

Canadian Nuclear
Safety Commission

Commission canadienne de
sûreté nucléaire

Public hearing

Audience publique

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Le 16 avril 2015

Davidson Centre
Kincardine Hall
601 Dunham Street
Kincardine, Ontario

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601, rue Dunham
Kincardine (Ontario)

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Dr. Sandy McEwan
Ms Rumina Velshi
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Kincardine, Ontario

--- Upon resuming on Thursday, April 16, 2015
at 8:32 a.m. / L'audience reprend le jeudi
16 avril 2015 à 08 h 32

Opening Remarks

MR. LEBLANC: Good morning. Bonjour, mesdames et messieurs. Welcome to the continuation of the public hearing on Bruce Power's application for the renewal and consolidation of their operating licence for Bruce A and Bruce B Nuclear Generating Stations.

During today's business, we have simultaneous translation. Des appareils de traduction sont disponibles à la réception. La version française est au poste 2 and the English version is on channel 1. Please keep the pace of your speech relatively slow so that the translators have a chance to keep up.

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

The transcripts will be available on the website of the Commission in about 10 to 12 days.

To make the transcripts as meaningful as

possible, we would ask everyone to identify themselves before speaking.

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

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

Mr. President.

THE PRESIDENT: Thank you, Marc.

Good morning. Welcome to the continuation of the public hearing of the Canadian Nuclear Safety Commission and welcome to all of you who are joining us via webcast and teleconference.

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

For those of you who were not with us over the last two days -- has it been two days --

MR. LEBLANC: Two and a half.

THE PRESIDENT: -- two and a half days, I would like to introduce the Commissioners.

On my right are Dr. Moyra McDill and Mr. Dan Tolgyesi. On my left are Dr. Sandy McEwan, Ms Rumina Velshi and Dr. Ronald Barriault.

You've heard from the Secretary to the

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

MR. LEBLANC: As I've stated the first two mornings, the Commission is a quasi-judicial administrative tribunal and consequently independent from any political, governmental or private sector influence. In fact, each Commission Member is independent of one another and also independent of the CNSC staff. 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, as an administrative tribunal, does not have the statutory authority and will not consider questions that are of a political nature and it is the Ontario provincial government that must address concerns that relate to fundamental energy policy questions. If Ontario decides that nuclear remains part of the energy mix, the role of the CNSC is to ensure it is safe.

The CNSC has no economic mandate and will not base its decision on the economic impact of a facility. It is the health, safety and security of the public and the protection of the environment that guide its decisions.

As was stated earlier, the Commission is an administrative tribunal. It is willing to conduct this

hearing in the affected community and to provide a forum where members of the public can express their views on the matter at hand.

As the Commission wishes to hear the more than, I think, 58 or 59 oral presentations and ask as many questions as it deems necessary on these, we ask that everyone respect the 10-minute time allocation and the decorum of a tribunal setting and assist with the orderly, civil and respectful conduct of this hearing.

The Commission will not tolerate inappropriate behaviour and will take measures necessary to ensure the orderly conduct of this proceeding in the same way it does for all other proceedings it conducts in Ottawa or in the communities.

Mr. President.

CMD 15-H2.43

Oral presentation by Historic Saugeen Métis

THE PRESIDENT: Thank you.

I would like to start with an oral presentation by the Historic Saugeen Métis, as outlined in CMD 15-H2.43.

I understand that Ms McArthur will make the presentation.

Please proceed.

MS MCARTHUR: Patsy McArthur speaking.

Mr. Chairman and panellists, I am Patsy McArthur, Secretary-Treasurer of the Historic Saugeen Métis. I am honoured that President Archie Indoe has asked me to speak today on behalf of our historic Métis community.

With me are George Govier, HSM Lands and Resources Consultation Coordinator, and Ross Lamont, Lamont & Associates, advisor to Historic Saugeen Métis.

The Historic Saugeen Métis descend from the local Métis who have resided with continuity in the Métis traditional Saugeen Territory since before treaties and settlement. Members of our community were carriers of the Ojibwe Piché dish wampum of the late 1820s to 1902.

The contemporary Métis community has never extinguished any Aboriginal rights to lands and waters explicitly reserved for Aboriginal people.

Today, the Historic Saugeen Métis located at Southampton continue to harvest as historically in the immediate lands and waters surrounding the Bruce nuclear site.

The community's asserted Métis rights are characterized as harvesting rights, a general right to harvest for food in the traditional hunting grounds of the

Métis community. Section 35 of *The Canada Constitution Act, 1982* and the Supreme Court decision *R. v. Powley, 2003*, affirmed these asserted communal Aboriginal rights.

The community thanks the CNSC Commission for this opportunity to be a contributor to this process today.

I will now turn to George Govier and then Ross Lamont for comments on behalf of our community and I would like the opportunity of a closing statement. Thank you.

George.

MR. GOVIER: Good morning, Mr. Chairman and Members of the Commission.

My name is George Govier. I want to talk to you briefly on the Historic Saugeen Métis environmental goals and objectives, our relationship with the nuclear industry, the Bruce Power Participation Agreement and the engagement activities with Bruce Power, and a short statement about our conclusion and recommendations.

First of all, our long-term environmental goals and objectives.

Our long-term vision and objective is focused on promoting the protecting the sustainability of the environment within the traditional Saugeen Territory as it relates to local Métis interests, rights and way of

life.

Our intention with regard to the environment is long-term preservation of natural features and resources. We support development that meets the needs of the present without compromising the ability of future generations to meet their needs specifically where it relates to HSM's ability to continue their traditional harvesting practices, rights and interests.

Our main goal when looking at environmental protection is maintaining the integrity of the local environment so that it can support a healthy harvest now and into the future.

We are committed to providing an environmental legacy to future generations of HSM citizens that they can be proud of and be confident we'll continue to support at least the next seven generations of HSM citizens. The involvement of local Métis decision-makers is essential to these goals.

Our relationship with the nuclear industry.

Our concerns are for safe operation of the nuclear generating stations with minimal imprint on the water and lands that support our community's asserted Aboriginal rights. These are communal Aboriginal rights affirmed by section 35 of *The Constitution Act, 1982* and

relate to sustenance and harvesting on the land and in the water surrounding the Bruce nuclear site.

About our Participation Agreement with Bruce Power.

The HSM-Bruce Power amended and restated Participation Agreement dated January the 1st, 2012 established a working group to work together to achieve the objectives and commitments of the agreement.

This agreement is effective and remains in place throughout the duration of Bruce Power operating the generating stations. This agreement does not prejudice, limit, affect or constrain the positions either party may take in relation to regulatory approvals and discussions with the Crown.

Now, about our engagement activities with Bruce Power.

HSM has been engaged with Bruce Power on the protocol licence renewal since 2013. We met with Bruce Power on June the 16th of last year, 2014, to discuss licence renewal for Bruce A and Bruce B.

Working group meetings held during the previous five-year licensing period are as follows. In 2014 there were six meetings; in 2013 there were four meetings; in 2012 there were four meetings; in 2011 there were five meetings; and in 2010 there were three meetings.

The discussions with Bruce Power have been positive to date. Bruce Power has made timely and effective efforts in addressing HSM's concerns related to licence renewal and HSM looks forward to continuing to be informed, consulted and engaged and to maintaining the good relationship with Bruce Power.

About our support for Bruce Power.

An HSM letter of July 16th, 2013 addressed to the Ontario Minister of Energy supported Bruce Power's role in Ontario's energy mix and urged that the province maintain or increase the current role that Bruce Power plays in Ontario's energy mix and long-term energy planning.

The letter also mentioned that the community, the Métis community has gained confidence from Bruce Power's commitment to Aboriginal consultation and engagement.

The same letter stated that the HSM community has experienced considerable economic benefit from over 50 years of safe nuclear generation in the local territory.

Bruce Power continues to provide countless opportunities for employment, high-skilled jobs for local Métis. Local Métis families have realized a standard of living and opportunities that were unlikely in the past.

HSM believes nuclear generation is the safest, cleanest, most reliable source of energy available. It leaves a clean environment for harvesting and has the added benefit of steady, well-paid jobs that support the province's and local economies.

In conclusion, HSM has a substantial interest in many decisions relating to the management of nuclear activities at the site operated by Bruce Power and we support Bruce Power's application for licence renewal of Bruce A and Bruce B.

Thank you.

MR. LAMONT: For the record, my name is Ross Lamont, principal in Lamont & Associates Consulting. I'm retained by the Historic Saugeen Métis to provide advice and support with various matters that they have with all levels of government and with various energy proponents who operate in their historic territory.

I was employed at Bruce Power for 33 years, including 10 years with Bruce Power as their Manager of Government Relations, and I participate in all HSM's meetings with either government or proponent representatives.

As part of the Historic Saugeen Métis' process to consider the relicensing application of Bruce Power leading up to these hearings, I reviewed the licence

application in detail, with considerations for the Historic Saugeen Métis' interests and rights.

I identified a number of questions to raise with Bruce Power. These questions were provided to Bruce Power at a regular quarterly meeting. Bruce Power provided a written response and reviewed those responses at our next regular meeting.

The questions were with respect to how Bruce Power will deal with the Historic Saugeen Métis in their relationship and with respect to various safety and security areas.

The answers that were provided by Bruce Power were complete and addressed the concerns of the Historic Saugeen Métis.

I was asked to outline the process that I went through and my findings to a Historic Saugeen Métis community lunch with a number of community members present. The community seemed satisfied that their interests were protected and their continued support for Bruce Power's operation of the reactors.

Thank you.

MS McARTHUR: Patsy McArthur speaking.

In summary, Mr. Chairman and panellists, given the community's consideration of the application before you, the Historic Saugeen Métis community supports

the application of Bruce Power for the renewal of the Bruce A and Bruce B power reactor operating licence.

Thank you.

THE PRESIDENT: Thank you very much.

Questions?

Dr. Barriault.

MEMBER BARRIAULT: Thank you, Mr.

Chairman.

I understand you have good lines of communication and you're getting positive feedback from Bruce. How big is the population of the Historic Saugeen Métis?

MS MCARTHUR: The Historic Saugeen Métis register citizens who can trace to an ancestor in the historic territory prior to the treaties and settlement. We've identified those root ancestors. To date, we have somewhere close to 250 adults registered who then have families, so we support somewhere around 400 to 500 people who live, some in the territory and mainly others in the Guelph area and in the Lake Erie area where they went for both factory work and fishing when the economy died here.

Thank you.

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

THE PRESIDENT: Ms Velshi...?

MEMBER VELSHI: So how many of those folks are employed at the Bruce site?

MS McARTHUR: We don't have an accurate number of the number that's employed, but they are considerable. We have had three generations work at the Bruce site and those who are not employed there wish they were.

--- Laughter / Rires

MEMBER VELSHI: You spoke very positively about your relationship with the Bruce Power. Can you make a comment about your engagement with the CNSC staff when it comes to the Bruce site?

MS McARTHUR: We have had some considerable engagement over the years with the staff who have come there at times have wanted to come to tell about some new project or to see how we were doing, and at times we have called on the staff for questions -- to answer questions, and so on, and we realize that we can have them, at any point that we want.

MEMBER VELSHI: Thank you.

THE PRESIDENT: Dr. McEwan...?

MEMBER MCEWAN: Thank you. If I understand your submission correctly, quite a lot of your members live in fairly close geographic range of the site.

MS McARTHUR: Yes. Traditionally we

harvest to the south, the ones who were at the Saugeen mouth of the river here, and they still harvest in the same manner to the south around the site, fishing and of course go to the deer yards and that type of thing.

MEMBER MCEWAN: So we have heard a little bit on each day about the distribution of potassium iodide pills and the emergency preparations. Are you comfortable that your members are appropriately accessed to be able to get the potassium iodide if they need it and are you comfortable with the way in which the emergency preparedness has gone?

MR. GOVIER: At our most recent quarterly meeting with Bruce Power on March 26, that very question came to our table for debate and it was very well dealt with by Bruce Power. They outlined a process where they had been in contact with the health authority, they outlined a schedule for distribution or availability of those pills, first of all in a radius of about 10 km and then eventually reaching a radius of about 50 km.

So I might say that the agenda for our quarterly meetings is arrived at and accepted prior to our quarterly meetings. Quite a lot of thought goes into those agenda items, and so we certainly have our prepared questions before those meetings take place and any answers that are undertakings when the meeting is over are brought

back to us tout de suite, certainly within a few days or a week. So we are very pleased on how that quarterly meeting arrangement is working.

MR. LAMONT: For the record, Ross Lamont, if I could just add to that.

With specific reference to the licensing hearings, we did ask questions with respect to the Historic Saugeen Métis' role in their stakeholder actions, stakeholder information disclosure peace so that we were assured of our place in any communication and we were satisfied with the responses that we got.

Thank you.

THE PRESIDENT: Thank you.

Mr. Tolgyesi...?

MEMBER TOLGYESI: Could you tell me how and to what extent you are involved in the various fish studies and harvesting studies or monitoring or environmental studies?

MR. GOVIER: I have been involved with Historic Saugeen Métis since last August and I have made it my business to read all of the literature that has been provided to us and prepare for attending annual workshops. There are two things that I note and were covered in our written submission. There was the EA follow-up reports and there was a white fish study that was done as well, which

the Commission has heard about on previous days of this hearing. Our involvement is to receive all of these literature items, to review them and to make our comments to Bruce Power and we have chosen very carefully to do that.

I should say that we are very careful in selecting which subjects that we have the capacity to respond to because of a relatively small staff, but we certainly are alert, aware and are participating, and in fact those very agenda items come to our quarterly meetings. So we are content with the fisheries studies as the literature and the data and the findings are being released.

MEMBER TOLGYESI: You said you are very careful and limited because of capacity. That means that if there is a lot of studies, how do you do that? You know, how you could comment?

MR. GOVIER: We had outside consultation expertise attend a workshop last November. Unfortunately I personally couldn't attend because of weather and driving conditions that day, but we did receive the full documents within a week after that workshop and we review them and then we provide a written response to Bruce Power. It is also an agenda item at our following quarterly meeting.

MR. LAMONT: Ross Lamont, for the record,

if I could add to that.

As part of the standing agreement between the Historic Saugeen Métis and Bruce Power, in the event that with any of the studies or any of the proceedings that go on, if the Historic Saugeen Métis have concerns that they don't have the internal capacity to address, there is a process for us to seek support from Bruce Power to increase that capacity and that has been made available to us when required.

Thank you.

THE PRESIDENT: I don't want to -- I just detect a bit of very careful diplomatic words here. I don't know if you have been listening for the last two days, a big debate about fish, and I just want to understand whether you have any concern about the process that Bruce has to go through to get authorization from DFO, Department of Fisheries and Oceans. In all that process are you involved?

Some of your colleagues, other first Nations had some issues. Do you share those issues? I would just like to hear your perspective on this.

MR. GOVIER: Mr. Chairman, I was hoping that you would bring that up.

As recently as April 10 we have signed an engagement and consultation template which involves an

engagement and consultation plan. We have signed this with Bruce Power and it is our belief that this is a state-of-the-art approach to commitment, to engagement, to consultation.

And in fact there was a draft regulatory document came out from the Commission and we made a written reply to that on January 27 this year. We were delighted that it included and reinforced the experience and the documents that I had seen in the Northwest Territories when I was employed with the Mackenzie Valley Land and Water Board and helped to develop standard procedures and consistency when it comes to Aboriginal consultation and to require that an engagement and consultation plan and record be available and negotiated prior to the submission of an application for a DFO authorization.

So I appreciate the opportunity to make that known to the Commission. We are delighted.

THE PRESIDENT: Mr. Tolgyesi...?

MEMBER TOLGYESI: On your page 11 you are saying that Bruce has an Aboriginal relation program which promotes the hiring of qualified Aboriginal employees, which means that you should be qualified before you are hired.

Do you have any training programs it's not necessarily that the personnel or your community members

are not qualified but they would like to be, so they should be trained and educated?

MS McARTHUR: Patsy McArthur speaking.

As a community we have been very active in promoting education for students and we have been for the last six years giving student awards and this past -- we started out with six students the first year and we were up to 18 last year, which is an award of \$500. This comes from the community itself and we are able to fund this because of the different programs that are available with the energy sector and a big part of that is Bruce Power.

So we are totally committed to having our students and our young people educated so that they can take advantage of the opportunities that are provided by the Bruce site.

MEMBER TOLGYESI: And my last one. You were talking about road conditions because you couldn't attend the meeting. How do you feel about when an emergency situation is coming, you know, where the roads are blocked? Do you feel comfortable? Do you have an emergency plan and do you feel comfortable that if something happens at Bruce? I don't know, a tornado or whatnot, that you don't have really big concerns?

MS McARTHUR: I will turn that to Ross.

MR. LAMONT: Ross Lamont, for the record.

Well, the Historic Saugeen Métis is very much a community and a vibrant community that has been there for the past couple of hundred years. We are also members of the local municipalities and the relationship between the municipalities and Bruce Power whereby any emergency plan would be executed is what we have confidence in, that we, along with the other citizens of the local area surrounding Bruce Power will do that.

While we are interested in the specific communications associated with those things as they pertain to the Historic Saugeen Métis, we have confidence in the relationship between the municipalities and Bruce Power so that in the event of -- the unlikely event of an emergency, that we would be dealt with appropriately.

Thank you.

THE PRESIDENT: Dr. McDill...? Any other questions?

First of all, maybe to Bruce, it seems that this so-called participation agreement is working very, very well here, so what is the problem? I don't want to put you on the spot here, but what is the problem with the other two Aboriginal communities?

MR. SCONGACK: Hi. James Scongack, for the record.

You know, I do agree. I think the

protocol agreement between Bruce and the HSM does work very well. I think it is a very strong model. You know, without -- you know, what I don't want to do is compare this model to what we do with other groups because we do recognize, you know, there are differences between the various Aboriginal groups, but what I can say is we do have a similar protocol agreement in place with the other groups.

Our approach to the protocol agreements in terms of openness, transparency, timeliness, communications, willing to meet, willing to address issues is a consistent practice across our Aboriginal program.

You know, CNSC staff may want to comment, but one of the things we also endeavour to do, Mr. Presidents, is actually on a monthly basis we do report to CNSC staff all of our interactions with all three of the Aboriginal groups that we engage with. We do report against the protocol agreement, against all three protocol agreements we have in place and I think what truly works in this particular case is that, you know, the Métis, Saugeen Métis have taken a lot of the capacity that we have provided through the protocol agreement and used that capacity to engage with Bruce Power, you know, establish some permanent positions that allow us to have a very active dialogue.

I also think the model that Mr. Lamont referenced with respect to, as we talked about yesterday, regulatory top up where we meet with the group prior to each calendar year and give foresight to the regulatory approvals before us gives enough time for the local communities to do some planning and make sure that they can ramp up the resources for the various applications.

THE PRESIDENT: Thank you.

Staff...? Anybody wants to add to that?

MR. STEVENSON: Jeff Stevenson, for the record.

So yes, I can confirm that Bruce Power does provide us with a monthly update on their Aboriginal engagement activities and I do go over those and read them every time they are provided, so we are very well-informed with the activities Bruce Power is doing with all three groups in the area.

THE PRESIDENT: Any other questions? Any final comments that you would like to share with us?

MS McARTHUR: Thank you. Patsy McArthur speaking.

In summary, Mr. Chairman and panellists, we support the application. Thank you.

THE PRESIDENT: Thank you. Thank you very much for this intervention.

CMD 15-H2.6

Oral presentation by Saugeen Conservation

THE PRESIDENT: The next submission is an oral presentation by the Saugeen Conservation as outlined in CMD 15-H2.6.

I understand that Mr. Brohman will make the presentation. Over to you.

MR. BROHMAN: Thank you. Thank you, Mr. Chairman and Commission Members.

Thanks for the opportunity to allow me to spend some time here. My name is Wayne Brohman, I am the General Manager of Saugeen of Valley Conservation Authority.

In my letter to the Commission I provided a number of specific examples of Bruce Power support to various conservation initiatives. In summary, Bruce Power has contributed to our education programs, to our stewardship and restoration projects, to our fundraising events, to tree planting and several other initiatives as well.

It is my observation that staff and Bruce Power's environmental group have a sincere appreciation for the environment and those individuals are devoted to

preserving the special aspects of our local landscape. I appreciate that they take their funding commitment seriously and that they make sure we at Saugeen Conservation are accountable for showing results for the funding that is granted to us. The money isn't simply paid out and then forgotten about, they demand to know, rightly, that the funds were properly employed.

In summary, Saugeen Valley Conservation Authority staff greatly appreciate Bruce Power's contribution to our many conservation projects. That's all I have.

THE PRESIDENT: Thank you.

Questions? Dr. McDill...?

MEMBER MCDILL: I wonder if you could tell me a little bit about the proposal to move the Lockerby Dam. That sounds like this a small dam or a large dam?

MR. BROHMAN: The Lockerby Dam is a very old dam, 1800s. It was originally for a little bit of hydropower for Paisley and also a grist mill. There is nothing there now building-wise except for the dam. In 2006 there was a study that we paid for to study the possibility of removing the dam. It doesn't -- is not there for any kind of a flood control purpose whatsoever and it is a hazard to -- or an impediment to fish travel up the river, it warms the water so it's not good for fishery

that way and it is not good for fish habitat. It is also a bit of a hassle for our employees, a health and safety issue taking the boards in and out.

So we own the dam, it's on our property and so we made application, we have funding from DFO also recognized that it is not good to be there for fisheries, so DFO is providing half the funding to remove it and Bruce Power is generously donating a sizable amount of money to help, help us with that project.

MEMBER MCDILL: So it has really very little connection to the nuclear side of things. There are no floods involved here? Nothing --

MR. BROHMAN: No. I would say no connection.

MEMBER MCDILL: Okay. Thank you.

THE PRESIDENT: Dr. Barriault...?

MEMBER BARRIAULT: Thank you, Mr. Chairman.

Thank you for your presentation. What is the DEER Program?

MR. BROHMAN: The DEER Program is a program that we -- our education person puts out there and I can't remember what the acronym stands for, I'm sorry, but it's to educate kids about -- young students. They bus them in to Bruce Power's site and sometimes at the schools

and our education person just teaches them about the environment. It gets them outside, it gets them looking at bugs, looking at plants, trying to sort of understand the whole interconnection of the big environmental picture.

MEMBER BARRIAULT: Thank you.

THE PRESIDENT: Dr. McEwan...?

MEMBER MCEWAN: Again, thank you for your presentation.

We have had a number of presentations from groups that can broadly be called environmental stewardship groups. Are you working together to sort of create a common structure and common process as you start looking at; for example, we heard from the anglers yesterday on restocking the fishery?

So is there cooperation and collaboration between the different groups?

MR. BROHMAN: Absolutely. That's a big part of what we do and we find that different groups have different resources and can bring them to the table.

For instance, Lake Huron Fishing Club is helping us with the removal of the dam. They are providing -- they have committed to providing many hours to help with the rehabilitation of the pond once it is drained.

We work with a Penetangore group, the Pine

River group in trying to rehabilitate the rivers.

We work with Bruce Sustainability Network.

There is just a myriad of other organizations out there that we would link in with to achieve a lot of these projects.

THE PRESIDENT: Anybody else? So let me ask you a very high-level question. Do you have a view about the health of the fishery in the lake?

MR. BROHMAN: In the lake? We deal a little bit more with the rivers than the lakes. I think I would have to defer to -- there are certainly others that would have a much, you know, better idea of that than I would.

THE PRESIDENT: So you are not involved in any of the research being done now and the work that is going into the Fishery and Oceans authorization?

MR. BROHMAN: No. That's not our area.

THE PRESIDENT: And you are not involved in restocking?

MR. BROHMAN: No.

THE PRESIDENT: Okay.

MR. BROHMAN: We allow some restocking at one of our ponds. MNR restocks one of our ponds once a year at Allen Park, but that's sort of the limits of that.

THE PRESIDENT: Okay. Any final words?

MR. BROHMAN: No, other than, you know, Bruce Power people are great to work with and we support their application.

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

MR. BROHMAN: Okay.

THE PRESIDENT: The next submission is an oral presentation by the Canadian Environmental Law Association has outlined in CMD 15-H2.122 and 2.122A and 122B.

I understand that Ms McClenaghan will make the presentation.

Please proceed.

CMD 15-H2.122/15-H2.122A/15-H2.122B

Oral presentation by

Canadian Environmental Law Association

MS McCLENAGHAN: Thank you very much, Mr. Chairman, and thank you for giving us the opportunity to attend here today.

And I'd also like to acknowledge the support of the funding program and acknowledge, although with me here today is Mr. Jeremy Dixon who's an LPP, probably be a lawyer in Ontario in a few months, is already

a lawyer in Texas and New York, but I also had the assistance of Mr. Rizwan Khan who's a lawyer in Ontario who articulated and then did contract work for CELA, and that funding program allowed me to have Mr. Khan assemble documentation relevant to Kincardine emergency planning.

I would like to comment that things have changed quite a bit. As you know, CELA was looking at emergency planning at the Darlington new build, Darlington refurbishment and Pickering hearings and we had indicated to many people, including representatives of Bruce Power at one of the emergency planning discussions last year, that we would also be looking at the emergency planning at the Bruce plant.

And we've looked at all of these in the wake of the Fukushima accident to inquire into the sufficiency of emergency preparedness around the plants, particularly because this is one of the most critical issues with respect to protection of the public.

And as you have heard many times, the goal of emergency planning is to make sure that the public is not exposed to radioactive dose in the event of an accident.

And as I said to you at the Pickering hearing and before you did the emergency planning Regulation 2.10.1, it's an important part of your role and

your jurisdiction to be looking at the adequacy of emergency planning.

So I would urge you, not only in this hearing, but in every licensing hearing to look at it in detail and to look at the documents in particular and to make sure that their compliance with the provincial plan -- there's a master plan of the province from 2009 -- is evident and also with your own REGDOC is evident.

And I won't have time to go through every slide, I'll hit a few highlights in a moment, but before I do that, I might also mention that, as I do note in the presentation and in my material, the current plan that's adopted by the Town of Kincardine is dated to 2006. That plan has an appendix you've heard about, Appendix N, which deals with emergency procedures.

And we inquired of Kincardine for a copy last year and this year and were advised that it wasn't ready yet. And I made similar inquires of Mr. Nodwell at Emergency Management Ontario this winter who advised that it was being prepared.

Just prior to the April 7th date, I became aware that Bruce Power had indicated to Greenpeace that there was detailed emergency planning, so I asked what that was. So they kindly sent me documents which included the documents I had already reviewed and was familiar with, the

Kincardine Emergency Plan, for example -- pardon me, they referred to the Kincardine Emergency Plan, but they sent a 2015 emergency plan, but advised me that it's in draft. So I have a copy of that, it's March, 2015 labelled draft.

And I have reviewed it, it's largely similar to the 2006, but it doesn't include a reference to an Appendix N and the tracking document indicates that Appendix N, which deals with emergency procedures, is to be removed.

The 2006 plan refers to Appendix N a number of times around things like setting up the evacuation centres, notification procedures and so on, which is why I was asking for it all along and why it always struck me as important.

The extent to which it is now embedded in the 2015 draft, I'm not sure, since I had very little time to really do a line-by-line comparison, but it strikes me that largely the 2015 draft is essentially similar to the 2006 draft. So that's a concern. The one that's in place today is apparently incomplete and the one that's more recent is draft.

The other thing I was concerned about and I noted in my report is that Saugeen Shores is identified in the provincial master plan as a host municipality. So the primary municipality is Kincardine and the host

municipality is Saugeen Shores and then they have certain responsibilities, I actually excerpted them right in my report, around things like setting up reception centres, but they also have to have a nuclear emergency response plan themselves.

All I was able to find was a reference that they were working on one with funding from Bruce. In credit to them, and as I mention in my report, there was reference to nuclear emergencies, but it was buried on their website. So I had some recommendations -- I have some recommendations about putting that all in one place and making that obvious to the public.

So Bruce did send me a Saugeen Shores emergency nuclear plan dated January, 2014, but also indicated that that's draft as well.

So this is the kind of concern I have. These are old plants, operating for decades and it's not as though they were just commissioned last year and it's not as though emergency planning is a new topic. And in my report I indicated to you the recommendations that were made 20 years ago -- over 20 years ago by a Cabinet committee and I use that as the framework for some of the recommendations. That report from the Ontario Cabinet doesn't appear to have been acted on, at least that we can see because, for example, the planning basis hasn't been

revised and the emergency planning zone hasn't been revised.

The last thing I want to say by way of introduction, because I won't have time to go in detail through our report, is that the -- oh, I should also mention that what I didn't know about until a couple of days ago, I knew that Bruce is planning to distribute the KI pills, they've mentioned that often, they said they've begun.

So Mr. Saunders provided Ms Splettstoesser copies of the material that's going to the community. This is the kind of thing that I think should be provided to you at hearings and you should be directing the applicants and the staff to make sure that this kind of material, which is good, on the whole it's quite good, apart from the fact that there's this odd thing where you read about all the other emergencies in the municipalities, you get to your notes, you think you're done, and then there's the emergency plan. So I'm glad I flipped the page. Maybe it's so that it's handy at the back because it does have the emergency sectors, the sectors for the secondary and primary at the back, which is good.

It also for the first time that I've seen anywhere tells people that if they're in certain sectors what's their evacuation route. This is nowhere else

available on any website or any communication that I've seen before this publication, but that's important.

And it also, I guess when it's distributed it's telling people what their sector number is or it helps them inquire.

It doesn't include an element that's in both REGDOC-2.10.1 and the PNERP 2009 which is advising people about how they will be notified or alerted in the first place that there's an emergency. So are they in an area where there are sirens? Are they in an area where there's going to be door-to-door, how will they know? But if they do find out that there's something going on, then they're told what radio stations to turn to, so that's good.

The last thing on the second part of our presentation, which I won't go into detail today because it's not really for your decision today, is commentary, and I'm indebted to Mr. Dixon for this.

Looking at specifically how it is that we think some of the regulations are too vague, I've said that at some of the previous hearings, but it details, in quite a bit of detail, this will be useful to us in future reviews of your regulations which I've heard from staff repeatedly is a continuous improvement exercise, and I especially point to the fact that I would submit, and I

will submit in the future, that you have jurisdiction over the planning basis around the Canadian nuclear plants. I know you defer to the provinces on that. We are attempting to engage with the province here on that. We think it's a big problem and I make detailed recommendations in my report about that as well.

So since I've used up almost all my time and haven't even gone to the slide deck...

THE PRESIDENT: We got your deck.

MS McCLENAGHAN: Yes. I assumed when I was preparing for today that you would have read it, and when I re-read it, one thing I wanted to say about the slide deck and the report is that I do stand behind all of the commentary in the report and the slide deck, even in view of the most recent material I was provided with last week and in view of everything I've heard today, it all still does, in my opinion, stand up. I would be very happy to engage in any back-and-forth with you on that as well.

So the last thing I want to say, because it has had little attention, is that on Slide -- very back of the slide deck, we talk about recommending that the reactors not be approved to run past the 210,000 extended -- or full power hours that the reactors were originally designed to and that's been the point at which refurbishment has been considered in the past, and the

recommendation of the staff is to go to 247,000 full power hours, and we would ask that you not licence the plant beyond the 210,000 full power hours without a full hearing on refurbishment.

THE PRESIDENT: Thank you. So let's jump right into the questions.

Who wants to start? Dr. McDill...?

MEMBER McDILL: I'll start with something very quick. I just wanted to show you that we have, in fact, received this.

MS McCLENAGHAN: Oh, it must have been a moment when I wasn't here, but I thought I was here through the whole hearing.

DR. McDILL: No, no.

MS McCLENAGHAN: So thank you, that's good to know.

THE PRESIDENT: Dr. McEwan...?

MR. SCONGACK: James Scongack, for the record.

If it's helpful, Mr. President, I just wanted to maybe add a few comments with respect to the communications materials because I do think this is -- it's obviously a very important component for us to ensure that the public is notified on a wide range of these things.

Just for a bit of background, last year

Bruce Power hosted a session which actually CNSC Staff were involved in where we brought together all the surrounding municipalities, a range of provincial agencies and organizations, various fire departments to actually discuss the issue of communications with the public.

Because one of the things I think we all recognized from informal feedback was that the public really needs one or two very simple places they can go to at anytime and get information on emergency management, which, you know, most cases in this area is a winter storm or a fire.

I would be happy to put it up on the screen if it is helpful. But earlier this year we launched a joint website called bepreparedgreybrucehuron.com. And really, what that website was designed to do was consolidate all this information available from all these different agencies into one site.

And we have actively promoted that website throughout the community. And you can go to that, and that includes everything from, as I said, what to do in a winter storm to what to do in a tornado, a flood, to a nuclear emergency.

And this is a site that we maintain and we are having a regular check-in with all of the partners so they can update this site on an ongoing basis. And we just

thought that was very helpful to the public.

One of the other things I would add is you may have noted in the presentation from Ipsos-Reid yesterday, that when we ask people in the area how they like to receive communications, there are different segments of the population that don't go online for a lot of their information.

So what we sought to do was develop the booklet that the Commission has been provided, and other individuals. And our intention is to update that booklet on an annual basis and mail it to all 65,000 households within the region. So, you know, we have a combination here of the tools that Mr. Saunders talked about on Monday evening, which are more real time. We have an online component, and then of course a hard copy component.

But, you know, there is no doubt there is very well-established information. Our goal was to consolidate this all into one simple spot that people could go to.

So I just thought I would add that for the record.

THE PRESIDENT: Thank you.

I was amiss, I should remind everybody that we actually have the Office of the Fire Marshal and Emergency Management here in the room. So welcome to Dave

Nodwell and Al Suleman. So they are here to answer questions.

And maybe you want to comment, a standing comment, on what we just heard?

MR. SULEMAN: Thank you, Dr. Binder. Good morning, Commission Members.

Just by way of introduction, my name is Al Suleman, I am the Director of Prevention and Risk Management with the Ontario Office of the Fire Marshal and Emergency Management.

I am one of three operational directors that report up to the Chief of Emergency Management and the Fire Marshall, Mr. Ted Wieclawek. And our office, just by way of background, has oversight on the province with respect to both fire and emergency management. We oversee those two areas, as well as provide advice to government on those two areas.

As you mentioned, I have with me today Mr. Dave Nodwell, who is the Program Manager for the nuclear file responsible for nuclear planning and exercising.

It has been mentioned, and I will just reinforce, that the Province of Ontario is the jurisdictional lead for off-site nuclear safety under the authority of the *Emergency Management and Civil Protection Act*.

This responsibility is delegated by cabinet order in council to the Ministry of Community Safety and Correctional Services and the Office of the Fire Marshal and Emergency Management.

Our plans for nuclear radiological emergencies within Ontario and outside of Ontario are administered in cooperation with designated municipalities, provincial ministries and federal stakeholders.

The province has a Provincial Nuclear Emergency Response Plan, we refer to it as the PNERP, with specific implementing plans for all nuclear facilities in Ontario, Fermi 2 in Michigan, transborder, and other radiological incidents. The PNERP is integrated with stakeholder nuclear-specific plans.

So there have been a number of comments made that we do wish to offer some clarification to. But I do like to put it on the record first of all to say that the municipal plans for both Kincardine and Saugeen Shores are in conformance with the PNERP.

Yes, there have been certain updating that has been taking place over the last few weeks, but these are predominantly administrative type of updating to reflect improvements that have taken place over the past few years. And I will pass it on to Dave Nodwell shortly to speak to that in more detail.

There was comment about the PNERP being old. It was last approved formally by cabinet in 2009. And, yes, we have been quite apparent with our desire to proceed with an updating of the PNERP to review the planning basis in light of a number of scientific documents that have become available over the past several years commissioned by CNSC directly and by other international organizations.

So those plans are in progress. And again, I would like to reinforce that actually for the first time since the PNERP was introduced that we will be going to formal public consultation once we determine the planning basis for the updated PNERP.

There has been a significant amount of work that has been done related to KI pill distribution in relation to CNSC's directions through REGDOC-2.10.1. And we have briefed the Commission on the provincial strategy for KI distribution recognizing that there will be local variations amongst the various municipalities based on their own demographics and resident profile and so on.

But we have a very strong collaboration with the KI working group members and have addressed a number of issues where we have agreed to some common principles and common strategies. The last thing we would want to see is a lack of consistency across the province on

KI distribution. So we have made a lot of progress and we will continue to make progress on that working group.

