

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public meeting

Réunion publique

November 8th, 2018

Le 8 novembre 2018

**Public Hearing Room
14th floor
280 Slater Street
Ottawa, Ontario**

**Salle des audiences publiques
14^e étage
280, rue Slater
Ottawa (Ontario)**

Commission Members present

Commissaires présents

**Ms Rumina Velshi
Mr. Timothy Berube
Ms Kathy Penney
Dr. Marcel Lacroix**

**M^{me} Rumina Velshi
M. Timothy Berube
M^{me} Kathy Penney
M. Marcel Lacroix**

Assistant Secretary:

Secrétaire-adjointe:

Ms Kelly McGee

M^{me} Kelly McGee

Senior Counsel:

Avocat principal:

Ms Lisa Thiele

M^e Lisa Thiele

TABLE OF CONTENTS

	PAGE
Opening Remarks	1
CMD 18-M57 Adoption of Agenda	4
CMD 18-M58 Oral presentation by CNSC staff	5
CMD 18-M39/18-M39.A/18-M39.B Oral presentation by CNSC staff	20
CMD 18-M39.1 Written submission from the Canadian Nuclear Workers' Council	78
CMD 18-M39.2 Written submission from Power Workers' Union	82
CMD 18-M39.3 Written submission from SOS Great Lakes	82
CMD 18-M39.4 Written submission from Gordon W. Dalzell	98
CMD 18-M39.6 Written submission from Dr. Sandy Greer	123
CMD 18-M39.5 Written submission from the Canadian Environmental Law Association	128

Ottawa, Ontario / Ottawa (Ontario)

--- Upon commencing on Thursday, November 8, 2018
at 9:01 a.m. / La réunion débute le jeudi
8 novembre 2018 à 9 h 01

Opening Remarks

THE PRESIDENT: Good morning and welcome to the meeting of the Canadian Nuclear Safety Commission.

Mon nom est Rumina Velshi. Je suis la présidente de la Commission canadienne de sûreté nucléaire.

I would like to begin by recognizing that we are holding this Commission meeting in the Algonquin Traditional Territory.

Je vous souhaite la bienvenue and welcome to all those joining us via webcast.

I would like to introduce the Members of the Commission that are with us today.

On my right is Mr. Timothy Berube; to my left are Dr. Marcel Lacroix and Ms Kathy Penney.

Ms Lisa Thiele, Senior Counsel to the Commission, and Ms Kelly McGee, Assistant Secretary to the Commission, are also joining us on the podium today.

Today's Commission meeting will begin with a Safety Moment on the subject of infectious diseases, in

particular the flu. Influenza viruses are most stable in cold air, and so with the winter season upon us, we need to take extra precautionary measures to prevent spreading of this disease at home and in the workplace. In Canada, the risk of getting the flu is higher in the late fall and winter. Getting vaccinated is an essential step in reducing susceptibility to the disease. Also, it is important to frequently wash hands and practise cough etiquette. The Public Health Agency of Canada advises that everyone six months of age or older should get a flu shot. The Agency also recommends that if you do get sick, stay home. Avoid close contact with other people until you feel well enough to get back to your usual day-to-day activities. This will help prevent the spread of the flu.

I will now turn the floor to Ms McGee for a few opening remarks.

Kelly, over to you.

MME MCGEE : Bonjour, Mesdames et Messieurs. Mon nom est Kelly McGee. Je suis la secrétaire adjointe de la Commission.

J'aimerais aborder certains aspects touchant le déroulement de la réunion.

For this Commission meeting we have simultaneous interpretation. Please keep the pace of your speech relatively slow so that the interpreters are able to

keep up.

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

To make the transcripts as complete and clear as possible, please identify yourself each time before you speak.

La transcription sera disponible sur le site Web de la Commission dès la semaine prochaine.

I would also like to note that this proceeding is being video webcast live and that archives of these proceedings will be available on the CNSC website for a three-month period after the closure of the proceedings.

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

The *Nuclear Safety and Control Act* authorizes the Commission to hold meetings for the conduct of its business.

Please refer to the agenda published on October 22nd, 2018, for the complete list of items to be presented today.

The minutes of the October 3-4, 2018, Commission meeting will be presented to the Commission for their approval at the December 12-13, 2018, Commission

meeting.

In addition to the written documents reviewed by the Commission for this meeting, CNSC staff will make presentations and Commission Members will be afforded the opportunity to ask questions to CNSC staff and licensees on the items before us.

Madame Velshi, présidente et première dirigeante de la CCSN, va présider la réunion publique d'aujourd'hui.

President Velshi...?

CMD 18-M57

Adoption of Agenda

THE PRESIDENT: With this information I would now like to call for the adoption of the agenda by the Commission Members, as outlined in Commission Member Document CMD 18-M57.

Do we have concurrence?

For the record, the agenda is adopted.

The first item on the agenda is the Status Report on Power Reactors, which is under CMD 18-M58.

I note that we have representatives from the nuclear power plants in the room and also by teleconference. I will now verify if the technology works.

From OPG, Mr. Malek and Mr. Marshall. Can you hear us?

I guess they are not with us.

Mr. Frappier, the floor is yours.

CMD 18-M58

Oral presentation by CNSC staff

MR. FRAPPIER: Thank you and good morning, Madam President and Members of the Commission.

For the record, my name is Gerry Frappier and I am the Director General of the Directorate of Power Reactor Regulations.

With me today are our Power Reactor Regulatory Program Division Directors plus technical support staff who are available to respond to any questions the Commission might have on the Status Report of Power Reactors as presented in CMD 18-M58.

As noted, we also have members of industry here who can add details.

The CMD document was finalized on October 29, 2018, so I would like to provide the Commission with the following verbal updates.

With respect to Bruce, Unit 4 has returned to service following the forced outage to repair the

leaking valve in the reactor regulating system on October 31st.

With respect to Darlington, the calandria tube installation is now complete. The focus of Unit 2 refurbishment is now transitioning to fuel channel installation.

With respect to Pickering, Unit 1 and 7 are derated due to fuelling machine unavailability. Unit 1 is at 98 percent of full power; Unit 7 is at 93 percent of full power. There was no impact on safety of workers, the public or the environment as a result of the fuelling machine unavailability.

I would also like to point out that CMD 18-M58 has an appendix provided which provides an update to the Commission regarding the issue of the digital control computers on June 22, 2018, which resulted in Pickering Unit 4 being safely shut down.

This update fulfils CNSC staff's commitment under RIB Action 14315 to provide the Commission with additional information and we are certainly capable of answering any questions you might have on that.

With respect to Point Lepreau, on November 5th, 2018, during fuelling machine maintenance at the Point Lepreau Generating Station, a small amount of heavy water was spilled inside the reactor building, resulting in a

slightly elevated tritium level. To prevent unplanned exposures, workers were evacuated -- evacuated the reactor building as per station procedures and expectations. The spill was cleaned up by workers wearing appropriate personal protective equipment and tritium levels have since decreased back to normal levels. There were no releases to the environment and no significant uptakes by workers. This event will be reported under the REGDOC-3.1.1 requirements for nuclear power plants and CNSC staff will follow up with the event review.

This concludes the Status Report on Power Reactors.

CNSC staff and industry are now available to answer any questions the Commission Members may have.

Thank you.

THE PRESIDENT: Thank you.

I will now open the floor for questions from the Commission Members to both CNSC staff and licensees.

Ms Penney...?

MEMBER PENNEY: Thanks for that.

A question about what appears to be a lockout/tagout incident on October 15th at Bruce. It says that we are going to be provided an update in the next status report, so I don't want to get too far ahead of

that, but if there's any additional information you can give about that electrical shock I would appreciate it.

MR. FRAPPIER: Gerry Frappier, for the record.

Perhaps that would be best addressed by Bruce Power.

MR. CLEWETT: Yes. Len Clewett, for the record.

So on October 15th a welder was performing activity on our boiler and received an electrical shock. The worker went to the hospital, was released that night. Currently he is still at home. We expect him back next week with full duties. What we found was they were doing stick welding and the welder actually got the electrode close enough and he was sweating in a hot environment that he received a shock and then ended up hitting his head on the side of the boiler. So we have taken some additional actions with regards to welding safety.

These journeymen welders do get training at their trades hall on welding safety and this was a very experienced welder, but we have to take some additional actions with pre-job briefs and welding safety.

MEMBER PENNEY: So I stand corrected, it wasn't a lockout/tagout oversight?

MR. CLEWETT: No, it was not a

lockout/tagout. He was performing a weld external to the boiler.

MEMBER PENNEY: And he's going to return to -- he or she is going to return to work next week?

MR. CLEWETT: We expect him back next week with full duties.

THE PRESIDENT: Mr. Berube...?

MEMBER BERUBE: I am curious about Pickering Unit 1, so a fuelling machine being out for a while obviously. Could you give any update on what we have determined is the problem with the machine and how long it is going to take to be back in service?

MS SMITH: Good morning. It's Stephanie Smith, Director of Operations and Maintenance for Pickering Nuclear.

So on Unit 1 we have had an issue on one side -- on one of our machines. It appears to be a ground fault, it has been intermittent. So currently right now the unit is being fuelled one direction. We do have a troubleshooting plan and I do expect us to be able to narrow down the electrical fault today, at which time we will then go back to bidirectional fuelling. So right now the unit still can be fuelled in one direction, that's why we are holding reactor power.

THE PRESIDENT: Dr. Lacroix...?

MEMBER LACROIX: Yes. My question concerns Darlington. All the calandria tubes have been inserted in the reactor and now we will proceed shortly to the insertion of the fuel channels and leak tests. Could you tell me more about these leak tests? What do you mean exactly, leak from the calandria tube, from the pressure tube or the space between the calandria tube and the fuel tube?

MR. FRAPPIER: Gerry Frappier, for the record.

So there's a lot of different testing that is going on and I would ask OPG to respond to that.

MR. DUNCAN: Thank you. Brian Duncan, for the record.

I am going to kick that over to Gary Rose. He's our Deputy Vice President with the Refurbishment Project, so he can give you some additional detail on all the -- there are several tests that we do there.

MR. ROSE: Good morning. It's Gary Rose, Deputy Vice President of Unit 2, for the record.

For calandria tubes we have installed all 480 and we do a leak test on each end of the calandria tube to make sure that the rolled joint there's no leaks coming out of that at all. So all leak tests have been done on all 400 and -- actually, on all but one site. One site we

were unable to get a seal with the leak test check machine. We currently actually have a plan to go back and do that final leak check. We fully expect that that site is not leaking, we are just resolving the issue with the tool and going back and doing that site.

MEMBER LACROIX: By curiosity, I'm just curious, when you insert the pressure tube inside the calandria tube, how do you make sure that the annulus spacer is located precisely where you want it?

MR. ROSE: Thank you. There is a tool that we insert the spacer and it drops off the spacer at certain points within the channel. We then follow up that with an eddy current test tool to make sure that those spacers are located in the right spot, right position. If the spacer wasn't in the right position there is a contingency process to retrieve those spacers and we insert them and go through that test again to confirm that they are all in the right position.

MEMBER LACROIX: Thank you.

THE PRESIDENT: Ms Penney...?

MEMBER PENNEY: Another question about the October 10th worker at Bruce again, an ankle fracture incident, if there is any follow-up, has the person returned to work, that sort of thing?

MR. CLEWETT: Yes. The person moving a

laundry cart, you know, got into a tight spot and hurt his ankle and the person is back on restricted duties. Len Clewett, for the record.

MEMBER PENNEY: Any update in terms of lessons learned? Because I would imagine that this is fairly common.

MR. CLEWETT: Len Clewett, for the record.

It's really in this case personal coaching of the individual. It was a routine task which obviously is paramount to safety, understanding that, but it's really just about awareness of surroundings. And we do communicate those lessons learned to the site in sitewide communications.

