepting it. And Toronto is crowding in on it.

So the Nuclear Safety Commission can actually make a principled decision and tell BWXT that, you know, it doesn't have a social licence to operate anymore.

You know there's a lot of really good people at the Canadian Nuclear Safety Commission, including you know Louise Levert who has been very excellent at you know working with the intervenors, and there's also a lot of really good people who are working for BWXT like Natalie Cutler the head of communications, who has been prompt and who has been giving as much information as she can to the community. And the thing is, is that BWXT provides pellets to Ontario Power Generation and Ontario Power Generation is a publicly owned company. That means that they're working for us, and we all need to be a bit more collaborative here and work together and be less antagonistic. But to do that, we need to be able to share information in good faith, so I would argue and ask the Canadian Nuclear Safety Commission to accelerate its improvement in a way that it shares information with the community even if that information might be damaging to industry. They claim to be not pro or anti nuclear. I don't think that's true, but I think that if they're going to make these claims they need to start giving the information out.

I'm still in the dark about how emissions are monitored. I know that there are six stacks. Someone named Julian -- Dr. Julian was trying to tell me, but Aurèle Gervais interrupted him -- tried to interrupt him several times. There's a basic transparency at issue and the nuclear industry is really backed up against the wall here.

There's new condos coming in across the street. There's kids that need a healthy environment and who deserve a healthy environment where they can go to school, across the street in Peterborough. And I am on record again saying that my personal view as someone who has been a community member in Peterborough and lived in the west end of Toronto, is that it's time for BWXT to go. GE Hitachi sloughed it off to BWXT.

I take issue with the fact that BWXT is a nuclear weapons manufacturer and they are also facing two class action lawsuits from people in Ohio where they are co-defendants in that lawsuit for contaminating a school with enriched uranium. I'd like to get BWXT to completely give all the information about who the customer is for the depleted uranium pellets and what exactly the depleted uranium pellets are used for.

And, I also want them to guarantee the people of Toronto and Peterborough that if they get involved in the small modular reactor business that they will not bring enriched uranium to Monaghan Road or Lansdowne Road -- Lansdowne Avenue in Toronto. Can you guarantee that you will not bring enriched uranium to either of those places in the future? A yes or a no. Not a. 'We don't have plans at this time.' But be honest and be forthright. Can you -- can you guarantee that you won't? Yes, or no?

And the thing is, is I think that you know we need to be able to admit when we have done wrong or when there is a disagreement, and we need to come to a solution.

I've been saying for years that I don't believe you know that they should be (1648@5:35) about 5 tonnes of uranium per day and releasing tiny particles that escape filters into the air, in the neighbourhood, for people to inhale. I think that that's wrong.

And I think that -- I think that we need space to be like, 'Okay, well, that's wrong, we're not going to do it anymore.' But they have entrenched and they've kept on doing it.

And I believe that, you know, personally

with the Government of Canada, considering that they are approving new pipelines like the Coastal GasLink pipeline and Trans Mountain at a time of a climate crisis, that the federal government has lost the moral authority and the scientific authority to be regulating energy this country, and that it is up to the people to decide you know what kind of energy you know we should -- and there's something that I really want to communicate to you here is that we always say, Well, how are we going to keep the lights on?

First of all, Ontario used too much base load power. But, second of all, if we always -- if we were to put the earth in front of how we keep the lights on, and I'm sure we'll figure out a way to keep the lights on without hurting anybody, without hurting the indigenous people where the uranium is mined and their lands are destroyed, without transporting it all over and exposing people to radiation, and without creating any more high level nuclear waste which will remain lethal for eternity.

So I think that we need to usher in a new age where we work together and we dismantle the industry. We provide jobs and security to people who are currently working in the industry which not only includes the workers in the industry but managers and also people who are

working for the Canadian Nuclear Safety Commission.

There is work to do for millions of years to safeguard radioactive contamination from the environment. We need to start working together and starting envisioning a future where we do not harm the earth with these technologies. And we have to stop the Canadian Nuclear Safety Commission and their word salad that they use to, you know, say that the emissions and the poison that they're emitting into this neighbourhood is safe. We know it's not safe. There's conflicting science.

I'm asking you now to, you know, accept a defeat here and move on, get out of Toronto, get out of Peterborough. That's what the people have asked, and it is something that should be very much considered.

So, again, if you've done wrong it's okay, we'll move forward. You know, you don't even need to apologize, just shut down. But the thing is, you're wanting a ten-year licence to keep on doing it for another ten years. We have waited long enough.