I will pass it on to Dave Nodwell to perhaps supplement some of my comments.

MR. NODWELL: Thank you. Good morning. Dave Nodwell, for the record, from the Office of the Fire Marshal and Emergency Management.

Al Suleman has provided a very good overview. I would like to take this opportunity to thank CELA for their analysis. As was done with respect to Darlington and Pickering, they have provided a tremendous amount of information for us, which is taken into account and will certainly be utilized in the PNERP update.

There was reference made to the plans, and those have indeed been updated and, as Mr. Suleman mentioned, do conform at this point to the PNERP.

The program here is very very strong and a lot of those changes that were made were of an administrative nature where really to reflect the program as it exists.

So, for example, public alerting is something that is very strong in this area; work with telephone auto-diallers, the project related to FM alerting and so forth. So it is a matter of putting those kinds of things in the plan that is important.

KI is of course another example that we have talked many times about and that is being worked on in this area to a very large extent.

One of the keys here is the operationalization of the plans, and that will be the next step. And really, in my mind, that is the most important step because you can put into a plan that you will be doing this, this, and that. But really, it is about drilling down in terms of how exactly that is accomplished and making sure that you can operationalize those things.

That is followed by testing. And we had a very good test in this area in 2012 with exercise Huron Challenge. And this was post-Fukushima. And what we endeavoured to do with that exercise was to look at a nuclear response within the context of a natural disaster.

So all of a sudden we are faced with how would we carry out a nuclear response when the roads are covered in trees where there is huge demands on the emergency management infrastructure, there are building collapses and HUSAR is involved, and rescues are required from Inverhuron Park and things of that sort.

So we were able to, over a period of three days, and in fact it was a number of different events throughout the year, take a very very close look at the local capabilities and the capabilities of the provincial

government and supporting federal departments.

On the nuclear side, while all of this was going on we were conducting testing, we were doing aerial surveillance and so on and so forth. There were a number of lessons learned of course from that, as was the objective of this exercise. But overall, it reflected I think a very strong program and one that worked quite well.

So we look forward to our continued work with Bruce Power and the local municipalities in the further development of the program.

Thank you, Mr. Chairman.

THE PRESIDENT: Thank you.

I think we need to move into the questions. Dr. McDill, did you want to start?

MEMBER MCDILL: My next question is on the 210,000 hours. So if there is more on emergency planning, it would be...

THE PRESIDENT: Okay. Ms Velshi?

MEMBER VELSHI: This is a question for the Office of the Fire Marshal and Emergency Management.

The intervener makes a number of recommendations around extending the zones, both the primary and secondary zones, and that some other countries have done so. Is this something that you are revisiting? Actually, there was an intervener yesterday as well who

talked about the appropriateness of zones and the planning basis that has gone into that.

So if you can maybe shed some light as to your thinking on that please?

MR. SULEMAN: Al Suleman, for the record. I'll start off, and then Mr. Nodwell can supplement if necessary.

Yes, I mean we're certainly reviewing all the information to either validate, or change if necessary, the planning zones. But at this point in time the information that we have at hand would support that the planning zones are appropriate without any significant changes.

But, again, we're just partway through the review process, and that will be validated. So a number of mechanisms.

Having said that, I do want to point out that our response capabilities through the Provincial Emergency Operations Centre are not -- there's no sort of hard lines in terms of the planning zones. I mean it's a dynamic circumstance. We have a command and control sort of decision-making capacity, where depending on the nature of the event, the significance of the release -- we're not drawing some hard lines in the sand in terms of the planning zones. We react appropriate, depending on the

extent of the release.

We can respond, you know, in as short as 15 minutes, and we can keep going for as many number of weeks as necessary. We have been working hard to develop that search capacity through the Provincial Emergency Operations Centre to ensure that we have the appropriate staff coverages.

The key point being that it's not a static approach, that, depending on the circumstances -- despite the planning zones being 10 kilometres for primary and 50 for the secondary, et cetera, those are not hard lines, you know, carved in the sand. We react as necessary through the PEOC.

I'll turn it over to Dave.

MR. NODWELL: Thank you.

Dave Nodwell, for the record.

We are, as has been mentioned, looking at our planning zones and spending a significant amount of time and resources doing the required analysis for that. We've been taking into account documents such as the UNSCEAR report on the health impacts of Fukushima, looking at things such as the CNSC health consequences study and the SARP, which is helping to inform our decision-making process, amongst other documents.

Part of the consideration, as well, in

terms of planning zones, would be incorporating information coming from the IAEA, particularly GRS7, and that, of course, is being reflected in the CSA N1600, which we would be conforming in our update to. Both of those deal with the planning basis.

We anticipate that that will be out very shortly and be able to proceed on that work.

I would, if I may, Mr. Chairman, at this point clarify something that has been discussed at this hearing. For the record, I'd like to make a comment on it as it relates to the planning zone discussion.

In particular, it's been indicated that the planning basis for the Bruce implementing plan allows for a two-and-a-half-day planning time between the onset of an accident and the potential for a release. It has been stated here, it's been stated in the media as well.

I would like to correct that, because in the Bruce implementing plan, in the PNERP, it does in fact say that, but it says that that is when you have a normally functioning containment system.

I am looking at section 2.6 of the Bruce implementing plan.

Essentially, where you have that normally functioning containment system, you do have a minimum of two-and-a-half days generally that you're able to plan for

and implement the response. The plan recognizes however that, where the containment system is either impaired, breached or bypassed, that an emission could commence much earlier, in some cases very soon after the accident.

We, really, in terms of the current planning basis and response with respect to Bruce Power, are looking at that 15-minute kind of response. There isn't the expectation that we have two-and-a-half days.

In addition to that, there has been comment regarding the size of the release that is dealt with in the PNERP as being a very small release, a design-based release, and that sort of thing. It actually accommodates a release with a dose of 250 milliSieverts at the site boundary or at the 1 kilometre from the plant, which is a very substantial -- very substantial -- release. That's the basis on which the PNERP is written and the basis on which decisions would be made.

I did want to clarify that, Mr. Chairman, for the record.

Thank you.

THE PRESIDENT: No, that's actually very helpful, and understood, I think.

MS McCLENAGHAN: Mr. Chairman, I would agree with what Mr. Nodwell just said, except that the PNERP 2009 talks about detailed planning for the normally

functioning accident with the two-and-a-half days, and then a much more generalized adaptive response, if I can call it that -- I don't have it right in front of me -- for the faster accident.

THE PRESIDENT: But I also understood -- I'm not going to defend you guys, but I also understood that they are now in the process of updating it and consulting on it.

Did I understand correctly?

MR. NODWELL: Dave Nodwell, for the record.

Yes, we're consulting with numerous stakeholders on that in terms of the planning zones, the size of potential releases that we would be looking at, the health impacts of that, and the timing as well that would be involved. We want to make sure that we're able to implement protective actions in an adequate timeframe, you know, to enable us to implement them.

That is all being looked at. We are consulting with a number of stakeholders on that, including discussions with CNSC staff.

THE PRESIDENT: Just I can't resist, is there a time horizon to this? Are you also going to include recovery in that particular plan?

MR. NODWELL: The timeframe for the

planning basis is expected in very short order. It is being dealt with at the end of this month at the Nuclear Emergency Management Coordinating Committee. That will be the presentation to those stakeholders who are involved in a response. We will be able to proceed from there on that basis.

My apologies, there was a second part to that question.

THE PRESIDENT: The recovering, going back.

MR. NODWELL: Thank you.

Dave Nodwell, for the record.

That's an interesting question, and a very important question. Certainly watching the events unfold related to Fukushima you can see the importance of the recovery.

I would anticipate we'd be looking at enhancing that piece related to the recovery, and particularly detailing the transition from response to recovery. I don't want to suggest that would be a full or complete recovery plan by any stretch of the imagination because that is a substantial undertaking, one that we want to undertake and we recognize that it needs to be done, but our priority would be in terms of updating the response component of the PNERP, bringing that up to international

standards and so forth.

I would hope that we'd be able to deal with the recovery aspect in detail subsequent to the PNERP being rewritten, but it would be enhanced in the document.

MR. SULEMAN: If I just may supplement, Mr. Chair, because it may be of interest to others, we are anticipating an early 2016 public consultation on whatever PNERP updates are deemed to be necessary going forward.

THE PRESIDENT: Okay, thank you.

Questions?

Go ahead.

MEMBER MCEWAN: I think this is a sort of transition.

In the document you spent a lot of time talking about overdelegation and the way in which the regulations are written. In particular, you talked quite a lot in recommendation 27 about some of the implications and outcomes of that.

Could you go into a little more detail for me? Because the risk of an overly written regulation is that it removes flexibility from either responders or from planners. The risk of overdelegation, obviously, is that there is not enough guidance and not enough preparation allowed.

Could you try and square that circle for

me, please?

MS McCLENAGHAN: Yes.

It's a difference in philosophy to some degree. Some regulatory systems set out very, very detailed prescriptive standards and some set out very high-level objectives for the regulated entity.

In this case our concern was that they were so high-level that it was almost impossible for us, as outsiders or observers even with legal training to tell, well, What would pass? What would be sufficient? What would meet this standard?

Recommendation 27 speaks specifically to the two: the newly revised on-site emergency control regulation and the new off-site updated 2.10.1. I mentioned earlier an example where, in a future review of that regulation, we would be submitting that the Commission should weigh in on this question of the planning basis. Mr. Nodwell and Mr. Suleman have just been talking about the province undertaking that inquiry, but it's my submission that the Commission should set a minimum. If the province wants to exceed that, that's fine.

Constitutionally, that's well within your purview, within your mandate under both the act, as well as your minister's mandate under the *Emergency Management Act*, and the rest of government. You need to be satisfied that

the planning basis is sufficient that people would really be protected in the kind of, you know, very severe accident we've been debating in these proceedings and other proceedings.

That would be an example where it's not to say there's not going to be flexibility, but a very important, fundamental piece of emergency preparedness is the question about what size of accident are you responding to. Then there would be some fallout from that, where we would then go on and submit, and then, based on that, here are some minimums. Not to take away the question that you're doing notification in Bruce is different than you're doing notification in Durham, but the planning basis could be delineated, and some other matters.

MEMBER MCEWAN: So do staff or the Province have any --

MR. AWAD: Raoul Awad, the Director-General of the Security and Safeguard, CNSC.

Actually, our regulation and -- all our regulation, not only in the emergency measurement area, are a mix of performance-based -- it's mainly performance-based, actually, and in some area we put some prescriptive requirement.

This is our way to do regulation not only in one area, but overall.

There is high risk to go to highly-prescriptive regulation, which is -- you know, I give you an example. If we say the notification will be A, B, C, D and we put prescriptive requirement, that may not suit any other -- you know, may suit one region, not other region. We will put a notification requirement and we leave it to the licensee and we put guidance how the notification should be done.

And this is in the emergency measurement and all other area, including all our safety regulation, which is contained general requirement and specific requirement and then guidance. And with this guidance, it's not considered as prescriptive, but the language make it in such a way that the licensee, they may follow this one and it's become kind of prescriptive, or they may use another method equivalent that is acceptable to the CNSC.

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

Just to add to Mr. Awad's intervention, the intervenor asks with respect to the planning basis post-Fukushima and the CNSC action plan has requested for licensees to operate their emergency management program and call for integration of the emergency management program at all levels, from the on-site to off-site, including the municipality and the provincial element.

So the planning basis is key element.

The intervenor mentioned about the flexibility of the planning basis depending on the severity of the emergency. And that is take into the threat assessment and the response to the event itself, so if there is an accident versus an incident, I'm not going to go into definitions, but as the progress -- progression of the accident, then the planning basis must be flexible to respond from a low risk to the highest stress risk. So the flexibility of performance-based requirement is of the essence, and the planning basis will be flexible in order to address the progression of the accident itself and the response associated with it.

So that's all been put in place, and the licensees did review and upgrade their emergency plan accordingly.

MEMBER MCEWAN: So specifically to Recommendation 27 where there is a suggestion that the minimum requirements are not clearly defined, would you agree with that? I think I've interpreted what you've said correctly.

MS McCLENAGHAN: Yes, they read along the lines of you should have a planning basis.

MR. AWAD: Raoul Awad, for the record.

Actually, it's -- we did a lot of work to

be clear on our requirement, particular in the -- both document, 210.1 and 233. And I think -- we had a lot of consultation, and I think every stakeholder had the chance to comment this document. And we didn't receive that there is no clarity, and I think it's clear.

But we are open always to any comment that may improve this document -- both document, actually, 210.1 and 233. We are open. It's -- regulatory framework is always reviewed. There is a periodic review every five years, and we are open to any additional comment for clarity.

THE PRESIDENT: Look, I don't want to get into some Constitutional debate. There are all kinds of federal-provincial issue, municipal issue here.

The point here is that you've got -- in one of those accidents exercise, there was 70 agencies involved. There's no way that the CNSC is going to develop a regulation for all of those agencies, how they're going to behave. What we have been doing -- and the KIP is a good example where we mandated it be done. We didn't argue about how it be done, and I think there is a working committee that actually dealing with some of those issues.

The important thing is about the execution, and I think we should not lose sight of that aspect.

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

Just for the record itself and with respect to Recommendation 27, even though the intervenor is defining "you should" versus "you will" and "you shall", the key point here is, and I'm going to repeat it, once the licensee submits information in support of licence application, we hold them to it, so that it becomes part of the regulatory framework and regulatory oversight.

And I would like to emphasize this element. Whatever is being presented in support of licence application, then it is -- becomes under the CNSC regulatory oversight to ensure that the requirements are met. And those requirements might include interaction and planning with the municipality on site, off site at federal level or provincial level. So that -- I would like to clarify this.

And Bruce Power can answer with respect to their -- is it clear to them or not.

THE PRESIDENT: Okay. Other questions?
Dr. Barriault.

MEMBER BARRIAULT: Thank you, Mr. Chairman.

If I can bring this down simpler, I guess, system, really, how often is inspection done of the

generating station in terms of emergency management and planning, and who does it? I don't care, you know, who does it, but as long as it's done.

Can CNSC comment on that?

I know it's part of your almost annual inspection, and you do have a rating for this.

MR. LAFRENIÈRE: Ken Lafrenière, for the record.

I'll start with the sort of broader approach and then I'll ask my site inspector, Jeff Stevenson, who actually does the inspection.

So as you mentioned, it is part of our portion of our regulatory oversight process. It's done continuously and, in fact, the difference is the site inspectors will attend planning meetings so they'll understand the planning basis for accidents, they'll review drills to ensure that the drills are carried out.

We have performance indicators for drills. We have performance indicators for the training and qualification of people who perform the drills.

We have inspections on the mechanical side, the implementation of the equipment so, for instance, we verify that the equipment is in place, it functions, it's tested, it's stored properly, it's properly designed and qualified for this function.

So it's on a continuous basis that we review this and, in addition to that, if we detect any issues, in other words, if we see from our performance indicators that a drill is not functioning correctly, we get more intrusive.

We go and determine why that is. We access the licensee's problem identification corrective action system to make sure that they identify issues, follow up on them to completeness. And that's really no different than any other program.

MEMBER BARRIAULT: Exactly. Basically, you're satisfied that it is being done, being done efficiently.

MR. LAFRENIÈRE: Ken Lafrenière, for the record.

Yes, we are very satisfied that there --

MEMBER BARRIAULT: In terms of emergency planning, are you satisfied with the direction that you've gone and how things are happening?

I know we've had some problems in the past with alarm systems and whatnot, but I know it's been resolved.

MR. SAUNDERS: Yeah. I mean, I think -- I'm not sure I'm allowed to say there's too many inspections, but that might be my initial position.

THE PRESIDENT: You're allowed to say whatever you want.

MR. SAUNDERS: Yeah, there's a continuous inspection process, and -- not only on the equipment, but on the drills themselves. And there are requirements that are specific in our licence about how often we have to perform major drills and so forth, and all those are observed by CNSC, and the province is frequently involved as well.

I think, more importantly, from our point of view, I think post-Fukushima -- I think everybody realized Fukushima wasn't really just a nuclear issue. It was a natural disaster of sort of large proportions.

And when we started looking at emergency planning, some of the communications and things and put it in the perspective of what happens if your local infrastructure doesn't work, we found that there was significant holes in that process.

And I think, you know -- I credit to the Province of Ontario, who has to lead this effort, and the municipalities and many other agencies like the 70 agencies that participated in the Huron challenge didn't have to be there, right. That was their choice.

I think we did a good job testing it all out, and I think the response since then has been very

good. It's taken some work to work through things like FM alert, and we're still working on text messaging because we're getting some push back from companies now that they're uncomfortable with the legal liability and they want the CRTC to direct them to do it and so forth.

But we're working through that. We'll get there.

But these things, I think, are coming along in what would be a pretty good pace in the multi-agency environment we're in, so we're satisfied with the support we're getting from everybody, and I think, as the plans change and mature, it'll be a very strong process not only for nuclear emergencies, but just for emergencies in general because, you know, I think it's the big environmental event that people see as the major risk to people, for the most part.

MEMBER BARRIAULT: EMO, any comment to this? Have you encountered any resistance by anybody who does not want to cooperate with emergency planning?

MR. SULEMAN: Not really. I mean, we -- of course, we are aware that certain municipalities, and not necessarily nuclear-related municipalities, but other municipalities under our overall emergency management program where we need to have greater involvement in terms of their participation and updating of their plans and so

on. But generally speaking, no.

But since I have the floor, I'd just to make the point that the current legislative framework -- and not to get into a Constitutional debate about provincial versus federal responsibilities and so on, but certainly we believe that the line in the sand, the way it's been drawn in terms of facilities being directed to work with the province and the province having the lead on emergency off-site response, we think works very well. We're satisfied with that.

MEMBER BARRIAULT: Thank you.

You've answered my question. Thank you.

THE PRESIDENT: Ms Velshi?

MEMBER VELSHI: It's a question for CELA, and it's not to go over your 33 recommendations. I just want to be comfortable with the process and how they're getting dispositioned. And you've made a very significant contribution at the Pickering and the Darlington refurb hearings in informing the CSA standard and the new regulatory documents that have come up have been developed since then.

So my questions were: Are these recommendations ones that you had previously submitted when the new Standard and the new Regs were getting developed and provided feedback then or are these new Bruce

licence-specific recommendations?

MS McCLENAGHAN: All of these recommendations are specific to Bruce or are still in play. So we did make recommendations earlier as well about planning basis, for example, and of course, as I said, the Community Safety Ministry in Ontario told CELA, Durham Nuclear Awareness and Greenpeace more than two years ago that we would be engaged in developing the new approach in Ontario, including discussions about the planning basis, and that has not happened yet.

So when coming to review the situation at Bruce, we're including both the specific -- I reviewed all of the plans here. Kincardine, I went through all of that, I looked at the onsite plan, I looked at the 2009 implementing plan under the PNERP and so on, and I made specific comments on that because, to be honest, I was a bit surprised not to find things in better shape around the completion and adoption of the plans, and I already spoke to you about that.

MEMBER VELSHI: And you've already got reassurance from the province that they're in the process of revising PNERP and that there will be public consultation.

Maybe I can ask staff on the process they're following in reviewing the recommendations that are

applicable to them and the ones that we haven't already discussed, if you've got comments on any others.

THE PRESIDENT: I'm not sure staff were -- I'm not sure they heard you.

But just a quick question. The CSA Standard N1600, were you party -- I'm trying to understand. If memory serves right, they tried to get you and Greenpeace and some other people to participate. Is that a policy of yours not to participate?

MS McCLENAGHAN: Absolutely not. We wanted to participate. We weren't --

THE PRESIDENT: So, I thought there were --

MS McCLENAGHAN: We were not invited. I remember you asking at one of the August meetings in Ottawa if the recommendations for the CSA Standard had taken into account CELA's recommendations and you were told they had. And then I remember you asking if we were engaged and there was some kind of answer about not, and I can remember some back and forth about that.

But we absolutely -- in fact, we had a very difficult time. Because of the way CSA does its public consultation, which is all we had, once it went out for public consultation in the normal course, then we had to make arrangements with CSA to get a copy rather than

their online window-by-window, which is the way they do it, like an actual whole document so that we could review it.

Now, CSA -- I have many opinions about the fact that the CNSC shouldn't be delegating too much to the CSA because it's very difficult for the public to engage. It's not a democratically accountable process and so on.

But they did make an arrangement for NGOs to get a copy of their Standard once it's published without paying for it. So I have a copy of that Standard that has CELA across the bottom of every page.

But no, I was quite disappointed. I had thought that I was going to be invited or CELA was going to be invited, and that didn't happen. The only official engagement that we had -- well, they were twofold.

We were invited to some workshops on the KI Regulation, which was good, 210-1.

And prior to that, Greenpeace and CELA were invited to attend the Joint Planning Committee, that Mr. Suleman just referenced, where all of the implementers of the plan meet periodically and we were asked to attend and make our presentation from your hearing so that everyone there could hear it. That was maybe a couple of years ago.

THE PRESIDENT: So, staff, I'm not really surprised by this because I thought that some of the

standard-developing process is very democratic. For anybody who wants to participate, they're welcome.

MR. AWAD: Raoul Awad for the record.

Actually, the CSA Standards work on a matrix and this matrix has government, utility and NGO, and when any technical committee is established, they will send an invitation to the NGOs and ask them to participate.

In this case, I don't know what the answer came from Greenpeace and CELA but I think CSA has made a lot of effort to have them as a part of their technical committee.

And on the consultation part, all the CSA Standards related to nuclear are already -- we push it to consultation at the same time. We put the link. We put the Standard, Draft Standard on our website, CNSC website, and any stakeholder can comment on this one.

The disposition of the comment is very clear and very well established in the CSA process and, you know, if the disposition is not to the satisfaction of the people who provided the comment, they can go back and ask the committee to reconsider before the final ballot.

I think it's a very clear process and it's a very democratic process and I think CSA will welcome any comment or even participation from any NGO in the committee.

THE PRESIDENT: So, may I suggest that if you want to go on any of those standard committees and you can't get on it, please send us a note to that effect. We provide some financial support to CSA for standard development, so I'm very surprised by their lack of understanding here.

MS McCLENAGHAN: Yes, Mr. Chairman, I will follow up on that because, let me say on the record, CELA would participate on the CSA technical committee dealing with emergency planning around the nuclear plants.

THE PRESIDENT: Thank you.

Ms Velshi?

MR. HOWDEN: I don't think we answered Madam Velshi's question.

THE PRESIDENT: No. That's why I passed the baton to her.

--- Laughter

MR. HOWDEN: Okay. So you want to know how we're dealing with all the recommendations raised by CELA.

So, as we did with the other intervenors, we've walked through each. For the ones that apply to us or we have influence, we developed a position. Because some of them were very outside of that.

In our view, they're covered under the

current regulatory regime where measures are in place. However, we have noted the concerns to do with the Reg framework in terms of perhaps more clarity there.

Mr. Awad talked about the different regulatory approaches that we use, you know, prescriptive in some cases, performance-based in other places.

We recently participated in an international study led by Sweden on looking at regulatory approaches and what came out was that you use different approaches for different situations.

But they had two main findings.

One, your regulatory requirements need to be clear, because if they're not clear, it's difficult for licensees to comply.

And they also talked about experience of regulators. So if you've done something many times, you tend to get good at it and you're very clear. If you've done it less times, it's very important to go out and seek benchmarking worldwide to see how others have done it. And so this is one thing that we do and we continue to do.

In terms of the CSA process, Mr. Awad talked about that.

One of the other comments was the ready availability to the standards. So we did have -- this morning I had our staff go through and I said: Can you

find those standards if you're a member of the public, not from inside the CNSC? And they went through and they were able to find them. Some of them, maybe "readily" isn't the best word, but CSA has a communities page where you can get the information. The National Fire Protection Association, their Standard 801 is on their website and available.

So we're going to continue to investigate to make sure a lot of the standards that we use are available, because otherwise, people wanting to review are blind to it. So just to say that we have, in our view, done our due diligence to be prepared.

MEMBER VELSHI: So just to follow up on the CSA Standard availability. If a regulation makes reference to a CSA Standard, does a member of the public have to pay for that Standard or is that available on their website?

MR. HOWDEN: They have now set it up that you can access it in read only so they can read it on the website. Because they do make money off their standards. But this was something that we initiated with them because of the issues that were raised. Because previously they weren't available without purchasing.

I would also ask Mr. Jammal to comment.

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

I'm not going to go through the detail that Mr. Howden has presented but I would like to confirm to the Commission, part of our review -- and I have to really give credit where it lies. So I do commend CELA with respect to, three years ago and previously, initiating the discussion on emergency preparedness.

But once staff reviewed the intervention of CELA, any recommendations that we felt it would impact or we accepted, we would have informed you as the Commission Members, as a result of our review, was there an impact on our recommendations between Part 1 and Part 2 or any changes that we need to make.

As CELA is fully aware, the recommendations you provided previously, we've adopted some of them -- most of them, as a matter of fact, but the review and the key element here is post-Fukushima review. Especially for recommendations 27, 28 or the gap analysis.

All these were incorporated and the action plan was -- I'm going to take pride in the fact that the CNSC is the only regulator in the world so far that had three public interventions on the action plan of Fukushima and imposed amendments to regulatory framework regulations and updates where it needs to be.

THE PRESIDENT: Questions, anybody?

Go ahead.

MEMBER McDILL: Thank you.

I would like to talk to your recommendations 32 on the -- sorry, it's 33.

My question is: Have you followed the previous hearings and the discussions surrounding the research related to the extension beyond 210,000 hours?

MS McCLENAGHAN: Yes. I have not in as much detail as an engineer would but I was participating in the Pickering hearing and in the Hold Point hearing. The report back to the Commission on the pressure tube research, I observed that meeting in Ottawa.

I was surprised when -- if I recall this correctly -- there was a decision made without public involvement to allow longer operation here at Bruce in order to allow us to get to today's hearing. I'm not sure if any of the units have gone over this number of hours yet at this point.

My concern is that, as I understand it as a non-engineer, we do have reactors that have been operating a long time getting to this level and that there are a lot -- in addition to the generic CANDU research issues there are a lot of site-specific engineering issues.

And so my concern is that just because the decision was made for Pickering it shouldn't just as a matter of precedent -- this is a technical matter, not a

legal precedent. It should be thoroughly canvassed and really if the reactors are going to continue to be operated it should be in the context of a refurbishment hearing.

MEMBER McDILL: Inasmuch as you have raised it as a recommendation and there has been a lot of work done, I think it would be fair to both staff and Bruce to comment on this, particularly with respect to the comment that it hadn't been before a hearing.

So I will ask staff so that it's on the record, to go over little of the history.

And don't forget to include -- I think the Argentinian reactor is now beyond that point, so I think it is good to have as a point of context for the public.

So first staff and then Bruce, please.

MR. HOWDEN: Thank you. Barclay Howden speaking. I will give an overview and then I will ask Gerry Frappier and John Jin to provide the details.

So as discussed, it was in terms of Pickering, it was discussed in a public proceeding. So what it is called is the Fuel Channel Life Management Project, which is an industrywide project which includes two components, a research program as well as on-site inspections and sampling.

And the Commission may recall yesterday some of the discussions with some of the intervenors who

were providing the tooling that delivers the tools that allow you to measure and scrape the pressure tubes, reducing doses to workers doing that. So that is the whole -- that is the project itself. It is industrywide.

Now I would like to go back to Mr. Frappier and John Jin to give a little bit of the history and a little bit of what are the components of this program.

MR. FRAPPIER: Thank you, Mr. Howden. Gerry Frappier, for the record.

So maybe to put this in a little bit of a different context, we will not allow the reactors to operate in an experimental phase, if you like. Like let's see what happens beyond 210,000 hours. That is not the logic we are going through and it would not be appropriate. We are very big on the precautionary principle.

At the same time, arriving at 210,000 hours is not a surprise. We have known since day one that 210,000 hours will eventually get here. So industry several years ago started a detailed research program to get to the heart of what are the degradation mechanisms and ensure that we have a solid understanding of those mechanisms so that we can make predictions.

If I go back to the original designers, and we won't go too much into history, but the 210,000

hours was not something that came out of design analysis that said these pressure tubes are only good until 210,000 hours. It was a constraint put on the designers to say that we want to make sure these are reactors are good at least until that time and the designers put a lot of conservatism into that aspect of the design, knowing that it was going to be very fundamental to the life of the reactors. So they designed in an awful lot of conservatism and they didn't have the level of knowledge that we now have on both the degradation mechanisms and the details of how the degradation occurs.

So what we have been doing for the past few years as a regulator is saying that 210,000 hours is the limit until you can demonstrate that your pressure tubes or the pressure tubes in a reactor can meet all its requirements beyond those. Industry has had this quite substantial -- and they would be in a better position than me as to how much money or whatever was cost, but had a lot of research being done at Chalk River, in the United States and both very physical hands on testing of pressure tubes, plus analytical work as to improving models on degradations.

So at this point in time, even though the research is continuing to push that date as far back as is possible from an engineering perspective, at this time

staff is quite comfortable that the 247,000 hours is appropriate. Just to put a little nuance on there, if you really get into the research it's really about hydrogen uptake of the pressure tubes. So that is what we are really looking at and it is a very measurable thing.

So where we are right now is that industry understands the degradation mechanisms. They have a model. We understand what their expectation is as far as degradation goes and we can monitor that very closely by taking these inspections of the pressure tubes and analysing how much hydrogen pickup has actually been there. So we will not let them get to a point where the pressure tubes are no longer fit for service. We believe that is going to be at least 247,000 hours.

I think it will be further than that. Industry is going to continue that research. But at this point in time, from a staff perspective, we are very comfortable that the pressure tubes are fit for service up to the 247,000 effective hours.

THE PRESIDENT: Thank you. That's --

MR. FRAPPIER: I think Mr. Jammal --

THE PRESIDENT: -- I don't want to go further into this. We have discussed this at length. I think that we have some other issues we want to discuss right now.

Is there anybody else who would like to raise some more questions? Bruce, do you want to --

MR. HAWTHORNE: Excuse me, Mr. Chairman.

Just for the record -- without extending the conversation, Duncan Hawthorne, for the record.

Day 1 we did have a lot of conversation about this and we were asked if we could provide better explanation, more visible, more transparency to what was actually done on this. We took the action on board and now you would see we created a DVD which explained how we measured the life, how we were managing it. It showed the tests that were being done in Chalk River, et cetera.

That DVD has been posted on the website since January, so it does provide a more fulsome explanation. And we believe, in layman's terms, to help people understand the whole life management of fuel channels.

Thank you.

THE PRESIDENT: Thank you.

Anything else? Anybody else? Mr. Tolgyesi...?

MEMBER TOLGYESI: I will just go back a little bit to the emergency. And you, in your submission, you were talking about Kincardine and also about Saugeen Shores that they don't -- they are missing a Section N of

the emergency plan.

MS McCLENAGHAN: Just Kincardine.

MEMBER TOLGYESI: Just Kincardine.

MS McCLENAGHAN: So Saugeen Shores, I never did find anything except the draft that Bruce Power provided to me the week before last. It is dated January 2014, but apparently a draft. I stand to be corrected, but that's all I was provided.

The Kincardine plan that is currently adopted, according to my understanding contains an -- or is supposed to contain a Appendix N that is titled Operating Procedures according to its table of contents, but whenever we asked for it we were told it wasn't ready yet.

MEMBER TOLGYESI: My question will be to Bruce because this small community, mainly Saugeen -- I think Saugeen Shores is a very small community -- to what extent -- and emergency plans should be integrated, that means, you know, considering that everybody who is -- every stakeholder.

Do you provide to these communities some guidance or some help how to develop what should be in the emergency and if they are missing, to guide them.

THE PRESIDENT: We are going to hear from Saugeen Shores, I think, this morning or this afternoon, sometime today. So we can ask that question directly.

Bruce?

MR. SAUNDERS: The short answer is yes, we provide both funding and staff support to the municipalities. They do have a pretty good emergency planning capability on their own and we are there to assist them in particular with the emergency plan.

We have a good relationship with them, regular meetings and a committee that follows up. In fact, we have a meeting coming up next week, I think, not only with those municipalities, but with the counties surrounding as well. So this is a routine thing that we do. We work together to try and put the plans out.

MEMBER TOLGYESI: And I have one more. It's on the same subject.

THE PRESIDENT: Go ahead, whatever.

MEMBER TOLGYESI: Okay. And you are talking about in recommendation 22 about perception of guidance and binding documents. You are saying that the REGDOC-2.3.2 and 2.10.1 could be seen more as a guidance, not necessarily binding.

My question is to Bruce. How do you see that? Do you see these documents as binding because or a guidance? Because the language which is there "will" and "must" against "should" and "may" is confusing.

MS McCLENAGHAN: Mr. Chairman, I just

wanted to clarify, that recommendation is speaking to the guidance part of those recommendations, so they have a part that is mandatory and then a part that is guidance. The mandatory part we are saying is overly general, we talked about that, and then there is a guidance section. So this recommendation is under the guidance section.

MR. SAUNDERS: Yes, I think it would be fair to say, as you have heard from me on a number of regulatory documents, I don't always agree with the content of regulatory documents. But that is your jurisdiction. The document itself when written, we understand what the word "guidance" means and what the terminology in the documents are, so there is not a lack of clarity in terms of what we are intended to do in the document.

And of course we benefit frequently from CNSC inspections, which gives us a further clarification on what they believe the intent of the document is. Any time you write a document there will always be some arguments about what it means and what it's interpreted to be, but there is a very active back-and-forth between us and CNSC through the inspection program that clarifies that and of course they have the capability to place actions, directions and other things on us to make sure that we comply with the document as they believe it is intended.

THE PRESIDENT: Thank you.

Anybody else? Dr. McEwan...?

MEMBER MCEWAN: So in your recommendations you make a very specific recommendation for extending the individual distributions of potassium iodide. What is the rationale and evidence for doing that? And perhaps Bruce or the Province would like to give the evidence?

MS McCLENAGHAN: So on the recommendation to extend the potassium iodide distribution, we are looking at other jurisdictions which we referenced, so for example Switzerland I think it is going further, or friends going further with primary zone distribution to everybody. Primary zone might not be the term they use, but readiness in terms of the population actually having the KI pills in hand. The rationale is because you can't assume it would be very easy, logistically easy for people to get to distribution centres to get the pills in the event of an accident.

And we saw at Fukushima for example that the accident -- it wasn't as if the impacts were uniform around the plant. They went obviously with the weather. So in some cases they were 20 km. In other cases they were 30 km, and so on.

Now, I did note in Bruce Power's communications, and I would like to be corrected if I'm wrong, that their plan is to do actual pre-distribution in

accordance with your requirement, to everyone within 10 km, which doesn't include Kincardine, the Town of Kincardine, but that they are also making available to everyone in the secondary zone the option to get them from their distribution centres completely without question, so people can just go and pick them up.

The reason I'm thinking this might have to be clarified is that the media reported something about vouchers and I would like to make sure on the record that the people in 10K are actually getting the pills, not just vouchers and that it is the people beyond that within the 50 K that can then go and pick them up.

That is a very good measure by Bruce. I commend them for that. I also noted, if I'm not mistaken, that they are going to make extra efforts around vulnerable communities within that 50 K and, vulnerable meaning the young, for example, because they are the ones most at risk who could be protected by KI pills.

THE PRESIDENT: Thank you.

Dr. Barriault...? Last question.

MEMBER BARRIAULT: Last question. Thank you, Mr. Chairman.

Recommendation 32, I'm not clear what you mean by that really. Do you mean that Bruce Power is withholding information from CNSC or you should have access

to freedom of information with regards to a private company? I'm not clear what you mean by this.

What it states really is that there should be assigned agreement between CNSC and Bruce as to freedom of information or *FOIPA*.

MS McCLENAGHAN: Yes. Yes. So that both the public and the CNSC can obtain information about emergency management and related matters.

MEMBER BARRIAULT: So you are not suggesting that they are withholding information from CNSC?

MS McCLENAGHAN: No, no, this is a structural issue, not a pointing to a specific incident issue.

MEMBER BARRIAULT: Is that a problem?

MR. SAUNDERS: I think fundamentally the issue is *FOIPA* programs are intended for public transparency and they cover a great deal more than nuclear safety or plant operations and so we would disagree with that. As a private company we don't think that that is appropriate.

We have never withheld information in a safety aspect in terms of the other and we certainly don't intend to start.

MEMBER BARRIAULT: Thank you.