THE PRESIDENT: Mr. Berube...?

MEMBER BERUBE: So I'm curious here about the Pickering DCC incident where we obviously have an operator error issue, the DCCs being fundamental to regulating the reactor conditions. Just out of curiosity, was this an authorized operator that actually made this error and, second of all, is there a procedure that is being put in place to ensure that this doesn't happen again?

MS SMITH: Stephanie Smith, for the record.

So yes, this was an incident, was a human

performance event. The individual was an authorized nuclear operator. The extent of this human performance error, we actually removed the individual from the plant, put him through a remediation program, ensuring that he goes through various testing to make sure that he fully understands the expectation. And as part of our corrective action plan, which is listed here, is really focusing on the fact that not only is the nuclear operator required to do this type of switching but he does require certain oversight. So it's both a combination between ensuring that people understand the expectations and having an oversight person present. So that's part of our corrective action plan.

THE PRESIDENT: Staff, did you have any comments on that?

MR. FRAPPIER: Gerry Frappier, for the record.

I will ask Mr. Alex Viktorov to add from the CNSC's perspective.

DR. VIKTOROV: Alex Viktorov, for the record.

CNSC staff followed up on this event. We received the preliminary and detailed event reports which we reviewed and are satisfied with OPG's corrective action plan and we will monitor if there are any trends with this

kind of events.

THE PRESIDENT: Thank you.

Dr. Lacroix...?

MEMBER LACROIX: Yes. I am coming back to the refuelling machine at Pickering. Is it unusual to have this machine unavailable? It seems to me that it is a frequent event.

MS SMITH: It's Stephanie Smith, for the record.

So yes, historically in the past Pickering has struggled due to various equipment issues around our fuel handling machines. We do have plans in place trying to improve the reliability, including some modifications. The organization is putting a focus on getting these machines' reliability up. So yes, it is an issue and we have plans moving forward to increase the reliability.

MEMBER LACROIX: But what is the fundamental reason? Is it a question of complexity, is it technical?

MS SMITH: Once again, Stephanie Smith, for the record.

So it is a combination. These machines are very, very unique. They are very technical and, unfortunately, a lot of the equipment and a lot of the parts of these machines are no longer available, so we end

up doing retroactive engineering to get new parts in as well as, you know, using supply chain end suppliers to try and increase our abundance of reliable equipment.

THE PRESIDENT: Ms Penney...?

MEMBER PENNEY: I had a question about the Appendix C with respect to the DCC. So in my world if I ask my computer to delete something, it comes back and asks me, do I really want to delete it, and it strikes me that shutting down a nuclear reactor there should be some check, you know. So I'm just asking and it's maybe a naïve question, but you can push a button and it doesn't come up and say, do you really want to do this, it just does it?

MS SMITH: Again, Stephanie Smith, for the record.

Yes. That would actually be very helpful, but, unfortunately, these computers were designed back probably late '50s, early '60s when those types of things were not thought of. So these are just very simple computers. There's actually a picture in Appendix B that you can see and there's actually just two push buttons and if you hit the wrong one you do turn off that computer.

MEMBER PENNEY: And have we looked at, in the context of refurbishment, in some way putting an extra step in or replacing these computers?

MR. DUNCAN: Brian Duncan, for the record.

So certainly at Darlington as part of refurbishment we look at both the digital control computers for the regulating system and we are looking at the shutdown computers as well and in some cases we are upgrading. But there is -- there is a principle here, though, where we want to keep those machines as simple as possible. As you add layers of protection or layers of software, then there are other opportunities for that software not to do what you expect it to. At the end of the day there are other buttons on a control room panel which would shut a reactor down and that's why we work so hard to train those authorized people to know what they are doing, to think about what they are going to do, to have the right oversight, peer checks as required to get the actions correct.

MEMBER PENNEY: And did I understand, in response to your questions to Commissioner Berube, that someone else should be there to check? So before you push that button, someone else has to confirm it, that's kind of the control?

MS SMITH: So, Stephanie Smith, for the record.

So yes, that is the clear expectation, that any of these authorized nuclear operators, when they are actually doing panel manipulations they require either

their supervisor or another qualified person to be present to do a check before the actual action is completed.

MEMBER PENNEY: Thank you.

THE PRESIDENT: Mr. Berube...?

MEMBER BERUBE: I guess just to clarify, it's because the second DCC was in maintenance mode, that's why this was actually brought down. And if that had not been the case, then you would have just automatically toggled over and things would have been okay. Is that correct?

MS SMITH: So once again, Stephanie Smith, for the record.

So yes. So we require -- normally we have two computers in service, one is leading, the other one is kind of following along. When you take one out of service, you just have one computer. So unfortunately, in this case because the other one was out, he selected the wrong button and therefore both went down.

MEMBER BERUBE: I'm done.

THE PRESIDENT: Ms Penney...?

And I have been told that Mr. Malek and Mr. Marshall -- oh, I'm sorry, Mr. Edwards, are on the phone. So I will just confirm. Can you hear us?

MR. MALEK: Yes, we can. Thank you, Madam President. This is Imtiaz Malek, Reg Affairs Manager, and

Ian Edwards, the Responsible Health Physicist at Darlington Refurbishment.

THE PRESIDENT: Thank you.

I just have one question and maybe it's for Point Lepreau. Your spill, the heavy water spill, it would be good to get just some specifics on the size of the spill and what exactly were the tritium levels.

MR. POWER: For the record, this is Mark Power.

The tritium levels during the spill went up to around 2700 microsieveverts and the volume of the spill was less than 10 litres.

THE PRESIDENT: So what's the tritium concentration in your heat? Was this heat transport, was this moderator?

MR. POWER: For the record, Mark Power. It was heat transport water.

THE PRESIDENT: And what are your tritium levels in your heat transport system, the concentration of tritium?

MR. POWER: I will turn that over to Krista. Do you know the answer to that?

--- Pause

MR. POWER: We will have a follow-up on that.

THE PRESIDENT: And I'm sorry, and I don't understand when you say the tritium concentrations were 2700 microsieveverts. I mean what is the airborne concentration? What was the highest level?

MR. POWER: Again, for the record, Mark Power.

They are normally -- in the area where the spill was they are in the vicinity of 10 to 20 microsieveverts and when the spill occurred in this confined area --

THE PRESIDENT: I'm sorry, per cubic metre or something, is that -- I'm just clarifying the units.

MR. POWER: Microsieveverts per hour in the area. So that's tritium concentration per hour in the area.

THE PRESIDENT: Thank you.

Okay. We, I guess, finished with this item on the agenda, then.

The next item on the agenda is the Regulatory Oversight Report for Canadian Nuclear Power Generating Sites for the year 2017 as outlined CMDs 18-M39, 18-M39.A, and 18-M39.B.

Before turning the floor to CNSC staff for the presentation, I would like to acknowledge that representatives from Health Canada are in attendance, and

representatives from the Department of Fisheries and Oceans and the New Brunswick Emergency Management Organization are joining us by teleconference.

Before going any further, let's verify if they are with us.

For DFO, Ms Thomas and Ms Boros, can you hear us?

UNIDENTIFIED SPEAKER: Yes, we can.

THE PRESIDENT: Thank you.

For New Brunswick EMO, Mr. Shepard, can you hear us?

MR. SHEPARD: Yes, hear you loud and clear.

THE PRESIDENT: Thank you.

I'd also like to note that Mr. Dave Nodwell from the Office of the Fire Marshal and Emergency Management for Ontario will be joining us this afternoon.

I'll now turn the floor over to CNSC staff for their presentation. Mr. Frappier, the floor is yours.

CMD 18-M39/18-M39.A/18-M39.B

Oral presentation by CNSC staff

MR. FRAPPIER: Thank you. And again, good morning President Velshi and Members of the Commission.

For the record, my name is Gerry Frappier and I am the director general of the Directorate of Power Reactor Regulation.

With me today is Ms Suzanne Karkour, acting director of the Power Reactor Licensing and Compliance Integration Division, and Mr. Brian Gracie, senior regulatory program officer in the Integration Division.

Today I have the pleasure to introduce for information CMD 18-M39, the 2017 edition of the Regulatory Oversight Report for Canadian Nuclear Power Generating Sites. The report, hereafter referred to as the ROR, summarizes the regulatory oversight and safety performance of Canadian nuclear power plants, or NPPs, and the waste management facilities, or WMFs, located on the same site as the NPPs.

We will also present some highlights from supplementary CMD 18-M39.A, which was submitted by staff to summarize response to interventions on the ROR and to describe how information requests from the Commission were addressed in the ROR.

The ROR will be presented by managers and staff from the Directorate of Power Reactor Regulation and from Nuclear Cycle and Facility Regulations. They are assisted by managers and staff from the Technical Support

Branch, Regulatory Affairs Branch, who are available to answer any technical questions the Commission may have. In addition, representatives from the licensees are also present to participate in the meeting.

Following an introduction that includes background information, today's presentation will provide general remarks and observations that are applicable to more than one facility covered by the ROR. The presentation will then continue with details regarding the safety performance at individual NPPs and WMFs.

I will then conclude with some closing remarks.

As mentioned, this presentation is structured to provide some of the general conclusions from the ROR, followed by highlights and illustrative results that are not intended to be comprehensive nor representative of all findings and conclusions. These results are not intended to be a comprehensive nor representative of all the findings and conclusions in the report. They merely provide examples of findings from the CNSC compliance activities to illustrate the details that were considered in the overall assessment, and certainly we would expect the Commission to be asking comments or questions on the overall ROR.

The 2017 ROR for nuclear power generating

sites is one of a series of regulatory oversight reports being presented to the Commission that summarizes the CNSC staff assessment of the safety of regulated facilities and activities during 2017.

As you can see on this slide, several reports have been presented to the Commission and will be presented in the future.

I will now pass the presentation to Ms Karkour.

MS KARKOUR: Suzanne Karkour, for the record.

Good morning, President Velshi and Members of the Commission.

In this introduction, we will provide you with some background information that is relevant to the 2017 ROR as well as some context for the general and facility-specific highlights that follow in the rest of the presentation.

There were many new features in the 2017 ROR that were not present in the previous RORs. This ROR represents the first time that NPPs and WMFs that are situated on the NPP sites were assessed in the same regulatory oversight report. This consolidation was requested by intervenors at licensing proceedings.

In comparison with previous NPP RORs, the

2017 ROR more closely follows the CNSC safety and control area, or SCA, framework throughout. In addition to the standard 14 SCAs, CNSC staff have also consistently introduced a 15th section -- namely, Other Matters of Regulatory Interest -- throughout the ROR.

Also in comparison with previous NPP RORs, the 2017 ROR is confined mostly to information and developments relevant to 2017, with relatively few updates containing information relevant to 2018.

In addition, in previous NPP RORs, CNSC staff provided an integrated plant rating for each NPP, which was determined quantitatively. In this ROR, CNSC staff provide an overall rating for each NPP and WMF, which is a qualitative assessment of the overall safety performance of the facility in 2017.

Finally, the 2017 ROR also presents, for the first time, data for radiological releases to the environment. Previous RORs only presented these releases as percentages of derived release limits for the respective radionuclides at the facilities.

In addition to the major changes I just described, the ROR for 2017 also features some other significant changes that were driven by comments that were made on the 2016 NPP ROR.

Based on interventions and other comments

from last year, the 2017 ROR features additional information on the licensees' activities related to public information and disclosure and Indigenous relations.

It also includes some more details on emergency exercises that were conducted in 2017, as well as an appendix that outlines the responsibilities of various stakeholders with respect to the on-site and off-site emergency preparedness.

There were comments on the 2016 NPP ROR that the collective dose data provided limited insight into radiation safety at NPPs. Some of the detailed collective dose data was not included for NPPs in the 2017 ROR, but some summary data was retained in order to make some observations on the distribution of collective dose.