I've been involved in this since 2010 and I don't want to be involved in it anymore.

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

**MR. RUITER:** Do you have any

questions for me? Thank you for listening.

**THE PRESIDENT:** I am sure we do. Or, you may have driven some more questions. But Mr. Ruiter let me first of all start off by thanking you. We've had many intervenors over the last couple of days who have said it was yours and your colleagues' actions that have really brought to their attention the existence of this nuclear facility in their neighbourhood and in their community. So for that, I thank you.

I was the only Commission member, from my colleagues here, who was there at the hearing in 2013, and I share your disappointment that the level of awareness in the community for this facility, whilst it may have improved it's just a marginal improvement and most people were not aware of that.

So with that opening comment, let me open it up for questions amongst my colleagues. And we'll start with you, Dr. Demeter.

**MEMBER DEMETER:** Thank you very much for your intervention. We've discussed in the past issues of enriched uranium and I think it's good for the record to confirm with CNSC staff that the current license application as it stands would not allow the handling of

anything but natural or depleted uranium. I think that's good to confirm.

**MR. RUITER:** Can I interrupt you there? That wasn't the question. The current license doesn't allow that but I was asking BWXT for a guarantee if they can guarantee, yes or no, that they will not apply to change their license in the future.

**THE PRESIDENT:** I don't think we're going to ask BWXT that question. Let me just turn it around slightly differently.

BWXT, in the event your license does get renewed and if you do decide to produce fuel for a non-CANDU reactor and maybe it's for an SMR, would -- or, let me start with staff, first. Would that require an amendment to the license and what would be the Commission's and the public's role in that?

**MS TADROS:** Haidy Tadros, for the record.

Absolutely any change to the licensing basis including the type of material that they currently possess will require for us to come back before the Commission with an approved, recommended safety case. If we, ourselves, are not confident by what we see, we would not be here as staff recommending the information.

**THE PRESIDENT:** Thank you for that.

Sorry, Dr. Demeter. Okay, Dr. Berube? Dr. Lacroix?

**MEMBER LACROIX:** My question has already been answered. Thank you.

**THE PRESIDENT:** Dr. McKinnon?

**MEMBER MCKINNON:** Yes. The connection with the BWXT parent company was brought up. So I think here we're mainly concerned with safety and the operation of the plant here. So my question would be, do you act fully independently? Or what is the nature of the relationship with the parent company in making safety and health decisions in the operation of the plant?

**MR. MacQUARRIE:** It's John MacQuarrie.

So we do operate independently of the entity that has been referred to by this intervenor. So as I described in my opening presentation, we have different segments of our company. The segment that we're a part of is a Canadian-based company. The other two segments are US-based. One of them is managing and operating nuclear sites, primarily for the United States government. And so this site that's being referred to is one of those sites. That is a completely separate entity in our corporation, so different procedures and people involved and has no

relationship to our business here in Canada.

**THE PRESIDENT:** Thank you.

Mr. Ruiter, for you, any last words?  
Thirty seconds, please.

**MR. RUITER:** I'm disappointed in those responses. I asked a specific question about whether they would do enriched uranium, and I got a deflection from CNSC staff, saying if there was a -- I want to know, do they have any plans on doing it, and I got no answer.

So I'm still saying you need to continue to improve, and you need to ask BWXT outright will they guarantee that they have no plans throughout the next licence period or in the future, no plans of using any enriched uranium from Toronto [indiscernible - multiple speakers]

**THE PRESIDENT:** Mr. Ruiter, I did say it's not in our mandate to ask them that question, given the application that's in front of us. What we needed was reassurance on what exactly is it that they're asking authorization for. And I think we got an answer to that. So thank you.

**MR. RUITER:** I disagree, but I thank you for your time and for your continued interaction. And I

think that it does continuously need to be improved exponentially. But I'll acknowledge that it has improved slightly.

**THE PRESIDENT:** Thank you.

We'll now move to the two written submissions that we have left pending.

**CMD 20-H2.137**

**Written submission from Dora Juhasz**

**THE PRESIDENT:** The first one is from Dora Juhasz, and that's CMD 20-H2.137.

**MR. LEBLANC:** So we'll be asking the members if they have any questions with regard to this intervention, once they have a chance to find it.

**CMD 20-H2.207**

**Written submission from Lana Kouchnir**

**MR. LEBLANC:** The next submission, that was to be an oral presentation but is now a written submission, is from Lana Kouchnir, and it's CMD 20-H2.207.

Dr. McKinnon?