MS McCLENAGHAN: If I may, Mr. Barriault,

the plant is owned by OPG and leased by Bruce Power. OPG is owned by the Ontario government so there is a public interest issue here that just because of the current operating tenure there is a discrepancy in the kind of information available to the public.

MEMBER BARRIAULT: I would like to point out that this is a political decision. I don't think it is a technical decision.

MR. JAMMAL: It's Ramzi Jammal, for the record, if you allow me, Dr. Barriault, to respond.

As CELA is fully aware from Part 1, every document referenced in the CMD is publicly available, taking into consideration what is sensitive in nature. So from a licensing perspective and CNSC jurisdiction perspective, every document that we referenced in the CMD is made publicly available and we have been following the Commission's direction. It is between Part 1 and Part 2. Whoever requested the information, it was provided to them.

MEMBER BARRIAULT: Thank you. Thank you, Mr. Chairman, that's all.

THE PRESIDENT: Ms Velshi...?

MEMBER VELSHI: I have a suggestion for the Province that I hope you take into consideration. You have mentioned that as you are revising the PNR you are engaging the stakeholders and that public consultation

won't start until next year that stakeholders, NGOs like CELA, I think, are critical stakeholders that you are probably better off engaging earlier rather than later. You have already talked about the value of their recommendations, so something for you to consider.

MR. SULEMAN: We appreciate the recommendation and we will seek opportunities to engage as we get further down the line with the review.

THE PRESIDENT: Okay. Does anybody have a last kind of burning question?

Just an observation before I give you the final word, it is not very helpful for the document to deal with or suggest that there should be a simulation of an accident greater than INES 7. There cannot be. INES 7, according to the IAEA is the largest possible accident. So I don't understand what greater than INES 7 means.

MS McCLENAGHAN: Everything is a range and so --

THE PRESIDENT: It's not a range. It's the maximum.

MS McCLENAGHAN: No, but even once you get to that kind of an accident as defined by that scale, the amount of cesium for example and so on that could be released, there can be accidents --

THE PRESIDENT: No, there cannot be.

According to the definition of INES 7, that's the maximum allowable and Chernobyl has been deemed like that. So I don't want to argue.

MS McCLENAGHAN: It's defined --

THE PRESIDENT: This is not a legal document. Read the IAEA, okay --

MS McCLENAGHAN: Okay. Yes.

THE PRESIDENT: -- and it's not a good proxy for severity of an accident. It's an information proxy.

MS McCLENAGHAN: No, I understand that it's a communication tool. But it is defined in terms of the amount of release and so you can have releases greater than that amount that puts it into INES 7.

THE PRESIDENT: Let me put it this way, there is no INES 8. So if there were an ability to release, then there would be an 8.

Okay, you have the final word.

MS McCLENAGHAN: Thank you, Mr. Chairman.

Again, thank you for the opportunity to present to you today. I do appreciate Ms Velshi's recommendation to the Province and I hope it's taken up.

And I appreciate your direction, if I can call it that, Mr. Chairman, about the CSA Technical Committee engaging with CELA because the reason we have

engaged so seriously in emergency planning for the last few years and the reason we commend it so strongly to you within your jurisdiction is because it is of absolute critical importance to the public.

My starting point, I absolutely assume everyone has a lot of integrity and is trying very hard to do their job and truly hope an accident won't happen.

But the starting point for emergency planning is to look at, well, it could, and then what? Are we ready?

Thank you.

THE PRESIDENT: Thank you. Thank you very much. We will break for 15 minutes, I guess it will bring us to 10:45, thank you.

--- Upon recessing at 10:32 a.m. /

Suspension à 10 h 32

--- Upon resuming at 10:51 a.m. /

Reprise à 10 h 51

MR. LEBLANC: We are ready to resume.
Please take your seats.

THE PRESIDENT: The next submission is an oral presentation by the Canadian Nuclear Workers Council, as outlined in CMD-15-H2.111 and 2.111A.

I understand Mr. Shier will make the presentation. Over to you, sir.

CMD 15-H2.111/15-H2.111A

Oral presentation by

Canadian Nuclear Workers Council

MR. SHIER: Good morning, Mr. President and Members of the Commission, and also to the other interveners.

As indicated, my name is David Shier, I am the President of the Nuclear Workers Council.

Assisting me with our presentation today to my left is Mr. Kevin MacKay who is the Vice-President of the Grey Bruce Labour Council, which is one of our affiliated labour organizations to our council. And Mr. MacKay was also a past executive member of our Nuclear Council.

And to Mr. MacKay's left is Mr. Howard Phorson, who is our Nuclear Workers Council Site Representative at the Bruce site and he is also our Technical Advisor to our CNWC executive.

So you have a copy of our written submission, but we are going to just elaborate on a few issues of who we are, talk about the safety culture, the

public acceptance, and the workers and the plant safe operation, and then our final conclusions.

Basically who we are, we are a collective voice of unions in the nuclear industries in Canada. As you are aware, the nuclear industry is very highly unionized across the country.

We have 24 direct, and I should indicate plus, unions which we are in an organizing mode where we have construction unions and also the supply chain organization unions in there feel that they should be a part of our organization.

And our basic role is to make sure that the voice of unionized nuclear workers is heard in public debates, regulatory issues, so on and so forth, such as this program. So that is the perspective we will be continuing with.

In regards to safety culture, safety is a main priority with trade unions. And we maintain that a unionized and environment is a lot safer environment than a non-union environment.

And it is quite common in all nuclear facilities, and especially at Bruce Power, that unions negotiate additional provisions in what is required for health and safety in legislative requirements.

Now, you will be hearing more about the

specific issues in that regard from one of the interveners later on this morning, the Power Workers.

The safety performance at Bruce Power is very good and I think it is worth mentioning for the other interveners and the public that, this is not a slam of the CNSC, but as a result of the reports last year or the assessments of the nuclear power plants, it was shown there that it is actually safer to work at a nuclear power plant, specifically Bruce Power, than it is to work at the CNSC.
--- Laughter / Rires

MR. SHIER: So I don't know if that is the same this year or not, but I think that is worth mentioning.

The unions support safety at Bruce Power. As you are aware, there was nine interventions from trade unions and union organizations and all those interventions indicate the safety performance and their acceptance of that. So it goes to show our position that unions, our major priority is health and safety.

We maintain a position to public and other bodies. If the workers are safe, then that means the environment is safe and it means that the public is safe.

Moving on to public support. I am going to pass the microphone to my colleague, Mr. MacKay, who will bring you up to speed on his views in that area.

MR. MacKAY: Kevin MacKay, for the record.

I have a letter here from the Labour Council I will address the council with. The Labour Council is a voice of over 7,000 workers located in communities throughout Grey Bruce region. Grey Bruce Labour Council is made up of private and public sector unions along with a variety of like-minded agencies aiding precarious workers and victims of violence and poverty.

Through Bruce Power's history the Grey Bruce Labour Council has been updated monthly on the activities of Bruce Power. These updates are provided by members of affiliated unions with members working at Bruce Power.

Discussing the annual integrated safety assessment is an excellent example of the monthly reports that the Labour Council receives. In the best of the community, Bruce Power has invited the Labour Council to be active in initiatives such as licences, corporate philanthropy and outreach to students and young workers in health and safety.

The members of the affiliated unions work in local communities and recognize Bruce Power as a community oriented safe and sustainable.

The Grey Bruce Labour Council welcomes unanimously and endorses recommendations of the CNSC to

support Bruce Power's application for renewal of its power reactor operating licence of Bruce A and B for the next five years, respectfully submitted by Hazel Pratt-Paige, President of the Grey Bruce Labour Council.

The next point on there is a snapshot of the community. The Grey Bruce Labour Council is highly influenced by the Bruce nuclear site. Wages in the area are generally high here, therefore the cost of living is slightly higher as well.

Many residents and their family members are employed at the Bruce site or some other support business. These folks, along with many others in the general public, are what we refer to as the silent majority who are in favour of seeing the Bruce site continue producing low-cost emission-free electricity to the people of Ontario and also supply lucrative employment for the area.

Tour of the Bruce, the next point on the slide. On September 22, 2014 the CNSC sponsored an onsite bus trip and then plant tour to Bruce A for the Grey Bruce Labour Council delegates. Those attending found it very informative and educational.

Community groups, my comments come not only from being an elected officer of the Grey Bruce Labour Council for 20 plus years, but also from working with other

community groups.

I am the chairman of the board of directors for the Kincardine Summer Music Festival, a board member with Lake Huron Learning Collaborative, member of the Masonic Lodge, and executive member of the Bruce Shrine Club.

Next bullet is general public support. I have many interactions with people throughout our region and beyond, and I have not run into any opposition to the way in which Bruce Power operates its business and conducts its community outreach.

Many of the comments I have heard come not from Bruce Power's operations, but from confusion between OPG's DGR project.

MR. SHIER: Thank you, Kevin.

Dave Shier, for the record.

I would just like to add one more thing on the public perspective. In our written submission we refer to a partnership we develop with the Women in Nuclear, the Nuclear Young Generation, and the Bruce Power Retirees. We are taking our view forward that the silent majority are supportive.

We ran an online petition, which we sent a copy to our constituents, and we are very happy to report that it was over 3,500 responses that signed a signature in

support of Bruce Power's application.

I'm going to be quick on this slide as I see our time is running down.

We're basically very supportive of the workers' dedication that work on site. We look at the defence-in-depth aspect, that the biggest -- last barrier is the workers that do their job, the workers are there 24/7. This includes, naturally, security staff, ATR, support staff, trades people, control techs, mechanics and operators.

With that, I think it would be important for you to have a view from one of the nuclear operators that actually is charged with operating plant safety, so I'll ask Mr. Phorson to continue.

MR. PHORSON: Okay.

Howard Phorson, for the record.

I've been a nuclear operator for almost 37 years now, and I've been in the role of an authorized nuclear operator for almost 24 years.

MR. LEBLANC: Could you please just move the mike closer to you? Thank you.

MR. PHORSON: I'm afraid of it.

--- Laughter / Rires

MR. PHORSON: Okay, I live on an organic beef farm in Bruce County, in Kincardine, and I raise two

children there, and this is my home.

As you know, operators in the control room are charged with the minute-by-minute monitoring and operation of reactors. How do we know it's safe?

The first way we know it's safe is we operate to approved procedure, and these procedures are regularly refined, with collaboration between engineering, operations and -- sorry about that, it beeped -- and feedback from the simulator sessions. We operate to high standards.

Education: it takes 6 to 12 years to become a certified reactor operator and every year you return to the simulator for six weeks of classroom training and simulator training. We're also examined annually in both written and simulator sessions. When we operate, we use a system of peer checks and supervisory oversight to make sure that we get good results.

Speaking of peer checks, recently Bruce Power was awarded with an Award of Excellence from WANO. We are going to undertake an OSART review, which is a more publicly available review from an international body, the IAEA.

MR. SHIER: Dave Shier, for the record.

We thank you for taking a little bit of extra time there. We will sum up quickly.

I think it goes without saying we are in full support of Bruce Power's application and the recommendation from the staff to renew the operating licence for a period of five years.

Thank you, and we are prepared to take any of your questions you may have.

THE PRESIDENT: Thank you.

Questions?

Mr. Tolgyesi.

MR. TOLGYESI: Mr. Shier, you were saying that your counsel represents other than nuclear union workers -- nuclear workers.

Am I right?

MR. SHIER: Dave Shier, for the record.

Yes and no. The workers in our -- the unions in our council are representative of -- they represent workers that are in the nuclear sector.

MEMBER TOLGYESI: Okay.

MR. SHIER: For example, the IBW, in Point Lepreau, are members of our council, very active members, but they also represent the other workers in the Power and it in New Brunswick. We naturally represent workers in mining, too. The fuel processing jurisdictions and the construction trades that do a lot of work in the nuclear facilities are now part of our organization.

As I said, we have -- there's a large -- the list of unions are in our written submission, and the bigger part of those unions do represent people -- workers in other sectors as well, but the main focus is the nuclear people. But it's good to have those other ones there because our locals report back to their main unions as well. They help, you know, the public relations aspect of the industry.

MEMBER TOLGYESI: My question is: have you compared the safety culture? You were talking about the safety culture. Have you compared the safety culture in nuclear, specifically Bruce, with these other sectors?

MR. SHIER: The safety culture in all nuclear facilities, in my view, is very good, very high. There's always room for improvement, actually, but it's definitely different when you go into different sectors.

In my previous job I worked for the Power Workers and I did a lot of health and safety work. I went into other sectors of the organization and it was quite clear that, once you go into the plants, just the processes, the procedures, so on and so forth, it shines through that the safety culture is much higher.

Another example, several years ago we did a benchmarking tour of the UK, where we looked at two nuclear power plants, we looked at a fossil power plant and

we looked at a transmission distribution site. The nuclear power plants, the safety culture was way higher, very evident in just talking to the workers and touring their facility.

I'm a strong supporter, and so is our organization, that our safety culture is very good.

MEMBER TOLGYESI: Do you have any, and do you ask why, the safety culture in nuclear, like at Bruce, is higher than you were talking about the other industrial sectors?

MR. SHIER: Dave Shier, for the record.

I took a slam at the CNSC before, but I'll give a compliment now -- I'm not sucking up to you -- but CNSC is one of the main factors, too, because you require higher safety limits. Just the whole culture of nuclear operation, whether it's nationally or internationally, has that safety factor built in. As we indicated earlier, it's a very highly unionized industry, and unions place safety very high on their agenda.

It's a combination of reasons, in our view.

THE PRESIDENT: Other question?

Dr. McEwan.

MEMBER MCEWAN: Thank you, Mr. President.
Thank you for the presentation.

I asked this question last night, but are the members of the unions within your council comfortable at all times that they can take individual responsibility for safety issues within the plant, i.e., if something has happened that they deemed to be unsafe, can they call a halt? Can they be assured that the transmission of that information up the food chain is appropriately listened to and acted on quickly?

MR. SHIER: Dave Shier, for the record.

Yes, it varies from organization to organization. I will suggest you ask that question to the Power Workers when they are doing their interventions later one.

For the rest of our membership, as I indicated, a lot of the area the unions have negotiated better provisions, and is there by legislation. For example, the United Steelworkers at the Cameco organization, they have a whole list of different provisions in there where they deal with health and safety.

Even under the legislated rights, the workers have the right to refuse unsafe work. They have health and safety committees that they can take things to. In the majority of cases the unions that are members of our organization have other committees where they can escalate it up to the top. Members also have the protection of the

union if they want too raise any issues.

So, yes, there's always a -- questions can and issues can be escalated very quickly.

THE PRESIDENT: Questions?

I've got too quickies.

How many aboriginal workers are members are your union, or do you keep stats?

MR. SHIER: We don't keep -- you mean members of -- Dave Shier, for the record.

Aboriginal members of our council, we have -- we don't keep stats on that. I do know that, for example, in our mining unions we -- the president of the mining union for Cameco in Saskatchewan is an aboriginal. There's a lot of aboriginals on the board there, so they do come to our conferences.

The numbers of unionized workers that are aboriginal descent, I'm sure Bruce Power could probably provide you those figures. We don't have that stat.

THE PRESIDENT: But do you outreach to the communities to become members, suggest on education and training, qualification?

MR. SHIER: Dave Shier, for the record.

Our organization -- our members are the member unions, so the unions would be doing that. Again, for example, in Saskatchewan they're -- lots of the unions

there have got the aboriginal people involved with the unions. Twenty years ago that wasn't the case, now it is the case. About 50 per cent of their executive board at the Cameco sites out there are aboriginals.

We don't -- we deal with the actual unions, the unions deal -- send their representatives.

THE PRESIDENT: You mentioned the online petition received 3,500.

MR. SHIER: Yes.

THE PRESIDENT: First of all, to whom was it addressed, and what are you going to do with this?

MR. SHIER: Dave Shier, for the record.

It was addressed to our constituents. I can speak for the Nuclear Worker's Council. We sent that to all our members, our union member organizations and our contacts. I'm sure that the other -- WiN and Young Generation in Nuclear did the same thing. What it did, it confirmed for us our position that the silent majority is supportive of the organization.

We can provide you more information on that, the numbers and where they came from if you wish.

THE PRESIDENT: No, I'm curious to know. Was it sent to us? I mean, I don't know, was it -- to whom was it sent?

MR. SHIER: No, we didn't send it to you.

We can send you a copy of our press release. I think that was sent to you.

THE PRESIDENT: Okay. Thank you.

Any final comment?

MR. SHIER: Thank you for your time. As I said, we are fully supportive of the licence renewal, remembering that the workers, through their unions, are a watchdog on the safety in all the nuclear facilities, and this specifically applies to Bruce Power as well.

Thank you.

THE PRESIDENT: Thank you.

The next submission is an oral presentation by the Canadian Association of Physicians for the Environment as outlined in CMD 15-H2.124. I understand that Mr. Forman will make the presentation.

CMD 15-H2.124

Oral presentation by

Canadian Association of Physicians for the Environment

MR. FORMAN: Thank you very much, President Binder, and Members of the Commission. I much appreciate the opportunity to speak this morning.

My name is, indeed, Gideon Forman. I'm Executive Director of the Canadian Association of

Physicians for the Environment.

We're an organization of several thousand doctors and members of the general public, concerned citizens working to protect people's health by protecting the planet.

We have a number of concerns around nuclear energy, but today I'm just going to confine myself to one of them, and that's our concern that the 10-kilometre potassium iodide distribution zone around the Bruce facility is inadequate and should be increased.

Our doctors know that, based on experience at Fukushima and Chernobyl, a reactor accident may require residents living as far away as 100 kilometres to protect themselves from radioactive iodine. We believe that the current 10-kilometre distribution requirement, while useful and praiseworthy, should be viewed as a minimum standard only.

Prudent public policy, we believe, dictates that KI pre-distribution should be undertaken within a far larger area.

Now, in determining appropriate standards for Ontario, we urge you to look at international jurisdictions. And you'll note, for example, that Switzerland is pre-distributing KI to all persons living within 50 kilometres of its nuclear plants. And Belgium's

Conseil de la Santé recommends selective pre-distribution of KI to pregnant women residing within 100 kilometres of that country's nuclear stations.

We know these western European nations have a reputation for high living standards and smart health policy. We also know that Switzerland has actually carried out accident modelling for a major incident and bases its KI distribution policy on this modelling.

As you know, the Swiss nuclear regulator modelled three Level 7 accident scenarios and, on the basis of this research, decided last year in 2014 that KI pre-distribution would be extended to a 50-kilometre radius. We urge the CNSC to follow these European standards in setting standards for the Bruce facility.

In summary, this would mean pre-distribution of KI tablets within a radius of 100 kilometre for vulnerable populations, for example, pregnant women, children of school age, and 50 kilometres for the general population.

We know our recommendations are considerably more ambitious than the current 10-kilometre requirement, but as a doctors' organization, our over-riding concern is public health. And in this situation, protecting public health means, in our view, following the most rigorous standards available, which are

those employed in western Europe.

We also know that CNSC shares our belief that Ontario's emergency preparation measures should be nothing short of world class.

Thank you, Mr. Binder and Members of the Commission.

THE PRESIDENT: Thank you.

Questions?

Dr. McEwan.

MEMBER MCEWAN: So thank you for the presentation.

MR. FORMAN: Pleasure.

MEMBER MCEWAN: We heard yesterday from Bruce that they are individually distributing within the 10-kilometre and pre-distributing to centres within the 50-kilometre zone.

Do you see that as satisfactory, or do you think that the individual distribution should be extended to that wider zone?

MR. FORMAN: The latter, Dr. McEwan.

We think the 10-kilometre is a good start. We are concerned about the stockpiling only because of the concern that people need to access the KI tablets so quickly. As you know, the U.S. Food and Drug Administration, for example, says that they're best taken

within three to four hours of exposure. Our concern as a doctors' organization is if they're just stockpiling, it will be some time before people actually access them.

So that's why we're arguing for the actual pre-distribution within the 50-kilometre radius.

MEMBER MCEWAN: So I guess a question to Bruce, what population does that 50-kilometre zone increase the 10-kilometre zone population by? And are you planning any sort of education or information campaign within that 50-kilometre pre-distribution to encourage people to pick them up within an earlier timeframe than an accident?

Because I think the assumption always is that people will only pick it up at the time of the accident.

And if you're doing that latter, how will you monitor it?

MR. SAUNDERS: So the population within that 10-kilometre zone is about 1,500 people, and out to 50 kilometres, about 65,000 people, approximately.

Yeah, we will certainly have the pills out there and encourage people to pick them up or, more appropriately, the province and municipalities will and we'll provide the support to help do that. And people are allowed and encouraged to do that.

I think, though, when you consider -- when

you consider pre-distribution out at large distances, you've got to look at both the nature of the contamination, how it would spread and how fast it would spread. And the models suggest that that actually -- you've got significant time either to -- either to distribute, allow people to pick them up or simply move people out of the way.

In my view, the latter is always preferable to the other. The KI pills are really, I think, intended for those who may be in a situation where they don't move, so closer to the plant, or for a very low emission event where staying in place is a feasible option.

But again, I'm kind of out of my jurisdiction here. It's in the provincial territory. But our belief is that 10-kilometre pre-distribution is more than adequate, and the stocking out to 50 with people certainly encouraged to pick it up, and like I say, examining sort of more vulnerable populations out in that area and encouraging them to stockpile is the right approach.

There is certainly an issue of how effective maintaining KI pills as, further away you go, the more difficult it becomes to keep track of the transient population and manage it at any rate.

THE PRESIDENT: Mr. Nodwell, I think you came forward to say something?

MR. NODWELL: If I may, Mr. Chairman, Dave Nodwell, OFMEM, for the record.

I thought I would take the initiative to come up and comment on it because the province is very involved in the KI distribution, as you know.

I did want to clarify with respect to the secondary zone, what we're currently calling the secondary zone, that it is not strictly stockpiling, but we are targeting -- and this is based on science that has been applied to this -- to the most vulnerable in that area that would be subject to requiring KI, and specifically children under 18, pregnant mothers and so forth.

So those are the ones that, based on our assessment of dose rates, would be in most need of the KI in a very, very large accident.

The -- based on analysis, we're very comfortable with the 10-kilometre distribution to everybody in that zone. We support that, and we're working towards achieving that this year, as you know.

The trigger for KI is a dose rate of 50 millisieverts to the thyroid, and that's based on the most vulnerable. So in terms of a large release hitting that dose rate beyond 10 kilometres, the odds of that are very, very, very slim. But despite that, we are distributing in the secondary zone to the vulnerable.

I should add as well that, within the secondary zone, that it would be available to all those who want it, so they will be receiving public education and awareness about KI and will be able to supply -- or obtain a supply of KI pills for their household if they so desire.

So I just wanted to clarify that point, Mr. Chairman.

MEMBER MCEWAN: So can I just follow up on that?

Within the 50-kilometre zone, you will have enough KI pills for the full 65,000 population? Because my concern of using a cut-off based on millisieverts, I think it does two things.

One, it ignores human nature. I mean, I'll remind you that people in Vancouver and, indeed, in Alberta were asking for potassium iodide pills after Fukushima. I recognize there was no benefit there, but they were asking for them.

And secondly, I think the public perception of risk is probably not going to be satisfied by a simple calculation based upon a dose rate.

MR. NODWELL: To answer the first part of the question, the intent is that there'd be adequate KI supplies for the 50-kilometre secondary zone, so that is the case.

I certainly concur with public perception and the demands for KI. In fact, my office received requests from as far away as Idaho immediately after Fukushima, looking for KI pills. So that is a part of it.

I think, really, it -- in terms of the analysis, it's -- and the calculations, that has driven the determination of what's required, and where. But it's important to know that the Chief Medical Officer of Health is the one that is making the call in terms of taking potassium iodide and issuing that particular order. And based on the Ministry of Health's guidelines and Health Canada's guidelines as well, the threshold would be 50 millisieverts to the thyroid for that order to be initiated.

THE PRESIDENT: And just help me remember, my memory is that there's been -- as the intervenor suggested, there's been extensive benchmarking on the international comparison. I thought there was a particular study was done that look at what other jurisdictions are doing, and it's involved the medical authorities and some of CNSC contracting.

Did I get it right?

MR. AWAD: Raoul Awad, for the record.

That's right. We did a comparative study between what we are proposing at that time in 2010 and what

other jurisdiction is doing. And fortunately, the SARP, or severe accident, study came, and that confirmed what we put in the 2010 one.

I think our model, it's totally different than the others, but it's supported by study.

THE PRESIDENT: Dr. Barriault?

MEMBER BARRIAULT: Thank you, Mr. Chairman.

Thanks for your presentation.

One of the questions that I have, really, is that the Association of Physicians for the Environment notified the Canadian Medical Association of what their suggestion or the College of Family Physicians of Canada because they would be the liaison, if you want to, between the treating physicians and the population.

College of Obstetrics, for example, in regards to pregnant ladies. When you see a patient for the first time, as you know really, a pregnant lady, for example, you're going to order some things, the folic acid, you're going to order obviously iron, you could also order KI pills if you have any concerns with that.

So have these people been involved in the loop at all?

MR. FORMAN: We have not worked with them on this particular issue. We do collaborate with the

Canadian Medical Association on other issues, we have not specifically on this KI distribution issue. It's a good suggestion, it's not something we've taken up yet.

MEMBER MCEWAN: Thank you. Thank you, Mr. Chairman.

THE PRESIDENT: Anybody else? Any final comment?

MEMBER TOLGYESI: Bruce.

THE PRESIDENT: Oh, sorry. Missing you.

MR. SCONGACK: James Scongack, for the record.

And sorry, just to help out there for a minute, I thought it would be helpful to just maybe for the record just identify if -- we've really obviously focused some of the discussion throughout the hearings on the initial 10-kilometre area, so I think maybe it's helpful for us to just identify in a little more detail what we have taking place in the 50-kilometre area and I think it will address one of the questions the Commissioner just asked.

So obviously the focus, it's beginning on the 10-kilometre area, however, in parallel we're advancing some initial outage in the 50-kilometre area to prepare for a broader launch this summer.

A few of the initiatives we've carried out

with respect to the 50-kilometre area is we've held lunch and learn sessions with local physicians in both Saugeen Shores and Kincardine. And I think the important element there is, is that, you know, there's literally thousands of interactions between local residents in that 50-kilometre area and their local physicians, and this is the type of kind of conversational issue that could come up.

So one of the things that's very important to us is that we work with local physicians around the site so they understand the background behind KI.

Because obviously one of the pieces of feedback, and I don't think it's surprising, is that we're getting related to KI pill re-distribution is that, you know, as Mr. Saunders and Newman articulated on Monday evening, our plants are safer and distribution of KI pills is to enhance safety, but for a lot of people receiving something or information on something that may not have been as top of mind can lead people to a different impression.

So before we launch the 50-kilometre -- within 50-kilometre outreach, it's really important to us that we work with those stakeholders, physicians, the school board, the type of people that, outside of Bruce Power that people get confidence from.

One of the things you'll see, and it was

mentioned in the oral intervention from the Grey Bruce Medical Officer of Health, but in a lot of our videos, the website we've released is we're really relying on Dr. Hazel Lynn, our local Medical Officer of Health, who, you know, of course the public has a lot of confidence in the local Medical Officer of Health to really deal with a lot of the kind of personal questions that people will have on this because, you know, there's no doubt that, you know, we can do all the communications in the world, and I think we've done initially a good job with that, but it's going to be that personal contact that is going to be very important.

So when a member of the public goes and talks to their physician, or they call the municipality, or they call Bruce Power, or they call the Medical Officer of Health, that there's a consistent set of messages and opportunities to get information from a range of sources.

So it's something we're very aware of and you may have seen in the media just last week we signed an MOU that we announced between all the hospitals in the area, both hospital corporations, and we provided some funding through that MOU to actually educate all first responders, whether it's nurses, other healthcare professionals on these types of things.

So it's going to be an ongoing effort, but I think, you know, the important step for us is to reach

out to those people before we do the broader release.

THE PRESIDENT: Okay, thank you.

MR. FORMAN: May I make a final statement then, President Binder?

THE PRESIDENT: Absolutely.

MR. FORMAN: I think just in calling for this wider pre-distribution of KI, we just want to make clear that the problem with the stockpiling approach is that people just don't seem to take it up.

There's an interesting document I have here, President Binder, some research done by OPG in Durham, this was done in December of 2013, and the researchers asked people about sirens, potassium iodide pills, these sorts of things, and one of the results of that research was, and I'm quoting here:

"Almost none of the participants in the focus group had obtained free pills that had been advertised in regional communications or pamphlets." (As read)

So it's not that people don't know about them, they in some cases do know about these stockpiles, but they seem not to act on it. And that's the concern that we have, we need to put the pill into people's hands rather than rely on them to pick them up.

THE PRESIDENT: Okay.

DR. DEMETER: Dr. Sandor Demeter. As a physician advisor to CNSC, I just wanted to make sure that there was a clarity.

The intervener initially said that the benefit of the pill is within two or three hours and I want to make sure that there's a clarity that two to three hours is before they are exposed.

There's about a greater than 95 per cent chance of blocking, if you know that the wind is coming and you take it before you're exposed; about a 90 per cent of blocking if they get it the same time you're exposed; and diminishing returns thereafter.

So it's not to say that that's not going to happen, I mean, the access is there and you have to deal with the demographics and the population density, but I wanted to make sure that there was clarity of that statement that within two or three hours is not after they're exposed, it's before they're exposed.

THE PRESIDENT: Okay. Thank you.

Thank you for your intervention.

MR. FORMAN: Thank you very much.

THE PRESIDENT: The next submission is an oral presentation by the Town of Saugeen Shores as outlined in CMD 15-H2.62 and 2.62A. I understand that Mayor Smith

will make the presentation.

Over to you, sir.

CMD 15-H2.62/15-H2.62A

Oral presentation by the Town of Saugeen Shores

MAYOR SMITH: Well, good morning, and thank you for this opportunity to present Saugeen Shores' position on this re-licensing of Bruce Generating Station A and B.

For the record, I'm Mike Smith, I'm the Mayor of Saugeen Shores and with me this morning is Larry Allison who is the Chief Administrative Officer.

The Community: We are the community directly north of Kincardine and the Bruce nuclear site and I'd like to briefly describe our community, why I am here today, why this application for licence renewal is important to Saugeen Shores, some of the interactions, activities and benefits we share with Bruce Power and, finally, to provide the position of our elected Council and the community I think at large.

Who are we? Well, Saugeen Shores is the most populous and fastest growing municipality in Bruce County and, as I mentioned, it is situated directly north. Our southern boundary is about 12 kilometres away from the

Bruce nuclear site.

We are designated as an alternate community under the Provincial Nuclear Emergency Response Plan. The community has joined Bruce Power in many initiatives that have direct benefits to the whole area in a variety of projects, and I'll talk a little about those in a while.

We are home to a substantial number of Bruce Power employees and benefit from the commitment they bring to our community.

Why I'm here today is to advise and inform the CNSC that the elected Council of Saugeen Shores fully supports Bruce Power's application for a five-year renewal of the operating licence for the eight reactors at Bruce Generating Station A and B. And as Mayor, I can say our community supports Council's position and has a great deal of confidence in Bruce Power's ability to operate the site to the highest levels of safety and we're well aware of Bruce Power's safety first core value.

Saugeen Shores provides a range of services to our residents and, like many small communities, can be challenged by the changing economic conditions beyond our town, but having a stable major employer committed to the community, like Bruce Power, has provided significant economic benefit, allowing us to prosper, grow

and build the community that our residents want.

Through the community investment and sponsorship program and the recently announced environmental sustainability fund, Bruce Power provides benefits to many worthwhile community initiatives and has been a major supporter of local and regional infrastructure programs. And I would add that Bruce Power employees are active in our community and provide invaluable support and expertise.

I'd like to mention just a few benefits Saugeen Shores receives through those partnerships with Bruce Power and how this has helped our community.

Along with the Town of Kincardine, Bruce Power has partnered with Saugeen Shores in supporting our physician recruitment program that has seen a great deal of success and contributed to the health and wellbeing of our community and our residents.

Bruce Power has provided significant support to our local hospital corporations, again, enhancing and improving healthcare locally and in the region.

Bruce Power's collaborative approach to emergency planning has direct benefits to our entire community and enhances overall public safety. It helps provide our municipal emergency response personnel with

resources and knowledge required to respond and assist, should an event occur.

Bruce Power's community investment and commitments help make the community a better, safer place for all to live.

In summary, I'd like to summarize by saying Saugeen Shores has a long and respectful relationship and understanding of the Bruce nuclear site and is very comfortable with the interactions with Bruce Power.

From a safety standpoint, we believe their record is second to none. The company's safety first value is demonstrated not only in their operating record, but their commitment to health and safety in our communities.

Their ongoing outreach and communications to senior staff, to Council in the community help keep everyone informed about operations and performance on-site and, as mentioned, they support our community emergency preparedness for a range of possible events and have demonstrated a commitment to renewal and training of their workforce.

Through their assistance in a range of initiatives, Bruce Power has supported overall community wellbeing and safety.

And in conclusion, Bruce Power has

consistently demonstrated it to be a good corporate citizen, a model employer for many of our residents in our community and a leader in safe operation of the world's largest nuclear facility. Through the province's provincial long-term energy plan, sustained operation of the units will provide a substantial amount of Ontario's baseload power.

It's safe to say the citizens of Saugeen Shores are well informed with regard to Bruce Power's operations and are confident of the company's ability to commit to continued safe operations and I think our Council reflects this confidence with their decision to fully support the application before the Commission for a five-year renewal of the operating licences for Bruce A and B.

Thank you.

THE PRESIDENT: Thank you. Question?

So, Mayor, I'm sure you have heard the debate about emergency management.

MAYOR SMITH: Yes.

THE PRESIDENT: So we are looking forward to your perspective on whether there is a plan, is it well up to date and are you satisfied with it?

MAYOR SMITH: I'm going to comment and I'll let our CAO comment yet.

I know our CEMC, our Community Emergency Management Coordinator, has worked actively with Bruce Power in the last couple of years, number of years to work on a -- update our plan.

We've always had an emergency plan that I think we're very comfortable with but have worked actively to increase that or bring it to a standard, since we are now a host community or an alternate host community, to recognize that there are some issues or some things that the plan needs to address from a nuclear standpoint.

And I think Larry can probably elaborate on that.

DR. ALLISON: Thank you, Mr. Mayor.

Larry Allison for the record.

I can confirm with some confidence that we've appreciated the support of Bruce Power in assisting us with the update to our response plans. We are fairly new in terms of being designated as an alternate host community and Bruce Power committed shortly thereafter to work with us in that respect.

We do have a draft plan. It has been under review for some period of time. We have recently received comments from the provincial Fire Marshal's Office in that respect and it will be coming forward to Council in the very near term.

THE PRESIDENT: What does it mean in terms -- in one intervention, I think -- I don't remember which, it may have been CELA's intervention -- they were talking about health facilities, adequate health facilities throughout the whole region. Is that a concern?

And maybe I'll also ask Bruce to comment on it and maybe even the Office of the Fire Marshal.

Somebody mentioned that there's not enough capacity in case of an accident. Is that correct or not?

MR. SAUNDERS: Yeah, I don't mind starting. Frank Saunders for the record.

Yeah, I think not only here but I think in any community, if you assumed a large natural disaster, then the standing medical facilities are probably going to have a hard time dealing with it.

But these facilities in themselves have plans for how they deal with that, how they pass patients back to the secondary line. Owen Sound is the main region here and they can funnel down to London and other places. So hospitals and others recognize that in an incident where many people could be injured at the same time, there's a capability.

In Huron Challenge, we also demonstrated the ability to deploy the field hospital and get that up in quick working order and in place. And it was set up beside

the Southampton Hospital in this case and they demonstrated how quickly they can set that up and then support that hospital with more capability, including operating rooms and critical treatment capability. So it's pretty substantial.

But I was thinking Mr. Nodwell might be coming forward and there he is, I'm sure he can add more to it.

THE PRESIDENT: Yeah. I'm curious to know whether you actually designate various hospitals as centres where people are trained, know what to do, et cetera, et cetera.

MR. NODWELL: Thank you.

Dave Nodwell for the record.

I would have to defer to the Ministry of Health and Long-Term Care to some extent to address that specifically with respect to hospitals but they are a part of the planning process.

In terms of capacity, just to echo the previous comments, in exercise Huron Challenge the capacity was an issue in fact. So the mobile hospital was deployed. It was actually split into two locations. And this is a field hospital with 50 beds that is run or managed by the Ministry of Health and Long-Term Care. So they were able to deploy, set up in two different locations and provide

that extra capacity.