This slide lists the major topics for which the Commission specifically requested additional information to be included in the 2017 ROR. Details are provided in the ROR at the pages indicated; a couple of these topics are also briefly discussed in this presentation.

Supplemental CMD 18-M39.A provides additional details, including more recent updates where appropriate, for these and other topics for which the Commission requested information. The supplemental CMD requests the Commission to identify as closed the topics

for which the provision of additional information was sufficient to consider the topic or issue to have satisfactorily been addressed.

There are four operating NPPs in Canada. These include three multi-unit plants in Ontario and one single unit plant in New Brunswick. There is also a fifth NPP at Gentilly-2, which consists of a single reactor that is proceeding towards decommissioning. The four operating NPPs have licences for a total of 21 reactors. Nineteen of these reactors were operating for most of 2017.

Units 2 and 3 at Pickering have been defuelled since 2008 and continued to be in the safe storage state. The Pickering site also hosts the Pickering Waste Management Facility.

Darlington Unit 2 was shut down in October 2016, as it is the first unit at Darlington to be refurbished. The Darlington site also hosts the Darlington Waste Management Facility.

The Bruce site is home to the Western Waste Management Facility. This graphic illustrates the types of radioactive wastes managed at each of these waste management facilities, which are licensed separately from the NPPs at the same site.

There are also waste management facilities at the Point Lepreau and the Gentilly-2 sites that handle

the waste types shown in the picture; however, each of those facilities is regulated under the same licence as the NPP at the same site.

This slide lists the major facilities covered in the 2017 ROR. Note that the Radioactive Waste Operation Site 1 is covered in the ROR assessment of the Western Waste Management Facility, although it has a separate licence.

CNSC's compliance verification program uses a risk-informed and performance-based approach to verify that each facility maintains compliance with all regulatory requirements in the *Nuclear Safety and Control Act*, its regulations, and the operating licences. The program generated the results that formed the basis of the safety performance ratings presented in the 2017 ROR.

The compliance verification program is composed of many activities that include inspections, desktop reviews, surveillance and monitoring activities, and technical assessments. When these activities identify non-compliances with regulatory requirements, CNSC staff track all licensee corrective actions until closure and verify closure through follow-up activities when necessary.

Later in this presentation, we will provide data on the amount of effort that CNSC staff spent on compliance activities in 2017 for each NPP and WMF. We

will use arrows to indicate trends over time, showing increases and decreases in the effort in 2017 as compared to the average effort over the previous four years. A difference of 10 per cent or less was regarded as normal fluctuation and hence indicated as steady. Similar information is presented for licensing activities as well for comparison and context.

In 2017, CNSC staff conducted a wide variety of inspections and submitted the results to licensees in a total of 120 inspection reports, which were listed in Appendix J of the ROR. NPP and waste management facility licensees reported to CNSC staff on a total of 269 events in 2017, and CNSC staff followed up on licensee corrective actions related to those events. The licensees also submitted 90 scheduled or periodic operating performance reports to the CNSC.

The 1,550 findings that were derived from CNSC's document reviews and inspections were assessed by CNSC staff and specialists for the purposes of the 2017 ROR.

I will now turn to Mr. Gracie, who will present the second part of the presentation.

MR. GRACIE: Good morning, President Velshi and Members of the Commission. Brian Gracie, for the record.

In the next part of the presentation, I will share some information and findings that are general in nature before other staff members describe some of the more specific results for each facility.

Typically, the results in this next section are applicable to more than one site and, in some cases, provide an opportunity to compare results between facilities.

This table presents the overall rating for each licensed facility or group of facilities that was assessed separately in the 2017 ROR. The overall ratings were fully satisfactory for NPPs at Darlington, Pickering, and Bruce A; satisfactory for the NPPs at Bruce B, Point Lepreau, and Gentilly-2; and also satisfactory for the Darlington, Pickering, and Western waste management facilities.

As summarized here, CNSC staff have made the following general observations with respect to the safety performance of NPPs and WMFs in 2017.

There were no serious process failures of operating systems at any NPP or WMF. In general, events were of low safety significance; however, there was one event -- the electrical shock to the worker at Bruce B -- that prompted a reactive inspection by CNSC staff that identified one finding of medium safety significance

related to work protection practices. All licensees took appropriate actions to address the events in 2017.

There were no events at NPPs or WMFs that would have necessitated reporting to the IAEA, and none were classified as being above the International Nuclear Event Scale, or INES, level 0.

The reactor trips and all transients at the NPPs were infrequent and were managed safely.

In the area of conventional health and safety, the frequency and severity of injuries and accidents involving workers were very low. Lost-time injuries were rare at NPPs and did not occur at all at the WMFs.

The radiological releases to the environment from the NPPs and WMFs were very low in 2017. They were below the derived release limits that link allowed releases of specific radionuclides to the dose limit for the public, and they were also below the even-lower action levels that licensees set to prompt action when the release of a specific radionuclide approaches a value that is a fraction of its respective derived release limit.

These results demonstrated that the public and the environment were protected from the potentially harmful effects of licensed nuclear activities at the NPPs

and WMFs in 2017.

CNSC's own Independent Environmental Monitoring Program, or IEMP, also collected data in 2017 for the Darlington, Pickering, and Point Lepreau sites and confirmed these conclusions for those sites.

At all facilities covered in the 2017 ROR, the doses to workers did not exceed the regulatory limits.

Finally, CNSC staff confirmed that the licensees met the detailed requirements for both nuclear security and safeguards. Based on the IAEA's comprehensive evaluation of safeguards, relevant information, and an evaluation of the consistency of Canada's declared nuclear program with the results of the agency's verification activities, the IAEA concluded that all nuclear material in Canada remained in peaceful activities, including the nuclear material at the NPPs and WMFs.

This slide illustrates data for a specific performance indicator for NPPs. Industrial safety accident rate is the number of lost-time injuries per 200,000 person-hours worked at the NPP, excluding contractors. Each NPP had an industrial safety accident rate that was significantly lower than WANO's long-term target of 0.5 for individual plants. By comparison, among all WANO members, 85 per cent of the individual plants met the WANO target in 2017. The data in the right side of the graph show that

the overall rate for the Canadian NPPs was also well below the collective WANO member target and also very steady in recent years.

The estimated doses to the public from airborne emissions and liquid releases for the nuclear power generating sites, including the NPPs and WMFs, from 2013 to 2017 are provided in this figure. The five-year trend at each site continues to be consistently very low. The logarithmic scale used for the y-axis helps illustrate that the doses to the public were more than two orders of magnitude below the regulatory limit. By way of comparison, the average annual dose in Canada due to natural background radiation is 1.8 millisieverts.

This data confirms that Canadian licensees' programs continue to be effective in protecting the public and the environment from radiological releases.

NPP and WMF licensees and the CNSC also monitor the occupational doses received by workers. The maximum annual individual effective doses as reported by each NPP and WMF for the period 2013 to 2017 are presented here.

In 2017, there were no radiation exposures received by persons at any NPP or WMF that exceeded the regulatory dose limit of 50 millisieverts per year as established in the *Radiation Protection Regulations*.

This data indicates the ongoing overall effectiveness of the licensees' radiation protection programs in protecting workers in general, while limiting the maximum doses to workers. The year-over-year performance for the NPPs and WMFs in this respect is very steady.

The next four slides describe some notable technical developments in the industry in 2017. In support of re-categorization of existing category-3 CANDU safety issues, the NPP licensees collectively conducted research and development activities as well as individual projects. Some of this work was focused on safety analysis. Some of the specific safety analysis projects are identified on the slide. One of them, a pilot whole-site probabilistic safety assessment, is discussed further in supplemental CMD 18-M39.A.

The licensees also had notable achievements in the area of radio systems for emergency management. OPG improved the radio interoperability for its public safety radio system. Also Bruce Power is working on improvements to public safety radio interoperability, initiating a radio system replacement that includes an update to radio communications. The development and definition phase has been completed with the site-wide radio system project scheduled for completion

in 2020.

OPG and Bruce Power continued to participate in the fuel channel life management project to consolidate resources and understanding around issues associated with fuel channel behaviour and fitness for service as they age. Much of this work focuses on modelling fracture toughness of the pressure tube material and using that information to predict pressure tube behaviour in operational situations that are expected in the near term in operating reactors having fuel channels with older pressure tubes.

CNSC staff have observed, on the whole, continuous improvement in maintenance backlogs and deferrals at the NPPs. Some specific results are cited later in this presentation.

Among the many REGDOCs published by CNSC in recent years, Volumes 1 and 2 of REGDOC-2.2.4 provide regulatory requirements and associated guidance for important aspects related to human performance. The NPP and WMF licensees are currently implementing these new requirements in a progressive manner.

Finally, CNSC staff observed and in some cases participated in various activities by the licensees related to public information and disclosure engagement with Indigenous communities.

In 2017 the licensees of operating NPPs continued to complete safety improvements that were initiated based on lessons learned from the accident at Fukushima Daiichi.

Recall that CNSC had established 36 generic Fukushima action items, FAIs, to initiate its regulatory oversight of this work and most of them were applicable to all NPPs. CNSC staff was able to close all Fukushima action items following the licensees' submissions of acceptable improvement plans for all of those FAIs.

CNSC then opened a number of station-specific action items to track the completion of various improvements at each NPP as illustrated here. The station-specific action items were specific to the operations and the design for each NPP.

Of the 43 station-specific action items that were originally created, 38 have now been closed and five remain open.

The nine station-specific action items for Pickering and one station-specific action item for Gentilly-2 are all closed now.

There were 13 station-specific action items for Bruce. Only three of the 13 station-specific action items remain open and they are all due to be closed by the end of 2019.

In the event of a beyond design basis accident, the shield tank may act as the primary source of heat removal. The shield tank overpressure protection is designed to prevent shield tank failure due to overpressure by passively discharging the excess steam from the top of the shield tank to containment. It can only be installed during planned outages.

In the event of a severe accident where the containment heat sink is lost as a result of loss in electrical power and containment overpressure occurs, the containment filtered venting system will maintain the containment pressure below the failure pressure and filter radioactive releases during a severe accident. This system will be more robust than the existing system.

For additional short-term makeup water to cool the reactor, Bruce Power has installed connection points to the steam generators. For longer term makeup water, a connection point to the shield tank has been installed. The connection points will provide short and long-term makeup water cooling to the reactor in the event of a severe accident.

The remaining connection points to the heat transport and moderator systems for longer term makeup water will be completed during planned outages.

There were 11 station-specific action

items for Point Lepreau. Only one remains open, the evaluation of emergency response to malevolent aircraft impact. It is expected to be closed by the next regular update which is due in March, 2019.

Finally, there were nine station-specific action items for Darlington. Only one remains open, to track the implementation of emergency mitigating equipment and telecommunications projects for which OPG requested closure in its last update in August, 2018. CNSC staff is reviewing OPG's request.

This concludes the second part of the presentation. I will now turn the third part of the presentation over to the Regulatory Program Directors for each of the facilities covered by the ROR who will present highlights of the detailed CNSC staff assessment for each of those facilities.

The five nuclear power plants will be presented first followed by the three waste management facilities. We will begin with the Darlington Nuclear Generating Station.

MME RIENDEAU : Bonjour, Madame présidente Velshi et Membres de la Commission. Mon nom est Nathalie Riendeau. I am the Director of the Darlington Regulatory Program Division.

This slide shows CNSC staff efforts toward

compliance and licensing activities specific to the Darlington Nuclear Generating Station in 2017. The CNSC total effort was steady for 2017.

Darlington is now in the third year of an approximately 10-year licence to operate. Refurbishment of its four units is planned during that period.

OPG began its refurbishment project in the fall, 2016. The operating licence for Darlington includes three specific licence conditions for the refurbishment project. One condition requires OPG to complete the integrated implementation plan, also referred to as IIP, for the refurbishment. The IIP contains safety improvements identified during the environmental assessment for the Darlington refurbishment and the Darlington integrated safety review.