**MEMBER MCKINNON:** There was a question by the intervenor related to communication. And it was whether -- I thought it was an interesting one -- whether schools have been involved in your outreach. And that struck me as a very good way of disseminating to families, if schools are involved.

**MS CUTLER:** Natalie Cutler, for the record,

In Toronto, we are actually a supporter of two schools, not necessarily in dissemination of newsletters and whatnot.

We typically target the area around our facility. I'd have to get back to you on whether schools are in that range.

However, we do support and work with schools on STEM -- Science, Technology, Engineering, Math programs -- in supporting their programs. For example, the Western Tech Commercial School virtual robotics program and Pauline Junior Public School.

**MEMBER MCKINNON:** I was really wanting to ask whether you generate any interaction and feedback or participation and engagement, rather than sponsorship.

**MS CUTLER:** Natalie Cutler, for the

record.

We actually have two members of our CLC who are representatives of schools. And so I would say we have in two cases two separate educational institutions that have representatives that give us feedback on their programs.

**MR. LEBLANC:** So this closes the interventions for the Toronto component of the hearing.

Madame la présidente?

**THE PRESIDENT:** Staff, did you have any updates on any of the undertakings?

**MS TADROS:** Thank you, Haidy Tadros, for the record.

Yes, we had been following some of the comments and responses and follow-ups that the Commission had asked us for. So I have three specific updates that I'd like my colleagues to help deliver.

The first one was I believe Dr. Lacroix, your question with regard to autoignition, the temperatures based on hydrogen and gasoline, what is the temperatures there.

So we have our specialist in Ottawa, Zaq, who can provide a very clear answer to that.

**MR. BOUNAGUI:** Zaq Bounagui, for the record.

I would like first to expand a bit on the pyrophoric phenomenon first. A pyrophoric substance means a substance that ignites spontaneously in air at or below 54 degrees Celsius, for gases, or within five minutes after coming into contact with air, for liquid and solids.

It is important to note that the factor that may influence the pyrophoric phenomenon of uranium dioxide powder includes specific surface area, particulate size, ambient temperature, ambient moisture content, and heat surface.

The uranium dioxide used in BWXT building has not been classified as flammable and pyrophoric.

So with regard to autoignition questions, the autoignition temperature for the hydrogen liquid is 571 degrees Celsius. The autoignition temperature for gasoline is highly variable and is between 246 and 280 degrees Celsius. Thank you.

**MEMBER LACROIX:** Okay, thank you for this answer. I already knew this answer. It's a Catch-22 in a sense that the point that I wanted to make is that does it mean that gasoline will catch fire before hydrogen?

**MR. BOUNAGUI:** Yes, this is all depend the state that the product is in.

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

**MS TADROS:** So the second one that we'd like -- Haidy Tadros, for the record -- to provide an update on is some statements that were made with regards to suspect activity between the WHO and the IAEA based on some information that was provided by one of the intervenors.

So we looked into that, because that obviously is very concerning to us as well. And on the WHO's website, there is a clear article that they have put out in February of 2001 clarifying the relationship of the cooperative agreement that they currently have with the IAEA. And with the Commission's permission, staff would like to provide a memo for the record to include this article.

And I'll just read a bit of it for the record here, that:

"There was concern that WHO cannot act independently on matters related to exposure to radioactive substances and human health because it is bound by the 1959 Agreement between the two

agencies."

This is the IAEA that they're referring to.

"Such concern is unfounded."

So that is currently on the WHO's website. And they go on to say that they have "amply demonstrated in the past" that they do undertake research, specific research into nuclear accidents, that they do publish as well.

So again, with the Commission's permission, we will take this and provide a memo to the Commission for the record to better explain the cooperative agreement which will include as well in the memo as well as this article by WHO itself.

Actually we had four items.

The third item that I'd like to bring reference to is a question, President Velshi, that you asked with regards to web traffic, the baseline numbers as comparison to what our colleague in communications provided.

So we were able -- she was able to provide that update, so I'll pass the microphone over to her to give you the percentage of increase that these proceedings have seen in the last couple of days.

**THE PRESIDENT:** And your fourth item?

**MS TADROS:** My fourth item will be referred to our specialist in environmental protection to correct something that was said on the record.

**MS GERRISH:** It's Meghan Gerrish, for the record.

Just to give you some baseline numbers, there is in fact a 64 per cent increase in the website traffic of the CNSC from Friday, February 28th, to Monday, March 2nd. So the hearing generates some website traffic, and it is consistent with most hearings, which was the data I gave you prior.

Now, as compared to a Commission meeting that was held in December, there is a significant difference there as well. There was 214 unique viewers as opposed to now we are in the range of 612 unique visitors.