It is recognized that in the PNERP, in the planning that's done, that there would be a tremendous amount of stress put on the medical system to a large extent by what we call the worried well, so those that are fine but are concerned about having become exposed and are going to be tested and all of that kind of thing. So those plans are in place in order to accommodate that, but certainly, the capacity would be challenged.

MR. SAUNDERS: We also have an MOU with the hospitals in the local area and I'll ask Mr. Scongack here just to explain how that works.

MR. SCONGACK: Sure. James Scongack for the record.

This is actually a fairly recent development based on a lot of ongoing discussions over the last couple of years. As I mentioned previously, just last week we announced an MOU between two hospital corporations.

And I just want to talk about what I mean by that because for folks that are used to an urban setting, sometimes a hospital corporation is one hospital.

So, in rural Ontario, immediately around the site here we have two hospital corporations that cover the entire region. One is called the Grey Bruce Health

Services. That's about a half-dozen hospitals sort of to the northeast of the site. And then we have South Bruce Grey Regional Health Centre, which also covers a handful of hospitals in the remainder of the Bruce Grey region.

So to the point that Mr. Nodwell raised, one of the concerns that we always have is that in any event that individuals who may not be impacted decide to go to one of their local health care facilities.

So what this MOU was really about was -- I think there were three principal elements.

The first was -- and it ties in with the KI tablet distribution -- the training of first responders so that, you know, when we have cases of people who don't actually have a credible situation but are concerned that first responders have enough information, know where information is available, to be able to deal with potential patients.

And that education of first responders is really important because obviously there's a lot of people involved in the health care system, and in particular we like to talk about doctors but our nursing staff is absolutely critical because they tend to sometimes be the first line of defence or the first contact point when somebody comes into a hospital.

The second element is with respect to

transparency. I think one of the lessons learned that we had when we brought all of the agencies together to talk about communications was there were some members of the public who were very interested in this topic and wanted a lot of information as to what arrangements were available beyond a lot of these documents, the PNERP, these type of things available.

So one of the things that the MOU is going to do is establish a Steering Committee between Bruce Power and these hospital corporations, of course involving the appropriate agencies as well, and we'll report on an annual basis and provide that to the public on, you know, what items have we identified for enhancements and it provides us an opportunity to continue to reinforce what's available.

And then of course the third element is with respect to adequate infrastructure. Of course, healthcare infrastructure is a challenge in any community.

We've obviously focused our infrastructure investments in healthcare primarily to the Kincardine Hospital and the Emergency Room in Southampton, as Mr. Smith has alluded to. But we're also very active in supporting the fundraising and, frankly, securing funding from government for the hospitals in the area to make sure there's adequate infrastructure.

Outside of emergency planning, I'll tell you, one of the significant drivers behind this is this is actually a very important recruitment and retention issue for people we're trying to attract to work at Bruce Power.

A lot of professionals who are looking for a career in the nuclear industry, one of the challenges that people have with moving away from an urban centre is coming to a rural area and being concerned about, you know, access to quality healthcare.

So this isn't just an emergency preparedness issue for us. It's actually not only the right thing to do in the community but it's very important to securing employees and attracting people to the area so they know that when they or their loved ones need medical support that they have, number one, the availability of doctors, and that's why the physician recruitment program is available, and those doctors are working in as modern of an infrastructure as they possibly can.

THE PRESIDENT: Thank you.

Monsieur Tolgyesi.

MEMBER TOLGYESI: This is for Ontario Emergency. How do you evaluate needs for sheltering and needs to evacuate those not having physical capabilities or they don't have -- they need special accommodations or they don't have transportation?

MR. NODWELL: Thank you for that question. Dave Nodwell for the record.

The first part of the question had to do with sheltering, and sheltering is called for by the province where there's a projected dose rate that would be between 1 and 10 mSv. So it's not recommended -- or it is only recommended for the short term. It's not reasonable to ask people to shelter in place for more than 48 hours. So it would deal with a very temporary type of situation. It may be something that would be utilized if conditions for evacuation were considered too dangerous, i.e. road issues with respect to snowstorms and things of that sort.

So it is recognized as a protective action but one that has limited capability certainly in the long term.

MEMBER TOLGYESI: And the second part, you know, those who -- because you have persons with physical handicaps or special accommodations.

MR. NODWELL: Yes. With respect to evacuations, it is a responsibility in the PNERP for the municipalities to be able to accommodate the evacuation of those that have special needs, that don't have transportation and so forth. So I would have to defer to the municipality in terms of the specifics of how that is accomplished.

MEMBER TOLGYESI: Could you comment on that?

MAYOR SMITH: Thank you. It's Mike Smith, the Mayor, who's talking.

Our plan, and I don't have it exactly memorized but I know we would use the resources of our volunteer fire department and it's coordinated through also the county. So we have a Mutual Aid Agreement with all the surrounding communities that if we needed additional resources, whether it's from the county or municipalities north or south of us, that they would provide those for those types of things.

MEMBER TOLGYESI: You were talking about firefighters, voluntary fire services. What happens? Do you have an agreement with Bruce that if they need, you will supply your firefighters, and if you do that, how will you manage? Because in the case of a major accident, you will have probably an emergency at the site at Bruce but you will have to evacuate also. So how do you coordinate that?

MAYOR SMITH: If I understand the question, we do have agreements with Bruce through the Mutual Aid Agreement for fire apparatus that if it's called for, and I believe it's been -- I don't know if they can comment -- I know it's been used on a number of occasions,

but our emergency people would make that -- have contacts and would make that contact and have Bruce Power respond.

I hope I answered your question.

THE PRESIDENT: Bruce, do you want to add to that?

MR. SAUNDERS: Yes.

Certainly we have mutual aid agreements. We don't typically provide firefighters other than those of ours who are qualified and off-duty and that is because of the minimum complement requirements on site. So our firefighters can't leave the site, but we do provide equipment, quite frequently actually.

The most prominent one that we supplied is the air light truck which is the way you recharge the air bottles either for firefighters or any other emergency kind of situation. That's -- you know, otherwise they have to go back to the main station to fill the bottles. So this is the one that we get called on most often to support.

We sometimes provide -- you know, we can provide some support in the ambulance area. We are allowed to transport some people there, although it is not a critical care kind of ambulance so it has some limit to what it can do.

THE PRESIDENT: Okay. Thank you. Any final comments? Thank you.

MAYOR SMITH: Thank you very much for the opportunity, Dr. Binder.

THE PRESIDENT: Thank you for your intervention.

CMD 15-H2.121/15-H2.121A

Oral presentation by Power Workers' Union

THE PRESIDENT: I would like to move now to the next submission, which is an oral presentation by the Power Workers' Union as outlined in CMD 15-H2.121 and 2.121A.

--- Pause

THE PRESIDENT: I'm sorry, I think I was supposed to say something.

Mr. Walker, welcome, and I understand that you are going to make the presentation.

MR. WALKER: Yes.

Good afternoon, Mr. President and Members of the Commission. My name is Bob Walker and I am the Power Workers' Union Nuclear Vice President.

With me today is Mr. David Trumble, PWU Health and Safety Staff Officer, and Mr. Larry Alderdice. He is our Sector Board Member from the Bruce.

We also have all of our Chief Stewards

here today. If we have any questions we can't answer, we have Chief Stewards from every work group.

So today we are going to highlight the following topics which are detailed in our written submission. First, the Power Workers' Union, who we are. Next, our involvement in the regulatory process. Then, most important, health and safety and then we are going to talk a little bit about effective relationships, relationships we have fostered with Bruce Power and the Bruce Power license renewal application and then our conclusions.

The Power Workers' Union has represented the majority of the skilled workers in Ontario's electrical generation transmission and distribution system for almost 70 years now. We represent the workers that operate and maintain the Bruce Power generating stations, as well as all of Ontario's nuclear power plants and we have done so since their inception. The Power Workers' Union is affiliated with other labour organizations such as our parent union, CUPE National; the Ontario Federation of Labour; the Canadian Labour Congress and Industrial Global Union. And through Industrial Global Union we have the International Nuclear Workers Network. We are also members of Labour Councils across Ontario, including the Grey Bruce Labour Council.

Our knowledge, experience and history qualify us as a credible voice in the public nuclear discussions and specifically to these hearings. Our Union has a long history of involvement in the nuclear regulatory process and many other forms.

We have been involved with previous hearings in regards to nuclear new build, nuclear plant refurbishment, waste management facilities, power reactor operating license renewals, et cetera. Strong regulatory oversight and public scrutiny are good for us. They are good for our members. They are good for worker health and safety and they are good for public safety and they are good for the environment. So these hearings are good for us and we thank you for that.

Processes like this one are valuable tools in ensuring the best interest of the public are assessed and acted upon appropriately.

We do hear criticism. We continue to hear criticism that as workers in the nuclear industry that our motivation is out of self-interest not in the interest of public safety or the environment. Nothing could be further from the truth. We believe it is our responsibility and obligation to bring forward the views and experience of the people who perform the work day to day.

If there is a risk to the public or risk

to the environment, there is a risk to our members first, they are the ones that are working on site so any risks to the public or risks to the environment will hit our members first, so it is a paramount priority for us.

We live in the communities and we will not do anything to harm our families, ourselves or our communities. The views of the workers we suggest are very important in assuring the public that our nuclear facilities are the most highly regulated industrial facilities in Canada. The safety record is second to none.

There is an obvious convergence of safety interests between our members and the general public. The PWU believes that uncompromising approaches to worker health and safety sets the table for public and environmental safety. That's why we feel it is appropriate for us to be at these hearings. Over the years we have worked with Bruce Power to create mechanisms to address and improve workplace safety issues and our concerns. There are a number of legislative requirements for health and safety in the workplace, and we have gone beyond that. We have negotiated additional rights for health and safety in our collective agreements. Our written submission outlines the legal and negotiated forums that are currently in place.

This is a mature relationship and we are

continuously looking to improve our joint approaches to health and safety. When Bruce Power and the PWU work together with common purpose, we get results.

I think this is a good time for me to turn over to our Health and Safety Staff Officer, Mr. Trumble.

MR. TRUMBLE: Good morning. Dave Trumble, for the record.

Just before I do proceed, I know that Mr. Binder and the Commissioners asked for the petition that had been mentioned in the Canadian Nuclear Workers Council presentation. As a member union of the CNWC I would be very happy to present this to the Commission, as well as a copy of the press release for information.

THE PRESIDENT: Just for the record, I didn't ask. I just wanted to know, to whom was it sent?
--- Laughter / Rires

MR. TRUMBLE: Well, then it is very gracious of you to accept it then.

Just in the way of introduction, as I say, my name is Dave Trumble. I have 39 years in the electricity industry. 24 years of them were spent on the Bruce site. I have been associated with health and safety committees since 1982.

I came on staff with the Power Workers' Union in 2012 and while I was at the Bruce site my last two

ports of call were as Chief Steward for Control Maintenance and as a representative on two of the non-legislative committees that exceed the health and safety requirements, both the Joint Policy Committee and the Joint Working Committee. The PWU representatives participate fully on a number of local and corporate level committees that you can see listed on the slide. There are also a number of other health and safety related agreements.

Bruce Power's staff are encouraged to report even minor incidents so that we can learn from them. There are several ways for nuclear workers to address any concerns they may have regarding operational safety. By example, they would be direct communication with supervisors, daily pre-job meetings, filing station condition reports or SCRs, access to joint health and safety committee members, stewards and chief stewards. All workers have the right to refuse unsafe work and, through provincially certified training, all of our joint health safety committee members have the right to shut down unsafe work, which is identified in the legislation and actually gives the three conditions under dangerous circumstances where that can actually take place. We have very active joint health safety committees at Bruce Power and I thank them for that.

The PWU has negotiated agreements that has

all of our joint health safety committee representatives receiving the aforementioned joint health safety committee certification training.

In addition to that, the PWU has a health and safety training module for stewards and health and safety committee members and we have developed three levels of health and safety accreditation training program for all joint health safety community members and chief stewards which is above and beyond legislative requirements. We don't just negotiate wages and benefits, we negotiate the best safety standards.

Further to that, we invest our members' money in additional training just mentioned. We do share, and Bob had talked about our other affiliations -- we share all of this with our brothers and sisters nationally and internationally through the CNWC and through INWUN.

But before turning the microphone back to Bob, my role as a staff officer gives me somewhat of a unique perspective within Bruce Power. I interface at every level from worker to the executive office and in those interactions it is very easy for me to see why consistently Bruce Power receives satisfactory or fully satisfactory at the radiation safety and the conventional safety and radiation safety topics.

So on that I will turn it back over to

Bob.

MR. WALKER: Thanks, Dave.

I will now turn our presentation over to Larry Alderdice. Larry is a PWU Executive Board Member representing our members at Bruce Power. Larry will talk briefly about our recent negotiations with Bruce Power and our ongoing successful labour relations.

Larry...?

MR. ALDERDICE: Thanks, Bob.

Larry Alderdice, for the record.

Just briefly in the interest of time, I came to work at the Bruce in 1986 as a mechanical maintainer. Shortly into my career I became involved in union activities and for the last 21 years I have been an elected representative on this site for the power workers, currently as the senior ranking union official on the site, being the Executive Board Chair.

Over the life of Bruce Power we have entered into a number of discussions regarding refurbishments of units. When British Energy initially took over Bruce Power being the company in 2001, we had already entered into a Memorandum of Understanding about the restart of Units 3 and 4. So we as a company executed that. We then moved onto the refurbishment of Units 1 and 2.

Collectively we learned as those work evolutions proceeded and were completed. Most recently in collective negotiations in 2013 and 2014 we entered into a number of agreements with Bruce Power regarding an extensive plan to refurbish the rest of our units and we collectively are hoping that we are going to get some positive feedback on that very, very soon.

With that, those discussions, as you would understand and expect, can be difficult. But if you always go back to the end goal, if the end result is sort of a shared view, there may be some fall downs along the way about how you get there. But we think that our efforts, along with Bruce Power, which will sort of lead me to the next slide which is about relationships and it's about being open. It's about being -- talking openly.

As a senior representative of the union I have a complete open-door availability to anybody within the company, right up to the CEO level. The CEO and the Executive are very open with sharing information about the future of the business and we work at every opportunity very collaboratively to do the right thing for the site and for our communities.

With that I will cut my discussion short and turn it back to Bob. Thank you.

MR. WALKER: Thanks, Larry.

Just to close off, I will say the economic benefits for the region are great, there are thousands of highly skilled, good paying jobs that flow from the continued operation and maintenance of the Bruce generating stations.

Continued operations has also greatly minimized Ontario's reliance on greenhouse gas emitting fossil fuels to generate electricity. We in the Power Workers' Union base our support for the Bruce Power operating licence renewal on the history of good operations of the Bruce Power units and all of Ontario's nuclear power plants. They have operated safely since the very beginning.

This is an excellent technology and it has continuously improved without causing any significant detrimental effects to workers, the public or the environment. Safe, reliable, clean, affordable CO2 emission-free electricity.

In conclusion, the PWU is in full support of the Bruce Power operating license renewal. Just before we close, just on a very personal note I will say I have been in the nuclear industry myself for 25 years now. The question was asked earlier about how we compare to other industries. I was in the Navy. I worked in chemical plants and I have worked in mining and there is no

comparison. Nuclear generating stations are by far the safest place to work.

And my son works at Bruce Power. He has been there for a number of years now. Not only does he have a good job with good wages and benefits, but I feel very secure that he is working safely.

We would be happy to answer any questions. Thank you.

THE PRESIDENT: Thank you.

Dr. McEwan...?

MEMBER MCEWAN: So you have actually answered my question in your presentation about the ability to intervene. Thank you.

We have heard at length during this hearing about the alpha particle incident. Does the union have any views on how that was handled? Do you have any concerns or thoughts on lessons learned?

MR. WALKER: Yes. Our Health and Safety Staff Officer, Dave Trumble, is intimately involved in that, so I will turn that over to him.

Thank you.

MR. TRUMBLE: Yes, Dave Trumble for the record.

First of all I want to applaud Bruce Power. They actually reached out to all the unions,

whether it was just the Power Workers' or the Society of Energy Professionals or any of the affected building trades unions. In fact, myself, I was in the Chief Steward's role for control maintenance at that time. Myself and another Chief Steward were immediately invited onto the extent of condition team to give us a direct line of sight to every single activity that's going on. I know that we were given constant updates on where they were dosimetry, who was doing the dosimetry, who was doing the testing, what the results were and very, very quickly we were thankfully able to recognize that the exposure to the workers was not going to be a significant health or adverse health effect, but the information that was provided was excellent.

We were also involved with Radiation Safety Institutes, we were able to receive copies of their report, and in the end I still know that to this day, because I happen to be in the same boat that Bob is. I have two children both working at Bruce, Bruce Power in Radiation Safety, and they both speak extremely highly of all the components of the radiation safety program.

But I can actually tell you that one of them has just been recently through the process of being evaluated for alpha uptake, so it is still ongoing today.

THE PRESIDENT: Thank you.

Ms Velshi...?

MEMBER VELSHI: The PWU, as part owner of Bruce Power, I wondered if you could comment, does that have an impact on your ability to negotiate higher safety standards compared to some other plants or employees that you represent?

MR. WALKER: It's Bob Walker, for the record.

I will ask Larry about it, but I will say that I have been doing this for a long time and we have always been very successful with Ontario Hydro and then OPG and Bruce Power in negotiating good safety standards and I have not seen a change. I will ask Larry if he has seen any specific changes.

MR. ALDERDICE: Larry Alderdice, for the record.

The answer is no. Although we might have an equity interest in the facility in the site, we are elected by our members to represent their best interests and that is always our first and foremost priority. So the answer is no, we are elected people first.

THE PRESIDENT: Mr. Tolgyesi...?

MEMBER TOLGYESI: You were saying you are a senior union representative on the site. Are you doing that on a full-time basis or part-time and part time have your trade or whatever?

MR. ALDERDICE: Larry Alderdice, for the record.

I do it on a full-time basis, 40 hours a week. Many weeks it's not enough. So I do it on a full-time basis, yes.

MEMBER TOLGYESI: Are you the only one or are there some other union representatives; for instance, health, joint health committee representatives or other ones who are doing that?

MR. ALDERDICE: Larry Alderdice, for the record.

The structure of our union on the site is I am actually a mechanical maintenance Chief Steward. I represent over 300 of the mechanical maintainers and maintenance assessors in mechanical maintenance on the site. Along with me and some of the individuals who are joining us here in this hearing today are other Chief Stewards who are elected by their collective members.

So there are eight Chief stewards like me and then the way our union is structured is those eight Chief Stewards then elect somebody from those eight individuals to sit as an executive board member on the union and to be the Sector Board Chair. And I am proud to say that the Chiefs, my counterparts on the site have had faith in me over a number of terms to re-elect me to the

Sector Board Chair role.

THE PRESIDENT: Anybody else?

MR. TRUMBLE: If you don't mind, I will just add something.

You also asked about the time for joint health safety committee members. At this time there are no joint health safety committee members on full time release, but the legislation and the employer both insure that adequate time is provided for the health and safety committee members to carry out their legislative requirements and any of the requirements through agreements between the Power Workers and the employer.

THE PRESIDENT: Anything else? Any other questions? I just have on your page 8 of your submission, the last sentence:

"We are looking for an opportunity to increase the involvement of PWU...the Joint Health and Safety Committee Members."

I am surprised to see this because I thought you are in there all the time. What improvement are you looking for?

MR. WALKER: Bob Walker, for the record.

That's a great question. We have had discussions as recently as I believe the beginning of this

week and I was involved last week, just we are always looking for improvements, especially improvements when it comes to the joint approaches to health and safety investigations, et cetera.

Dave Trumble has been involved in those discussions so I will turn it over to Dave and/or Larry.

MR. TRUMBLE: Yes. Dave Trumble, for the record.

As recently as actually March 23rd I met with the CNL on a very, very fruitful conversation about trying to put a ring -- get it so that we can actually formally devise what the involvement of worker representatives for accident and incident investigations relative to health and safety would look like.

There are procedures in place right now. Those procedures don't necessarily define what it looks like and we are going to try and make it a little bit more seamless and easy for everybody to recognize exactly where that involvement starts and ends.

THE PRESIDENT: Okay. And I guess management is open to such suggestions?

MR. TRUMBLE: Yes. Dave Trumble, for the record.

Like I said, as early as -- or as late as March 23, a couple of weeks ago, direct face-to-face

conversations. And Len and I actually supplied him with some OPEX from other employers where there are processes that are maybe perhaps a little more mature, but he and I are continuing to have fruitful conversations in that regard so we will be picking up that conversation once these hearings are behind us.

THE PRESIDENT: Okay, thank you.

Any final comment?

MR. WALKER: Bob Walker, for the record.

No, no final comments. We have said it already. We are in full support and heading in we do think the opportunity to have these hearings is very good for us. It gives us the opportunity to go back and talk about health and safety all the time. So thank you very much.

THE PRESIDENT: Thank you.

CMD 15-H2.132

Oral presentation by

Canadian Coalition for Nuclear Responsibility

THE PRESIDENT: The next submission is an oral presentation by the Canadian Coalition for Nuclear Responsibility as outlined in CMD 15-H2.132 and I understand that Dr. Edwards is coming to us via teleconference.

Dr. Edwards, can you hear us?

DR. EDWARDS: Hello, Dr. Binder. Can you hear me?

THE PRESIDENT: I can. Please proceed.

DR. EDWARDS: Thank you very much.

Thank you Commissioners for this opportunity to present. I'm sorry that I can't be there in person. I am at a conference in Quebec City, but I have followed many of the presentations and I found them very interesting. I would like to congratulate the Commission for asking some very excellent questions.

I have to say that I am very concerned about the quality of the answers that are given from CNSC staff, as well as from the proponent. I don't believe that the Commissioners are getting good answers to a lot of their questions and this is a matter of great concern to me.

In particular, with regard to -- I know there has already been a considerable discussion of the alpha contamination incident involving some 500 workers, I would like to issue to the Commission a challenge and an opportunity. The challenge is this, to -- I think that the Commissioners really owe it to themselves and to the public and to the responsibilities that they bear to the public and to the workers, to obtain a copy of the root cause

report that was not originally given or made accessible to the CNSC staff.

I am not talking here about an Executive Summary or excerpts from the report. I am talking about the entire root cause report. I think that the Commissioners owe it to themselves to read this report and ask themselves, does this report indicate that they have been getting the true story from the Staff and from the proponent, or even from the union representative?

I don't believe that you have been giving the correct answer. I do believe that the Root Cause Report will demonstrate that operating experience available to the Bruce Power people at that time clearly indicated the presence of plutonium and americium in these pipes.

Moreover, on December 9 of that year there was in fact an alarm that went off, an alpha detection alarm, and the workers in fact refused to work. They had a work refusal on that date, December 9. And this was due to a CM-11 alpha detector that was in the possession of the radiation protection staff.

And Maureen McQueen, who was at that point in charge of the radiation safety, assured the workers that there was no problem and that they should resume work, and she dispelled their concerns.

So I was very interested to hear from the

representative union that the workers do have a right to refuse work when the conditions indicate that it may not be safe.

In this particular case I think the commissioners should determine whether in fact Bruce Power has been subverting the right of the workers to refuse to work in unsafe conditions and, in fact, condoning that people should continue to work in unsafe conditions.

This is over and above the question as to what the significant health impacts might be for the exposures. It is a question of whether the commissioners are getting good information. So I would put that out there.

I would also like to mention that I don't believe that this is merely a past incident, because we are going to have more refurbishments being planned. And if in fact corners are being cut or dangerous working conditions are being tolerated, this should be of great concern to the Commission, I am sure it is.

Well, there is another concern that I have, and that is the question of re-suspension of this alpha dust. In November of 2010, just about a year after the original accident, there was an alpha alarm that went off in Unit 1.

And the person who was in charge of

radiation safety on that day put it down to probably radon gas, daughter products of radon gas, which of course can happen sometimes; you can get an alpha alarm for that reason.

However, the spectrometer analysis of the dust indicated that there was in fact plutonium and americium in this dust. The alpha alarm had not been triggered just by radon daughters, but by the same plutonium and americium that had been released back a year earlier.

So the problem is that this dust is still around and activities are stirring up this dust. And so you are still having a problem of possible exposure of workers. This is something I think is very important for the Commission to look into and to determine if this is an ongoing concern.

I believe it is, because experience at Rocky Flats in the United States, they had a very terrible fire down there a long time ago, but it was the most expensive industrial fire in U.S. history. And a lot of the particles that were created by the fire, very very fine particles, aerosol particles, the problem of resuspension was clearly identified as an ongoing problem for a very long time after the accident. So I think it is an important consideration.

The CCNR is really concerned about this question of honest answers to questions of importance. And if the commissioners read this Root Cause Report and determine that they have not been given frank answers or perfectly correct answers, that they have perhaps been somewhat misled, then I think that they should seriously limit the licensing of this plant until the safety culture issues are addressed.

If indeed what I am saying is correct, that you haven't been getting the right answers on this point, then perhaps you haven't been getting the right answers on other points as well. And I think that that points to some very serious safety culture concerns.

Now, I would like to turn to another area where I do think that the same concern of the CCNR does apply, and that is this question of early release.

Dr. Binder has many times at several hearings that I have attended, he has asked a very important question. And I heard him say this several times, and I think it is the right question and a very important question, and that is let's forget about probability and all that stuff, interesting though it is and relevant though it may be, and just ask the question how does the radiation get out there? How do you have an early release? Tell me how it happens. You know, what is

the scenario that gives rise to an early release?

And never has he received a correct answer to this, never has he received a frank and accurate answer. In fact, in these hearings he was told that, well, if a meteor came from outer space and crashed into the plant, then you might have an early release.

I am surprised that none of the commissioners made any comment about the tone of this remark. It is so dismissive and so it is like what a crazy question. And, yet, it is not a crazy question at all. As a matter of fact, why don't Staff simply tell Dr. Binder and the commissioners how early releases happen?

Because, in fact, my belief is that when you talk about a severe accident you are always talking about severe core damage. You can't have a severe accident without having severe core damage.

Now, severe core damage means that you have a loss of coolant surrounding the fuel. And as soon as that happens you have a .1 to 1 per cent per minute release of cesium-137 from the fuel. These are published figures. From .1 per cent to 1 per cent per minute, which means that certainly within the first 6 to 8 hours you have an awful lot of the cesium which has already been released from the fuel.

And, as a matter of fact, within 3 to 6

hours with the primary coolant gone, you are going to have a situation where the moderator is heating up and that means that that the rupture disc at the top of the calandria is going to burst, because that is what it is designed to do, because at this point you are talking about fuel which is around 1,600°C, that is the only way that kind of damage can occur.

And so the rupture disc ruptures, and that means that that cesium has a clear pathway right into the common containment of all four reactors at Bruce and into the vacuum building.

Let's just say what .1 per cent means, .1 per cent per minute. Then inventory of cesium-137 in one core is approximately 100,000 TBq. When we talk about 10^{14} , that is 10 TBq. So we are talking here about 100,000 TBq, the inventory. If you take .1 per cent of that, that means you have 100 TBq coming out every minute, 100 TBq per minute. And if it is 1 per cent, then it is 1,000 TBq per minute.

So you have an enormous amount of cesium-137 coming out of there and it is going into the containment. Now that means including, of course, the vacuum building. The vacuum is gone, by the way, after 6 hours. After 6 hours there is no vacuum anymore because the pressure has equalized.

And the vacuum building is actually very leaky. The vacuum building has a leakage rate of about 2 per cent per hour. Two percent per hour means that in 24 hours you have a leakage of 48 per cent, and that is compared with in U.S. reactors, for example, and other world-class reactors, the leakage rate is considered to be about 0.1 per cent per day. But you have a vacuum building that leaks at 2 per cent per hour.

So in fact, in fact, I believe that early releases are the rule, not the exception. And that you can't help but have early releases in the first 24 hours.

So I don't understand why the Staff, which is supposed to be dedicated to public safety, would not be frank in explaining to Dr. Binder, who has repeatedly asked, how does the stuff get out there?

And so that is basically what I am most concerned about. And there is one other thing I should mention, and that is that by not giving frank answers to these difficult troubling scenarios, you lose the opportunity of taking corrective action.

What is the point of spending billions of dollars refurbishing these reactors when you haven't yet analyzed how you can make things much better, how you can make things much safer?

For example, is there a way, a

cost-effective way, of cutting the release rates, the leakage rate from the vacuum building way down, making it much much more leak tight? How can you possibly perhaps replace the rupture disc on the calandria with something that is more sturdy, that is able to resist the pressure build-up inside the calandria as a result of the high temperature?

There are various relatively inexpensive measures that can be taken, but you are not even going to do that if you don't analyze the problems in the first place. So this is our major concern.

We feel that the Commission should give the plant a very short licence, 6 months, maybe a year at the very most, and really insist upon a hard-nosed look at these really worst-case scenarios and stop pretending that these early releases are so anomalous.

As a matter of fact, the containment at Bruce is very leaky --

THE PRESIDENT: Are you going to allow us --

MR. EDWARDS: It's a very leaky -- go ahead.

THE PRESIDENT: Are you going to allow us to ask some questions?

DR. EDWARDS: Oh, absolutely. I'm sorry,

Mr. Binder. I hadn't realized I'd exceeded my time.

Let me stop right there. Thank you very much. I appreciate your patience.

THE PRESIDENT: Okay. Thank you.

We would like to engage now, and who wants to start with a question?

Dr. Barriault.

MEMBER BARRIAULT: Thank you, Mr. Chairman.

I guess I'm interested in your last statements that you want to remove the safety discs and put stronger ones on so they don't pop as fast, is that correct, on the calandria?

DR. EDWARDS: Well, I'm not an engineer. All I know is the rupture disc has no resistance to pressure at all to speak of. Maybe they're -- I'm not an engineer, but I think an engineer who's confronted with a problem can probably come up with a better solution, a better way of looking at it, a better way of handling the pressure.

MEMBER BARRIAULT: Could I ask Bruce to respond to that, and then CNSC?

MR. LAFRENIÈRE: Ken Lafrenière, for the record. I'll get in before Bruce.

We don't want to get into design

principles of the calandria, but the rupture discs are specifically designed to allow the calandria to vent itself and maintain its integrity.

DR. EDWARDS: But that also allows the cesium 137 to get all inside the containment. So it's out of the core.

MR. SAUNDERS: Yeah, so I think -- I mean the thing to understand about plant designs is they're designed to be integrated and work together. We do have a different kind of containment system than the U.S. Our system depends on an emergency filtered air discharge system to maintain the vacuum in the vacuum building so it will in fact stay depressurized. The U.S. system does not have that filtered air discharge system.

You can argue about which one is a better system -- I have my opinions -- but they're designed to operate in concert. The protection systems in the building, and then the reactor systems, are designed to prevent you from severe accidents.

I mean it's healthy to talk about what-ifs and severe accidents, but the whole intent, the whole regulatory requirement, the design requirements for reactors, are to have systems in place that make a serious event extremely unlikely.

While it's interesting to take that event

out of context and just talk about like it's going to happen every day, that's not actually the case. Our analysis shows that you're out into 100 million years, in that ballpark for those kinds of events.

You know, so you can pick out individual things and argue about them, but if you don't look at the design as a whole -- that design was designed by smart people. It's been reviewed by smart people. The accident sequences have been analyzed by lots of people. CNSC staff have been part of all of that.

So while I appreciate the comments, I think unless you're going to look at the whole system, it's inappropriate to kind of pick little bits out here and there.

MEMBER BARRIAULT: Thank you.

Did you want to add to that?

MR. EDWARDS: Well, this is what I think should be done. I think the whole system should be looked at. I think that things that can really lead to major releases within 24 hours -- and there are many scenarios that would do that -- should be dealt with.

I simply cannot believe that staff honestly believes that you can't have major releases within 24 hours. In fact your own probability figures show that the major probability associated with large releases is in

the early releases, so how can you deny that?

THE PRESIDENT: Dr. McDill?

MEMBER MCDILL: Thank you.

Dr. Edwards, thank you for your contribution.

I'll touch base with a couple of specific questions in a moment, but I'd like to make a comment first.

MR. EDWARDS: Sure.

MEMBER MCDILL: I think it's fair to say that within the intervenor community your opinions and expertise are valued. When you make very strongly worded statements, it's taken on board, if you like, in a different way because of the respect that you hold within your community, which is also my community. It's the public. It's people.

MR. EDWARDS: Right.

MEMBER MCDILL: I was very troubled when I read your submission. You used words like "shocking," "refuse to provide," "akin to Chernobyl," "seriously degraded" --

MR. EDWARDS: M'hmm.

MEMBER MCDILL: -- and so I started to look for, as you do when you read, for example, scientific research, some kind of references to get a hold of this.

MR. EDWARDS: Right.

MEMBER MCDILL: When you said, for example, "Even more shocking is the failure of the CNSC to thoroughly investigate the incident," next line, "Bruce Power refused to provide," there was no way for me, as a commissioner, to even know the date you were talking about, and we know now that it was provided.

My first question is: are there any -- now that the first days have gone by, are there any words in this that you feel might...

--- Off microphone / Sans microphone

MR. EDWARDS: You had better watch what you're asking.

MEMBER MCDILL: My Commission colleagues down the table have suggested "inflammatory."

Are there any words here that you feel may be a bit overstated?

MR. EDWARDS: Well, I don't think so.

I'll tell you, I'm 74 years old and I don't think I'm going to live all that much longer, and here we have a situation where these reactors, which were built in -- which were designed in the 1960s, and not designed with the severe accidents in mind really, are going to be refurbished and running for another God knows how long. I think if there's ever a time to sort of sound

the alarm bell, now's the time.

If it seems to be unnecessarily alarming, well, that's better than having a severe accident and really having a horrible situation such as Fukushima and Chernobyl.

Sometimes you look back at these accidents that have happened and you wonder why people didn't ring the alarm bell, why people didn't get a little bit -- use inflammatory language just to call attention to a potentially very serious problem.

I acknowledge that the language is somewhat inflammatory and I acknowledge that it has to do with frustration, but this frustration, I assure you, is really based on a genuine concern on my part, and on the part of the CCNR, that these safety problems -- I regret to say this, but I think that the staff and the proponent are really covering up things. They really are covering up things, and things that just cannot be covered up.

When I hear -- you talk about my language. When I hear an answer to a serious question from the president of the CNSC about early releases answered by, "Well, if a meteor came from outer space," I say, "Holy Mackerel." Is that not inflammatory? I just think that this is not-- this is just infuriating --

MEMBER MCDILL: Okay, let's --

MR. EDWARDS: -- to get those kind of answers to a serious question.

MEMBER MCDILL: Then let's try and engage in some discussion with --

MR. EDWARDS: Sure.

MEMBER MCDILL: -- with the staff, and with Bruce, of course.

MR. EDWARDS: But I do hope, I do hope that the Commission will really take a look at the Root Cause Report and use that as a litmus test. Look at that Root Cause Report and ask yourself: does this justify a little --

MEMBER MCDILL: I will ask for it.

MR. EDWARDS: Thank you very much.

MEMBER MCDILL: I will ask for it, and I think all of my colleagues -- okay, we just had a nod up and down the table. We will ask for it and --

MR. EDWARDS: Good.

MEMBER MCDILL: -- and we will read it.

MR. EDWARDS: Thank you.

MEMBER MCDILL: Although yesterday I did ask if the summary reflected all of the conditions, and was assured it was, so...but I will read it.

Let me ask --

MR. EDWARDS: Thank you.

MEMBER McDILL: -- staff roughly how many person-hours, -months, have been devoted, for example, to the investigation of the alpha incident and the interpretation and examination of the root cause analysis? Roughly.

MR. HOWDEN: Barclay Howden.

I'll give you some framing in terms of efforts that are put against the plant on a yearly basis.

Last year we spent 108 person-years of effort on the Bruce plant and we have 115 person-years of effort planned for this year, and a year runs from April to the end of March. It gives you the idea of the effort that we put in.

In terms of the effort that was put on that, Mr. Jammal is in a position to give a little bit of an estimate. But I just want to frame how much effort is put in on a yearly basis on this plant.

DR. THOMPSON: Patsy Thompson, for the record.

We're going to play tag team to provide a complete picture.