This slide lists some of the major safety improvements completed to date. A separate licence condition requires OPG to implement a return to service plan to provide confirmation that all prerequisites and restart activities have been completed prior to returning a unit to operation following refurbishment, while a third licence condition establishes regulatory hold points that must be satisfied before the CNSC can approve return to service of each unit.

CNSC staff have developed and implemented

a compliance verification plan for the Darlington refurbishment project. CNSC staff are satisfied with the progress to date with the refurbishment of unit 2 and the implementation of the IIP.

CNSC will continue to dedicate significant staff resources to the regulatory oversight of the refurbishment project including surveillance, inspections and desktop reviews of refurbishment-related reports in support of unit 2 return to service planned for February, 2020.

This slide shows all the SCA ratings for Darlington as well as the overall rating fully satisfactory. Arrows indicate which ratings changed as compared to 2016. The rating for radiation protection decreased from fully satisfactory to satisfactory in 2017. This SCA is discussed in more detail in subsequent slides.

The rating for conventional health and safety increased from satisfactory to fully satisfactory in 2017.

In 2016 CNSC staff had observed non-compliances related to confined space entry. In 2017 OPG took corrective action to address these CNSC findings and subsequent CNSC inspections verified the effectiveness of OPG's corrective action plan.

Overall, OPG's performance in the SCA

conventional health and safety in 2017 contributed to a high degree of personal safety.

In the next couple of slides I will present a few compliance highlights for Darlington.

A number of positive highlights are described in the regulatory oversight report for Darlington related to operating performance, safety analysis and waste management. OPG continues to improve its safety analyses as shown in this slide. In addition, OPG had noteworthy results at the plant equipment level in terms of both the availability of special safety system and improvements related to preventive, corrective and deficient maintenance.

A notable achievement in 2017 was OPG's implementation of a system to provide Darlington plant data to the CNSC during a nuclear emergency which will enhance CNSC's emergency management capability. And among the several regulatory documents and industry standards for which OPG recently completed the implementation at Darlington was REGDOC-2.10.1 on *Nuclear Emergency Preparedness and Response*.

In the next two slides I will provide a few remarks on some of the areas where CNSC staff are currently focusing their regulatory oversight. As previously noted, the CNSC continues to dedicate

significant staff resources to the regulatory oversight of the refurbishment project.

In addition, based on the results of CNSC inspection in 2017, CNSC staff have increased their oversight for the radiation protection safety control area. CNSC findings in this area were related to radiation hazard posting, contamination control and review of radiological survey results. As a result, the performance rating for radiation protection was changed from fully satisfactory to satisfactory.

Also, in 2017 an event occurred with four electrical motors with undetected internal contamination were shipped from Darlington to an unlicensed facility. There were no safety consequences from this event. However, it highlighted areas for improvement related to radiological hazard control.

OPG has developed and implemented corrective action to address the CNSC findings and CNSC staff are continuing to monitor the effectiveness of OPG's action plans.

Finally, in response to an alpha contamination event in the retube waste processing building in February, 2018, CNSC staff initiated a number of regulatory actions to provide CNSC staff and the Commission assurance that OPG was taking all reasonable measures to

protect workers from alpha hazards. These actions included a reactive inspection to independently assess the licensee's level of compliance with OPG's radiation protection program requirements, increased field surveillance to confirm corrective actions are being effectively implemented by OPG, increased meetings with OPG both at the staff and management level to ensure regulatory expectations are clear and a request pursuant to subsection 12.2 of the *General Nuclear Safety and Control Regulation* to obtain additional information to provide assurance that lessons learned were being considered in subsequent refurbishment activities and that refurbishment activities are being performed safely. CNSC staff have and will continue to provide the Commission with updates in this area.

This concludes the presentation of highlights for Darlington. I now pass the presentation to my colleague, Dr. Alex Viktorov.

DR. VIKTOROV: Good morning, President Velshi, Members of the Commission.

My name is Alex Viktorov, I am the Director of Pickering Regulatory Program Division.

This slide provides the list of CNSC staff effort toward licensing and verification of compliance at Pickering Nuclear Generating Station. Of note is a

significant increase in the licensing effort in 2017 as compared to the average effort in the previous years.

This slide provides some information regarding the current site licences. OPG is operating the nuclear generating station under a recently renewed operating licence which will be in effect for 10 years.

In support of the licence renewal, OPG conducted a periodic safety review, or PSR, which included the development of an integrated implementation plan. The plan identifies operational, analytical and design improvements to help ensure safe operation up to the planned end of commercial operations. The renewed licence requires OPG to complete the integrated implementation plan and communicate results to CNSC staff.

The Commission in its licensing decision also limited the number of hours of operation allowed for the pressure tubes in reactors at Pickering.

This slide shows all the safety and control area ratings for Pickering as well as the overall rating which is fully satisfactory for 2017. These ratings were unchanged from the previous year.

In the next couple of slides there are some compliance highlights and details of regulatory focus for Pickering in the last year. The highlights described in these slides were also considered during the recent

licence renewal hearings for Pickering.

In 2017 there were no significant events affecting the safety of Pickering operations reported to the Commission.

The work on probabilistic safety assessment, or PSA, at Pickering is worth special noting. The recently updated PSA for units 5-8 is fully compliant with CNSC Regulatory Standard S-294, *Probabilistic Safety Assessment for Nuclear Power Plants* and the updated PSA for units 1 and 4 to make it fully compliant with S-294 is expected in December of this year.

As well, OPG is implementing the new CNSC Regulatory Document 2.4.2 which has PSA requirements for nuclear power plants that reflect the lessons learned after the Fukushima accident.

And finally, OPG submitted information on its pilot work toward a whole-site PSA for Pickering. This was discussed in front of the Commission at a meeting last December.

Besides the work to enhance probabilistic safety analysis, OPG has also committed significant effort to enhance -- deterministic safety analysis in order to meet evolving regulatory requirements. These analytical efforts help to confirm the safety case for continued operation of Pickering reactors even as they age.

For example, the work to address CNSC staff comments on OPG analysis of common cause events is part of the PSR integrated implementation plan.

Beside the work on design improvements that are identified in the integrated implementation plan, 2017 also saw the completion of all design modifications which were part of the risk improvement at Pickering.

OPG life cycle management plans help ensure that important reactor components continue to support safe operation of the facility. CNSC staff found that these plans met or exceeded regulatory requirements during the year.

Also, in 2017 OPG completed the implementation of the real-time data transfer to CNSC to be used in case of an accident and tested it during a major emergency exercise.

This final slide identifies a few of the areas that warranted particular regulatory attention for Pickering during 2017. CNSC staff continue to monitor OPG long-term actions related to the verification of seismic design documentation and the maintenance of the configuration of the plant consistent with the seismic design basis. Staff notes that these non-compliances were of low safety importance.

CNSC staff also continue to track OPG

progress in reducing deferrals of preventive maintenance and backlogs of corrective and deficient maintenance at Pickering while confirming that safety critical systems remain functional at all times.

Exercise unified control was successfully conducted at Pickering in December, 2017. CNSC staff concurrently conducted an inspection of the exercise to verify OPG compliance with CNSC requirements and identified some minor non-compliances that OPG is currently addressing.

This concludes the presentation of highlights of safety performance for Pickering Nuclear Generating Station.

I'll now turn the presentation over to Mr. John Burta to summarize results for Point Lepreau Nuclear Generating Station.

MR. BURTA: Good morning, President Velshi and Members of the Commission.

My name is John Burta and I am the Director of the Gentilly-2 and Point Lepreau Regulatory Program Division.

This slide provides the values of CNSC staff's effort toward licensing and compliance at Point Lepreau Nuclear Generating Station. Overall effort increased in 2017. Although there was a small reduction in

effort for compliance, this was offset by the larger licensing effort for the licence renewal.

Unlike Darlington Nuclear Generating Station and Pickering Nuclear Generating Station which have already been discussed, the solid radioactive waste management facility at Point Lepreau is governed by the same operating licence as the nuclear power plant. Given that it is subject to the same requirements, the solid radioactive waste management facility is covered by CNSC staff's safety performance assessment for the nuclear power plant.

In 2017 the Commission granted New Brunswick Power a licence to operate the Point Lepreau Nuclear Generating Station and waste management facility for a period of five years.

In anticipation of its next licence renewal, New Brunswick Power is conducting a periodic safety review in accordance with CNSC REGDOC-2.3.3 *Periodic Safety Reviews*. This is a multi-year project involving numerous submissions including those indicated on the slide. The public can follow the project by consulting the schedule and documentation available on CNSC's website.

Synergy Challenge 2018 was a full-scale, two-day nuclear emergency exercise at the Point Lepreau site conducted in partnership with New Brunswick Emergency

Measures Organization and other stakeholders. The objective of Synergy Challenge 2018 was to test the overall emergency response capabilities of the participating organizations with an emphasis on the recovery phase. The new off-site emergency operations centre and new arrangements for sharing plant data with CNSC were exercised during Synergy Challenge 2018.

This slide shows the SCA ratings for Point Lepreau as well as the overall rating satisfactory for 2017. These were unchanged from 2016.

CNSC staff inspections of certification examinations concluded that overall New Brunswick Power met the regulatory requirements. New Brunswick Power continued to enhance its safety analyses to meet evolving requirements including improvements related to PSA, fire-related analyses and severe accidents.

In 2017 CNSC staff completed its review of the latest update of the safety report for Point Lepreau and concluded that it met regulatory requirements.

While CNSC staff are satisfied with New Brunswick Power's current state of implementation of REGDOC-2.4.1 for deterministic analysis, New Brunswick Power is updating its implementation in 2018 to fully describe the second phase of its implementation for Point Lepreau.

In 2017 New Brunswick Power completed to the satisfaction of CNSC staff modifications to its procedures for abnormal plant operating conditions at Point Lepreau. CNSC staff determined that Point Lepreau had a comprehensive fire protection program in 2017. This was confirmed by third party reviews that were arranged by New Brunswick Power in accordance with applicable CSA standards.

Another highlight was that New Brunswick Power completed corrective action to address non-compliances identified during a 2015 reactive inspection of the system health monitoring process.

Point Lepreau's performance indicators related to maintenance were both better than average numbers for all Canadian NPP licensees in 2017 and also stable or decreasing from year to year. CNSC staff determined that New Brunswick Power has a radiation protection program that effectively limits doses to workers, manages potential contamination hazards and meets other requirements in the radiation protection regulations.

The conventional health and safety program was also found to be highly effective in assuring the safety of workers at the plant.

In 2017 CNSC staff continued to monitor issues that had been identified related to the adequacy of

procedures and licensee staff adherence to procedures. CNSC staff noted some improvements by NB Power in 2017 such as the clarity of processes. In July 2018, after further follow-up, CNSC Staff closed two directives to New Brunswick Power and the action item related to procedural adequacy and adherence.

CNSC Staff is also monitoring other corrective actions, such as those that address non-compliances found during a compliance inspection of the chemistry control program.

Finally, New Brunswick Power is continuing its implementation of a real-time automatic data transfer system for plant information to CNSC in the case of a nuclear emergency. This system was tested during the recent synergy emergency exercise.

This concludes the presentation of highlights for Point Lepreau. I will now turn the presentation over to Mr. Luc Sigouin to summarize results for Bruce A and B Nuclear Generating Stations.

M. SIGOUIN : Bonjour, Madame Velshi, et membres de la Commission.

My name is Luc Sigouin. I am the Director of the Bruce Regulatory Program Division. This slide shows CNSC Staff's effort toward compliance and licensing activities at Bruce A and B in 2017, which was similar to

previous years.

The nuclear generating stations at Bruce A and B are governed by a single operating licence that also includes activities at Bruce Power's Central Maintenance and Laundry Facility.