**MS SAUVÉ:** Kiza Sauvé, for the record.

So earlier today when I spoke about the third-party stack testing audit that is performed by BWXT, I noted that it was a requirement of the provincial ECA.

And I just wanted to clarify that in fact while some ECAs require stack testing, the ECA that BWXT has does not have that requirement due to the emission

levels; however, BWXT has put that requirement into their own environmental protection program, which is then listed in our LCH. So it has now become a CNSC requirement.

So I just wanted to clarify that it wasn't in fact an MECP requirement. It is in fact a CNSC requirement.

**THE PRESIDENT:** Thank you for that.

And BWXT, any last words for the Toronto hearing you'd like to make?

**MR. MacQUARRIE:** It's John MacQuarrie.

Yes, thank you. We have two topics that we'd like to discuss.

The first is on dry release limits. There was some discussion earlier about how those limits are set and who sets them, and I feel the need to clarify the process for that.

And I think perhaps we created some confusion in our Commission Member Document that was submitted, where it was perhaps not described very clearly, so I'd like clarify that, which was on page 28 of our Commission Member Document where we describe that.

So the process is that we have been required by the CNSC to implement a standard for

determining derived release limits. That's CSA standard 288.1, 2014 revision. So we did so and have developed derived release limits according to that standard and provided that, then, analysis and information to the CNSC staff, who of course are reviewing that and are the ones that would approve that.

So it's not that we set limits for ourselves; we're simply implementing the standard as we're required to do so. So hopefully that clarifies that topic.

Second topic is on the topic of communications and public information. So I wanted to address the considerable feedback that we've had from numerous intervenors over the last couple of days here in Toronto before we leave Toronto about our lack of transparency, BWXT's lack of transparency and the community communications that have been inadequate in the view of many community members that have intervened either in writing or orally.

We absolutely understand that based on what we've heard and read in these interventions that our operations in the community are causing some significant concerns and anxieties for community members. And we have a great deal of empathy for those concerns. And we want to

do whatever we can to alleviate those concerns. That's important to us.

We are confident that our plant here in Toronto, and in Peterborough for that matter, but our plant here in Toronto is safe and has operated safely and is releasing insignificant amounts of uranium to the area, and that it poses no significant threats to the community. However, that is clearly not the view of some of the people that live in the community that have intervened.

Since we acquired the business about three years ago, a little over three years ago, we -- you know, understanding the situation that there's community members that don't feel comfortable with the facility -- we have made a significant and earnest effort to really step up communications and to try to address those concerns in whatever way we can. And I think we have very clear evidence that we have dramatically increased how we communicate with the community in terms of tours and the numerous things that we've talked about over the last couple of days.

However, we recognize that that has not been effective, sufficiently effective, and that we need to do something different or more.

So in saying that, I do want to say that we have I think a very talented and diligent team working on this, and so in no way are my comments in any way reflecting on their performance that I don't think they've done a good job. I think they have done a good job, and they've done what I've asked them to do.

And up until about a month ago, we thought actually that we were doing fairly well. We were not getting the feedback that we have been getting through these interventions up until that point. And so we're feeling reasonably good about that through the interactions that we're having, which are numerous, and surveys and things like that. Obviously, we were not getting all the feedback. And so we've gotten a lot more of that.

But I want to make that clear, that I think the team that we have on it has done a good job.

I think that they clearly need and we need to allocate more resources to this, and that's my job as the leader of the organization. I control the allocation of resources and have the authority to do that. So that responsibility lies with me, and I'm absolutely committed to providing those resources to, as I said earlier, do whatever we can to alleviate those concerns that we're

hearing about. And I think we can do that. I think we can do a much better job of that. I think it is a challenging job here in the city of Toronto in the area that we operate, but I think we're up to that challenge.

And so with that in mind, there's been a lot of discussion about, well, what can be done to communicate better. And so I would like to offer briefly a preliminary plan we've been working on. I would ask you to consider that it is a preliminary plan. We haven't had much time to work on this, so please consider it in that light. But here's some things that we think might make significant difference.

One, we're going to hire a local community relations specialist that can be dedicated to the facility, be in the community, be from the community, at least speak in one of the languages. There's a significant Portuguese population, so speak in the language of the community to the extent we can or find others that can, because we know that we need to communicate in more than one language in this community.

Second, we need to reconstitute our community liaison committee, which we've had in place for quite a while, but it's not as effective as it needs to be,

clearly. So we need to expand it, more members, and we need to look a who's on that. I think we could make better use of people that are involved in community organizations that reach out to a broader group of people that have concerns. You know, I think some of the intervenors I think are interested, and we welcome that.