The staff in my directorate, the staff in the Radiation Protection Division and the Radiation and Health Sciences Division, were both involved extensively in the review of the incident. As we mentioned in the

previous days, when the event happened there were a lot of questions about dosimetry. There was no licensed dosimetry services that Bruce Power had to deal with this issue, and so we did a lot of work essentially identifying methods that would be acceptable, reviewing the labs that Bruce Power had identified to make sure that there was appropriate quality control, quality assurance, and reviewed all the dosimetry models to make sure that the data was appropriate.

From the Radiation Protection Division point of view, the initial work was to look at the radiation protection program at Bruce. We reviewed programs that have been put in place internationally. We developed 17 program elements that we then, through a 12(2) request, requested Bruce Power and other licensees to put in place.

Essentially, those efforts took a lot of staff time. There were a lot of person-days involved in this work. It continued over many months throughout the event, as well as a number of inspections, a number of meetings on site. As Ms Fabian discussed a couple of nights ago, there were monthly meetings with Bruce Power as well to keep track of the recommendations that were focused on radiation protection.

We also have two research projects that

have been done related to this event. We have learned lessons and we will be making sure that moving forward all the parameters that need to be dealt with are dealt with.

I think Mr. Jammal wants to wrap up.

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

We have the slide to present to the Commission with respect to the total efforts spent for the year. I have to put it up on the screen so Dr. Edwards can see it.

In addition to what Dr. Thompson mentioned, the key element here is our staff were on site immediately. Just to give you a little bit more of reactive and actions taken, we got -- two inspectors immediately did the inspection -- not the inspection, as a matter of fact responded to the event itself.

So if you look at the efforts that's been put forth with respect to the total days of effort per year, so you can see the progression post -- this one encompasses all elements but, as you can see, increased in the values, 2527 in 2011 versus 2013 2920 and that encompasses the restart of the units and the investigation.

So if you want me to convert it to full-time equivalent, approximately between seven and 10 FTEs equivalent were spent into the investigation of this

element.

And as the Commission Members are fully aware of it, just in hearings alone, secretariat staff, the whole Commission staff, in addition to the investigation staff, is quite significant.

In addition to the root cause -- Dr. Edwards talks about root cause or hiding issues. The Radiation Safety Institute that was engaged by Bruce Power as an independent third party to review the accident itself, and they conducted what I call probably, quote-unquote, an "investigation". That also was reviewed by staff.

So collectively, it's completely unfair to kind of wash off the effort of staff that was put into it and the investigation from dosimetry services, the use of the labs internationally, international OPEX. So that's where we leave that.

THE PRESIDENT: I think -- I really think there's more useful stuff we should talk about. We discussed this at length many, many times. I really believe that we should move to a little bit more information.

Dr. Edwards raised the one thing which I've not heard discussed, is the alpha alarm, and the dust which is still around. And maybe we can talk about that

rather than revisit history.

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

As part of the CMD, talk about historical stuff, the alpha alarm was discussed at the CMD hearing, the whole process from the beginning till the end. So if Dr. Edwards intends to --

THE PRESIDENT: No, he mentioned that the dust still exists, and maybe --

MR. JAMMAL: We will talk about this, and I will pass it on. But that was discussed during this.

I'm going to set the record straight, sir, here. All due respect, the fact that if Dr. Edwards is raising one element, that was discussed, because the reason he knows about it, it was discussed publicly.

THE PRESIDENT: Bruce?

MR. HAWTHORNE: So for the record, Duncan Hawthorne.

You know, there are a lot of things that have been said here for the benefit of the record, so I think it's important that we also get the opportunity to speak about these things.

Firstly, I've been accused of a lot of things in my career, but lacking frankness isn't one of them. I've been in front of this Commission. I've talked

to this alpha event many times, and I've told you before what I'll tell you again now.

This alpha event, when it occurred, undermined the confidence of 500 plus people who were not permanent employees on our site. They are building trade workers that came on our site.

My specific view was that it was our entire obligation to reassure those people about their health and well-being. Nothing was more important to me than doing that.

And so immediately, we set in place arrangements to ensure that every single person that had been in the vaults, regardless of how long they had been in there, was directly communicated.

I called in all of the elected representatives. I spoke to them at great length. And I told them that I would not rest until every single person felt reassured by the work that we had done.

I can tell you, I had many personal requests from people. This is about people. It's not about numbers. It's about people.

And I can tell you that I had emails from a young man looking to start a family. He got home and his wife said, "What does that mean for us?" It was a reasonable question. I've been working in a nuclear

environment. I may have picked up some dose. Is that going to be a problem for us starting a family?

These are personal questions, and really important ones. And it's very difficult to do anything other -- in a full, comprehensive, frank, open and very complete examination to reassure people.

We did that by having daily meetings with every elected representative, by having individual communications with all of the people involved.

You can imagine if you're a young man working on a nuclear site and, suddenly, you come home and someone gives you a box and tells you that you have to provide fecal samples for a month, then that's a very major change and a very major impact on your life.

And we wanted to make sure that not just the individual, but his family member, was fully aware of that impact. And I believe, and I said to this Commission then, we were surprised by this finding, but we will not ever be surprised again.

Whatever we build here, we will build an alpha monitoring program that will reside on this site forever. It resulted in changes to the entire alpha monitoring program for all nuclear plants.

We also understood that the presence of alpha would rather than be a surprise to us, was an

expectation from us, and so all of our fuel handling programs, all of our work activities from that day forth would assume the presence of alpha.

We would install alpha monitoring equipment. We would do this and never again would we -- would we assume that perhaps alpha wasn't present.

And so it's true that we do have very different programs now. CNSC staff have monitored them. They've seen those.

I think we have been commended in front of this Commission for the changes we've made. I think we've got industry leading systems in place but, more important for me, all 547 people know exactly where they stand with relation to this event. And that was my ultimate obligation to those people.

So I take extreme exception to someone who I've taken exception to before suggesting for one moment that we have not been frank, open and transparent with this Commission, with the CNSC staff but, for me, all of the people who are impacted by this, I take extreme exception to that.

THE PRESIDENT: Thank you.

Dr. McDill, I interrupted you.

MEMBER MCDILL: Thank you.

I was interested to see how many -- see

again how many person years there are dedicated to such things, and I think it's something the public doesn't really grasp, is 150 person years. It's a lot of years being devoted to it, and I'm assuming there's an equal amount on the other side.

My second question, and then I'll pass it on to my colleagues, is, I think, something that has to be -- particularly with your comment on emissions and early releases and so on.

You say on page 4, Mr. Edwards, the Bruce reactors have no pressure containment around the core, so the atmospheric releases of radioactivity, et cetera, it would be more akin to Chernobyl.

And I think that has to be addressed for the public, the accuracy of that statement because it is a little over-stated.

DR. EDWARDS: It's a leaky containment. That's the problem.

MEMBER McDILL: Bruce has got the light on first, so I'll let --

MR. SAUNDERS: Yeah. Well, Frank Saunders, for the record.

I can say I've personally stood on the top of an RBMK core when they were operating and I could look out the window and see the outside, and I assure you, you

can't do that on our cores.

So we have a full containment around the core, and that containment has a common vacuum building. Those things are maintained negative through a filtered ventilation system. It's a particular design that's related to the CANDU system, but a very effective and, in my view, a much better design than the pressure reactors because if they reach a certain pressure, there's nothing you can do, right.

So while they're not the same as the U.S. reactors, in my view, they're actually better. But it is not an open reactor. It has a containment, and it is perfectly capable of containing the material.

MEMBER McDILL: Staff.

DR. EDWARDS: So how do you get your early releases?

MR. FRAPPIER: Gerry Frappier, for the record.

If I could just perhaps talk a little bit about our view on this leak rate.

So as was noted, the safety limit of two percent per hour is there. Now, that's for test purposes. So we go through tests.

The actual criteria for the leak rate test to pass is one percent an hour. Actual tests are coming in

at 0.16 percent.

I don't want to throw a whole bunch of numbers out there because, actually, that's not the most important part. The most important part is you have to know how's that containment going to actually work in a severe accident, and that's where, as Mr. Saunders was trying to say, you have this filtered venting capability.

What that's going to do is that's going to keep the pressure low, probably vacuum. But the delta P, if you like, the difference in pressure, between inside the containment and outside is going to be very, very small, which is going to reduce that leak rate even more.

But from a safety criteria for overall testing, we have these numbers.

The system is very different than what we have in PWR, so any comparison between the two is probably less than appropriate, and not helpful in understanding how the system works.

We'd certainly be happy to come back and with a maybe more coordinated presentation on how all that works if that would be of use to the Commission.

The other thing is we were talking about scenarios, and I agree that calling on asteroid hell is -- sounds outrageous, but that's what you're getting to with respect to probabilities. So we can go through a long

sequence of all the things that have to fail, and the PSA has done that. We do that in our Level 2 PSA, and all of those.

But it's not a simple scenario. It's not something that's going to lend itself to a 10-second answer.

There is a lot of, lot of things that have to fail. And we don't think that that is within the realm of probability or within the realm of an accident that is -- should drive our decisions on licensing.

And the last thing I just want to mention because we talked about rupture disks, so -- so again, this is, once again, a very, very severe situation that are not likely.

You do want to have a controlled failure of your pressure boundary. That's sort of one of those rule number ones in pressure boundary. And that's what the rupture disk is designed to do in the calandria.

We can talk a lot about what happens after that, but to get to that state, there's a lot of things that have to have failed before you're going to increase the pressure to the point of concern. But if that pressure were to increase to the point of concern, you want to have a controlled release of that pressure, and that's what the rupture disks are there for.

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

Mr. President, so for the record so we're not being accused of not giving you a response here -- you asked the question about suspension of the alpha.

For the enhancement, I will pass it on to Dr. Patsy Thompson after my introduction here.

After the enhancement to the radiation protection program and the enhancement that took place, if there is, any suspension or residual alpha would be detected by the alarms and the enhancement to the detectors that currently exist on site.

But I'll pass on to Dr. Patsy Thompson to give you specific answer.

DR. THOMPSON: So perhaps two points to make.

The statement by Mr. Edwards was -- Dr. Edwards was that there's still a lot of dust in the air, and so the dust were sort of particles in aerosols.

And very, very shortly after the event, one of the quick enhancements that Bruce Power did was to enhance the alpha in air monitoring, and so if there were any particles left they would have been monitored and picked up. And so there was a very quick response to the event.

Secondly, following that with the new enhancements in place, the program is designed moving forward, if there are systems that are open where particles would be released, the monitoring and the radiation protection program that is in place would detect and actions would be taken appropriately.

The program that has been -- the enhancements we identified essentially best practices from our work with the ISOE and the ALARA international programs. The program is robust and is best in class, essentially.

THE PRESIDENT: Okay. Thank you.

Question? Anybody has any question?

Since -- I think you gave me a complement if I ask the right question, I want to make sure that I understand what you mean by all of this because I thought I got an answer, I got a straight answer when I asked, no operator intervention, complete blackout, how long will an accident progress until, if you don't do anything, you'll have a release?

And I thought that you actually said it's going to be between three to six hours, Dr. Edwards; staff said four hours or Bruce said four hours.

So I think all our post-Fukushima lesson was that you build the mitigation, you probably have about

four hours to start mitigating an accident. I thought that's the answer I got and that's the answer I looked for.

Did I understand correctly, or you still have a concern, Dr. Edwards?

DR. EDWARDS: Well, I hadn't heard that, Dr. Binder, and I'm glad to hear that if that was the answer you got, then I think that's a reasonable one.

I think that it's helpful to know how the radiation actually gets out. It gets out through that ruptured disc into the containment, and then, if there's anything leaky or faulty with the containment, then it gets out into the atmosphere, and that's the problem.

If you understand the pathway of the radioactivity, then it's helpful to understand how it might happen.

But I would just like to point out here that in international practice, in reactor safety studies around the world, they generally do their analysis without taking any credit for operator action for the first 24 hours just to see what the worst case scenario is, so it's standard practice not to take credit for operator action for the first 24 hours to see what happens.

And the point about this is that if you do that kind of analysis and be quite open and frank about it, then you might be able to identify weak spots that,

granted, you don't expect to be in that situation, it's -- obviously the probability is extremely low, but if you are in that situation and you can take precautions ahead of time, why not?

THE PRESIDENT: So did anybody do the simulation of no credit for anything, no operator there for 24 hours what would happen?

MR. JAMMAL: Ramzi Jammal, for the record. Just globally and, as a matter of fact, we never credit the human intervention, so it's always been zero.

To answer the question, just for the record, for precision for Dr. Edwards, Bruce Power said four to six hours and I added on that the units at Point Lepreau, depending on the design, it's eight to 10 hours with respect to no intervention whatsoever.

With respect to the human intervention, yes, it's been modelled and you have to take into consideration the inventory that is available that exists.

I'll pass it on to Dr. Patsy Thompson if she wants to add anything else, but the key point here, we never do credit human intervention on site from an operator perspective.

DR. THOMPSON: Patsy Thompson, for the record.

The only thing I would add is the study that we presented to the Commission in March, the study of severe -- hypothetical severe accident. The consequences were based essentially on an accident that developed, use the source term, based on an accident happening with no human intervention. And so we have assessed the consequences of such an accident.

THE PRESIDENT: Okay. Good.

Mr. Edwards, you have the final word, please. Sorry, Bruce wants to --

DR. EDWARDS: I have great difficulty with the source term. Given the fact that you get more than a hundred terabecquerels of cesium-137 coming out from the fuel as soon as you have onset of severe core damage, I can't understand how you can assume that the only thing that gets out to the environment is a hundred terabecquerels, that seems ridiculous to me.

At any rate, there's one other thing I'd just like to mention in passing and I think it's important and that is, I don't really believe that the challenge has been fully accepted by the industry. You're trying to take a 1960 design reactor and put it up to modern standards, of course, you can't really do it as clearly, but you want to get as close as possible, and so you have to really look at this design and say, if we were designing it today what

would we have done that would have been perhaps radically different?

And that kind of degree -- I have the distinct feeling that that kind of degree of investigation is not being carried out.

For example, if you look at Dr. Sunil Nijhawan's submission, he listed 50 concerns, 50 important safety concerns that should be like a checklist before any long-term licence is granted and he was only able to discuss two of those during his presentation.

There's 48 more and I think that those 48 -- that checklist should be gone through and say, have we really reconsidered this, have we really reconsidered that?

And I believe that the Commission has an important role to play here in seeing to it that that kind of checklist is carried through.

And I wish to apologize if I've offended anybody, I didn't want to offend anybody, but I do feel genuine concern over the long-term implications. I mean, we all admit that were there to be such a serious accident, it would be so terrible.

So you can't afford to be complacent about it. That's all.

THE PRESIDENT: Okay. Thank you. Thank

you very much for the intervention.

DR. EDWARDS: Thank you.

THE PRESIDENT: We are going to break now for half an hour.

MR. LEBLANC: Let's do at least 45. So let's go to 13:45, that's 50 minutes.

THE PRESIDENT: 13:45.

--- Laughter / Rires

THE PRESIDENT: Which makes it a quarter to two. A quarter to two.

--- Upon recessing at 12:55 p.m. /
Suspension à 12 h 55

--- Upon resuming at 1:49 p.m. /
Reprise à 13 h 49

THE PRESIDENT: Okay, we are ready to continue.

CMD 15-H2.110/15-H2.110A

Oral presentation by

Anna Tilman and Eugene Bourgeois

THE PRESIDENT: The next submission is an oral presentation from Ms Tilman and Monsieur Bourgeois as

outlined in CMD 15-H2.110 and 2.110A.

I guess, Ms Tilman, you are going to start, or Mr. Bourgeois?

MR. BOURGEOIS: I will.

THE PRESIDENT: You'll decide who goes first.

MR. BOURGEOIS: Okay. Thank you.

And thank you for hearing us. On March 31 of 2015, James Scongack of Bruce Power said:

"Our region has a 50 year history of safe nuclear operations and the distribution of potassium iodide tablets have been part of our ongoing emergency preparedness activities for years." (As read)

This comforting thought belies the way Bruce Power fails to consider, and perhaps even eschews scientifically valid methods on which to base its assertions, preferring instead those that require nothing more than blind faith. It fails to turn to a body of evidence or proof of its alleged safe operations or to conduct the studies necessary that would allow this statement to be scientifically quantified.

As Commissioners overseeing the CNSC, I wonder what authority you turn to that allows Bruce Power

to continue its operations as it has in the absence of any scientific support. Our submission to these hearings describe in detail just one of many significant failings, the failure to assemble baseline data that would make its statements about the health of our communities scientific rather than simply faith-based statements.

Our proposal for a community health survey, followed by a more detailed study would establish this baseline data. Both residents and visitors to the region have been and continue to be harmed by Bruce Power's and BNPD's licensed activities. We have detailed a few, but by no means all such examples of community harm. Mary MacKenzie's well water was poisoned by radioactive intrusions into the groundwater that also resulted in contamination of the Inverhuron Park wetlands.

CNSC staff asserts, but offers no verifiable data that removing RWOS 1 to RWOS 2 resolved this concern and that these radioactive wastes now empty into Holmes Bay instead of her well water. Despite its statements, Ms MacKenzie's well water continues to show anomalous radioactivity, something Bruce Power's annual Environmental Monitoring Report has recorded each year. However, CNSC staff is unconcerned about this situation and dismisses it summarily.

There is the issue of fasciated dandelions

that occurred on our property in the spring of 2008. These dandelions extended in the line right down to the lake. Marc Leblanc of CNSC informed me that these are a natural occurrence in the world and relied on a plant biologist from McGill to confirm this statement.

While a natural occurrence, scientists worldwide continue to seek out such fasciations in the wake of nuclear disasters. Those studying the impacts of Chernobyl relied on the presence of such dandelions as indicators of the best places to begin their research of the nuclear disaster. Marc Leblanc failed to take this international research into account, but is confident that the large number of these dandelions on our property adjacent to the Bruce facility had nothing whatsoever to do with the restart of one of the Bruce units.

In 2009, as set out in our submissions, our leafy vegetables contained more than 50 times the radioactivity of even the nearest neighbour in Baie du Dore where Bruce A is situated. Nonetheless, CNSC staff and nuclear staff are content to rely on air models that do not predict such occurrences. CNSC continues to assert that these air models are correct, that these spikes in radioactive concentrations are safe and that Bruce's operations have caused no harmful effects. Neither Bruce Power nor CNSC will test the models being relied upon to

determine why they fail to predict accurately the radiological chemicals that befall us or identify the scientific basis of their claim.

During the 2008 Bruce Power new build environmental assessment, it claimed to recognize the importance of wild mushrooms as an accumulator and absorber of radioactivity from both air and ground water. There is an extensive body of scientific literature that supports this perspective. However, it said it would not at this time conduct field studies because it could rely on earlier ones with *Boletus edulis* as the sample species.

According to Bruce Power, this is a very common mushroom species in this target area. Such data would be very useful to us as residents here to determine the nature of its radiological footprint. We have requested the data on numerous occasions and this would give us confidence in its statements. We could identify and determine that its footprint is quantifiable and has been quantified, two elements necessary before scientifically valid statements about the safety of operations can be made. Sadly, this data has not been forthcoming.

During fire training activities in 2008, our store and home property was fumigated twice, in May and June. One of our staff has described the experience as

like gulping down diesel. It made both me and my farmhand ill enough that we had to stop bailing hay, something a farmer hates to do when ideal conditions -- conditions are ideal. And of course I cannot describe how this incident appears to have affected my wife, Anne, most of all, giving her ovarian cancer an opportunity to grow while we dealt with the problems of chronic fatigue symptoms that returned with this, these incidents.

I, in turn, have problems with concentration and respiratory ailments since that time. We spoke to Bruce Power staff about these incidents and they confirmed a willingness to study the problem. Unfortunately, it failed to include our concern in the study and set out about to collect air samples in a manner that would fail us and support its predetermined conclusions. It has failed to this date to acknowledge that it is not the generalized air samples that cause community impacts, but instead the high concentration episodic events that result in devastating impacts to the community.

Bruce Power has presented no plans to sample these high concentration episodic events. Instead, it has threatened me with an injunction's lawsuit if I speak about this matter publicly. That is an unscientific attitude. Our community most of all wants these operations

to be safe. It is our lives that are on the line, our health. The impacts of its operations matters more to us than it matters to any of you. We are here every day, we eat the -- drink the water. We eat the crops grown here and we breathe the air.

We appear to be in a fallout zone in Inverhuron. There are many things Bruce Power could do to enhance and make its operations safe, but to be able to do this, it first requires baseline data to understand the impacts of its operation and this is simply unavailable. It is by no means a complicated undertaking. It just takes time and care to create a good sampling of the very baseline data that is necessary to make sound operational decisions about the potential impacts on the community, our health and the natural environment. We have demonstrated a degraded safety culture prevalent at both Bruce Power and CNSC in our report. The alpha incidents during which as many as 557 contract workers were unnecessarily exposed to alpha particles for more than a month, as well as Bruce Power's self-serving assessment exonerating itself confirms this.

Bruce Power and CNSC staff immediately come to the conclusions that operations are safe, facts be damned. It is time that the existing culture change and develop into one that promotes safe operations as its

first, its primary goal, and we have identified a very simple first step, the establishment of baseline data. As Commissioners, you rely on administrative values of radioactivity as if these denote safety. CNSC staff rejects out of hand any studies that suggest radioactivity may not be safe at these concentrations. Over the years that Bruce Power and the BNPD have been our neighbour, we have highlighted a wide variety of its safety failures, many of which have caused us direct harm.

Surprisingly, not one of our concerns has ever been considered valid by CNSC staff, Bruce Power or Ontario Hydro, despite evidence to the contrary. As Commissioners, you must be able to see this in and of itself as proof of a degraded safety culture. A concerned CNSC staff would investigate our concerns, share data and develop the necessary baseline data instead of simply dismissing community concerns at every turn.

If Bruce Power were able to dismiss the concerns raised by the community in a scientific way, it would be in a position to provide scientific evidence to substantiate our view that their experiences are always -- or our experiences are always wrong and their analysis is always right.

I have two more paragraphs, if I may.

Clearly we are worlds apart from Bruce

Power and the CNSC when it comes to the meaning of safety culture. For the community, a strong safety culture would leave no stone unturned to ensure that operations are sound, that equipment is in top order, that oversight is a priority, that inspections are regular and thorough, that protection of workers and the public are always considered a priority and that each is truly concerned about the releases of hazardous substance resulting from the operations of its facilities.

If Bruce Power's application for a five-year renewal of a single operating license for Bruce A and B is granted by the CNSC, these nuclear facilities will continue operating in their present state until 2020, long after their projected lifespan -- predicted lifespan. Radionuclides and other hazardous substances will continue to be released to water, air and soil as additional waste to our environment.

Therefore, we recommend that Bruce Power not be granted a single operating license for both Bruce A and B, Bruce Power be directed to develop plans to shut down and decommission Units 3 and units 4 of Bruce A.

Finally, we recommend that Bruce Power's license to operate these reactors be withdrawn entirely and not renewed until such time as it demonstrates conclusively that it is concerned about the impacts on public health

from its operations and is prepared to take whatever steps are necessary to prevent any and all possible harm to human health and the environment.

Thank you.

THE PRESIDENT: Thank you. Questions?

Dr. Barriault...?

MEMBER BARRIAULT: Thank you, Mr.

Chairman.

Thank you for your presentation. Have you approached your public health department to discuss some of these issues?

MR. BOURGEOIS: Yes, I have. They also tell me I am always wrong.

THE PRESIDENT: I'm sorry. I was remiss. I should have acknowledged that I understand that Dr. Hazel Lynn is here with us.

MR. BOURGEOIS: Yes.

THE PRESIDENT: I suspect you will be asked all kinds of questions. How about joining us at the front here.

--- Pause

THE PRESIDENT: That's good. As long as she has a microphone, an independent table.

MEMBER BARRIAULT: I'm sorry, the question I asked, have you discussed this with public health, your

concerns regarding the "Bruce contamination"?

MR. BOURGEOIS: Yes. With the fire training activity I had extensive conversations and email conversations with Dr. Chris Munn and explained to him what had happened. He said that the concentrations available on our farm at that time according to MOE and Bruce Power were less than what would be at an airport.

MEMBER BARRIAULT: Okay. Any comment at all from Public Health? I'm sorry, on this issue?

DR. LYNN: Hazel Lynn, for the record.

Yes, we have had conversations regarding particularly the contamination of the farm, but also on radiological issues and health as well.

MEMBER BARRIAULT: I guess the supplementary, if I may at this time too, you are asking for a study. Have you approached the communities around to do such a study? Because obviously if you are going to get involved in a phenomenological study you are looking at a major project and you are looking at major financing. So have you discussed any of these issues with anybody?

MR. BOURGEOIS: Yes, we have. We have discussed them with SON, we have discussed them with the Inverhuron Ratepayers District Association and the -- I'm sorry, TIC.

MEMBER BARRIAULT: And what was the

outcome?

MR. BOURGEOIS: Well, they are all interested but first we had to -- first, we had to create the task of identifying what a community health survey might entail, what it might look like, and having done so and CNSC had asked us to make sure to include the analysis of worker health and worker activities. We reviewed those documents as well and included them in our report to identify why such a community health survey would be necessary and have identified any number of communities that could be and have been affected. For example, the community of alpha exposed workers, their health should be monitored for the rest of their lives.

MR. BARRIAULT: That would be up to --

MR. BOURGEOIS: That would be up to that community to determine and each community would determine -- but you were asking me my opinion --

MEMBER BARRIAULT: Sure.

MR. BOURGEOIS: -- and so I was just offering an opinion. But each community would identify the issues that are uppermost in its mind and its concerns and then those concerns would be surveyed and if anomalies -- and in this respect we would be working with Dr. Lynn's office to correlate the data that we would find or that this survey would find. It wouldn't be me doing it because

I'm a farmer, you know, and I don't know anything about that.

MEMBER BARRIAULT: Dr. Lynn, in other communities we have had Public Health doing some evaluation in this. Any evaluations been done in Bruce County?

DR. LYNN: Oh, absolutely. We have a community picture first done in 2011, redone in 2014 to get follow-up and Bruce County is part of that. It is all of Grey and Bruce which is my area. We have looked at the community conversation process with Tamarack and we have just completed 400 community conversations, 48 of whom were actually in this area, looking at people's well-being in the community, and so on. So the questions there, the report actually will be reported back to those groups in a few days.

Cancer reports, as well, we have done, particularly when the RADICON study came out which we wanted to try to compare, but we don't have a big enough population to make statistical significance, which is part of the problem.

The other thing that I have wanted to do for some time in our area is to do a Canadian index of well-being. We know that people like to live here and they are happy living in Grey Bruce in general, and so why is that? Unfortunately, having talked with the organization

that does that, they need a bigger population than just Bruce County. However they are willing to do it with a combination of Bruce Huron or Bruce Grey. So we will persist a bit on that because that would give us, again, a follow-up in another few years on how our communities are progressing and how well they are doing.

MEMBER BARRIAULT: Who would do the funding for this?

DR. LYNN: Well, that's the other problem. It would cost \$50,000.

DR. BARRIAULT: Okay. Thank you.

Thank you, Mr. Chairman.

THE PRESIDENT: The intervener makes some very strong avocation that there is a real big issue here that causes direct impact on health.

What I am trying to understand is the health authority, do you see any kind of reason to worry in the population here, at large, close to Bruce Power operation that causes you worry?

DR. LYNN: Thank you. The biggest concern we probably have is an increased bowel cancer rate, primarily in males, primarily in Bruce County. However, when you look at smoking rates, which are also higher and we look at beef eating rates, which are also higher, and obesity and lack of activity, all of which are associated

with bowel cancer, it's very difficult to prove any kind of causation. Now, the same problem is not true in women, women are normal, the same rate as the province.

So to me, I think that is probably lifestyle issues, which we are definitely concerned about and working on.

THE PRESIDENT: Questions? Dr. McEwan...?

MEMBER MCEWAN: So thank you for your presentation.

Just going through your submission and a lot of work that you have put into the survey, to me it sort of sits somewhere uncomfortably, I have to say, between sort of a full epidemiological survey which has very specific statistical criteria, very specific questions, very specific parameters by which they operate, and something like a wellness survey which is a snapshot view of a population again done to very strict rules. It seems to me that this sort of doesn't fit the scientific criteria of the one nor the population criteria of the other. So can you help me understand --

MR. BOURGEOIS: Yes.

MEMBER MCEWAN: -- why I may be wrong?

MR. BOURGEOIS: Yes, we can. I will make a brief comment and then Anna will describe and drill down in greater detail.

What a community health survey does is to provide the data that will be useful for later epidemiological studies. At the moment there are these directly associated communities whose statistics are averaged out, as Dr. Lynn rightfully points out, with Bruce County, Bruce Grey, Bruce Huron, Ontario and we lack the population that is required to do and to create an appropriate epidemiological study.

This is the first step to identify the general health of the members of the population, whichever population it is that is being surveyed.

And if I could turn to Anna now, because she has done more of the research, she could answer in greater detail, unless I have said something that you would want me --

MEMBER MCEWAN: It would be helpful for me to understand a little bit.

MR. BOURGEOIS: Okay.

So, Anna.

MS TILMAN: Yes. In coming up with the concept of using a community health study that is not the first time such a kind of study has been used and it is really designed as an easier way in terms of financial, in terms of resources, to get a barometer of what seems to be the health status, the health and wellness being of the

various components of the community.

So it is a collection of information. Now, that can act in various ways depending what is found. I mean we are not talking about statistical significance at this level. We are talking about what is the general -- what are the specific issues people are facing? What are the concerns, what are their health issues within their families or the workers or the community at large?

Let's assemble this and let's look broadly. Let's look at the social as well as health and economic conditions.

Now, it may be that there is nothing extraordinarily that comes out of this, it may be that there are certain specific issues aren't necessarily higher or maybe there is something worthwhile doing but it could start as a basis of a cross-sectional perhaps epidemiological study.

Because they're very expensive. Epidemiological studies, to start with, are very, very expensive. They're very demanding, very resource-intensive. And we thought if we first do a survey it gives us some knowledge, some of which can be statistically evaluated, some of it lesser so.

And I speak as a mathematician here. So I'm not speaking of that rigour that one necessarily has

when you try to conduct an epidemiological study. And there are several different kinds of epidemiological studies you can do. And if you do a case control study, which is one of the top type of studies to do, you need that control population. We can't envision doing that at this stage. It's expensive. It's consuming.

On the other hand, if you then go to what is emerging across the world in many communities is what's called either people's epidemiology or popular epidemiology, depending what kind of wording you want to use, where communities -- and they can be quite small.

And I've got some examples of case studies there where people say, hey, I notice this is going on in our community, can we find out what is going on at a deeper level, what is the cause, what can we do, and the next thing is, how can we fix it, how can we improve our health? So it's not necessarily a blaming situation as what can be done if there are some issues that are pointing to health problems that can improve this? And I think that's for a starter and that says, do we need to go further?

In some cases, in some of these case studies, clearly, they needed to go further, there were incidences of cancer, even in small populations. The one I've done in Alberta for instance in the First Nations group showed out of 100 people severe cases, issues that

were higher than other populations and that spawned further testing that is being done.

Sorry.

MEMBER MCEWAN: But the Alberta example is quite a good one partly because it was probably initially overstated but it primarily came from physicians' observations of an increased rate of disease.

My concern of this type of population study just started generically -- and again, help me understand why I'm wrong -- is if you randomly ask a large population of people, I mean 6,500 people, which is the 10-kilometre zone, then you are going to get a random distribution of ailments and you're going to have absolutely no way of understanding where those ailments sit in the spectrum of a population.

That seems to me -- so at the end of the study you're going to have spent a lot of time, a lot of effort for a random distribution of data that doesn't really answer any specific questions in the presence of, for example, almost uniformly normal cancer rates in terms of a general population.

MS TILMAN: Yeah. I had a good chance to speak to the author of that study because it was of great interest. Now, mind you, there was a lot of effort put in by universities to get faculty to do this study. So even

though the sample that was done was done on a small number of people, a little over 100, there was a lot of effort that went into it.

We're not at that stage of having that backing at this stage. I don't think we're at the stage of being able to interview 6,000 people. We would have to do a trial run and, let's say, look at some of the most sensitive areas and see what we can do.

But for that, it's not me who would make a decision or Eugene alone. It is the community sort of gathering together with some experts to see what is the best way we can start going with this, with the community involved. So we have experts who have done similar studies or can advise us on these studies. This is the kind of thing.

But to do a study, before you get involved in the multimillion dollar episodes, you need to do some sampling. You need to say, let's try out what kind of questions work, what should we be asking. We don't know exactly. We can look at samples, and we have looked at samples of questionnaires that have gone out. But what would work best in this community, and for that we would want input.

That's a factor that is missing from a lot of the traditional public health studies. So let's take a

sample and let's see and maybe from there we can generate a refined kind of questioning process.

And this is time-consuming too because a lot of the questioning that was done, particularly the Alberta model but in other cases, was individual, one-on-one. And you would need a doctor, you would need a nurse, you would need somebody with medical authority to carry out this kind of survey.

So before we get too high-blown, we'd have to start with something small to see where we're putting our thinking caps to see where we're going.

MEMBER MCEWAN: So I guess a question for you and then perhaps I don't know if Dr. Lynn or staff would have any comments.

If we went for the population wellness study, it seems to me that that is a more rigorous first step in trying to understand those questions than a sort of fairly random generation of --

MS TILMAN: I'm not sure. I've been involved in Canada's Chemical Management Plan 2 and Canada's doing surveys across the country in order to look at all these health studies. I think we need to do it at a smaller level in order to feel that the community has a level of control over what is being asked, and in consultation of course with the public health groups.

I'm not sure if the wellness indicators that they're looking at are maybe the same as what the community may want to look at. I'm not sure yet. We haven't had that discussion. We haven't sat around and said, I mean -- sorry.

MEMBER MCEWAN: So again, that concerns me. How does the community know what the community wants?

MS TILMAN: We need to gather them together. We need to gather the community, the health units and the responsible people together. We need to do some brainstorming. See, it would be wrong for myself or somebody to say, this is what we need to do. I think we need to do that kind of level of thinking: what is it we're seeing, what is it we think we're most interested in, what are the areas of concern. And health units will have their hats on, thinking about this too.

But sometimes we miss things in the process of -- individuals can miss things which might be concern or of an interest to another group of individuals. That's why we need to do that as a collective and not as an institute doing it solitarily without the involvement of the community.

We've been to SON, for example, to explain, give some parameters, you know, this is what we're interested in at a level. But we would need to have groups

like that to say, yeah, we're noticing something in our community, maybe we should be looking at that further. So we need to have that conversation and we're not -- we don't have the resources yet to have it. So part of this is a design that progresses as we go along, that we're open-ended.

And I'd be very curious as to what the public health is planning on doing. I think that would be of great interest to us. But I think what should be of interest to them is what the community is wants to look at.

THE PRESIDENT: Okay. I always look for grounded practical steps. You put a study. To whom are you addressing this proposal? Are you asking us, CNSC, to sponsor it? Are you asking the health organization? Not only that, you mentioned that government cannot be trusted in many of your studies and I assume that means you don't want government to be involved. So to whom are you addressing this proposal?

MS TILMAN: I would say here in our first one, in our recommendation that we pointed out, Bruce Power should be interested in this. I would say -- don't get me wrong when I say the government can be not trusted. I think I wouldn't trust the government alone but I think if you got the feedback from people and the input from the community with government assistance, I think that would be

valuable.

THE PRESIDENT: Throughout your examples here you give an absolute example where the proponent should not be trusted, the government should not be trusted, and here you are. So really, I'm not trying to be glib about this.

MS TILMAN: I know.

THE PRESIDENT: To whom are you addressing and hope to proceed with this proposal?

MS TILMAN: Do you want to try that one?

MR. BOURGEOIS: Yes.

What we tried to point out is that each of these community health surveys that we focused on for our report started because government agencies had not noted the problems that the communities had noted. And when further questioned, these same government agencies said, we are fine, we are doing exactly what is right.

When it was drilled down more deeply within the community, it was discovered that indeed, the government was not looking or the agencies or the external agencies were not quite looking at things as well as they could have, and when looked at from the perspective of the communities, anomalies were discovered that could be acted on and have been acted on.

So it's not a matter of them and us or

anything of the sort. We are all part of one community here. Bruce Power is my neighbour. I am their neighbour. We are all part of the same community. Both of us want the same ultimate goal.