Bruce Power is operating Bruce A and B under a recently renewed operating licence, which will be in effect for 10 years. In preparation for the licence renewal and to support planned refurbishment Bruce Power completed a periodic safety review which included an integrated implementation plan.

CNSC Staff are satisfied with the progress of elements of the plan that have already been executed.

This slide shows all the SCA ratings for Bruce A and B, as well as the overall ratings: fully satisfactory for Bruce A; and satisfactory for Bruce B. These were unchanged from 2016.

In the next few slides I will present some compliance highlights and details of some areas of regulatory focus for Bruce A and B in 2017. Note, that these findings were already considered as part of the recent licence renewal proceedings for Bruce A and B.

In 2017 Bruce Power continued to improve the safety analyses in such areas as fire safety, and in support of the implementation of new regulatory

requirements, such as those in REGDOC-2.4.1 and 2.4.2 for deterministic safety analysis and probabilistic safety analysis. The implementation plans for those REGDOCs are long-term and involve multiple steps.

In 2017 CNSC Staff were satisfied with the performance of Bruce Power's programs related to the reliability of special safety systems and chemistry control. Staff also noted that deferrals of preventative maintenance and backlogs of corrective maintenance were lower than the average for Canadian NPP licensees and also decreasing year to year.

CNSC Staff observed improvements in the Radiation Protection Program and reduction in doses and personnel contamination events in 2017.

CNSC Staff noted that Bruce Power has made numerous investments in security-related facilities and equipment in 2017, including bulk vehicle screening equipment and the replacement of aging security equipment in systems such as cameras, detection equipment and search equipment.

Also, Bruce Power completed the development of a robust and redundant system known as DLAN to transfer data to CNSC during emergencies.

In order to maintain its minimum shift compliment, Bruce Power had some exceedences to the limits

of hours of work for certified staff in 2017. CNSC Staff were satisfied with Bruce Power's work to revise its procedures and implement the requirements of CNSC REGDOC-2.2.4 on managing worker fatigue. This will help reduce these exceedences.

CNSC Staff continue to monitor developments related to the fitness for service of pressure tubes, including assessments of the conditions of the tubes as they approach the replacement during the planned refurbishment or MCR.

Finally, CNSC Staff is continuing its oversight of various other Bruce Power initiatives such as the You Can Count on Me safety program, Indigenous relations, the Application for an Authorization under the *Fisheries Act*, and the Integrated Implementation Plan.

This concludes the presentation of highlights for Bruce A and B. I will now turn the presentation back to Mr. John Burta to summarize the results for the Gentilly-2 facility.

M. BURTA : Bonjour, Madame la Présidente, et Madame et Messieurs les Commissaires. Je m'appelle John Burta. Je suis le directeur de la Division du programme de réglementation de Gentilly-2 et de Point Lepreau.

L'effort total du personnel de la CCSN en vue de vérifier la conformité et autorisation à Gentilly-2

a continué de diminuer en 2017, conformément au profil de risque en baisse progressive du site au fil de l'évolution vers la déclassification.

Les activités à Gentilly-2 sont autorisées aux termes d'un permis de déclassification d'un réacteur de puissance délivré par la Commission en 2016 pour 10 ans.

La présente diapositive montre tous les cotes de DSR de même que la cote globale de Gentilly-2 : satisfaisant pour 2017.

Le personnel de la CCSN a confirmé qu'Hydro-Québec continue de respecter les exigences réglementaires dans le cadre de la modification de ses programmes à Gentilly-2, notamment en ce qui a trait à la formation, aux inspections périodiques, et à la gestion de vieillissement afin de tenir compte de la transition vers la déclassification. La radioprotection demeure satisfaisante à Gentilly-2, et les doses aux travailleurs sont faibles.

Le personnel de la CCSN a confirmé que les modifications à d'autres programmes, notamment en matière de gestion de l'environnement, respectent également les exigences réglementaires applicables.

Le personnel de la CCSN a donné suite à 16 inspections réalisées en 2017 à Gentilly-2 dans le domaine de la gestion des documents et de la sécurité afin de veiller à ce que les consultations aient été prises en

compte.

Ceci conclut la description des faits saillants relatifs à Gentilly-2. Je cède maintenant la parole à madame Karine Glenn, qui fera la synthèse des résultats associés aux installations de gestion des déchets.

MME GLENN : Bonjour, Madame la Présidente et Membres de la Commission. Je m'appelle Karine Glenn, et je suis la directrice de la Division des déchets et du déclassement à la CCSN.

I will be discussing the regulatory oversight of the Darlington, Pickering, and Western Waste Management Facilities for 2017.

Overall, CNSC Staff's effort toward the regulatory oversight of the Waste Management Facilities has increased in recent years. In 2017 public hearings were held for the renewal of the Pickering Waste Management Facility and the Western Waste Management Facility operating licences. The new Western Waste Management Facility licence came into effect on June 1st, 2017, while the Pickering Waste Management Facility licence came into effect on April 1st, 2018, both for a period of 10 years.

The current 10-year licence for the Darlington Waste Management Facility will expire in April 2023.

This slide shows the safety and control area ratings for the three waste management facilities as well as their overall rating, which was satisfactory for each facility. All waste management facilities received fully satisfactory ratings in operating performance, safety analysis, and conventional health and safety, the same ratings that were received in 2016.

The rating for the security safety and control area decreased from fully satisfactory to satisfactory in 2017 for both the Pickering and Western Waste Management Facilities. This change in rating can be attributed to a change in rating methodology used by CNSC Staff for this SCA.

I will now present a few compliance highlights from 2017 for the waste management facilities that were considered in the SCA assessments.

The maximum dose received by a worker in 2017 for the Darlington Waste Management Facility was .8 mSv, at the Pickering Waste Management Facility .9 mSv, and at the Western Waste Management Facility .6 mSv, all of which were less than 2 per cent of the regulatory limits.

As mentioned earlier, there were no reported lost time injuries at any of the three waste management facilities in 2017. Airborne and waterborne radiological releases from waste management facilities were

below regulatory limits, as well as action levels. CNSC Staff noted that tritium releases at the Pickering Waste Management Facility, which were also below the derived release limits, are decreasing.

The safety analysis reports for the Darlington Waste Management Facility and the Western Waste Management Facilities were updated in 2016 and 2017, respectively. These reports were reviewed and subsequently accepted by CNSC Staff in 2017 and 2018. The updated safety analysis report for the Pickering Waste Management Facility is due to be submitted to CNSC Staff for review in 2018.

OPG also updated the radiation protection action levels at the waste management facilities. CNSC Staff reviewed OPG's revised action levels and confirmed that they are more appropriate and reflect a potential loss of control within each radiation protection program.

OPG submitted updated environmental risk assessments to the CNSC for the Western Waste Management Facility in 2016 and the Pickering site in 2018, which supported both licence renewals. CNSC Staff concluded that these environmental risk assessments met the applicable regulatory requirements and that meaningful adverse ecological and human health effects due to releases to air and water from these sites are unlikely.

In 2017 there were 13 reportable events in total at the three waste management facilities: two at the Darlington Waste Management Facility; five at the Pickering Waste Management Facility; and, six at the Western Waste Management Facility. Six of the 13 events were related to fire emergency preparedness and response, two to the posting of radiological hazards, two to security, and one was related to each of safeguards, operating performance and physical design.

The details of these events can be found in the report. CNSC Staff were satisfied with the corrective actions taken by the licensee and subsequently closed all events.

CNSC Staff conducted an inspection in May 2017 of the Darlington Waste Management Facility with a focus on management systems.

During a review of records as part of the inspection CNSC Staff found that OPG had discontinued the inspection of and verification of empty dry storage containers, or DSCs, at the vendor's facilities, but had failed to follow their change management process and update their internal documentation to reflect that change.

With this non-compliance OPG, through its interface with its contractors for the Darlington Waste Management Facility, did not meet regulatory requirements

or CNSC's expectations. As a result of this, OPG implemented a change management committee and committed to applying corrective actions at all three of the waste management facilities. OPG has committed to conduct inspections on 40 per cent of all new DSCs at the vendor's facility and will conduct a review of 100 per cent of all new DSC history documents.

CNSC Staff find these actions to be acceptable and will continue to monitor OPG's progress of the implementation of corrective actions regarding this issue. This finding contributed to a below-expectations rating for the management of contractor-specific area for the Darlington Waste Management Facility in 2017. However, the overall SCA rating remains satisfactory.

This concludes the description of highlights for the waste management facilities. I will now turn the presentation back to Ms Karkour.

MS KARKOUR: For the record, my name is Suzanne Karkour. I will now briefly discuss the interventions received on the ROR during public consultation and the steps that must now be followed so that the ROR can be published and posted on the CNSC website.

A summary of the 2017 ROR was posted on the CNSC website with an invitation for comments on the

report from the public and Indigenous groups. The posting was announced on the CNSC website, through social media and through the CNSC email distribution list.

In June of this year the CNSC issued a revised notice for participant funding, and two applications for participant funding were approved by the Independent Funding Review Committee. The Committee awarded a total of \$11,920 to two recipients for participation in today's meeting through written interventions. As a result of the posting, six interventions were received in total; two from the funded participants, and four from other intervenors.

Certain comments from intervenors are identified and addressed by CNSC Staff in supplemental CMD 18-M39A.

This slide describes the steps CNSC staff will take in follow-up to today's presentation of the 2017 ROR. The report itself will be revised based on comments provided during today's proceedings. There are some specific errors that will need to be corrected, as identified in the supplemental CMD.

Each intervention will be addressed by CNSC Staff to determine if changes are required in 2017 ROR or if changes should be considered when writing the 2018 ROR. The 2017 ROR will also be translated before

proceeding to publication.

The Commission requests for information, as identified in the supplemental CMD, that are not considered to be closed by the presentation of the 2017 ROR will be carried forward for the 2018 ROR.

Non-compliances described in the 2017 ROR that were not resolved by the end of 2017 will be carried forward for documentation in the 2018 ROR.

Finally, CNSC Staff will continue to monitor licensee safety performance and plan and conduct rigorous compliance verification activities, documenting them in the 2018 ROR.

I will now pass the presentation to Mr. Frappier for final conclusions.

MR. FRAPPIER: Thank you. For the record, Gerry Frappier. Just before I move to conclusions, I would like to point out that in discussing the closure of actions associated with Fukushima this presentation stated that Point Lepreau had one item left open. This is the case, but the item that's left open is the completion of analysis on the habitability of the main control room following a severe accident. I believe in the presentation we said it was malevolent aircraft impact, but that in fact had already been closed.

From a final conclusion perspective, in

broad terms the facilities covered in the ROR were safe in 2017. This conclusion of CNSC Staff was borne out by both analyzed data and assessment of licensees' provisions and actions in the context of robust and detailed CNSC requirements.

CNSC Staff observed that radiological doses to both workers and the general public were below regulatory limits. The specific operations at the NPPs and WMFs were carried out with due regard for plant, personnel and public safety.

CNSC rated all 14 safety and control areas as either satisfactory or fully satisfactory for all facilities. CNSC conducted numerous compliance verification activities that generated findings that were used in these assessments, prompted CNSC follow-up and informed the evolving compliance verification plan for each facility.

CNSC Staff follow-up was conducted until issues that were identified were subsequently resolved to Staff's satisfaction. Although, as is the case for any annual report, some issues were still being resolved when the ROR was finalized.

The resolution of issues of a more complex nature are being resolved through a combination of licensees' research and development, the development and

implementation of new regulatory requirements and other activities.

Finally, I would like to emphasize that these conclusions were based on the results of effective compliance verification program. The program continues to evolve as operational improvements are initiated for the program itself, as the licensees' operations change, and as the requirements on licensees evolve.

CNSC Staff also take into account intervenors' comments when reviewing the program itself and the reporting of its results.