And to look at the agenda for those discussions, you can look at the minutes of those. They're public information. I think we can do a better job of addressing many of the topics that have been expressed as concerns, and so we can do a better job of that and hopefully that will make a significant difference.

Much greater transparency. I've already said we're committed to that, but I'd just like to repeat that I think we can go for maximal transparency. I think you understand as companies we're trained as employees to protect our companies, and so we naturally are careful about company information, and so that's a natural tendency that we have to overcome. But in this case, there's actually very little that's proprietary, in our view, that can't be shared.

And if you look at our -- it's on our website. You look at what's there today versus what was

there a few years ago; we are moving in that direction. But there is a lot more we can do. We need a bit of time to do that, because it is a fair bit of work, actually. And what we're finding is that there's a request for a lot of information. And so as I said earlier, it is a fair bit of work to do that. But we're committed to that.

We talked about signs on the facility. And I've mentioned what the signs are today. But we can make them larger. We can put the word "uranium processing facility" there. If it's permitted, we could have digital sign that can have different messages on it, whatnot. And so we're going to pursue that.

We talked about social media and expanding the use of that. We'll do what we can there. I'm not sure that that has been a very effective tool, but we'll use it anyway and do our best there. There perhaps are groups -- there are neighbourhood groups that we can try to join, if they'll have us there, and we can get our information out that way. And I think we can certainly have greater involvement in community organizations and associations, condo associations, things like that, if they'll allow us to join, to share information so that it's more readily available to those people.

It's clearly, I think, a view here, and I share that view, that door-to-door visits are effective. And I agree with that and commit to that. We tend not to want to bother people in their home environment with their families, but and so we haven't done it for that reason. But clearly that does work, and so we're going to do that and reach as many homes as we can in the community -- again, in the language of the community member -- and provide information in the best way we can as part of those visits with flyers or leave behind information. Because clearly not everybody's able to use some of the other means of getting information about us.

There was a topic about people saying that they would not have moved into the neighbourhood if they had known about our business. And so I think that's a fair comment, a challenging one, but for that we thought that we could certainly reach out to real estate organizations in the area. I think all the properties that are either owned or leased probably go through the hands of real estate individuals and companies. And so we can certainly do a better job, because we have not been targeting them as groups that we should communicate with. So we'll do that.

And there's a number of other things. I

mean, you know, we want to be fully transparent. There's opportunity. There's a lot of concern about emergency preparedness. We actually feel very good about our emergency preparedness, but we need to do a better job of communicating that. And we have drills, and there's many opportunities for community members, if they choose, to be involved in that and see what that's all about and understand it better. And I think it would give them comfort to do so.

And we'll survey earlier than when we were planning, because obviously we need to try to get better feedback sooner, and we have a sense of urgency.

So those are things that we're committing to do. You know, we are mindful of the challenge. There is a lot of people in the area around our plant here. It is difficult in their busy lives to try to bring them all the information that they might need. But you know, we're up to the task of doing our very best to do that.

So and I guess the other point I'd make is the intention is and it will be a sustained effort. It's not meant to be something that just happens around the time of licence renewal, but it's something that we intend to do throughout our licence period.

So I appreciate the opportunity to share that, and we'll be working with CNSC staff to firm that up. But I just felt the need to address that because of the very significant amount of comments from intervenors that we've had over the last couple of days.

Thank you.

**THE PRESIDENT:** Mr. MacQuarrie, on behalf of the Commission, I thank you. You've clearly listened, and the very fact that you shared this preliminary plan shows that you see the urgency and have demonstrated a commitment to do something about that. So we very much look forward to what you're planning on doing and what results it brings about. So thank you very much for that.

This brings us to the close of the hearing for today. The hearing will resume tomorrow afternoon at 1:00 at the Holiday Inn Waterfront in Peterborough.

Our thanks for those who have taken the time to also support us in these proceedings from the various departments, that is the Toronto Fire Service, the Toronto Public Health, and the Ministry of Environment, Conservation, and Parks. And a very special thank you to all the participants for their efforts and for helping maintain the decorum of the proceedings.

And thank you all for your participation  
both yesterday and today.

--- Whereupon the hearing adjourned at 5:24 p.m., to  
resume on Wednesday, March 4, 2020, at 1:00 p.m. /  
L'audience est ajournée à 17 h 24, pour reprendre  
le mercredi 4 mars 2020 à 13 h 00