Admittedly, when somebody gets harmed by an operation, sadly, an industry wants to defend itself. I would understand that. I do understand that. That's maybe not necessarily the best approach, you know. And in this case we have had harm. Basically, our concerns have always been dismissed.

THE PRESIDENT: Maybe it's time for CNSC to have some views about the intervenor claiming that you're totally ignoring them.

DR. THOMPSON: Patsy Thompson for the record.

I hate to be going back in history because then I start dating myself, but seriously, when I joined the Atomic Energy Control Board in 1993, one of the first issues that I heard about was essentially Mr. Bourgeois' issues with his lambs dying.

And at that time there was an ongoing debate, I would say, between the AECEB, atmospheric dispersion people and Mr. Bourgeois' atmospheric dispersion specialist about whether or not, you know, he could have actually been fumigated by the heavy water plant

gases.

At that time, when I came in as a toxicologist, I sort of stepped back and sort of said, Well, yes or no, I don't know, but let's look at whether, you know, his lambs are actually dying and whether or not there's other patterns, and we have data to support it.

We essentially spent many, many, many months. We obtained from the Ontario Ministry of the Environment, who had put continuous air monitors on Mr. Bourgeois' property -- so we had thousands of data points. We had an epidemiologist, we had statisticians and, with Mr. Bourgeois' collaboration, we had his entire lambing history.

We did a very detailed study. We got that study peer reviewed by two Alberta experts and a veterinary medicine expert from the University of Guelph. So we have been paying attention to Mr. Bourgeois' issues every time he's raised them.

He's mentioned in the intervention today that we refused, at his request, to look at the tritium and the models and the predictions, the issue that he raised during the DGR hearing. We did look very carefully at the atmospheric dispersion modelling for tritium. One of the reports that is on our website from the tritium studies actually looks at the models, and how they use and fit the

tritium, actual monitoring data.

We also came back to the DGR with an undertaking to actually provide information that spoke to Mr. Bourgeois' issue. I think Mr. Bourgeois was not around when this was discussed, but we have never not paid attention to issues that have been raised. We've spent a lot of staff time -- as we should, we're public servants, that's our job to do -- and we have paid attention.

We've reviewed, of course, in a lot of details the submission from Ms. Tilman and Mr. Bourgeois in terms of their recommendations and some of the case studies that they have identified. I will ask my colleagues, Dr. Sandor Demeter and Ms. Rachel Lane, to add information if needed.

In many of the case studies that have been summarized in the report, except for the recent Alberta one, all date back to the sixties and seventies. They're essentially case studies that are well-known in the toxicology and environmental literature. All were done around contaminated -- fairly heavily contaminated sites, and, you know, history has shown that, you know, the issues that were raised by communities at the time led to significant changes in environmental protection and management of organic and industrial chemicals in general.

When looking at those types of case

studies, and bringing them to the situation around the Bruce nuclear power plants, it is sort of, we feel, not entirely appropriate. Because all of the monitoring data that we've had over decades of monitoring indicates that the levels of contamination by radionuclides around the environment are very, very low.

We have presented that information in several reports. The RADICON report essentially summarizes that data around the sites for all the critical groups.

The microSieverts of exposures from members of the public that are in the critical groups, so the most exposed people, essentially are exposed to a fraction of the public dose -- the natural background radiation and public dose limit.

In that type of context, the studies that have been done, for example, that we've done for RADICON, do not show that there is increased incidents of, for example, the childhood cancers around the Bruce site.

The evidence also from the studies that have been done regionally by the public health people also have collected a lot of baseline information over the years, and we don't see that there's baseline information missing. All the evidence that we've collected over the years have not indicated, as Mr. Bourgeois stated, that, you know, it was a fallout area or a nuclear disaster area.

I don't see how this type of study would help one bring more scientific, more validated information forward for us to review. From that point of view, it would be difficult to find a way of doing a study that looks at community health issues and have essentially any relationship with emissions from the facilities.

I will ask my colleagues if they have anything to add.

DR. DEMETER: Dr. Sandor Demeter, a physician consultant to the Commission.

I reviewed the Community Health Survey proposal, as well as the case studies, and one of the -- as Dr. McEwan had raised, one of the issues is this is sort of an in-between kind of proposal.

You start sometimes with something called a qualitative study, where you meet with individuals in depth and you figure out attitudes, beliefs, values, why people perceive things the way they do, and from that you can start deriving more social and value-based and risk communication stuff.

If you're looking for disease or things that are anomalous, you need to have a really good grasp on what you're looking for and what you think it's being caused by, because you've got to collect that information fairly precisely, especially in small populations. Doing a

community health survey to try to find associations with something that has phenomenally low values for monitoring is beyond even a needle-in-a-haystack type of scenario.

I wanted to because the issue of health risk has come up a number of times with radiation, and the issue of the 1 milliSievert, what that means as an operational limit versus a health limit, and I think it's a difficult thing for people to put their heads around sometimes.

I think I figured out a way of understanding it is the 1 milliSievert public dose limit is like the canary in a coal mine, that if you exceed that you look further at the safety culture of what gave that very small dose because there might be other issues that you have to deal with.

It's like best practice. It's like a safety culture monitor. It's not a health monitor, it's a way of looking at the system as a whole. If you can keep doses below that, which is a regulatory limit, not a health limit, then you have some confidence in the bigger parts of the system.

To put this really into context, if we're talking about -- Bruce talked on Monday about 1.3 microSieverts. If you look at that range of dose to those around the plant, that's the dose you get from a chest

x-ray and that's a dose over a year living in this environment, in addition to the two to three thousand microSieverts you get from just living on the land.

The United Nations Scientific Committee on Atomic Radiation had a statement about Fukushima. We've all talked about Fukushima as being the barometer. We want to make sure we're as safe as we can be post-Fukushima. This is their statement based on the doses to the general public in Fukushima with that event, a level 7 event:

"The doses to the general public, both those incurred during the first year and estimated for their lifetimes, are generally...very low. No discernible increased incidence of radiation-related health effects are expected among exposed members of the public or their descendants. The most important health effect is on mental and social well-being, related to the enormous impact of the earthquake, tsunami and nuclear accident, and the fear and stigma related to the perceived risk of exposure to ionizing radiation."

That last statement is so important when

you're looking at the WHO definition of "health in the community."

The fear and stigma of being exposed to ionizing radiation at a dose of a chest x-ray is a real issue if you're looking at health and well-being.

So that's how I put this into context.

Thank you.

THE PRESIDENT: Can I jump in?

I think that we are dealing here with the intervenors who believe there is no safe limit. Forget about 1 milliSievert.

On page 40, they actually, I think, capture the essence of the argument that background radiation is killing us all. If you believe in that, we will never close this gap between the regulator and you guys. Because if you believe background radiation is killing, then I don't understand how the regulator -- so that means you got to shut down the operation because *no* level of radiation will be acceptable to you.

Did I get it right?

MS TILMAN: You have it right. If I can use the word that was used in the last intervention, it wasn't "inflammatory," but I think you're taking it to a level that is a little higher than it might have said.

The point is that when one sets an

administrative dose, which is the 1 milliSievert per year, it is acknowledged that it's not, in quotes, "a safe dose." It's a permissible or allowable dose in order -- you know, otherwise we couldn't do anything.

Now but there's also that acknowledgement that that doesn't mean there is no harm. I think if that is what -- the essence and the people say: radiation is harmful at any level, there is that harm that is there. Yes, we live with it. We live with it when we fly. We live with it in all kinds of things. But to assume that there isn't, that 1 milliSieverts is the perfect cut-off point, is not correct. There are effects that will occur lower. Everybody is different. People react differently. Children and pregnant women react differently. We have all those variations.

Because it has been so entrenched for a while -- and that may change. That dose might become 0.05 or 0.5 in time. The doses have decreased as the acknowledgement reaches a point.

Now we're also talking about a relatively young industry compared to other industries. We're talking generational impacts too. We're not sure how that is going to affect next generations, generations unborn. We don't know. We're still within, let's say, a rather, sorry, young level here.

But I think we have to understand that there's no bullet number that says that is safe.

I'm not saying that we can't go and get a chest x-ray. I'm not saying that, or we can't do this to help our health. We are taking those. We are doing this in any event. We are exposing ourselves when we go to the dentist, whatever.

But at the same time, we should not stick to that administrator saying okay, we're fine, we're well below.

I don't know what the association is between the radiation levels in the vegetation and the health of the people. I don't know if there is one. But what we don't know doesn't mean we shouldn't try to attempt to assert this.

I also want to mention something that -- about these case studies.

The primary reason for putting the case studies in there was not whether they're dated information or not, but to show that government wasn't doing their job of setting appropriate standards and it took citizens to go to -- extended efforts in some cases to show that there was damage in their community, be it lead poisoning or whatever.

And then the government had to bring in

lower levels in order to realize this is -- this has gotten -- this is serious.

So what we're -- we're testing waters here that haven't been done at Bruce area.

THE PRESIDENT: Thank you. I'd like to move to questions.

Dr. Thompson.

DR. THOMPSON: If I could, the statements in terms of the one millisievert and whether it's safe or not and perhaps, you know, at some future the limit will be .5, I find they're easy statements to make and probably, you know, the use of the linear no threshold relationship has not helped in making those types of statements.

There has been a lot, a lot, a lot of work done internationally and in Canada in relation to exposures of workers and members of the public to radiation.

I would say most, if not all, of the evidence shows, without a doubt, that the linear relationship is the right relationship for doses that are called moderate to high, so 500 millisievert and above.

For doses that are called low or very low -- very low is about the background radiation levels -- the general scientific description is that the LNT is an unproven hypothesis at that level. That is being used by the ICRP and regulatory agencies to set practicable

operating limits. It is not a held base limit.

Despite that, we have continued to do work, and one of the studies that we have done that gets overlooked is that there are 42,000 nuclear energy workers in Canada that have been studied. The paper was published in an extremely reputable journal that shows that those 42,000 workers exposed occupationally in Canada have no increased incidents of cancer at doses very much higher than the public dose limit, very much higher than natural background radiation.

And if you'll allow me, I will ask Dr. Demeter to talk about the fact that people say, well, it's, you know, LNT and one hit -- it just takes one radiation hit, one chromosome break or DNA damage to cause cancer. And that's also not factual, so I'd like that to be, if you allow us, dealt with.

DR. DEMETER: Dr. Sandor Demeter, for the record. I'll be brief.

I think one of the natural observable experiments that we see is variations in background radiation throughout the world, and ours is two to three millisieverts per year. In parts of India and Iran, it can be four to 100 times that value as background. So I'm not talking about a chest x-ray difference. I'm talking about two orders of magnitude.

And studies have followed these populations and have not found significant increased rates of heritable effects or cancers compared to controls within their own country.

The other really important thing that we all live with every day, and I had to sort of drill down from a radiobiology textbook to find the answer, but every day in each of our cells, we have 50 to 60 thousand DNA damages that we repair routinely. And about 10,000 of those are double strand breaks and about 50,000 of those are single strand breaks.

That's the organism that we are, and that's the repair mechanisms that we do daily.

The addition of a chest x-ray equivalent radiation dose in that background doesn't make any sense that that would cause a significant increase in our harm. And the one millisievert, again, is just an administrative record where it's 20 millisieverts for workers, so we're not saying workers are at more risk than the general public.

I, personally, work with radiation every day. I'm a nuclear medicine physician. I get exposed to a lot more, especially when I'm supervising cardiac patients when I'm by them all the time. I have no fear or concern about my personal health risk because I don't think

anything below 250 millisieverts is going to be of any effect, and I'm more worried about acute effects, I mean, not on chronic effects.

So I think some radiobiology that really helps inform this decision.

THE PRESIDENT: Okay. We've got to move. Question?

Ms Velshi?

Mr. Tolgyesi.

MEMBER TOLGYESI: Just one.

The present licence for Bruce A and Bruce B specifies what's the derived limits, release limits for tritium, uranium or action levels. Once -- and these figures are different.

Once the licence be -- eventually, if the licence is merged into one, what will happen to these two limits?

MR. LAFRENIÈRE: Ken Lafrenière.

They'll be reflected in the Licence Conditions Handbook as separate limits, as they are now.

MEMBER TOLGYESI: So it will be not one limit for all the site, but specifically for each site the remains limit. Okay.

MR. LAFRENIÈRE: Ken Lafrenière, for the record.

The DRLs are set per station, and they remain that way.

THE PRESIDENT: Dr. McDill?

MEMBER MCDILL: I have -- I guess what I would say is, at a personal level, all of us or, I guess, most of us have family members who are sick or who are very sick or have illnesses, so we understand -- even if it may not appear so, we understand on a personal level the tragedy that you feel. And I wanted to express that.

THE PRESIDENT: I think we need -- I'd like to hear from staff.

In terms of measurement that are -- that you're doing independent measurement about vegetation, water, et cetera, do you do this, you continue to do this, you publish it, you share it? And there was a particular well they were talking about that was poisonous.

Maybe a little bit of -- if Mr. Bourgeois phoned you and said, "Could you measure this particular thing?" would you go and measure it?

DR. THOMPSON: So Patsy Thompson, for the record.

So you're talking about the independent environmental monitoring program, and Ms Kiza Francis will speak to the program.

The program is flexible, and we have made

statements in the past that we would work with communities. So I'll get Ms Francis to speak to the details.

MS FRANCIS: It's Kiza Francis, for the record. I'm the Director of the Environmental Compliance and Laboratory Services Division.

So your question, really, was if a member of the community wanted us to measure, I believe.

THE PRESIDENT: Was that a routine? I thought you're doing independent -- this on all plants and over and above that, you can do special measurement.

MS FRANCIS: Right. So the independent environmental monitoring program is CNSC's staff's program where we do independent sampling to help confirm the licensee's environmental protection program, so we are doing -- taking independent samples from farms, water, different areas around outside the facility -- outside different facilities.

In terms of making our sampling plans, we do look at the releases from the facilities, and so we pick areas around the facilities. Not necessarily the same place that the licensee samples, but based on how the releases come from the facility.

In terms of the Bruce independent environmental monitoring program, Mr. Bourgeois' farm is not currently in the CNSC's plan. However, it can be.

It's flexible.

And the last time we samples in the Bruce site was in 2013, so we're currently planning right now for the 2015 sampling time period, and we're open to talking to Mr. Bourgeois about his -- sampling on his farm.

THE PRESIDENT: Go ahead.

MR. BOURGEOIS: I think we had been sampled and that SENIS on behalf of CNSC has a continuous tritium air monitoring membrane on our farm, unless it's been removed within the past year.

That's been my understanding with it, anyway.

THE PRESIDENT: So I'm not following.

MR. BOURGEOIS: So there is currently tritium monitoring of our farm and, independently of that, Bruce Power, on an annual basis and a number of times during the year, comes and collects samples.

When we had sheep, they would -- and chickens, they would collect samples of our meat, of -- they do of our vegetation. They do of our grasses. They analyze the soil once a year. And they take water samples four times a year -- or at least four times a year. I'm not certain.

And you know -- and that's been a program that has been ongoing since the 1990s.

DR. THOMPSON: So Patsy Thompson.

Just to clarify, that's not the CNSC's program. This is Bruce Power's program.

And if you allow me, I can speak to the Inverhuron well afterwards.

MR. SAUNDERS: Yeah. Sampling Mr. Bourgeois' property has been a part of our program for a long time, and results are provided in the annual report and to Mr. Bourgeois directly.

THE PRESIDENT: Okay.

DR. THOMPSON: Patsy Thompson, for the record.

So the well in Inverhuron Park is a well that was affected by the operations of the waste management facility. The work at the monitoring stations, the monitoring wells around the actual waste facility, the waste buildings did identify issues with RWAS-1. The monitoring essentially was the trigger point to get corrective actions on those buildings and the monitoring has continued.

And so there are levels -- measurable levels of tritium above background in that well, but they're in no way hazardous or dangerous, they're very low levels, but they continue to be monitored and OPG continues with the monitoring of on-site wells to make sure that we

have a good handle on tritium in the groundwater.

THE PRESIDENT: Dr. McDill, you had an additional question?

MEMBER MCDILL: Thank you. One last question, and I'm not sure who wrote the bullet, so it's in your summary and it's the reference to unchartered territory.

MS TILMAN: (Off microphone)

MEMBER MCDILL: Yes. That's your word. Okay.

--- Laughter / Rires

MS TILMAN: If there is a reactor that's substantially ahead of these reactors, there's one in Argentina; is that correct, and I understand --

MEMBER MCDILL: Ahead in what way?

MS TILMAN: I'll ask staff, I think it's somewhere around 300,000 hours.

MEMBER MCDILL: Okay.

MS TILMAN: But I'll ask staff to do that, because I think it's good for the public to know that Canada's not alone in doing this, it's global.

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

That's correct, Dr. McDill. So the 210,000 hours, as our colleague Mr. Frappier answered

previously, this is a design life rather than a shelf life, let me put it this way.

Yes, other utilities in the world and in specific, as you mentioned, Argentina, where they have gone higher than 210,000 hours. And as a matter of fact, some of the testing and some of the elements that the information -- technical information received from the testing we reviewed actually based on the operational experience and some of the tubes in these units are approaching the 300,000 hours. So approximately -- right now over approximately 270 to 280,000 and they're operating safely.

MS TILMAN: Can I say something to that?

MEMBER MCDILL: Yes.

MS TILMAN: We're talking six reactors at Bruce. Argentina, I'm not sure of the number of units, I thought -- I believe they're single units, I could be wrong. We're talking a number of units here, so it's not just one and I think that has to be considered too.

So I might say it's chartered territory to a certain extent, but it's unchartered on the massive level here.

And it's also a concern because there have been issues. I don't know what issues were in Argentina, but there have been issues that have been noted with the

pressure tubes in a couple of the units, particularly units 3 and 4, so I'm concerned.

MEMBER MCDILL: Maybe I could ask -- thank you. Maybe I could ask Bruce to comment also, but also on how the knowledge is being shared from this other facility.

Staff just commented a little bit, but Bruce can comment, please.

MR. SAUNDERS: Yeah, I think I'll turn it over to our chief engineer, but principally we've got a couple of tubes actually from the Argentinian reactor to examine up at Chalk River, but you have more details, I'll let you...

MR. NEWMAN: Yeah. Just to get a -- for the record, Gary Newman -- to get a better sense of the operating hours and the implication of those operating hours, we did request from the Argentinians and they agreed, provided that we shared the results with them afterwards and we agreed to do so, OPG and ourselves co-funded the acquisition of the two tubes and, in fact, I think we've completed in the not too distant past all the material testing and surveillance work we would do if it were one of our surveillance tubes and found them to be, you know, in line with expectation. I don't have the results with me, but we didn't really see anything.

In terms of the number of operating hours,

and again I'm just going from memory here, I thought it was more like 220, 225,000 EFPH, but we'd have to verify that.

MR. FRAPPIER: Gerry Frappier, for the record.

If I could just add, because I'm a bit concerned with the term chartered and unchartered.

So, yes, there's only one unit down there and, yes, it's gone over the 210,000 hours, but as I said earlier, from our perspective, that's not the key thing that says let's let the reactor go. We don't want to have an experimental reactor being run by Bruce and calling it production reactor.

We've done the research, more importantly, or more precisely, industry has done the research that has demonstrated what the pressure tubes are like when they are much, much older than 210 or 225, they're into, like I say, beyond the 247,000 effective power hours.

So the unchartered territory is beyond that 247,000 hours. Right now we're very comfortable up to those hours and that's why we've been able to recommend to the Commission that the pressure tubes are fit for service at this point in time.

THE PRESIDENT: Okay, thank you. Anybody else? Any other question?

You have the final comment.

MS TILMAN: (Off microphone)

THE PRESIDENT: If it's short, yes.

MS TILMAN: One of the things, I know -- I think you have to consider when you monitor the environmental effects or the radiation levels, is there a connection to any of the health issues? That's the missing links, one of the missing links we're talking about here.

So when I hear, oh, those levels are safe, the vegetation levels and so on are safe, how do we know? Just because they're below an administrative level doesn't mean there isn't a receptor at the other end who might be affected. We don't know.

Secondly, my other short point is, we spent a lot of time looking at the operational issues of Bruce and are very, very concerned that we don't know a lot of the stuff that goes on, there's unanswered questions. We've tried to ask questions to get answers to this.

This is the first time I've heard about the Argentinian situation. I've been in contact with the CNSC regularly to give me information on your accident reports, on everything. I've got -- what do you call it -- e-mails on the back-and-forth questions asking about this. I never found out anything about the Argentinian example. It would have been helpful and --

THE PRESIDENT: If memory serves, I think

there was a press release on it.

MS TILMAN: I didn't get it. I mean, maybe it's there in the millions of files I have, but I didn't find that one.

THE PRESIDENT: Well, all I can tell you, there was a press release announcing about those tubes --

MS TILMAN: Argentinian?

THE PRESIDENT: Yeah, that Chalk River or Bruce were importing those samples to test them.

MS TILMAN: But in light of that, I didn't see it in any of your submissions, Bruce Power submissions. I could have missed it, but I think that's important. But remember, we're talking about one unit versus six.

THE PRESIDENT: Okay. Monsieur Bourgeois...?

MR. BOURGEOIS: Yes, thank you.

I think part of what's missing is that you have here an experimental opportunity to put all of this on a very sound, scientific basis so that we don't need to rely on feel good statements.

We can test and look at the general health of this small population here in Inverhuron and that will be baseline data forever and it will inform peoples everywhere about the safety of nuclear power.

I personally live here, I had no concerns

about safety as Dr. Sandor[sic] said about working with cardiology patients.

We have these anomalous situations. My wife's cancer is bizarre. She had both breast and ovarian cancer. In 95 per cent confidence level, those are genetically connected. She has no genetic connection for them.

My experience is with our lambs. We lost between 25 and 35 per cent of our lambs annually when the heavy water plant was being run, three to five per cent annually when it wasn't.

I asked Dr. Thompson at the DGR hearings whether she -- and she referred to this in her discussion here today -- whether she would be prepared to back-date and back-test the models to see whether -- air models that they were using, to see whether they would predict the 50 times higher concentration of radionuclides in our leafy vegetables than anywhere else in the world that Bruce Power sampled. Her response was, no.

So what am I to think except that the answer's no, we're not going to look, your issues don't concern us.

We have had serious harm; 25 to 35 per cent of our lambs don't die just because I want to come here and talk to you today.

THE PRESIDENT: So I still wanted to give you the last word, but I think Dr. Thompson, do you feel compelled to answer to that question?

MR. BOURGEOIS: Thank you.

THE PRESIDENT: Go ahead.

DR. THOMPSON: Patsy Thompson, for the record.

So with all due respect to Mr. Bourgeois' question during the DGR hearing as, will you look at this? The response was not no, it was actually yes and we did look at it and we came back during the hearing to present the information.

The information is on the record in the transcripts and if you want us to repeat it today Ms Francis has a response to Mr. Bourgeois' question.

So we have provided responses to Mr. Bourgeois. When we did the study on his lambs, as I said, the study was peer reviewed by three independent experts, it was presented to the Commission. Mr. Bourgeois requested that we provide him with all of the data, so what we did is we gave him -- it was discs at the time, so we gave him all the discs with all the data, all the statistical analysis for him to be able to do it independently.

THE PRESIDENT: Okay. Thank you.

Thank you very much for your interventions.

I'd like to move now to the next submission which is an oral presentation by the Society of Professional Engineers and Associates as outlined in CMD 15-H2.123 and 15-H2.123A.

I understand that Mr. Ivanco -- I don't know how to pronounce it -- Ivanco, okay -- you will make the presentation. Over to you.

--- Pause

MR. IVANCO: Hi. At the time this presentation was put together I didn't know if Peter would be here or not, so I will just introduce ourselves.

So my name is Michael Ivanco. I am the President of the Society of Professional Engineers and Associates. Peter is Vice President of the Society.

We are a trade union, but we also work in the industry. I am a senior scientist. I work for the nuclear division of SNC Lavalin, formerly CANDU Energy; formerly Atomic Energy of Canada Reactor Division.

Peter is a Senior Safety Analyst, as well as a vice president of SPEA.

We participated in this hearing through the participant funding program and we also had delivered a number of other things. We were asked to review and

comment to both the Bruce submission and the CNSC submission, which we did. We made our own submission and also we have this presentation.

So this is who we are. We represent engineers, scientists, technicians, technologists, skilled trades. We were formerly working for AECL Reactor Division and AECL, many people will recognize, is the original equipment manufacturer for CANDU reactors. Our members currently design reactors. We still are in that business, we provide engineering and technical support for existing reactors, including those at Bruce Power.

And our comments at this hearing come from our experience from our reading of the submissions that we have and from our overall experience in the industry and other areas.

This is not strictly speaking part of the licensing criteria, but we thought it was important to point out what the alternatives are if the license extension is not granted and we want to point out that the Bruce units were built at a time when Ontario's demand for electricity was growing and the only viable economical alternative was coal-fired generation. In that respect the reactors have avoided about 1.25 billion tons of CO₂. To put that in perspective, that is twice Canada's annual emissions from all sources and that is in roughly 35 years

of operation, so it plays a significant role in mitigating carbon dioxide emissions in Canada.

The 45 terawatt hours of carbon-free electricity provide power to roughly four million homes, or it could in principle and they void about 45 million tonnes annually of CO2 emissions. I mentioned that the annual emissions are approximately 700 million tonnes.

There is no currently technically or economically viable option for replacing Bruce Power's electricity save for fossil fuel generation. Many people will tout many other carbon free forms of generation, but you can't replace something that works about 100 percent of the time with something that works 25 percent of the time.

One possible scenario that, you know, may be viable if wind generation ramps up is to replace about 25 percent of that electricity with wind, but the other 75 percent is going to be a fossil fuel, probably natural gas. To put this in perspective, if the 45 terawatt hours were replaced by a mixture of natural gas generation and wind generation, that would increase Ontario's greenhouse gas emissions by about 17 million tonnes, which is like adding 3.4 million cars to the road.

That would also increase the greenhouse gas footprint from the electricity generating system from just under 100 grams per kilowatt hour to about 220. So

there really is no option for replacing Bruce Power's electricity and it is not a huge step backwards in the province's goals of reducing carbon emissions.

We considered various factors when reading the documentation and we think these are key factors in consideration of the license renewal. One is the robustness of the design. One has been the safety performance to date. One has been the environmental performance to date and, finally, the safe management of used fuel in non-proliferation. This is also a key licensing criteria. We want to point out that the reactors that we have designed and do design are unique compared to conventional pressurized light water reactors, be they the Westinghouse based pressurized water reactors or GE types. Our fuel is not enriched and un-used fuel can be handled by hand with no danger. In fact it is handled by hand with no danger by inspectors before they put them into the reactor core.

Our core is multiplexed. It's not like a single pressure vessel. There are 480 channels in each Bruce reactor. So if there ever is a loss of coolant accident, and Canada has had one fairly celebrated loss of coolant accident, odds are it is going to be confined to a single channel. The one example we have is in 1983 with Pickering Unit 2, tube G16. That reactor was eventually

retubed and ran for many, many years afterwards.

Reactivity excursions in the core in case of any accident -- Peter is an expert in this area -- they are relatively slow compared to what you see in light water reactors. And if something is slower it's easier to mitigate, so we believe there is an inherent design advantage in safety for large serious accidents. We also have -- this would have been a big benefit to an accident of the type of Fukushima where all backup power was lost, an order of magnitude more water in the CANDU reactor compared to a conventional light water reactor to act as a heat sink in the event of an accident. The safety analyst will tell you, water buys you time.

Our reading of the documentation suggests that Bruce has shown that it is compliant with the CNSC demands or requirements in terms of operation, safety analysis and accident management. I want to point out that we did -- when we reread these documents -- it was not me and Peter -- we had a team of fairly senior people in various different areas look through these things. It is showing these are their opinions, not just our own. It is showing that it looks for ways to improve their methods and processes and it allows organizations like the CNSC and the IAEA to provide them feedback and they incorporate that feedback, from what we have seen.

It is noted that Bruce has improved their operational performance of the reactor significantly and they returned to service Units 1 and 2 recently, with high capacity factors. We believe that Bruce has shown leadership in safety, planning, it has aligned their safety analysis with the new regulatory documents and we also noted when reading through the documentation that Bruce also identified several areas of improvement.

In terms of industrial accident rates, which are another licensing criteria, their accident rates and lost time injuries are well below the set target in comparison to similar industries. We were there earlier today. We note they have a big sign out front that says six million hours without a lost time injury. That's quite -- the worker hours -- it's quite significant.

There was a section in the documentation in both submissions on Fukushima lessons learned and we believe these have further improved station safety, although I think many of us in the industry believe that it's overkill at a site like Bruce to have to meet Fukushima requirements, but we believe that those have been met and hopefully those will boost public confidence in the safety of the station.

There was quite a bit of discussion about this in the previous presentation and the answer is, with

respect to the public dose, the five-year public dose was extremely low and we note that it ranged from 1.3 to 4.4 microSieverts. Even the higher number is one-500th of natural background from natural sources such as radon gas in basements and solar radiation. We also note, as did one of the people answering your questions, that there are places in the world where natural background dose can be as high as 260,000 microSieverts with no apparent negative health impact.

There was a lot of talk about chest x-rays, and so on. I think it is worth noting, only because I have had one myself, that abdominal CT scans, the dose is about 9,000 microSieverts.

Bruce Power has not only been compliant we believe with the appropriate standards, but we think they have exceeded the industry standards for environmental releases in the reported data shows that the radioactive release to the environment is in the range of 0.1 percent of the allowable limit set by the CNSC.

Another of the licensing criteria, safe management of used fuel and also safeguards issues: We haven't seen any issues with the way that the fuel is handled in our reading of the documentation and Bruce was found to be compliant with all national and international regulations regarding nuclear safeguards and

non-proliferation. And as designers, I mean, we feel compelled to point out that CANDU fuel, once it's used, is not a particularly big hazard in terms of proliferation. The only remaining material of any use really is a small amount of plutonium, which is about 0.3 percent of the remaining inventory. It would take a very, very determined organization with a multibillion-dollar pure ex-processing facility to do anything with that.

So in summary, we want to point out the electricity generation by the plant avoids large CO₂ emissions that would otherwise have been necessary historically and necessary today. Based on measurements by Bruce and the CNSC, the release of radiation from operation of the plant appears to have been consistently low.

We believe that the robust station design provides high resistance to accidental release of radiation and should help provide public confidence. It appears that Bruce has an excellent safety record based on what we have read and has documented numerous safety upgrades and on this basis, our organization supports the renewal of the plant's operating licence.

Right on time.

THE PRESIDENT: Thank you.

Questions? Ms Velshi...?

MEMBER VELSHI: If you can please put your

summary slide up, I have a couple of questions for you on that, please.

So it would be interesting to hear from you with a fresh set of eyes that you have looked at all the submissions, you have identified no areas of concern or issues whatsoever. Any areas of improvement opportunities that you believe that the CNSC is not already following up on?

MR. IVANCO: We did a detailed review of the documentation and we noted a number of minor items which I haven't really addressed in this issue when we submitted all of these things. But this was to be a 10-minute presentation. So when you really dive down into the details it's hard to do that in a 10 minute presentation.

But we did note those things and our expectation it would be read by the regulator and by the operator and that they would at some point be addressed.

THE PRESIDENT: The 10 minute presentation is the oral part. The written there is no limit. You could have inundated us with all the comments that you want.

MR. IVANCO: Well, we have submitted three documents, right. We have the detailed reviews --

THE PRESIDENT: No, I see the details. So

I think what Ms Velshi was highlighting, in-depth particular detail, is there anything that actually says about improvement?

MR. IVANCO: There is nothing significant that we identified.

MEMBER VELSHI: Yes. Which is what I thought I had read in your written submission. In your third bullet down where you talk about Robert Station design providing high resistance to accidental release of radiation, we have had at least one intervener who said that the CANDU design is not designed for severe accident. What is your reaction to that?

MR. IVANCO: Peter is a senior safety analyst. I will defer to Peter on this one.

MR. WHITE: The reactor design uses a defence in depth approach, meaning that if a safety barrier is exceeded there is another barrier in place behind it and the final barrier being a large amount of water in the vault is a very good design feature to help give us, as Mike said, time to react to a severe accident scenario, because in a severe accident scenario that is typically what is going to happen, is you are going to have a large amount of core damage happen and then you are going to need time to be able to put your responses in place.

MEMBER VELSHI: I think it's also tied in

with the nomenclature. When it's a beyond design basis it implies that it wasn't part of the design basis and now you are actually contemplating something that went beyond what the design originally had been thought of.

MR. WHITE: Yes. Well, as a designer we can't come up with an exhaustive list of every accident scenario that we can possibly envision. So you have to have test cases and the design basis are the accidents that we can envision and that we have to meet from a regulatory point of view. Beyond design basis we still have to look at them, we have to see how the plant responds, but it might not be from a regulatory point of view or a licensed point of view.

THE PRESIDENT: So over the last few days we have been talking a lot about this so I am going to put the question to you.

So in your design, the extra vault water buys you how much? There is no power. This is the one I'm saying, absolutely no power, how much time do you buy here?

MR. WHITE: We looked at that after Fukushima and our assessment of that was anywhere between two to three days worth of time if you have no power at the station at all to boil off all the remaining water in the vault.

THE PRESIDENT: Two to three days?

MR. WHITE: Two to three days.

THE PRESIDENT: I heard four hours here. I mean, you see here is where -- here is where you are really confusing us. Because I was asking when will stuff happen, you know, a release start?

MR. WHITE: Yes.

THE PRESIDENT: No operator intervention, blackout. What is the time?

MR. SAUNDERS: The difference in the two questions is he is talking about a severe accident where the core melts down into the bottom of the reactor. That is a progression along the way. We are talking about preventing that from happening so we are talking about how much water is in the steam generators.

MR. WHITE: Correct.

MR. SAUNDERS: And if you keep water in the steam generators you never get to this point. So these are some of the arguments that we do get into on a beyond design basis and there are a lot of different theories about how an accident might progress when you are into severe accident mode, because in reality is going to all be about what it starts with, right, where it is.

The CANDU has a feature. It has a fuelling duct underneath and it has lots of water coming down there, moderator first, chill tank next, ducts after

that, if you need them.

So you have lots of time to deal with the progression and I think that's the point he's trying to make. Even if you added no water, it is going to take a long time to boil all that water off.

MR. WHITE: That is correct.

THE PRESIDENT: Does everybody understand that? Let me try one more time, okay. I am not looking about whether it is a credible scenario or not credible scenario, what I think, just as a theoretical analysis.

No power, no operator, how long before -- and that's including all the water in there, how long before possible release starts?

MR. WHITE: So how long before the primary heat transport system is compromised? It would be, as they say, if you are taking all conservative assumptions, about four hours, but if you actually use realistic assumptions it probably wouldn't reach --

THE PRESIDENT: No. Now, you are changing gears on me.

MR. WHITE: Yeah.

THE PRESIDENT: We know about the intervention, once the operator gets in there to --

MR. WHITE: No, I'm talking about an owner. As I said, when they do that assessment they assume

no operations happening at all, how long can the primary transport system itself stay intact? And it will stay intact as long as there is water in the boilers to remove heat, right.

So if you can't add any new water to the boilers and you boil off all the inventory in the boilers at zero power because the plant is shut down, you can't operate on 100 percent full power and have no cooling. It would only take about four minutes to exhaust the steam generators at that point. So that is before any action is taken and the primary heat transport system staying totally intact, right, which is a desirable state because it is in a state that you can then maintain, right.

So if you go past that point, if you go past the point where the PHC is contained, then you have to rely on the water that is in other parts of the reactor to keep the reactor cool and there you still have more time and it's still a confinable geometry that you can manage.

THE PRESIDENT: Because that's where I started by recalling somebody telling me about two days, but then they confused me with the four hours.

MR. SAUNDERS: Yes. So I mean if you get into when you would get to a first release, it would be in the order of two days. If you are looking at something like a large break LOCA or something that puts a lot of hot

water into containment, if it's a slower accident and it doesn't put a lot of hot water in, it takes longer. I mean that's why it's not as simple answer. About two days when you get into early releases.

That's where we get into this discussion about common mode events and the like, the early releases come from major catastrophic failure, hence my comments about meteors or something of that nature which actually basically destroys containment so it's not there, right. And then you can get into a very quick release of course because the building is not there anymore.

So the question is -- it is a simple question, but it's not a simple answer. But you have four hours before you have to worry about anything just in terms of keeping the fuel cool, a good 24 to 72 hours after that, even if you didn't keep the fuel cool and it started to melt before you get into actual releases to the environment, but, as Bruce say, there is just no such thing as zero and what if, what if, what if?