This concludes the presentation. CNSC Staff are grateful for your attention and are available to answer any questions that the Commission may have. Thank you.

THE PRESIDENT: Thank you very much. We'll now take a break and be back at 10:50. Thanks very much.

--- Upon recessing at 10:33 a.m. /

Suspension à 10 h 33

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

Reprise à 10 h 51

THE PRESIDENT: Okay. Following staff's

presentation, I will now ask the representatives of each nuclear power plant licensee if they wish to make any comments on what was presented today, following the same order that staff used in their presentation.

So I will start with Ontario Power Generation first. Would you like to make any comments?

MR. DUNCAN: Thank you. Good morning.

For the record, I am Brian Duncan, I am the Senior Vice President for Nuclear Fleet Operations.

I have with me today Stephanie Smith, the Director of Operations and Maintenance at Pickering, and I have Lise Morton, the Vice President of the Nuclear Waste Management Division.

In addition we have a cast of nearly thousands. We have various support staff here to assist us and answer any questions you may have in areas like nuclear safety, security, et cetera.

So we read this year's Regulatory Oversight Report with great interest and we noted that it integrates the annual report of the nuclear power plants with the nuclear waste facilities. We really appreciate the efforts of the staff to do that. To package it all into one report, to make it in a clear and understandable summary of the industry performance is really, really a nice step forward.

Nuclear power itself, it's really a broad theme this week in Ottawa. We have the Generation IV Small Modular Reactor Conference going on just down the street. Major participants at that conference include the licensees that are here today, several provinces and territories are involved. It's really our sincere hope that the environmental benefits of nuclear power to combat climate change will be better recognized in the future and we hope that we will be in front of you sometime soon to talk about licensing these new reactors.

However, that's for another day. For now we would like to say that we are pleased with the safety performance of our facilities last year, as noted by the fully satisfactory rating for both our Pickering and Darlington stations. We believe the performance of our waste facilities is equally strong. However, we know there are always opportunities for further improvement and OPG's leadership team remains committed to achieving even more.

So with that, I would like to say thank you and we look forward to answering your questions.

THE PRESIDENT: Thank you.

New Brunswick Power, do you wish to make any comments?

MR. POWER: Yes. For the record, Mark Power.

President Velshi, Members of the Panel, CNSC staff, observers and guests, let me begin by introducing myself and others appearing here with me today.

My name is Mark Power and I am the Station Director at Point Lepreau Nuclear Generating Station.

With me here today are Krista Ward, Manager of Regulatory Affairs, and Kathleen Duguay, Manager of Community Affairs and Nuclear Regulatory Protocol, along with many other site support staff.

I want to thank the CNSC for an objective and instructive annual report on Point Lepreau Nuclear Generating Station. I appreciate this opportunity to address the annual report with the Commission and welcome the findings as part of the station's continuous improvement process.

Both of the fully satisfactory elements relate to safety, which is our number one priority. It is often said that the safest plants are also the best performing plants and we also believe this. Safety is our overriding priority. This includes conventional, nuclear, radiological and environmental safety.

Under the topic of conventional safety we are very proud of our record and we work hard to maintain a safe work environment at Point Lepreau. Our conventional safety performance remains very strong. To date we have

operated for over five years without a lost time accident, equating to more than 8.9 million person hours of operation, at the same time achieving some of our strongest performance results ever, which include: a net electrical production of 5.16 TW, the best production performance of the station since 1994; a unit capacity factor of 89.4, best capacity factor since 2007; a forced loss rate of 2.2, best forced loss rate since 2006; and at 91 percent on the nuclear industry's Equipment Reliability Index, the Station achieved the best score since it started tracking this industry measure in 1995.

Under the topic of nuclear and radiological safety, to date the radiological releases over the life of the plant are less than one year's annual dose limit. We also want to take note of the positive feedback the CNSC has given on measures around radiological protection and environmental management. Consistent with the nuclear industry's strong focus on emergency preparedness, NB Power has continued to make improvements to our emergency response and emergency planning. Throughout the year we worked with approximately 35 agency partners in preparation of training for our Synergy Exercise that took place last month in October. This drill tested the readiness of station staff, agencies and community support systems throughout the province.

Under the topic of environmental safety, Point Lepreau has recently completed the process of updating ISO 14001 Environmental Management Systems to the latest standards. This accomplishment will strengthen our environmental protection programs.

We are proud of our environmental performance and NB Power has an extensive environmental monitoring program that samples, analyzes the water, the air and the vegetation in the immediate area to ensure its operations do not adversely impact the community or the neighbours. Members of the First Nations communities of both Mi'kmaq and Wolastoqey have been working with NB Power on an environmental monitoring program which helps ensure that the delicate balance of nature is carefully maintained. Reliable low emission electricity contributes to the health and well-being of the people of New Brunswick and the environment and they are both of the highest importance to us at NB Power.

In addition to our safety priorities, I would also like to touch on equipment reliability. It is satisfying to see recognition for equipment readiness and maintenance as we continue with our progressive improvement program. We have completed many improvement initiatives and continue to work on our mission to excellence with additional training on condition monitoring, critical plant

components for age and obsolescence, and our reduction of maintenance backlog has resulted in reaching better than industry standards.

As well, the 2017 report confirms that NB Power continues to modernize the station with the latest code, standards and regulations. Having once again attained a satisfactory rating in 2017, we are encouraged to continue to execute our corrective action plans and performance improvement to exceed expectations. The findings in this report affirm the hard work done by our leadership team and our staff to improve our station. I want to thank each and every Point Lepreau employee for their efforts in achieving strong safety performance results for the people of New Brunswick. It is also a privilege for us to be a part of the local community. We work hard to drive safety and operational excellence in everything we do. Our commitment to these communities: we are honoured to have their level of engagement and support.

To conclude, safety is ingrained in our DNA. We are a learning organization and we are one team and we are always striving to be the best that we can. This has resulted in us now having zero CNSC directives and a significantly reduced number of action items. Our people are empowered to improve the station. We have a culture of prevention and risk management. We are committed to

providing New Brunswick with safe, predictable, reliable and environmentally responsible electricity. We will continue to focus on all actions overseen by the CNSC to add to the number of fully satisfactory ratings. We appreciate the work of the CNSC in preparing the report and we look forward to your future review of our efforts.

We are willing to entertain any questions.

THE PRESIDENT: Thank you, Mr. Power.

Bruce Power, do you have any comments?

MR. CLEWETT: Yes. Good morning, President Velshi and Members of the Commission.

For the record, Len Clewett, EVP and CNO at Bruce Power.

With me today are Maury Burton, Director of Reg Affairs; James Scongack, Executive Vice President of Corporate Affairs and Operational Services; and Gary Newman, Senior Vice President and Chief Engineer.

Bruce Power appreciates the opportunity today for a review of our 2017 performance. This annual forum is transparent and encourages public input, which is important to Bruce Power.

At Bruce Power our number one value is safety first. That includes reactor safety, radiation safety, environmental safety and industrial safety. This value is also important for successful operations. Overall

the safest plants are also the best-run plants. We have had strong operational and safety performance over the years and we continue to challenge ourselves to reach higher levels of performance. This means along with our industry peers we focus on gaps to excellence.

With regards to continuous improvement, in 2016 we started an initiative, "You Can Count on Me". It's about every worker committing to the highest standards and level of safety performance, every step, every time, every day. By the end of this year each worker will have received classroom training and we have since received reduced error rates. We have also seen some of our strongest performance in areas such as environmental and radiation safety.

Nuclear energy is one of the safest industries in the world and this starts with our safety first focus and a strong safety culture. We routinely perform in-depth safety culture surveys to identify and close gaps to excellence. Safety and reliability go hand in hand and we continue to implement our asset management plan to improve equipment reliability. Improved maintenance productivity has also resulted in lower maintenance backlogs. We also continue to invest in extending the life of our assets and doing so in a manner that will improve safety and reliability.

Our people are engaged and well trained and we have transition plans to ensure our new staff gains proficiency in a timely manner. About a third of our staff, with the retirements, are now under the age of 35.

We invest in innovation to improve safety and operational performance. A few examples. We save lives every day by enabling clean air and by producing cobalt-60 isotopes which are used to sterilize used medical equipment and soon, starting in 2019, to treat brain tumours. We invest in new tooling to lower radiation exposure to our staff and we are investing in technology to make it easier for our staff to contribute by simplifying procedures and processes.

Our public engagement and involvement is open and transparent and this has yielded strong approval ratings from our recent polling, when residents in our region shared their views on the safety of our facility. Engaging with indigenous people and the community is a key priority for Bruce Power.

In closing, we are confident in our ability to continue to operate safely and reliably through our culture of continuous learning. We welcome your review and your comments. Thank you.

THE PRESIDENT: Thank you.

Hydro-Québec, avez-vous des commentaires?

M. OLIVIER : Oui. Donald Olivier pour le verbatim.

Madame la Présidente, Mesdames et Messieurs les Commissaires, bonjour. Je me nomme Donald Olivier, directeur des Installation de Gentilly-2, Hydro-Québec.

Je suis accompagné aujourd'hui d'Annie Désilets, ingénieure aux Affaires réglementaires.

Il me fait plaisir d'être ici pour cette réunion publique concernant le Rapport de surveillance réglementaire. Ce rapport, préparé par le personnel de la Commission, nous permet d'avoir un regard extérieur et neutre sur nos activités. Il permet également d'évaluer notre rendement par rapport à l'industrie et participer à l'établissement d'objectifs réalistes dans une perspective d'amélioration continue.

L'année 2017 a été bien remplie en termes de réalisations. Nous poursuivons le déclassement des installations de Gentilly-2 en maintenant l'objectif d'atteindre l'état de stockage sûr à sec d'ici la fin de l'année 2020. Ceci exige de soutenir un rythme et un volume d'activité élevés dans le respect des règles de sûreté et de sécurité, comme le requiert l'ensemble de nos activités.

J'aimerais vous présenter brièvement la

mise à jour des sept principales étapes qui déclencheront l'atteinte de l'état de stockage sûr à sec prévu pour l'automne 2020.

En 2017, nous avons complété le drainage des tours de reconcentration d'eau lourde. Nous avons également finalisé la dernière phase de transfert des résines dans les enceintes de stockage.

D'ici quelques semaines, l'entreposage de l'eau lourde des systèmes hors du bâtiment réacteur sera achevée.

Parmi les étapes en cours, notons le transfert du combustible irradié de la piscine dans les enceintes de stockage CANSTOR. Il nous reste encore deux campagnes à compléter : Priorités 2019 et 2020.

Enfin, les trois dernières étapes qui seront complétées au cours de l'année 2020 consisteront à drainer le circuit de refroidissement des boucliers, drainer les piscines de stockage, et finaliser la reconfiguration des salles contenant des matières radioactives.

Comme vous pouvez le constater, deux des sept étapes ont été entièrement complétées et nous sommes sur la bonne voie d'en finaliser une troisième d'ici le mois prochain.

Nous tenons à souligner le travail des

employés qui s'appliquent à chaque jour à réaliser chacune des tâches avec professionnalisme dans un contexte de décroissance. À noter que les doses en radioprotection, tant pour les employés que la population, sont restées faibles et bien en deçà des limites réglementaires, tout comme par les années passées.

Enfin, nous tenons à vous assurer que la planification et la réalisation des activités de déclassement sont réalisées avec toute la rigueur requise. La surveillance des installations de Gentilly-2 est également maintenue dans le respect des exigences réglementaires et des impératifs de sûreté et de sécurité.

Merci de votre attention.

LA PRÉSIDENTE : Merci.

Before we open the floor to Commission Members for questions, I wish to note for the record that I received an unsolicited correspondence by email on October 30th, 2018, in respect to the February 2018 internal alpha contamination event that occurred at Darlington NGS Refurbishment Retube Waste Processing Building.