THE PRESIDENT: I still think there's room for improving the explanation of this that we are going around.

Anyhow, anybody else questions? Mr. Tolgyesi...?

MEMBER TOLGYESI: Yeah, one short one.

You are saying that implementation of the Fukushima action plan over kills Bruce. That's what you were saying. Could you comment on that?

MR. IVANCO: It was more from the point of view of the action plan for Fukushima assumes that, you know, it was even physically possible to have this kind of accident on the Great Lakes. I mean, you know, this is not a place where tectonic plates meet, you know, there are some small fault lines here and there and you can get earthquakes up to five and a half. You are not going to get earthquakes that are nine that are going to displace so much water that you could have this kind of event on the Great Lakes.

That's all I was really referring to. It's more of a geological comment than a nuclear comment.

MEMBER TOLGYESI: Because you could have a tornado or something like that.

MR. IVANCO: Well, I mean I have never known -- I have never heard of a tornado knocking out, you know, power to a station the sort of way it was knocked out in Fukushima. Sure, you could have -- I suppose you could have water raised certainly to some level. And from that basis, you know, these implementation of these changes certainly will have improved the station safety and public confidence, like we say.

But I think the feeling of most people in the industry when they heard we had upgrade to Fukushima standards on the places like the Great Lakes was, really? But, you know, it has been done.

MR. SAUNDERS: Yes. In essence, there is no credible scenario that takes out all our power on site, but we did it anyway as far as Fukushima was concerned because I like to phrase it as we are into the plausible verses the probable, right. So in your wildest dream could you see two or three tornadoes hitting the site all at once? Well, maybe, it is probably 10 to the -12 or 10 to the -14 but, you know, it could happen and so we installed the equipment anyway.

But none of our analysis on the external events gets you to a point where you take out all the power on site. You can certainly lose offsite power and you can damage a couple of generators and various things, you just do not get to a point where you are completely without power.

THE PRESIDENT: Questions? Okay. Any other final comment?

MR. IVANCO: No. I think our summary says it all. I mean we are supportive of the license extension of Bruce Power.

We have made some points here which were

not strictly speaking licensing criteria concerning the alternatives, but we think those are very real considerations. The alternatives to not support the extension, you know, have consequences, not to the CNSC, but certainly to the province as a whole. I think that would be my only other comment.

THE PRESIDENT: Okay, thank you. Thank you.

CMD 15-H2.125/15-H2.125A/15-H2.125B/15-H2.125C

Oral presentation by Jutta Splettstoesser

THE PRESIDENT: The next submission is an oral presentation from Ms Splettstoesser. I'm sure I'm not pronouncing it properly, as outlined in CMD 15-H2.125, 125A, B and C. The floor is yours.

--- Pause

MS SPLETTSTOESSER: I realize that I lived 20 years in the secondary zone of the largest nuclear power plant and I'm not prepared to protect my family in a potential emergency, nuclear emergency.

Mr. Binder, Commissioners, participants and interested citizens, my name is Jutta Splettstoesser and Dr. Paul Seccaspina is here with me to give you a brief summary of the telephone poll that his firm conducted last

summer for me.

First, I would like to highlight my personal findings to you in regards to offsite nuclear emergency preparedness. Everything I'm saying is backed up by documents.

The business of nuclear emergency planning is inconsistent, lacks clarity and is not timely and is poorly accessible to the public.

As you know, we are sitting here in the only assessed evacuation centre in our Municipality of Kincardine. How many cars and people do you think we could receive here and decontaminate by Bruce Power? Let me tell you that according to the evacuation plan, the provincial Nuclear Emergency Response Plan, it could be up to 3,829 cars and 9,572 evacuees.

When I approached the schools of our children, I learned, for example, that the high school principal has no dated plan with Bruce Power. Why is the only plan he could show me from the previous operator?

The Tiverton Senior Home has no nuclear emergency plan. What are they supposed to do?

Our Emergency Management Coordinating Committee, which our current mayor hosted last year, met only once last year even though they're supposed to meet twice a year. Dr. Hazel Lynn, who is present here, is on

this committee. The designated supervisory officers of the Bluewater District School Board were not in attendance in the last two years.

The Kincardine Hospital has only one room to receive people contaminated by radiation. I learned we have movable hospitals since I've been here presenting, mobile hospitals, which Mr. Scongack -- So supposedly, there will be tents set up in the parking lot if more space is needed.

"Picture taking is not allowed," said Stephanie Murray, Emergency Drill organizer from Bruce Power to me when I observed a drill last summer. The drill started by checking cars for contamination. A car full of Bruce Power co-op students was guided to the designated decontamination station, only equipped with a shop vac. All of a sudden there was a 75-minute lunch break. The organizers confirmed to me that the CNSC was not present.

And I will now -- I talk very slow and I know we're running out of time but I have more that in the question period I could probably say. I want to give some time for our consultant.

DR. SECCASPINA: Great!

Thank you very much for having me. Paul Seccaspina, Oraclepoll Research.

I'm here to present the results of a

Public Opinion Survey of residents of Bruce County, 500 residents surveyed last July for my client here.

What we wanted to do was ensure a good mix of seasonal and permanent residents and we did ensure that by our methodology. We can get into that a little later but we did get a third of the respondents that were seasonal residents and the remaining permanent residents. We also had a good mix of geography mix throughout Bruce County.

Limited time here, so I'm going to get right to the data.

We asked residents about their level of concern over a potential accident. Concern was low. It was only at 17 percent.

Which leads me into my first slide, so the low level of concern amongst residents. And I can get into some of the demographics later: male-female split, youth versus older residents. But there is a corresponding lack of readiness when it came to preparedness for a potential nuclear accident, with only 27 percent of all respondents being prepared. This includes 30 percent of permanent residents and only 20 percent of seasonal residents being prepared.

We asked people if they had seen or heard anything about planning in the event of a nuclear accident.

The low awareness and preparedness in part may be a result that only 31 percent have seen or heard something recently about planning in the event of an accident, and that's 33 percent for permanent with, once again, a lower skew towards seasonal residents at 27 percent seasonal.

Awareness of community outreach efforts to educate residents about emergency preparedness in the event of an accident. Only 28 percent were aware.

Once again, have you received any materials about preparedness at this residence? Only 12 percent had received something.

The next question dealt with the level of awareness or understanding of emergency procedures and preparedness in the event of an accident. Skew on this one in this 1-5 scale, 40 percent being a rating of level of preparedness as good or very good, 43 percent claiming it is poor or very poor, with the remainder in the mushy middle or in the don't know categories.

With respect to potassium iodide pills, high level of awareness as to what they're used for, 67 percent, two-thirds of respondents. Only 2 percent of the population currently have them on hand at their residence.

The next slide shows sources of information, preferred sources of information that residents would like to get information about the issues

that we're discussing. Websites come up 37 percent, followed by radio and television. So the top three were websites, radio and TV, with websites obviously skewing younger and more seasonal residents.

We asked residents: How strongly would you support having a yearly door-to-door canvass of residents in the area to advise them of what to do in an emergency situation? Fifty-seven percent, with an almost equal of permanent and seasonal resident, would support such a campaign.

Awareness of issues. So this next table shows what people were aware of and issues that they're aware of. With the exception of awareness of releasing radioactive materials or that they could be released, 83 percent, the remaining categories -- we can go through later -- are all very low, falling below majority threshold, and the lowest being awareness of location of emergency shelters only 20 percent, Red Pages only 19 percent, different emergency notification requirements 15 percent.

Which leads us into the next slide here, Information interest. We asked residents what they would be interested in receiving. High level of awareness for all of the categories, especially contact information 87 percent, emergency centres 85 percent, decontamination 85

percent.

I hope we haven't gone over here.

In summary:

- low level of concern over a potential accident;
- also a low level of outreach or communications efforts at the moment;
- a majority of residents are not prepared for a possible accident;
- while they're aware of the uses of potassium iodide pills, only a low percentage have them on hand;
- very few have heard a siren recently, 15 percent in the last year and I believe 11 percent in the last month;
- there are knowledge gaps as they relate to decontamination, evacuation, shelter locations and notifications;
- however, most do want to know about critical information about contacts, evacuation routes, decontamination and shelters;
- strong support for the door-to-door canvass of residents; and
- given the poor uptake on what we consider now current passive communications and education

processes, perhaps a door-to-door or face-to-face interactive plan would seem to be in order.

I apologize for my misuse of the microphone. Thank you.

MS SPLETTSTOESSER: We have one more minute.

I know in my slide deck you will find that I mentioned that the Memorandum of Agreement from Bruce Power from 2011 commits an annual -- Bruce Power commits to an annual drill at the Kincardine Hospital. Why did Bruce Power only conduct one drill in three years? And last week Bruce Power confirmed to me that no annual meeting took place in the agreed timeframe. Who will hold Bruce Power accountable to their Agreement and what else is neglected? I think we deserve real answers.

THE PRESIDENT: Okay. Maybe we'll get some.

Questions? Who is -- oh, you --

MS SPLETTSTOESSER: If I may, I still have 20 seconds.

THE PRESIDENT: Oh, sorry. Sorry. Go ahead.

MS SPLETTSTOESSER: A citizen just shared with me before I came here -- like at lunch she shared with me that she received a letter in the mail that she can get

her KI pills, but the coupon was missing.

THE PRESIDENT: Okay. Maybe Bruce can react to that.

MR. SCONGACK: Sure. James Scongack for the record.

I'll try to cover some points and add a bit of additional information or maybe we'll start with the public opinion poll. I think, you know, we always find this data interesting and of course we had a presentation yesterday by Ipsos Reid. So just a few items on the public opinion poll.

Of course, we appreciate all data that we can receive about, you know, what does the public in the area think. Actually, it wasn't until these intervenors' submissions were published that we realized who had done this Oraclepoll because you'll note on July 16th of last year we received actually a lot of complaints about an Oraclepoll that was taking place and the company had actually issued a statement indicating it wasn't us because we typically have a practice of giving residents in the area a notification when we're doing public opinion polling. So, you know, we conduct our public opinion polling on an annual basis. And it's important to know that public polling is a snapshot in time. So as we're looking at public opinion, we're looking at it over a

multi-year period.

And it doesn't actually surprise me some of the results of the public opinion poll because, you know, if you kind of break down some of the elements in our emergency preparedness planning -- for example, the poll looks at Bruce County as a whole and if you ask Bruce County, for example, have you received information on KI pill distribution, of course that's an initiative that we've just recently launched over the last few months, so it wouldn't have been captured last summer. If you ask a resident in Tobermory if they have information on that, that's 120 kilometres from the site, so they're not going to have that level of information as a resident in 10 or 50 kilometres would have.

One of the things we will be doing going forward in our future public opinion polling is looking at incorporating a further subset of the immediate area around the site. It's important to note that, if you look at the residence within 10 kilometres of the site, that's actually only 2 to 4 per cent of Bruce County overall. To get an appropriate representation of that group, you really need to increase your sample size.

Those are some of my initial comments on the poll, but, you know, I'm never dismissive of information that we can receive. I'd be happy to get a

more detailed breakdown of that. And I'd like to understand the data in more detail because, you know, it's clear to us some of the stuff is at variation with, you know, what data we presented yesterday.

MR. HAWTHORNE: For the record, Duncan Hawthorne.

Maybe I could just add to that point.

It seemed to me, in listening to the poll, that the information we discussed yesterday -- or was it last night, I can't remember, it may even have been today -- in relation to the --

--- Laughter / Rires

MR. HAWTHORNE: -- to the booklet that Commissioner McDill was leafing through and had in her hand, would seem to me to have answered almost everything that people were seeking.

As we said when we discussed it, it's available on the web, which I'm pleased to see the pollster tells us 37 per cent of people like. We said that we also talked about getting to a different demographic by giving people hard copies, which we are circulating.

Almost every question that was asked about -- Do you know where the evacuation centres are? Do you know your route? Do you know what the situation is with KI pills? -- is answered in that booklet. So I

believe that what this poll tells us that the questions that people didn't have answered before will be answered by them receiving a copy of this information and the method and manner by which they have expressed a preference.

I don't think there is a lack -- I'm certainly not going to take issue with the poll, although Tim has given a pretty good explanation as to why a poll conducted in July, pre an initiative, would give the results they are.

Secondly, as we've talked about many times here, there is, let me call it, a segmentation of the group: those between zero and 10 kilometres will expect to have a higher level of engagement and involvement; those in the 10 to 50 group will have a lesser level of direct engagement, but all 65,000 people that sit in those two regions will be touched by our communication initiative.

If you're outside that 65 -- so that 50-kilometre group, and that's 65,000 people -- is there an expectation that you're going to know very much of this? No. That's it. That's what we've said. We've explained that. We've explained it to our target audiences. We've explained why that segmentation of the population is created the way it is, and there's very good scientific and logical reasons for that demarcation to be there.

So I think, yeah, we've seen that ourself

when we poll Ontario that, as you might expect, the closer to the plant you are, the more you understand what we do. That's a deliberate targeted attempt to make our local community feel more comfortable the closer they are to the facility.

THE PRESIDENT: Okay.

Questions?

Dr. McDill.

MEMBER MCDILL: Thank you.

One question. It was in supplementary information from intervenor 125A asking for package sizes or additional tablets if you have, I assume, a largish family.

You have asked for equal per person in each household.

MS SPLETTSTOESSER: Well, to explain to you, two years ago I met with Roberta Trelford, our community management coordinator, and I asked her where I can get KI pills. She said, well, they're -- actually, even OPG was helping me with that. I asked, like, because I realized, well, this is standard in other countries. Obviously, you can hear I'm coming from Europe.

But anyways, so I tried, and I tried to describe to you. I didn't in my presentation today want to focus on KI pills, but I found out that I cannot go and buy

them. The pharmacists explained to me, very gratefully, how much I will have to have for my family or, like -- and so I'd start to explore and just find out.

I was very thankful to the CNSC that I was actually invited to be part of the consultation last summer. I think, thanks to my involvement, I actually felt the CNSC heard and changed the document in the summer, the rec doc 2 -- excuse me if I don't know the exact number, but two zero...anyways, since that call, the CNSC changed the requirement for Bruce Power.

I found out that in the Darlington and Pickering hearing it was decided to distribute. I know Mr. Binder held at the hearing this flashlight up. It took me two months to receive this flashlight, and that's another long story.

So, yes, if I would live in the primary zone, I would get KI pills. Gratefully, Mr. Saunders brought two packages. Because in other countries you get more than just -- so they give out to a family -- I have friends that have six children. I have four children. They're aged 12 to 18. They're fairly large kids, so they need -- we need 12 tablets not counting our exchange student that we have -- like that lives with us. I only get that much, so for one day. Where do I get the next stuff if it's a snowstorm?

So I find that in other countries you get 12 tablets per person or -- and that's debatable. I'm glad that we have it available, but that's not really what my -- what I wanted -- why I'm here.

I think it's unacceptable that school principals have no plan, are not informed.

Like I asked if a principal changed -- like I went to the school, St. Anthony's, that has a fairly comprehensive updated plan. But they have in their office the emergency plan, and I flipped through while I was waiting for the principal and when she came I said, "There's something missing."

And she said, "What do you think?"

And I said, "I'm thankful you have an emergency plan at St. Anthony's hanging right in the secretary's office, but the nuclear emergency plan is not there."

And she said, "That's right. Why don't I have it?"

So the other school boards besides -- we have four school boards in our community. Only the Bluewater District School Board is on the emergency coordinating committee, and that only committee member hasn't shown up for two years. I looked through -- it was really hard to even have access. Their meeting next

Tuesday -- and I haven't had -- because I'm busy here, I haven't checked, but the last time when they met, in June, I had to request from the clerk to get the agenda posted.

That's how -- your interest is how -- you asked our mayor: how do you inform your community? It's very hard to find out when these committees meet, and I think there should be -- I know you're not the one who can, but I want you to leave this community not with the wrong -- like with a different perspective.

This is --

THE PRESIDENT: So let's gets some answers.

MS SPLETTSTOESSER: Yes.

THE PRESIDENT: Can I get the Office of the Fire Marshal maybe to tell us what is the policy with respect to school boards, hospitals, et cetera, and how is that going to be executed? Or is it purely a municipal affair?

Presumably you guys will have some direction and guidance to those institutions.

MR. SULEMAN: Thank you. Al Suleman, for the record.

Dave Nodwell will speak specifically to what the PNERP requires.

I just want to comment that the

information provided by the intervenor is actually very useful and very timely for us.

As you know, Dr. Binder, from the fire side of the business, the Office of the Fire Marshal and Emergency Management has had a lot of experience with public education. Mind you, it's taken use decades to instill, you know, fire preparedness in people's minds and so on.

But that experience will come in handy as we get more engaged on public education from the EM standpoint, from the emergency preparedness standpoint. In fact, the KI pills initiative, in cooperation and collaboration with our KI working group, we've struck a dedicated task group on public education. We've had a number of focus groups to guide on appropriate public education messaging.

I'm not surprised with the level of uptake that was indicated in the polling. I mean it is dismaying, but I'm not surprised at it. But, again, it's very timely information. It sends the message certainly to the province that more needs to be done in terms of public education on the emergency preparedness standpoint and, in our relationship with the community emergency management coordinators and with the nuclear facilities, would look for opportunities no how we can get, you know, greater

uptake on people's -- individual public members' knowledge of emergency preparedness.

MR. NODWELL: Thank you.

Dave Nodwell, for the record.

The evacuation is a municipal responsibility. It's outlined in the Bruce implementing plan, or the PNERP, section 4.7.3 to be specific, that the municipal plan would include arrangements for mass evacuation, transport and/or medical transfers.

It speaks as well to schools in the primary zone, and the planning that's required there, as well as emergency plans for institutions, so facilities such as hospitals, nursing homes and others in the primary zone having the provisions to move staff, residents, patients, et cetera, as required.

Again, this is a requirement that is put on the municipality. I think in light of some of the information that we have heard in the last couple of minutes, that's something that we would like to follow up on and ensure that that is in place.

THE PRESIDENT: Dr. Lynn, is that part of your responsibilities?

DR. LYNN: Yes -- Dr. Lynn -- it is.

I actually, because every year we give emergency message out before wintertime, get, you know, two

weeks' worth of food, all that kind of stuff, I think 27 per cent prepared is actually amazing compared to what I have accomplished.

One thing I really noticed, the more that it's noted on radio, TV, websites, the more people read it. And since we've been talking about KI pills, I'm getting a lot more interest, a lot more stuff on our web site and hits on it.

So I think it's a gradual process of increasing people's awareness and telling them what they should have and prepared.

THE PRESIDENT: But what are you going to do about school boards, for example? Do they -- are you making any requirements to every school to have a very definitive plan just in case?

DR. LYNN: I don't have the jurisdiction to do that. They are supposed to have an emergency plan. I don't know if the ones outside the 10 kilometres have nuclear on that, but that's certainly something we should look at.

MR. SCONGACK: James Scongack, for the record.

So maybe it's helpful to provide kind of a bit of additional background because I really think there's two components to what we're trying to do here.

Obviously, there's -- you know, and we articulated this throughout the week.

The primary focus right now over the course of the next several months is the initial 10-kilometre zone. Those -- we announced that program would be progressing a couple of weeks ago.

We just received the KI tablets on Monday, so that distribution program is under way. And as was mentioned by the intervenor, we do have information sessions planned next week for those impacted residents within that 10-kilometre zone.

I think it's important to note that there are no educational institutions within that 10-kilometre zone, and so, you know, we think it's an important first step to progress with that distribution and that public education program within that 10-kilometre zone with, of course, a lot of one on one attention. And that's what's going to take place next week.

The next step moving forward from there is the 50-kilometre zone and, of course, that is somewhat of a larger undertaking which, as I mentioned earlier, we have started preparations for.

I mentioned some of the work we've done with local physicians and, of course, one of the components with that when we progress with that program will be

working with the Bluewater District School Board on that front.

But of course, we're doing this in a staged way. And one of the elements that we're still working on which, of course, we're committed to complete this program by the end of the year, is how do we want to stock the KI tablets within the 50-kilometre zone.

And until that is finalized, we thought it was -- it wasn't appropriate to go to some of those other stakeholders like the school board, et cetera, until we had, you know, finalized what that would look like. And then, of course, not just school boards, but other organizations, once we have that information available, then, with the Medical Officer of Health, various other authorities, there will be a broader conversation if procedures or policies need to be updated.

So I think it's a fair question to raise, just like some of the questions in the poll, were reasonable to ask, but I think we need to recognize that we're just beginning this process and I think the real test will be where we are by the end of the year.

And I think you heard from some of the previous intervenors that, you know, we've done a lot of stakeholdering, if I can call it that, with this work and, so far -- I was even pleased to hear CELA's complimentary

comments on this.

So far, we're on the right track. Still a lot of work to do. And these are all part of the plan, and if anybody's interested, we'd be happy to sit down and kind of take them through what that work plan looks like right to the end of the year to get assurances and maybe some input.

THE PRESIDENT: Okay. Questions?

Dr. Barriault?

MEMBER BARRIAULT: Thank you, Mr.

Chairman.

I don't know if it's fair to ask the CNSC to put it as part of their objectives to do emergency response evaluation on a regular basis and basically to assure that the work's being done because what I'm seeing is probably similar to when we had the problem with the alarms.

We're seeing that people are saying, well, yes, it's part of my job, but it's not my whole job. It's somebody else's and somebody else.

But the difficulty with all of that is that nobody's assuring itself that it's being done, and done in a timely manner.

So I'm wondering if it's fair to ask somebody at CNSC to take the bull by the horn on this and

make this an evaluation -- which we do anyway. In the emergency response, we do it with the companies.

So is it fair to ask this, and can I ask for somebody from CNSC to comment on this?

MR. HOWDEN: So Barclay Howden. I'm going to ask Raoul Awad to respond to that.

But in terms of our CNSC requirements, whatever they are, we put in a new Reg Doc. We will measure compliance against those. But I'll ask Mr. Awad to give a bit more detail on what those are.

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

I'm not Raoul Awad, but I'll pass it on to him afterwards.

Just a couple of things I'd like to highlight, the fact it's -- you're correct. The evaluation has increased, especially post-Fukushima. One, the external advisory committee that the President himself has struck independent of the CNSC task force itself and, of course, the action plan and recommendation to the CNSC is to collaboration and integration of the emergency management plans.

Staff do review the program itself, and we approve it. And it's ongoing, continuous enhancement.

So the Commission approved the new Reg

Doc. As the intervenor does not remember the number, I do not remember the number itself, so that's okay.

The -- we hold the licensee actually accountable with respect to make sure that they are in conformance with the CNSC requirement. But we do conduct inspections. We do conduct evaluation of the RP program.

And post-Fukushima and the direction arising from the Commission, especially on the KI distribution, that was a public hearing that they had. And the recommendation came within an annual report review of the integrated review of the safety performance of the nuclear power plants in Canada.

So my point here is continuous enhancement is ongoing, as we get more information and more evaluation done and the improvements are being implemented, and the Commission is very much on top of it. And staff is -- they give me the number, so it's Reg Doc 210.1, just to be accurate.

So the key point here is it's ongoing improvement. And the Commission has the power -- and we do have the power -- as staff, if we feel that there is an immediate health and safety risk, we can take regulatory action as to the point of issuing orders.

I'll pass it on to Mr. --

THE PRESIDENT: But just to be practical,

I think the CNSC mandated by December of this year, this will be done. I think the office of the fire marshal, emergency management struck a committee of all the parties, and I think they're working very, very hard on executing this. And on annual report, we will expect a progress report, so so far, things are going -- we're coming a long way from no KI pill distribution to KI pill distribution. So there's a lot of things yet to be proven and shown, and I think every annual report we will ask questions as we're going.

I don't know if I'm putting words in your mouth or -- for Mr. Nodwell.

MR. NODWELL: Dave Nodwell, for the record.

Well, the way we're approaching it is it won't be necessary to ask the question because we'll be providing the Commission with -- as we have been for the past number of months -- with regular updates.

THE PRESIDENT: Thank you.

Go ahead.

MS SPLETTSTOESSER: If I may ask, I would say it's a beginning. Like as I -- my whole point it's not just about KI. That is really how it started.

I think when I see a drill, the way how I describe it and how I -- this is not what I made up. This

is what I saw.

There was no personal protective gear being used. It was on the sunniest day, as you can see in my slide. And so the whole attitude -- I find -- I hope that nothing will ever happen, but I can't start a drill by oh, this is so unlikely, but we have to do it, right. And oh, we give out KI pills.

Today, the south line is being prepared to be the emergency -- the Highway 9 is being closed, so I live on the south line, so they've prepared it.

Yes, we have signs out there. Like Mr. Seccaspina was describing that how little people know about emergency detour routes.

There's people in our community, when they see the signs EDR, they literally thought it's Economic Development Route. Like I'm not making this up.

So there needs to be more of a discussion. It's not about KI pills.

Dr. Hazel Lynn, in the video -- in the promotional video, she states that for people over 40, which I am falling under, in the video it says -- which is on our municipal web site available. It will only show after 20 or 30 years, anyways, and then they're dead.

Like how can I, as a public officer, say that to my -- so I ran in the last municipal election. I'm

not just one citizen. I've knocked on 1,000 doors in the last municipal election. And I was very close elected, so I have half of the people in my ward behind me.

So I was -- had my ear on the ground. And you know what works, is really having real town halls. I admire Mr. Hawthorne. He -- I mean, and his team. Bruce Power does an amazing job.

My kids benefit from the sponsorship of the robotics club, too.

But my son does not -- like we all -- we all support -- we are -- we love our community. We all want -- we care about our community. But just coming and phoning -- like having people being like -- like the blind acceptance that nothing will happen, that people lose critical thinking worries me. And I think the one on one that we sit down and really prepare, that's all I want.

And no matter what view we have on future energy sources, that's not why I'm here about. And I thought that we often got off topic in this Commission hearing.

THE PRESIDENT: Okay. Thank you.

Anybody -- any other questions here?

Any questions?

Anything else would you like to raise?

MS SPLETTSTOESSER: Yes. For my closing

remarks, I'd like to ask the Commission that a licence approval should only be given after emergency planning is implemented through annual canvassing in the primary and secondary zone. \ I also recommend that the facilitation of focus groups with citizens will be done.

Commissioners, why does the CNSC sets different licensing requirements for public versus private operators? Different procedures exist across the country.

Are we prepared in this community? No, we are not. This is why I deny a licence.

THE PRESIDENT: Okay. Thank you for your intervention.

We're going to take, now, a 10-minute break. Thank you.

--- Upon recessing at 4:00 p.m. /

Suspension à 16 h 00

--- Upon resuming at 4:15 p.m. /

Reprise à 16 h 15

THE PRESIDENT: Okay. We are ready to continue.

The next submission is an oral presentation by the Provincial Building and Construction Trades Council of Ontario as outlined in CMD 15-H2.63.

I understand Mr. Dillon will make the presentation. Over to you, sir.

CMD 15-H2.63

Oral presentation by

Provincial Building and Construction Trades Council of Ontario

MR. DILLON: I'm the Business Manager of the Construction Trades Council of Ontario and with me is my Executive -- or our Executive Assistant, Igor Delov.

First off, we thank the Commission and congratulate the Commission in the way for this process, supplying this process for stakeholders and people from the general public to comment on the nuclear issues in the local area.

We think that periodic engagement is critically important in sustaining channels of communication that enhance trust and confidence in the nuclear industry for all of us. The owners, operators, contractors, regulators and community at large all have a stake in having a safe, effective and reliable nuclear facility at Bruce Power and we think that is actually what does exist here.

Who is the Building Trades? We're an

organization that represent 150,000 construction workers -- highly skilled construction workers in the province made up of 13 affiliated international unions and the list is there of who the 13 are, but it represents all the workers in the construction industry.

The way the organization is set up, we do collective bargaining for the -- in the seven different sectors that are listed there, the ICI as it's known, the industrial commercial institutional, the electrical power systems, the residential sector which is high-rise and low-rise, heavy engineering, roads, sewers, water mains and pipelines.

Employers and workers bargain in good faith. You'd think sometimes by newspaper articles there's something that we don't but generally we negotiate in good faith to ensure that construction labour market's needs are met safely and that Ontario has a highly trained, skilled construction workforce which ensures the highest standards in the installation and maintenance work here in the province.

Under that bargaining structure for Bruce Power, the organization is known as EPSCA, the Electrical Power Systems Construction Association, that's who we bargain with for the nuclear sector.

Bruce Power supports 18,000 direct and

indirect jobs annually, including upwards of 3,600 construction jobs which are vitally important to us as the Building Trades Council. Bruce Power generates \$4 million in annual economic benefit through direct and indirect spending in operational equipment, supplies, materials and labour income. So that's pretty important to a whole range of people throughout the province, and I would argue throughout the country, has an impact on the economy.

Since 2001, Bruce Power has trained 1,200 registered apprentices and there's been 605 certificates of qualification that have been issued. And, you know, it's this kind of work that Bruce Power does on its -- when you build it or in refurbishes -- that actually helps train the future workforce in the trades for Ontario.

It is estimated that over 5,000 direct and indirect jobs will be created as a result of the anticipated Bruce Power refurbishment over the next 20 years. I tell Bruce Power we can do it maybe in less time, but that's only an opinion.

Excellent job opportunities for new apprentices, and that is targeted at our youth, are under employed youth, Aboriginals, youth at risk, women, returning veterans and reservists. We have an organization now called Helmets to Hard Hats where we attract veterans and reservists to our trades giving them opportunity when

they come back from looking after our -- doing stuff for our benefit elsewhere.

Upwards of \$1.2 billion is expected in labour income per year as a result of the refurbishments. And I say that that's an important number to us. I've heard some comments about people living in the community and it's a great community, and all reports -- I don't live here, but all reports I've heard certainly is that this is a great community but part of what makes a great community is having jobs in that community to sustain your living.

But these kinds of investments also, in our view, strengthen the middle class and it helps elevate people from the poverty side up to be part of the middle class, and I think we all aspire to that.

Almost half of Bruce Power's employees are over the age of 46 and so retirements over the next decade will create -- 2,000 new full-time workers will be needed to fill the shortages.

That's not, you know, a small number, that's a lot of work and planning, but it takes work to actually train those people, so we think that that is a good thing to be going on in our society and in our communities.

Ontario's construction labour markets supply is cyclical, our training capacity must be aligned

with demand. We hear a lot of people talking about the shortages, but the fact of the matter is that if the demand is identified and aligned with our capacity to train, I think that we can meet certainly the demand as I see it.

Regional spin-offs in Southwestern Ontario, in particular, stands to gain tremendously from new work at the Bruce site. I think the same area stands to gain by Bruce Power continuing to be an operator in this area.

We're confident that Bruce Power is well positioned to hire, train and effectively mentor the new wave of construction workers who will be refurbishing the remaining six units.

Their investments of \$100 million a year in training alone is something that I think people need to realize that that has been and will happen.

Bruce Power continues to meet and set CNSC standards with respect to radiation protection in terms of adequate monitoring and protection from exposure. Workers are trained to comply with prescribed safety protocols. We don't always easily come to that. But we are trained and it is insisted, which is actually I support that totally, that we wear and handle our personal protective equipment, that we share safety concerns with supervisors and with the joint health and safety committees.

Bruce Power has taken a proactive role in radiation protection with a view to improving on-site safety practices. Efforts culminated in the 2011 Radiation Safety Institute of Canada's Alpha Radiation Report.

At that point during the rework we had -- I think it was 554 workers that they weren't -- there was an incident that happened where there was an exposure to some alpha radiation to a fairly small number of people -- one is too many, but a fairly small number of people, but the proactive approach that was taken by Bruce Power was to bring in the independent organization called the Radiation Safety Institute of Canada and examined everything that went on around those circumstances, how did it happen, how do you prevent it from happening again, tested 554, as I said. And the good part of all of that was that nobody exceeded any limits.

And I can say as a union representative for the construction workers in Ontario, there was certainly at the start of that a lot of anxiety from the workers and that is understandable, but the response by Bruce Power was positive right from the start, open and transparent and so by the end of that, which could have been much worse maybe than it was, the fact of the matter is at the end of it that the workers themselves were quite pleased with how that whole issue had been handled.

I have had lots of experience with different exposures away from the nuclear industry, away from Bruce Power, where owner clients haven't been as open and transparent and cooperative to get to the bottom of an issue that may have caused or what the impacts of it all might be.

So it is our belief that workers in Ontario -- and we say this all over. I sit on the Prevention Counsel for the Province of Ontario and we are trying to and we work at getting owner clients and contractors to encourage their workers to raise legitimate health and safety concerns if they see them and that culture is alive and well at Bruce Power. Our workers feel quite comfortable and if there is what they see as a safety issue, they feel quite comfortable in raising that and I think that bodes well for the worker, it bodes well for the contractor and the owner client and everyone around the safety business.

A couple of more minutes or are we -- okay. So in conclusion, I would just say that it certainly is the position of our council that the Bruce Power application for licensing be looked on -- we think that's a very positive thing and should be granted.

THE PRESIDENT: Thank you.

Questions? Ms Velshi...?

MEMBER VELSHI: I have a question for Bruce Power on your commitment to training. The hundred million dollars a year seems like such a huge number, probably larger than the budget of most universities and school boards combined. So tell me, what is that for and what does it cover?

MR. HAWTHORNE: You see, they leave the hot questions to me. So that \$100 million covers a range of things, as you might expect. It includes simulator training or shift cycles we are putting our operators through, as was mentioned previously by the Power Workers' Union. There is a six week training cycle annually for each authorized person. It includes the apprenticeship programs. We carry a number of additional employees above complement so that they can be qualified as craftsmen, so that is, I say, the base salary for all of those apprentices.

We obviously support training, particularly mock-ups and set ups for contractors before doing complicated work as part of the dose reduction program that people are rehearsed and trained in activities away from a radiation field so that when they get into the field they can do the work in a timely manner. So it's really a kind of broad range, including sponsorship, scholarship programs, training relationship with Georgian

College and a number of other places. And that includes UNENE, which is the relationship with the five universities that create nuclear chairs that allow us to bring graduates through. So it is really a pretty broad spectrum, but when you add it all up it definitely comes to that sort of amount annually.

THE PRESIDENT: Does it include the new apprenticeships for Aboriginals?

MR. HAWTHORNE: Yes. All of the scholarships that we talked about previously are included in that. That is a new budget item that we have put together particularly targeted at Aboriginal use.

THE PRESIDENT: But I didn't realize that some of it is apprentices aware, you know, you can actually bring them in and train them from the ground floor.

MR. HAWTHORNE: Yes. What we are actually doing with the Aboriginal use, we have identified two or three particular work streams. Radiation protection is an area that we think fits well, so too are plant operators. So there is a few specific work streams that we think are an easier transition path.

As I think I mentioned before, this is a long-term commitment, but if we can create some job opportunities quickly through relationships with college and with sponsorship funding, we believe we can get the

throughput increased in the short-term.

THE PRESIDENT: Thank you.

Questions? Dr. McEwan...?

MEMBER MCEWAN: Now I think this can be a very quick question, but I just want to be absolutely clear in my mind. If I understand correctly, the alpha incident involved a lot of your members, or a lot of the people involved in the alpha incident were your members. So as a union, are you happy with and comfortable with the information flow, the discussions and the explanations that occurred over that period of time?

MR. DILLON: Yes. And if we weren't our members would be voicing concern continuous if they weren't satisfied. But from that experience -- nobody wants to go through that kind of experience for sure, but when we went through it everything that we requested was granted by Bruce Power.

In fact, because I am not a total expert in the nuclear industry, there were things that they suggested that we do to make sure that we covered off all the issues for the workers and the anxiety level, which was pretty high at the start, over a period of a few months, calmed right out. So it was -- and there was a fair cost to that monetarily to have that independent Radiation Safety Institute brought in to do the study. So it was

good.

THE PRESIDENT: Any other questions?

Okay. Any final comment?

MR. DILLON: No, I'm good, thank you.

THE PRESIDENT: Thank you for the intervention.

MR. DILLON: Thank you.

CMD 15-H2.65

Oral presentation by

GreenField Specialty Alcohols Inc.

THE PRESIDENT: The next submission is an oral presentation by GreenField Specialty Alcohols Inc. I think we can use a bit of alcohol here --

--- Laughter / Rires

THE PRESIDENT: -- as outlined in CMD 15-H2.65.

I understand that, Mr. Dodkin, you will make the presentation. Over to you.

MR. DODKIN: That's correct. Ted Dodkin, for the record.

I would like to thank the Council for allowing us to speak today on behalf of our company. A little bit of background. Our company is located in the

Bruce Energy Centre, which is just for all intents and purposes east end of Bruce Nuclear Power. We came to this area because of Ontario Hydro's offer of low-cost energy and that puts probably most of the business to the British Energy Centre.

The centre was built on the synergies between the nuclear plant and the various industries it attracted. Commercial Alcohols, now GreenField Specialty Alcohols, began its first industrial alcohol facility at the Centre in 1989 and again it was attracted by the Ontario Hydro's energy offer.

Since the beginning, GreenField Specialty Alcohols has grown to be Canada's largest fuel grade ethanol producer in Canada's only large industrial alcohol producer and we ship products around the world.

A little bit of our Tiverton facility is that we produce about 27 million L of 100 percent alcohol annually. Of that, 3.5 is fuel grade alcohol. Sadly, even though our production has increased, we have dropped our CO2 emissions each year by 5000 tonnes, and that is an estimate.

We purchased about 2.7 million bushels of corn and it is all from Ontario and it is all locally grown corn. The wet distilled grain is what is left after you have converted the starch to sugar to produce the alcohol

and that goes out to the local farmers directly from our plant at about 65,000 tonnes annually. The economic benefits for the agricultural community in the area of employment, and indeed the commercial benefit for all Ontario because we are shipping overseas and worldwide is big, is very positive. In the beginning, Bruce Power provided steam to GreenField. In 2002, GreenField began to supply steam to Bruce Power, fuelled by compressed natural gas, a very efficient manner of doing that.

Employment economic impact. Bruce Power, as we all know, is located in the Municipality of Kincardine and is the largest employer in this region. Since 2001, Bruce Power has been a source of jobs, tax revenue and economic growth for our community. The Bruce site has a tremendous economic reach, while growing the skills and knowledge of a generation of workers and GreenField benefits from that as well.

Bruce Power is not just an economic driver in the region, but is a good neighbour committed to safety and open communications. Their environmental commitment, Bruce Power communicates regularly on its efforts to protect the environment, complying with all the relevant legislation or regulations and it aims to protect the resources, conserve energy, reduce water consumption and reuse and recycle. They monitor all aspects of the

environment surrounding the Bruce facility, including the air, water, land and the wild animals. I know that first-hand from where we are located.

Their emergency preparedness, Bruce Power is actively engaged in emergency preparedness. The site has a fully equipped fire department, an ambulance and an emergency response organization which offer around-the-clock response that is at all times called upon to provide aid to the surrounding municipalities. I know that at our site a lot of the local firemen are members of the Bruce Power Fire Department. They tour our facilities. We have an emergency plan with them, with their help. They implemented a post-Fukushima innovation and improvements that have made the site safer and stronger.

In support of the extension of this Bruce Power license, the synergies between our companies has allowed our plant to survive and this agreement remains important to GreenField for the long-term future of the Tiverton Plant.

Bruce Energy Centre is a positive development for the Municipality of Kincardine that will encourage economic development and growth, which is good for all the area's industries. Without the Bruce Power, there is a reasonable risk that the Bruce Energy Centre would cease to exist sometime down the road. GreenField

provides full support for a five year licence renewal for Bruce Power.

THE PRESIDENT: Thank you.

Questions?

Can you, on slide -- let's see. Where are the numbers here? Slide 3.

Please explain the steam. I thought the facility was designed to generate steam and so now they are buying steam? What am I not understanding?

MR. DODKIN: Well, Bruce Power can probably comment. I can say that the steam that we provide is --

MR. HAWTHORNE: Well, maybe, I will answer that. For the record, Duncan Hawthorne.

As you probably remember, the history of the steam supply was we did in fact supply steam many years ago from Bruce A. When Bruce A was laid up there was a customized steam plant built on the site to provide steam to the Bruce Energy Centre, but it was fuelled with bunker C oil, which of course was not the most environmentally sound approach.

We had a commitment to continue to supply steam to the Energy Centre until 2010, but we recognized a couple of things. Firstly, the great dependency that existed amongst the Bruce Energy Centre for that and,

secondly, that we wanted to do something better for the environment.

So we worked with GreenField and the other people in the Energy Centre, to see if we could find a solution by which they could provide their own steam supply. The economics for them to do that was a bit challenging, so as part of the overall arrangement we said, well, we will become a customer of yours. It allowed us to retire our dirty bunker C oil facility and where we need heating, domestic steam to send to parts of the site, then GreenField would provide that to us.

So it was a win-win solution for all of us. It allowed us to close what was a large emitting bunker C oil facility and provide -- to buy clean steam while at the same time securing the long-term for GreenField.

THE PRESIDENT: Thank you.

Anybody else? Anything else you want to add?

MR. DODKIN: No. Thank you very much for the time.

THE PRESIDENT: Sorry.

MEMBER McDILL: I am intrigued that you are using bushels. Are those -- is that something that goes back to 2 pints, one quart, four quarts, two bushels?

MR. DODKIN: No, they still use bushels in the industry.

MEMBER McDILL: It's a bushel basket?

MR. DODKIN: Yes. Yes. Well, it's not actually a bushel. It's just a number.

MEMBER McDILL: Bushel, okay.

MR. DODKIN: It's about 56 pounds.

MEMBER McDILL: Thank you.

THE PRESIDENT: Well, thank you for the intervention.

MR. DODKIN: Thank you.

CMD 15-H2.141

Oral presentation by ASI Group Ltd.

THE PRESIDENT: I think this is the last intervener, which is an oral presentation by ASI Group Ltd. as outlined in CMD 15-H2.141.

I understand that Mr. Sferrazza will make the presentation.

MR. SFERRAZZA: Thank you.

As you said, my name is Carmen Sferrazza. I am with ASI Group and we have been a service provider to the Bruce facility for over 20 years. I want to thank you for allowing us the opportunity to present here.

Our perspective is a little bit different, but I think it is still very, very important. They have been a very, very good client of ours and I think we have a relationship that is a win-win all around. We would like to kind of go through some of the things that in the last 20 years have helped us develop into a better company with the help of our client.

To just give a quick -- what I would like to do here again today is just give an overview on just some points that we have seen in the last 20 years that have helped us at ASI. Typically it's three areas. It is growth which is, I guess obvious, but more importantly what we see is safety and quality. That has been something that has been driven home to us and something that has helped us develop into a larger company.

Just quickly on the history, I don't want to bore you too much, but it was interesting when I went through this, we were, as early as 1990, doing R&D with -- back then it was OPG, it was primarily on developing ways of controlling zebra mussels in industrial facilities. In general we are a water, wastewater engineering company but we also have a very strong engineering side that does underwater work, which primarily involves inspection, maintenance, some construction.

What I wanted to say here is that we

started in 1987. There have been points here all along that have been paramount that have been developed through the Bruce relationship that we will get into a little bit later. But what I wanted to say here is that we are at 120 people, started in 1987.

Again, some of the service offerings that we have developed through the association with Bruce has allowed us to not only grow as a company with employees, but also worldwide and a lot of the things that we have developed with the Bruce facility has allowed us to export some of the services throughout the world since 1987. We have now offices, again just to exemplify the growth, we have offices in St. Catharines; Orchard Park, New York; Vancouver and also Sarnia is servicing the petrochemical industry.

Safety and quality is something that is a culture at the Bruce facility and something that since day one has been hammered home to us. We have embraced it. At first it looks like it's something that is difficult to deal with, but when you get into it it has helped us all along develop into a better company.

When I go through some of the presentations we give to our clients, it's funny that a lot of things that we have developed as a company have been mirrored or have been asked of us from the Bruce facility.

Things like observational based training came from the Bruce audits. Verification is something that we learned from them. E-learning is a computer-based training that they have. Core standards that we are developing. But something that now is very important to ASI is the culture of safety that we have learned very well from our client.

Quality is important. Obviously you can't have safety without quality management, and again this was driven home to us, it is something that we have taken and run with.

Client feedback surveys, vendor qualifications are something that we learned that we make sure that we have vendors that will meet our standards who are ISO for many, many years.

We have corporate quality objectives and something that is an online project manager that we developed on our own in order to manage the projects more effectively.

Just some of the services we offer, to give you an idea of what we do, again, we are a water and wastewater company, but we have a wide range of niche services. We do commercial diving, robotic services underwater, tunnel inspections and control of zebra mussels, which you are probably familiar with.

We have been an integral part of

maintaining the facility at the Bruce, the underwater aspects of the facility infrastructure. As you heard earlier, water is an integral part of the nuclear operation, not only for generation of the energy, but also for the safety aspects of it and we have been working very much since 1987 in many, many ways, to make sure that the infrastructure is in good shape.

Some of the things I want to get into is just to highlight areas of our business that we have developed to help -- not only to help the Bruce facility, that would solve problems that we have seen and that we have taken that not only has helped our client, but also has helped us with other service offerings that we could bring to other clients.

Nuclear diving. We are the first company in Canada that put together a procedure to dive in an irradiated environment. This is done very, very safely. We have done it three times. This prevented the necessity for a shutdown and saved them countless dollars, I would think.

Underwater welding and cutting may seem simple, but some of the things Bruce asked us to do were types of welding that were very difficult to put -- procedures that were never done before. Right now we are the only company -- well, there are two companies in the

world that have some of the certifications that we have that help with the facility here.

Robotic services. Again, this goes with the safety culture. There is a requirement at the facility that we make sure that we use robotic procedures instead of manned intervention. It is obvious if you put men in certain environments that are dangerous, there is always the chance of an incident. So robotic services is something that we have tried to help. One of the things we have put together is dredging systems that are robotic.

Also, tunnel inspection systems. One of the first tunnels that we inspected back in '89 was the facility here. We have a robotic system that was not only developed for this facility, but for the OPG in general and that has been a worldwide service now that we have. So we basically put these systems inside the tunnel. It does a structural assessment.

The R&D programs that we put together for zebra mussel control has really helped us all along. We did extensive research with Ontario Hydro back in 1987 and it has now developed into a very, very effective program that keeps the facility free from infestation. We have also used that service to grow our company in many, many areas and help other clients.

Just the benefits of working with the

Bruce to be -- in general, adoption of health and safety priest on Bruce high benchmark; continuous improvement efforts on Bruce Power's Health and Safety Standards. We are now looking at core safety procedures that come from the oil patch.

Implementation of e-learning systems is something that we learned. So we have computer-based training now for our staff.

Project management system is also something we put together that is computer-based that has just been implemented in the last two years.

Innovation through R&D, there has been a number of service offerings that were driven from needs that came from our client, the Bruce, that has helped us to produce a service that we can export domestically and internationally.

And finally the global market, asset management of hydro-powered nuclear facilities; yes, we have done a number of -- we have had a number of facilities that we have inspected over the years, primarily nuclear facilities in the U.S. now, but it is being translated into other facilities in South America and then parts of Europe. And again, expansion of our company from 20 to 120 employees with offices in Western Canada and the U.S.

Closing remarks, in summary, Bruce Power

has put health and safety at the forefront, creating a trickle-down effect to vendors and implementation of a high standard, health and safety program for our organization. As they have demanded quality management systems be implemented, this has proven to be an important factor for our growth. And Bruce Power has helped ASI and I'm sure other small to medium-sized enterprises to grow and provide significant services internationally.

THE PRESIDENT: Thank you. Questions?
Dr. McDill...?

MEMBER MCDILL: I have to ask what type of underwater welding you are doing.

MR. SFERRAZZA: Actually, it's pretty common to have mild to mild, but right now we have been asked to do mild to stainless and stainless to stainless and different types of positioning. It was almost -- it was about a three or four month program that we have put in place to train our staff. So we have the procedure in place now so it's just a matter of training new people as they come in.

MEMBER MCDILL: How is the post-weld inspection done?

MR. SFERRAZZA: I'm sorry?

MEMBER MCDILL: Post-weld inspection, how is that?

MR. SFERRAZZA: Oh, there is a CWP officer there on-site. It is bent and x-rayed and just normal welding practices.

MEMBER McDILL: Thank you, Mr. Chair.

THE PRESIDENT: Dr. McEwan...?

MEMBER MCEWAN: I have to ask about the nuclear diving.

MR. SFERRAZZA: Yes.

--- Laughter / Rires

MEMBER MCEWAN: How do you manage to achieve that safely, outside of proprietary information?

MR. SFERRAZZA: It's not really. Basically it's a matter of making sure that the environment that the diver is in -- first of all, it was almost two years of planning with many of the staff and it's the first time we ever worked for physicists and people of that nature, so it was a little bit demanding.

--- Laughter / Rires

MR. SFERRAZZA: But again, it's good that they are employed.

And our divers were very anxious to do it, to be honest with you. They lined up to do it. It's a matter of keeping the environment that the diver is in at a positive pressure, basically in simple forms, so you make sure that the facility and the helmet that he has is

leak-proof and we can prove it and there's a positive pressure inside the system. There is nothing that can get in so to speak.

In addition, the area that we were working in was mapped to very carefully by the Bruce staff so we knew the hot zones. So we knew very carefully not to touch those areas and moved around and so not to have any impact with them.

THE PRESIDENT: So you mean you can actually shield them so they don't get any dose or you make sure that they get --

MR. SFERRAZZA: It was a very low dose, from my understanding. Our divers were monitored directly in real time so they did not have any significant hits at all. So yes, it was done very, very safely. We have done it three times now.

MR. SAUNDERS: In diving fortunately the water does most of the shielding for you.

MR. SFERRAZZA: That's right, yes.

THE PRESIDENT: Dr. Barriault...?

MEMBER BARRIAULT: Thank you, Mr. Chairman.

I'm interested in your zebra mussels. Are they of any food value?

MR. SFERRAZZA: No, they are not. Not at

all.

--- Laughter / Rires

MEMBER BARRIAULT: Can they be used for animal feed, because they are a protein source, aren't they?

MR. SFERRAZZA: That has been looked at. I don't know if the production facilities -- and I'm not sure where that goes. I remember years ago it was looked at. There is a big biomass there for sure.

MEMBER BARRIAULT: Well, exactly. The next question, how do you get rid of them? Do you poison them, do you chip them away?

MR. SFERRAZZA: Well, again, it's easy to kill zebra mussels. It's hard to kill them in an environmentally sound way, which is something that was demanded of us back in '90 and we worked with OPG and a number of universities to develop the program. It is basically using -- one aspect is using a level of chlorine. The chlorine level is about what's in your drinking water.

MEMBER BARRIAULT: Hypochlorite.

MR. SFERRAZZA: Yes, some hypochlorite. It's a very like 0.5 or less. That was basically what's in drinking water.

And then at the end of the stream we monitored that very effectively. The trick is, to be

honest, the muscles have a behavioural aspect that if they sense a toxin they will clam up, very simple.

MEMBER BARRIAULT: At what temperature do they -- is most favourable for the growth?

MR. SFERRAZZA: We try to gear the program before they turn into shelled individuals. So there is a veliger stage that they --

MEMBER BARRIAULT: Yes.

MR. SFERRAZZA: -- usually when it hits about 10 or 12 degrees. Eight to 20 is when we tried. So it has to be above eight degrees, 10 degrees to be effective and we try to target that time all the time. So it's not really -- if you do the program properly you are not dealing with shell organisms, you are dealing with the veliger stage that are microscopic.

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

THE PRESIDENT: Anybody else? Anything else? Any final comment?

MR. SFERRAZZA: No, just we would like to support the relicensing. We think it has been important to us and we hope to be doing more with the Bruce.

THE PRESIDENT: Thank you.

MR. SFERRAZZA: Thank you.

THE PRESIDENT: Thank you for the

intervention.

Okay. Here is the chance to do one last round where all the questions that we wanted to ask that have not been asked can be asked. I will give you a chance if you want to go. Dr. McEwan, I see you are ready. Go ahead.

MEMBER MCEWAN: So this is actually a question for Bruce.

Thank you. In Mr. Bourgeois' appendix, last appendix on the last page of his submission, in item number 58 there is an S-99 report that says "Bruce B, an acute lethality failure". What is that?

MR. SAUNDERS: That's a reference to our MISA Program, Municipal-Industrial Strategy for Abatement in Ontario. So it is similar to what we just talked about, chlorination of muscles or something like that. You take samples from our sumps and you put them through the little fish, Daphne, and if you kill more than a certain number of the Daphne it's an acute failure. So that's what it is, yes.

THE PRESIDENT: Ms Velshi...?

MEMBER VELSHI: Again, this is just going through our notes to make sure there are no unanswered questions and this may have been answered, just that I don't have it in my notes and it's around emergency

mitigating equipment and the inclusion of that in the PRA. There was some question on whether equipment that is still yet to be implemented had been included or not.

So I will ask Bruce Power -- there are two parts to the question, the second is just -- so Bruce Power first. Does this -- your refined numbers, did that include equipment only that has been implemented or also stuff that is planned for implementation?

MR. SAUNDERS: So in the station aggregation numbers where we added all the units up we included the planned equipment in there, as well as the installed. For the other numbers it was just the installed. So I mean the equipment, the EME is already there in fact, so what you are talking about is all the hook-ups in the plant and actually all of them have a way of being worked now, they just don't have a quick disconnect, but the actual numbers per unit include the staff that is actual operational in the plant now. When we did the addition of all the four units for a station aggregation, we included in that the additional improvements from the stuff yet to come.

MEMBER VELSHI: Thank you.

MR. SAUNDERS: Did that make sense?

THE PRESIDENT: But I thought you did mention that you are still working on refining a lot of

this and you will update as you go along.

MR. SAUNDERS: Yes, for sure. Yes. We expect the numbers will get better, especially on the Bruce A side.

So in a couple of ways. One, the PSA models on Bruce AR a little less refined than Bruce B, so there is work to do there. But we also committed to fix the containment bypass issue at Bruce A by putting an automatic shutoff valve on that one pipe. It does have a manual one, by the way, but as somebody mentioned here we don't count manual interaction so as far as the PSA is concerned that doesn't exist.

THE PRESIDENT: So is it reasonable to expect in the next annual update to get the latest kind of a thing?

MR. SAUNDERS: Yes, for sure. As far as I know a Fukushima update is planned for that, so yes.

THE PRESIDENT: Thank you.

Ms Velshi...?

MEMBER VELSHI: So the second part to staff, and maybe that is partly answered with Dr. Binder's question, was the number of questions around CNSC's methodology of reviewing the EME effectiveness and I know in your presentation you said everybody has some well-defined numbers. Is that the extent of it or do you

get any third party validation of EME effectiveness?

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

I will start and then I will pass it on to my colleagues to add. As has been mentioned, the PSA and the EPRI values have been used just like the PSA itself, the methodology, so the CNSC approves the methodology of Bruce Power in accordance with S-294. So we approved the methodology.

As the methodology enhances and changes over time, we adjust accordingly, because you have to remember this is a tool and a modelling tool in order to determine what is the proposed enhancement, and what is the biggest value with respect from a safety perspective and probabilistic safety assessment. So if there are new values and changes coming forth with respect to EME's evaluation, assigning numbers in the model we will adopt them accordingly. That's where the evolution of PSA over the years has taken place.

I will pass it on to my colleague, Ms Yolande Akl, if she has anything else.

MS AKL: Yolande Akl for the record.

MEMBER VELSHI: Yolande Akl, for the record.

Just to maybe confirm what Mr. Jammal

said, so what happened so far, that Bruce Power submitted some reports about including the EMEs in the PSA and also the industry submitted a human reliability analysis methodology that has been reviewed by EPRI and also by AMEC NSS, so there was a third party review and we accepted that methodology.

MEMBER VELSHI: Thank you.

MR. SAUNDERS: The other point I should make is we are still developing that software that is going to allow us to run scenarios and estimate success rates with EME and others, so that is our attempt to refine that in the future. Right now we are assuming a pretty gross error rate, quite frankly. I mean 10 percent is a huge failure rate on a deployment. So in our view that can be refined a whole lot, but that will come in the future.

THE PRESIDENT: Dr. Barriault...?

DR. BARRIAULT: Thank you, Mr. Chairman. Just a few brief questions really. There is one I have been chomping at the bit to ask really. With regards to your emergency response equipment as stored in any bio cans with shelter, isn't it? No? Then I misunderstood, okay. Where is the storage?

MR. SAUNDERS: Yes, the storage is just up by our visitors Centre, it is a hard structured building.

MEMBER BARRIAULT: Okay.

MR. SAUNDERS: I think you are thinking of OPG who has --

MEMBER BARRIAULT: That's exactly it.

MR. SAUNDERS: Yes, that's right.

MEMBER BARRIAULT: I apologize for that.

What I was wondering about really is that I have lived through tornadoes and I see what kind of a mess they can make in a hell of a hurry to other structures and I have seen garbage trucks stacked three high, believe it or not. But having said that, I really I wouldn't want to have to go -- and that's okay.

The next part of that question is that I know you have quick connect couplings really on all your equipment. Is there a standard for this? I mean, you know, do you have metric, is it Imperial? If you get another truck coming in is it different?

MR. SAUNDERS: It's standard firefighting equipment used in Ontario. So the only difference is you can have different sized hoses, but they are all standard couplings and standard size.

MEMBER BARRIAULT: Okay. Thank you.

That's all, Mr. Chairman.

THE PRESIDENT: Thank you. Monsieur Tolgyesi...?

MEMBER TOLGYESI: You are saying that

there are nuclear liability insurance is for \$75 million per station, composed of two insurers. Now, are there some specific conditions for renewal of this amount due to aging?

MR. SAUNDERS: There is no particular conditions. Like all insurance companies, they evaluate you regularly to look at your performance and your overall plant condition. There isn't anything that says you are so old that it will cost you a bigger premium.

MR. HAWTHORNE: I'm sorry, let me maybe answer that. I think we are confusing two things here. One is the *Nuclear Liability Act* which currently is \$75 million. There is a bill just been through the House which increases that to a billion. We are currently working on how that would be introduced, but that is the *Nuclear Liability Act* for off-site release. Separate from that, Bruce Power has its own insurance for on-site events.

On-site events, the premium -- the coverage is two billion dollars. It deals with business interruption insurance and a whole range of things which we ourselves ensure. The premium is a function of how well our plant operates, how much redundancy we have, how many strategic spares we have, because obviously business interruption insurance is an important feature for us. So we have our own two billion dollars of coverage on the

site. There is a whole -- the *Nuclear Liability Act*, which is currently at \$75 million will be changing to 1 billion in the not too distant future.

MEMBER TOLGYESI: And you said for aging there is nothing there in your company insurance, but is there something because you increased from 210 to 247,000 full hours? There is no change in the liability --

MR. HAWTHORNE: No, from an --

MEMBER TOLGYESI: -- and prime?

MR. HAWTHORNE: No. From an insurer's point of view, they are interested to know obviously equivalent health.

They are actually interested in reading the CNSC's annual report in terms of how we operate the site. They are interested in the forced loss rate of the units. They are interested in our upgrades such as emergency measures or all of the upgrades that we make, they are interested in the equipment health and all of those things. The age doesn't necessarily -- you know, the key part of that, much like our sales, if we keep ourselves in good shape then we go through a medical and our premiums don't go up and basically that's the way it is with our insurers.

They come and tour the plant. They noticed that we have installed much more fire protection,

much more hot steam release. We have dealt with a lot of internal hazards. We have put seismic qualifications in and we have procured a lot of additional spares. So actually our premiums have not gone up at all. Even as we have moved from four units to six units to eight units there hasn't been an increase in our premium.

MEMBER TOLGYESI: Just to tell you that was not a question of health, but my insurance because of age is going up.

MR. HAWTHORNE: Yeah, you and me both, but don't put that on the record.

--- Laughter / Rires

THE PRESIDENT: Dr. McDill...?

MEMBER MCDILL: Just one question and it goes back to the MNO and the identification of the Mennonite community as, I guess within the VEC, Valued Ecosystem Component.

And I finally got back to it. I guess it is page 13 of Bruce Power's 1(d). This is probably the biggest map -- or any of those. The Mennonite communities are shown.

So I was trying to get a feeling for two things with respect to the MNO. One is the issue of whole fish eating as opposed to partial fish, eating of partial -- how do you say that, eating of all of the fish

versus eating of parts of the fish, where the traditional land and foods would come from on one of these maps. So two questions.

One, why the Mennonite, because I don't think I have heard that before. Maybe I have and I have forgotten.

And one, how to deal with the issue of eating of the entire fish, particularly the aspect of taste, which is part of -- up there.

DR. THOMPSON: Patsy Thompson, for the record.

Bruce Power may want to add information afterwards, but the CSA standard on setting derive release limits and the practice or the requirements that have been adopted over a number of years is that there is a requirement for licensees to conduct site-specific surveys on a regular basis to ensure that we have the good information on the lifestyles and habits of populations and different groups around the sites so that we can develop what are called critical groups when we do assessments of potential radiation exposures and sort of back calculate what the release would need to be to equal to 1 milliSievert. So that is the approach.

And the site-specific surveys identify groups whether they essentially are workers in small

industries, they would be around the site for part of the week for example; if they are farmers with more traditional lifestyles.

And so that information is collected and the calculations are done based on habits, but in a conservative way in terms of the issue of the MNO.

And so the critical group in terms of fish consumption use information from Health Canada in terms of the dietary habits of Canadians and Aboriginal groups and we tend to use values on the high side of fish consumption. We have -- for example in northern Saskatchewan where we license uranium mines, the habit has been to calculate radiation exposures based on consumption of whole fish because there are traditional ways of eating fish soup for example where the whole fish is consumed.

For exposures around the nuclear power plant, a lot of the exposure, although it still comes from tritium and tritium doesn't accumulate in bones, so in that sense it wouldn't make much of a difference whether you calculate, take measurements for whole fish or just fish fillets. But it is something that by having measurements of whole fish would give more confidence to members of that community that we actually know what their radionuclide uptake would be from consumption of whole fish, but it is a matter of essentially, you know, taking measurements.

When we bring fish to the lab, for example, we need to digest them in a different way to be able to measure certain radionuclides and not just tritium. But it is something that can be done.

MEMBER MCDILL: If some people in the back come up, is that coincidental?

MS FRANCIS: Kiza Francis, for the record.

I just came up in case there was more questions on it, but Bruce Power, I can add that the last site-specific survey by Bruce Power was done in 2011 and that's when the Mennonite farmer was added in. In discussions with Bruce Power, they have talked about changing the name to actually say a sustenance farmer, just to represent someone that eats more local foods. Like the Métis would therefore -- might identify more with a sustenance farmer than a Mennonite farmer.

MR. SAUNDERS: That was going to be my comments that it has nothing to do with the fact that they are Mennonite, it has the fact that they grow and consume much of their own food. So the critical group is really a group that will receive a little more dose than somebody else because of their lifestyle or where they are located or something and Mennonites, as you know, tend to grow and consume the food that they produce here locally, so they become a critical group, but still an extremely small dose

uptake, to be honest.

So it may be unfortunate that we put a name on there that people would identify in the wrong way. It is really just somebody who lives off the land, essentially. So if there were Métis persons they are doing the same thing they would become a critical group just as quickly as anybody else.

MEMBER MCDILL: Are there any thoughts to re-labelling in the --

MR. SAUNDERS: Yes, is the short answer.

MEMBER MCDILL: Thank you.

MR. SAUNDERS: We have already looked at it.

DR. THOMPSON: Perhaps, Dr. McDill, if we can add, we have been in some discussions asked to meet with the Métis and First Nations groups to talk about the Independent Environmental Monitoring Program. It was a discussion that happened during the DGR hearings as well and so we have indicated that we are more than willing to have meetings to see if our monitoring programs can be adjusted to address their community needs.

THE PRESIDENT: Go ahead. No, go ahead.

MEMBER VELSHI: I had a question around your oversight, your independent oversight on safety. So besides the regulator are there any other boards? I know

in my previous life we used to have this safety boards.
You have a body similar to that?

MR. SAUNDERS: Yes, actually, we have the Nuclear Safety Review Board which meets four times a year. It has the composition of four highly experienced external people from the industry, not ex-Bruce Power employees, who give us a week-long kind of challenging session every quarter. So that happens regularly.

Our Board members also join in on that, and of course we have WANO and, this year, OSART, IPPAS. There's a long list of oversight groups.

Internally, in the company, I have the oversight responsibility, so the assessment and audit people work for me. So I perform, through my function, an internal oversight -- we call it independent oversight in the nuclear industry. It just means somebody who is not performing the work in the line that does that. And we have an internal process that both raises issues as well.

So, we can go on for a while. There are nuclear safety culture panels in the stations and there are nuclear safety culture surveys every three years, and that is done at a corporate level.

So we have many layers and many tiers where we look at safety and provide a basic oversight to the company.

MEMBER VELSHI: It was mostly the Nuclear Safety Review Board that I was interested in, so that's fine.

Thank you.

MR. HAWTHORNE: If I can maybe just add, it's a bit different at Bruce Power. The chair of the Nuclear Safety Review Board is actually a member of our Board, as opposed to being an external person, so he actually reports independently to the Board, he provides a written report to each Board meeting. So it is a bit higher-level than you might expect to see elsewhere, and actually a function of the fact that our two investors are not themselves nuclear operators, so they wanted to appoint a Board member who had some standing that could also serve as an independent chair of the NSRB.

MEMBER VELSHI: So could you share with us some of the issues that have been discussed with them in the last couple of meetings?

MR. HAWTHORNE: Yes, sure. For the record, Duncan Hawthorne.

The number of areas -- they review all of the nuclear performance indicators, as you might expect, but they also do plant inspections and interviews of employees. So, typically, the intention here is that they be independent so they can go out and do inspections of the

site.

Over the last few meetings, we have actually asked them to not just interrogate management but also to provide feedback to management. So typical themes you might see are procedure use and adherence in the field; you know, do they see people following procedures always, which is our expectation.

They have talked to us about worker protection and lockout, areas that obviously has a lot of activity going on. They have also looked at our preparedness more recently because, right now, our vacuum building outage is ongoing, so they do some pre-review of preparedness for the vacuum building outage.

They look to our jumper situation and our tagouts and how well people are prepared for those tasks, so they can give us a proactive view of what they hear while, at the same time, they're hearing from management, in the form of the CNO, in terms of how prepared we think we are. So it's an independent data point.

But if it tends to be -- what we all understand are the fundamental tenets of good operation but, in addition, they look at it in relation to upcoming outages or big plant evolutions.

THE PRESIDENT: Anybody else?

Just one comment or maybe a question. I'm

still a bit concerned that I don't know the way forward on the DFO authorization; we heard a lot of debate about that.

And I don't want to get into a discussion, but what I want to understand, does it make sense to expect a report on progress -- because if we were going to have the same kind of discussion on the Darlington hearing, and, you know, how do we -- and together with our duty to consult, how do we move forward on that?

So we would expect -- as you know, as Commissioners, we will ask you every time you appear in front of us on progress on this, and we're going to ask Bruce on that. So without being prescriptive here, we hope that we see real progress by the next report.

MR. SAUNDERS: Yes.

Now that we've done the technical package and agreed what's in the technical package, we'll be starting right away with more formal discussions with the First Nations groups, and we'll move forward through that at as quick a pace as we can manage to make it go.

But it is a two-party discussion, and so it sometimes takes a little longer than one might think.

THE PRESIDENT: I think it's built into a requirement by the DFO authorization that you do have this discussion with the First Nations.

MR. SAUNDERS: It absolutely is, yes.

THE PRESIDENT: Right.

DR. THOMPSON: So, if I could -- Patsy Thompson, for the record, and I believe Mr. Tom Hogart is available if you need additional information -- and so the process has been established, as Mr. Saunders has just mentioned. There is a process in place that has been communicated to all groups, and we are at the phase where we haven't had a draft application yet. The process is understood.

We've also mentioned to Mr. Saunders and his staff when we met in early March that there is an obligation to engage and consult with aboriginal groups. CNSC has delegated to Bruce Power engagement activities, but the duty to consult resides with the Crown -- with the CNSC in this case -- and we have also indicated that the *Fisheries Act* authorization, in this case, is not for a brand-new site, new facility, it is for an existing facility.

The authorization is actually going to make the situation better by minimizing the impact on fish. And so the expectation -- and it has been clear from the start -- that this is on the low end of the consultation scale and it is entirely appropriate to consult -- it's a requirement -- but at the same time it shouldn't hold up the process and shouldn't be an impediment to getting the

application finalized and considered by the Fisheries Minister.

THE PRESIDENT: Okay, thank you.

That brings us to the end. You have a final --

MR. LEBLANC: I have a point of procedure.

THE PRESIDENT: Oh. Sorry, Marc.

MR. LEBLANC: Just before you have the last word, I had a little point of procedure I needed to address.

So I just wanted to state that the Secretariat has received a request for ruling pursuant to rule 20(3) of the *CNSC Rules of Procedure* that has been filed by the Canadian Environmental Law Association (CELA) and Greenpeace, and the Commission members will confer on the request for ruling, and the concerned participants will be informed of the Commission's determination on the ruling request in due course.

Thank you.

THE PRESIDENT: Okay.

I don't know, should both staff and Bruce -- final words?

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

From staff's perspective, our

recommendation as presented to the commission still stands as we presented to you. We reviewed all of the interventions, as stated before. We evaluate every intervention and determine if there is any impact from the interventions on our recommendations.

So, in conclusion, I would like to thank our staff in Ottawa, my colleagues here, and thank the commission, but our recommendation still stands as presented to you.

THE PRESIDENT: Bruce Power?

MR. HAWTHORNE: Duncan Hawthorne, for the record.

I think the first thing I should do is thank the Commissioners for the dedication to take this all in. It's been a very detailed and far-ranging discussion we've had and, obviously, you know, we, Bruce Power, think we were all pretty well prepared to answer the intervenors in a fulsome way and, clearly, for me, sitting through this, CNSC staff clearly were able to do the same.

So I think the process actually serves us all well, the transparency and openness, and to a very large degree the respect that was given to all the points, even though some of the positions have been answered many times before, I think we tried to give them due respect again at the hearing.

A couple of observations I think were useful to make. As we did make every endeavour here to demonstrate that our response to Fukushima was real and not a pencil exercise, as real physical upgrades and changes have been made. And we explained them here and we have made them very visible on our website and other places, so I'm hoping that through this process people have gained a bit more confidence about what actually has been done. We take some lessons from this in terms of how we communicate a bit more and make sure that people do see that.

With respect to potassium iodide tablets, I'm not surprised that it became an issue because they're topical right now, but I think we do have a good plan and remain confident that, when we look back at this at the end of the year, we'll have seen this as a very good case study in how to engage the community.

A couple of areas which I think we all saw and debated at length are areas like Lake Huron and fishing generally, the control of fish, which, for me, frankly, is a case study in too many cooks spoiling the broth, quite honestly. You know, we've got six or seven agencies. Some people look after the lake level, some look after the lake temperature, some of them look after various fish and, quite honestly, I think if I went to a garage and, you know, they bring out a guy who looks after steering and one

looks after brakes and one who looks after tires and someone else who looks after airbags, I really want to know what's the condition of the vehicle overall and I'm not sure, when intervenors come, that it's actually very visible to them that the overall health of the organism is clear and understood.

That's not, in my view, a Bruce Power issue, but it certainly came across for me that, in that one area, a complete conversation is required because some people's livelihood is heavily impacted by that and I think we all could learn a lesson from that.

As I said, we can't solve the entire concern about Lake Huron writ large, but we know that the invasive species and various other things that are happening are changing the characteristics of Lake Huron -- nothing to do with our operation but of concern nonetheless -- and I'm hoping that people who participated in this, both in terms of the public and the agencies, understood that there some value in having a more -- less scientific and more complete communication on that, which I think would benefit us all.

But, in large measure, I think the thing that came across is that Bruce Power are a community-based company, we have the right values, we have the right relationships with our community and all of our

stakeholders, and I took a lot of lessons away from this which are areas for improvement, but they do not undermine the basic tenet that Mr. Jammal just put forward, that we believe that we are a capable, competent licensee, with good facilities that are worthy of a five-year extension.

Thank you.

THE PRESIDENT: Okay, thank you.

MR. LEBLANC: We would be remiss if we were not going to also thank all the people who have supported these proceedings, from a technical, administrative and interpretation group. So thank you very much for a job well done.

--- Whereupon the hearing concluded at 5:25 p.m. /

L'audience s'est terminée à 17 h 25