Dr. F.R. Greening sent directly to me a detailed email outlining his analysis and questions related to the event. Despite the fact that his email acknowledged that this event would be discussed at today's public Commission Meeting, it would have been preferable to follow

the Commission's process to seek to intervene in this proceeding, which would have been the appropriate way to bring to light his concerns about the event and OPG's management of it.

I will ask the Secretariat staff to reiterate to Dr. Greening that intervening in the Commission's process is the appropriate and fair and transparent way to bring matters to the attention of the Commission. There is a clear process for this that is well articulated and easy to navigate.

On this matter, there are some specific issues raised in his email which I believe have merit and, because I have concerns about their potential safety significance, I would like for OPG to address and for the CNSC staff to consider before the Commission can be satisfied with respect to the management of this alpha incident event.

As such, my instructions are as follows.

The request from the Commission respecting the provision of additional updates on this event, reflected in staff supplemental CMD 18-M39.A as RIB 14051, is not to be closed at this time.

The October 30, 2018, email is to be provided to the Commission Members, to OPG and to the CNSC staff and put on the record and made available publicly.

OPG is to address the safety concerns that are listed -- they are numbered I through XIV -- at the end of Dr. Greening's email of October 30th.

OPG is to provide its information addressing these safety concerns to the CNSC staff in a timely manner for staff's consideration, and staff is to review this information with a view to updating the Commission on its assessment.

And OPG and CNSC staff should liaise with the Secretariat on what date in the near future this can come back to the Commission for its consideration.

So prior to opening the floor for questions from the Commission Members, we will now proceed with the written submissions filed by the intervenors.

I wish to remind the Members that representatives from Health Canada, New Brunswick EMO, and Fisheries and Oceans are available for questions as well.

So, Kelly, over to you, please.

CMD 18-M39.1

**Written submission from the
Canadian Nuclear Workers' Council**

MS McGEE: The first submission is from the Canadian Nuclear Workers' Council, as outlined in CMD

18-M39.1.

Are there any questions from the Commission Members on this submission?

MEMBER PENNEY: I think I understand that we have two submissions from union organizations and one of the unions belongs to the other. I think I understand that. But in this letter it says that there are no union members at the Gentilly-2 site since the facility was shut down, which I found a little confusing. Perhaps that could be explained to me. Thanks.

M. OLIVIER : Donald Olivier pour le verbatim.

Donc, ce que j'en comprends de mon côté c'est que oui, il y a des syndiqués à Gentilly, mais ce n'est pas du même syndicat. Donc, à Gentilly, c'est principalement des membres du SCFP, du Syndicat de la fonction publique. Donc, il y a réellement des syndiqués à Gentilly, mais ils ne font pas partie de la même association.

MEMBER PENNEY: Okay. And the union participation in safe work committees and that sort of thing would continue at Gentilly-2?

M. OLIVIER : Donald Olivier pour le verbatim. Je ne saisis pas bien la question.

MEMBER PENNEY: We have heard from other

union submissions that the union plays a really important role, and I think this letter says it as well, in safe work committees, joint committees, incident reviews, that sort of thing, and so I'm just confirming that the union at Gentilly-2 plays that role.

M. OLIVIER : Donald Olivier pour le verbatim. Merci pour les précisions.

Oui, effectivement, à Hydro-Québec, à Gentilly-2 ou partout dans l'entreprise, on a une approche en santé/sécurité où est-ce que, évidemment, tous les syndiqués ou les unités syndicales sont impliquées. On a en place ce qu'on appelle des comités locales en santé/sécurité, des comités régionales en santé/sécurité, et aussi une structure provinciale. Donc, oui, je peux vous assurer que toutes ces questions-là sont adressées avec nos partenaires syndicaux, et évidemment, dans un contexte de décroissance comme Gentilly-2, oui à la santé/sécurité, mais tout le reste, santé mentale ou la préoccupation de relocalisation des employés qui doivent être adressés, effectivement, il y a des discussions continuelles avec les syndicats sur ce sujet-là aussi.

MEMBER PENNEY: Thank you for that clarification. Yes, for sure, during this transition it's very important to keep your eye on the ball. Thank you.

MEMBER LACROIX: Well, my question is

addressed both to the Canadian Nuclear Workers' Council and also to the Power Workers' Union. So I am addressing two: M39.1 and M39.2. Although I have brought this issue up in the past, I would like to have an update concerning the random alcohol and drug testing and the discussion with their employees, respectively.

MR. FRAPPIER: Gerry Frappier, for the record.

I'm sorry, perhaps just a little bit of clarification. Are you looking to have each one of the utilities indicate a little bit where they are in their plan as far as implementing the REGDOC associated with drug and alcohol testing or do you want staff to give you sort of a general picture of where we are at?

MEMBER LACROIX: A general picture, please.

MR. FRAPPIER: Okay. For that I would ask Mr. Greg Lamarre if he could provide some indication -- or Ross Richardson, I'm not sure which one is here.

MR. RICHARDSON: Good morning. Ross Richardson, CNSC staff. I am the Director of the Human and Organization Performance Division at the CNSC.

So, yes. Just in regards to CNSC staff's Regulatory Document 2.2.4, Volume 2, Managing Alcohol and Drug Use. So, as you know, this regulatory document was

published in November 2017 and it sets out requirements and guidance for managing alcohol and drug use at high-security sites, which includes the nuclear power plants and the waste management facilities. This regulatory document includes requirements for programmatic elements as well as requirements for drug and alcohol testing for safety-sensitive and safety-critical positions.

All licensees are implementing this REGDOC in a phased approach. So all licensees have committed to implement all aspects of the regulatory document except random testing by July 2019, and random testing will be implemented by December 2019.

MEMBER LACROIX: And what is the reaction of the unions to the random testing? Do they receive this very well or are there some glitches?

MR. RICHARDSON: So I am going to ask Lynda Hunter, who was involved in the drafting of this regulatory document, to answer that question.

MS HUNTER: For the record, Lynda Hunter. I am a Human and Organizational Factors Specialist here at the CNSC and I was one of a team of specialists that was involved in the development of this regulatory document.

So the document development process was quite lengthy. We began with a discussion paper which was first published and we received public comment on that,

followed by the REGDOC development and public consultation during that phase as well. Unions have been quite vocal in that typically they certainly support the broad fitness for duty provisions and see the importance of fitness for duty for safety. However, they have expressed opposition to drug testing and, in particular, random drug testing.

CMD 18-M39.2

Written submission from Power Workers' Union

MS MCGEE: The next written submission is from the Power Workers' Union, as outlined in CMD 18-M39.2.

Are there any questions from the Commission Members on this submission?

CMD 18-M39.3

Written submission from SOS Great Lakes

MS MCGEE: The next submission is from SOS Great Lakes, as outlined in CMD 18-M39.3.

Are there any questions from the Commission Members on this submission?

Go ahead.

MEMBER BERUBE: So I'm looking at page 4 of this particular submission. About halfway down the page

there's a statement that says:

"- that severe accident recovery assessment has never been conducted for a multiple emergency scenario at the Bruce Site..."

Please, if Bruce would care to comment on how you have addressed this and, the CNSC, your thoughts on the matter.

MR. NEWMAN: For the record, Gary Newman.

So we have -- and I think the Commission is aware of this -- we have extensive emergency preparedness programs which we drill both in terms of tabletop and real time, including all the associated training that goes along with that. We have in the recent period updated our severe accident management guidelines as well to include not only single unit issues but also parallel unit issues or multiunit conditions. That includes rolling up to and large-scale events. So with this in mind, I think we have a robust program, and the station as well as the Emergency Management Centre Team is ready to deal with an all-hazards type of scenario.

MR. FRAPPIER: Gerry Frappier, for the record.

From the CNSC's perspective, as you know, we have a requirement for emergency management testing and

drills, including full-scale exercises which Bruce has undertaken in the recent past. Those full-scale exercises did include severe accident and demonstrated severe accident management both onsite and offsite.

For a little bit more detail, I would ask Mr. Chris Cole if he could add to that.

MR. COLE: For the record, my name is Christopher Cole. I am the Director of the Emergency Management Programs Division here at the CNSC.

Just to add to what Gerry Frappier just mentioned, we do encourage all the utilities when they're performing their emergency exercises to go into the SAMG component and we exercise those extensively. We have seen great improvement in the response from all the utilities in this area and we continue to be satisfied with that performance.

MEMBER BERUBE: Okay. I just want to be very clear here that obviously there is an assertion here that doesn't appear to be true. CNSC staff, would you affirm that you are satisfied with the safety performance at Bruce?

MR. FRAPPIER: Gerry Frappier, for the record.

As noted in the ROR, Bruce Power has been reviewed with respect to how they perform during severe

accident assessments of their response to severe accidents, both from a tabletop review of severe accident management guides, from a training of their staff and from the drills that are undertaken, including up to and including the major exercises that have occurred at Bruce, and staff is satisfied that they meet all the requirements.

MEMBER PENNEY: I think it's page 4 of 5 in the submission, the last bullet on the page, it says:

"- under Protection of the Public ... the underreporting of incidents, and the lack of communication by the operator to the public on incidents of release..."

I would like a comment from the operator and then from staff in terms of, is there an underreporting of incidents and what are the communication requirements around emissions, discharges, incidents of release to the air? Thanks. So start with the operator and then go to the staff.

MR. SCONGACK: James Scongack, for the record.

I really think there are three elements to this.

The first is, speaking from Bruce Power's perspective, we are fully compliant with the regulatory

document that sets this out and it's very clear on what reporting requirements are required.

I actually take issue with some of the commentary in the intervention. You know, from a Bruce Power perspective, we don't pick an audience to communicate to. Frankly, we will communicate with everybody and anybody who is interested. So that is our policy, recognizing that there are certain members of the public who are interested in more information than others and we try to do our best to enable that. As Mr. Clewett noted, this is something we constantly measure ourselves on and continue to receive very positive feedback.

And when we do have events, some of them that are often noted to the Commission by way of updates, we post those proactively and to the extent members of the public or groups would like further colour on those we are always happy to engage with them and, as far as I know, this particular group has never expressed to us -- requested information on any of the subject matters noted in the intervention.

MR. FRAPPIER: Gerry Frappier, for the record.

From a staff perspective, there are requirements for licensees to report any kind of incident or event and that is captured in REGDOC-3.1.1. All of

those events go into our database, our CERTS database, which are then reviewed by our experts as far as any item that should be followed up on or looked at more. We do not believe there is any underreporting. We have no evidence of any underreporting.

With respect to reporting to the public, there are requirements under REGDOC-3.2.1 for there to be a communication program with the public. Our communications staff interact with the Bruce communications staff on any event that occurs that might be of interest to the public or that is of any kind of safety or environmental concern and we ensure that if -- that they will report it to the public under any -- whether they do or not we will be reporting it to the public as well, so there is also a CNSC public.

The last bit on the point the intervenor makes has to do with contamination in Baie du Doré. As we have mentioned, we have extensive requirements for industry to be doing environmental monitoring. That environmental monitoring does not support the idea that there is a very high, active contamination at any of the outlets, and our independent environmental program that the CNSC runs would confirm that. So I think that perhaps the intervenor is a bit misinformed and should maybe take the advice that Bruce Power has just offered -- the offer that Bruce Power has

just given to maybe come in and talk with them a bit more as to what there is there.

MEMBER PENNEY: Thank you for that. I was going to ask a second question around the active contamination. That's the quote from this letter, the active contamination. Can that intervenor go to Bruce Power's website or to CNSC's website and see data that would demonstrate whether there is active contamination? First the operator, then CNSC.

MR. BURTON: Maury Burton, for the record. That data is in fact on our website in our annual radiation monitoring program report that is submitted as required to the CNSC on a yearly basis. So that information is available and I believe that CNSC staff also do their independent monitoring, but I can let them talk about that.

MR. FRAPPIER: Gerry Frappier, for the record. I would ask Kiza Sauvé to perhaps give us some details around what environmental monitoring data is out there on a regular basis.

MS SAUVÉ: Kiza Sauvé. I am the Director of the Health Science and Environmental Compliance Division.

So CNSC's Independent Environmental Monitoring Program does have a dashboard on the CNSC

website where you can click on each specific sampling location and see what those results are. So at the Bruce site it was in 2013, 2015 and 2016, and we will be going back next year to take more samples.

From the CNSC website we also have links to the Bruce Power website where you can find their environmental risk assessment as well as their annual reports, as Maury Burton mentioned.

And we also link to Health Canada's website that has air sampling results and Ministry of Labour website that has drinking water plant results.

So there's a multitude of information available out there for this intervenor to look at.

MEMBER PENNEY: Thank you.

THE PRESIDENT: I would just like to follow up on that. It's fair enough to say that that information is out there, but how did we get reassurance that the statement in here that members of the public may not be drinking the water because there is fear that it's contaminated, that that indeed is -- whether it's true or not and how do we get confirmation, and if they are misinformed, how do we dispel that? So we will start with Bruce Power and then staff can add to that.

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

So first and foremost, in all of our public communications, whether it's requests for information, dialogue with the municipalities, dialogue with the public health agencies, open houses, polling, public attitude research, 10,000 people that come through our Visitors' Centre, we have never -- I can tell you definitively we have not had that concern raised.

What we do in particular, given the fact that our facility is close to two communities, at the water intake in Southampton, Ontario, which is located in the Saugeen Shores north of the site, and Kincardine south, as Mr. Burton mentioned, in our EMP reporting annually we also have additional monitoring at those locations and actually report out on that on a regular basis to the municipality.

Typically what we find with this EMP reporting -- and I know we talked a little bit about this during our 10-year licence renewal -- is the important thing I think for all licensees, and they are in fact doing this in Bruce Power in particular, is how do we dissect these EMP reports down into some -- into a digestible way for the public. And that's something we have started doing, because, you know, somebody reading a report may not understand what is relative in terms of a becquerel per litre. So what we have sought to do, a little similar to what CNSC staff have done here, where we put these in

perspective.

But I can tell you, you know, definitively, this is not an area of concern, nor is it an area of concern that this intervenor has ever raised with Bruce Power. We would be delighted to write the intervenor and offer to meet with them and provide some of those reports. And of course if there is any feedback on how we can do better, we are always open to that.

THE PRESIDENT: I think that would be good that you reach out and make sure.

MR. SCONGACK: Yes. We will certainly do that.

THE PRESIDENT: Thank you.

Staff...?

MR. FRAPPIER: Gerry Frappier.

I would like to ask Meghan Gerrish to talk about their communications program. As we mentioned earlier, I think the data is there, the data is available. It might be a little bit tricky to navigate through that, as was just mentioned, but from a communications perspective, whether we have heard of anybody concerned about the drinking water, I would ask Meghan to comment on that.

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

I can confirm that Bruce Power does have a strong communications program. We work with Bruce Power directly quite often in terms of visiting open houses and looking at some of the information that they are putting out there. There's lots going on, there's a plethora of information available and we continuously work with Bruce Power communications staff, as with all licensees, to ensure that information that is being provided to the public is not only just provided but there is context around that and that's what I think this intervenor is getting to. Maybe there is not a clear understanding of exactly what they are looking for, but the key here is that there is good context around what public are interested in. So that is something that we do see often with the licensees. There's lots of information available. We put a lot on the website, the CNSC puts a lot up of just information, but again, it's getting context around that information so people have an understanding.

MS MCGEE: Dr. Lacroix...?

MEMBER LACROIX: No questions.

MS MCGEE: Madam Penney...?

MEMBER PENNEY: Yes. I had a question. The intervenor says that the safety systems in place for the community and at the borders of the Bruce site, operator has no provision for extension of safety beyond

those borders. I just wanted to get Bruce and then staff to clarify the jurisdiction. What is Bruce Power responsible for, what are they responsible for working with in terms of municipal partners, and what is the municipality and the province responsible for in this response world?

MR. SCONGACK: James Scongack, for the record.

So there is obviously a delineation of responsibility within the site and off the site from a -- as you say, from a jurisdiction or from an authority perspective. The way we -- we look at this issue a little bit differently than that and shape our communications as such.

One of the key elements that is central to the work that Bruce Power has done with respect to emergency preparedness is the interoperability work that we do with our municipal partners, and municipalities under the PNERP have the responsibility for these kind of areas. But we recognize, particularly around Bruce, it may be different in Pickering and Darlington, but our smaller municipalities don't have the same base level of resources that let's say larger communities would have. So we work very closely with the municipalities, supporting them through those activities, making sure they have the

resources and the expertise available.

So while there is a jurisdictional or a legal delineation between the two, which we would respect in terms of decision-making in an event, in terms of the preparation for an emergency and the preparedness we do, as demonstrated through our emergency exercises, our KI tablet redistribution, it's really an intricate activity between Grey, Bruce and Huron Counties, the municipalities, the province, Bruce Power, and fundamentally the goal when it comes to emergency planning is that it's such an integrated activity that -- and seamless activity that the jurisdictional boundaries don't limit that kind of collaboration and cooperation. So, you know, we would certainly invite this intervenor again going on our website to see some of the -- whether they are the videos or the reports coming out of the exercises where we try to show the public this is how we work together.

I think the other thing that's really important to note is that from a broader safety perspective the work that -- I know from a Bruce Power point of view -- that we do is really important in terms of broader community safety. We recently announced we are opening up our fire training facility for local volunteer fire departments to come and do training there and that is also important because while we are making investments in these

facilities and training to be prepared for what is a very, very low likelihood of a nuclear event, we want also to make sure that communities can benefit from that training and preparation for more likely events.

MR. FRAPPIER: Gerry Frappier, for the record.

From a staff perspective, so to be clear, outside of the boundary of the site it is the responsibility of the province and the local communities. We do have requirements on the licensee to interact with them and to ensure that they have acceptable levels of support, whether that be financial or other activities to be able to respond.

We have, as I mentioned earlier, major exercises that are required, where the interaction between the folks on the site and the province and hospitals and everything else offsite gets rigorously tested and that is done every three years at the Bruce facility, and the recent one certainly indicated that they have a good response capability outside the boundary.

I would also mention that the intervenor talks about that we haven't taken into consideration severe unusual weather or tornadoes, rising waters, and I would point out that all those are in fact considered under the probabilistic safety assessments to ensure that there is no

vulnerability to the plant or whatever the response to the plant is has been adequately taken into account for emergency preparedness, emergency planning, both by the province and by the licensee.

MS MCGEE: Ms Penney...?

MEMBER PENNEY: Thank you for that.

The intervenor goes on to talk about future planning and it's my understanding that an ROR looks at the past and looks at the performance of the plants during a particular point in time and that that wouldn't be the place where you would look at future planning. Am I misunderstanding the purpose of an ROR? The intervenor is saying that the ROR should be looking at future planning.

MR. FRAPPIER: Gerry Frappier, for the record.

So no, you're not misunderstanding. The report is a report of our view of the facilities in 2017 based on our compliance. And it's really geared to provide the Commission with staff's view as to whether they are compliant with the licence and the licence conditions that are placed on them.

Having said that, there is requirements in the licence for them to be looking at the future, to be them -- for them to be doing regular updates to safety analysis, for instance, regular updates to environmental

risk assessments. All of those are programmatic in nature and must be put in place.

And as part of our compliance, both under management systems and then under each one of the other SCAs, we are looking to ensure that they do have programs in place and they are executing them so that aging management and all these things that are coming up are being properly planned for.

MEMBER PENNEY: And a licence, a hearing for a licence renewal would really focus on future planning, wouldn't it?

MR. FRAPPIER: Gerry Frappier, for the record.

Yes. So certainly licence renewals as just occurred for both Bruce and Pickering are -- have a major focus on what is going to happen over the upcoming licensing period.

CMD 18-M39.4

Written submission from Gordon W. Dalzell

MS MCGEE: The next written submission is from Mr. Gordon W. Dalzell, as outlined in CMD 18-M39.4.

Are there any questions from Commission Members on this submission?

Mr. Berube.

MEMBER BERUBE: I have a couple questions on this. But the first one applies to the actual operators themselves.

In his recommendations on page -- what was it -- 56 of his CMD here, he asked that all PowerPoint presentations and open house information be publicly available on a licensee's website. And I'm not sure if that's being done or not, but it kind of makes sense to me that that would be available.

Would anybody care to comment on what they're doing?

MR. SCONGACK: James Scongack, for the record.

In the overwhelming majority of cases -- I can't say definitively in every case it has, but that would be our practice, that everything that we make available is posted online.

MEMBER BERUBE: OPG?

MR. DUNCAN: Brian Duncan, for the record.

Yeah, similarly we post a significant amount of information online. The intervenor had a couple of points where he identified there were opportunities for us to perhaps highlight better or make some of those elements more obvious. And we'll accept those, and we're

going to work to do that.

MEMBER BERUBE: Anybody else?

MS DUGUAY: Kathleen Duguay with NB Power, for the record.

We do have a lot of information on our website as well. When we hold information sessions, a lot of that information has already been communicated through other formats through our communities, through newsletters. But it's certainly some really good feedback there from Mr. Gordon Dalzell, and we'll -- we're looking into that.

MEMBER BERUBE: Yeah, from my interpretation of this document, it's actually well done, you know, being a person that's more or less outside the industry, and he's looking at it and saying, What is this? And how is it relevant to me and the people that I care about? And I think it's valuable to actually have a very good look at this and try and figure out whether the information we're presenting is actually -- it does make sense to the average person when they're looking at it, especially because it's being offered on a public platform.

MEMBER PENNEY: I wanted to follow up on Commissioner Berube's question there and ask Gentilly-2 for -- because the intervenor says quite explicitly that there's not much public information available on your website.

M. OLIVIER : Donald Olivier pour le verbatim.

Donc, à Gentilly-2, évidemment, il y a encore... il y a de l'information sur notre site qui est disponible, mais aussi peut-être préciser qu'on est très ouvert. On a accueilli beaucoup de demandes médias, donc, des médias, différents médias qui voulaient venir visiter le site, qui ont fait des reportages sur le projet de déclassement. Donc, c'est de l'information qui est aussi disponible. Puis on a aussi justement convenu qu'on ajouterait les hyperliens à ces reportages-là sur notre site. Le plus récent c'est La Presse+ qui sont venus sur le site d'Hydro-Québec pour faire un reportage, et puis on a pu constater qu'il y avait eu beaucoup, beaucoup de vues sur leur site. Donc, on croit que cela a eu un effet positif. Mais, effectivement, on a prévu ramener tous les hyperliens sur notre site pour avoir une approche plus simple pour les gens qui seraient intéressés à avoir de l'information sur le projet de déclassement.

MS MCGEE: Dr. Lacroix.

MEMBER LACROIX: One of the comments that the intervenor makes, and I will summarize it in one of his sentences. He says, "The word 'satisfactory' does not elicit a great deal of confidence among the public." (As read in) And I know that this comment has been addressed

by CNSC staff in M39.A, saying that they will take recommendation on the definition of satisfactory and fully satisfactory.

But the point that I would like to make here is that confidence comes with understanding. And this morning I was listening to the presentation on M39.B. And on slide 27 concerning the rating of Darlington and then on slide 51 concerning the rating of Bruce B, both nuclear power plants have 10 satisfactory marks in -- 10 marks of satisfactory in the safety and control areas, and four in fully satisfactory. But the overall rating for Darlington is fully satisfactory and for Bruce B it's satisfactory. So I'm confused here.

So I can understand his comment. If I myself am confused with your grading scheme, I just imagine a member of the public. And again, I emphasize on the fact that people have confidence when they understand. So could CNSC comment on this.

MR. FRAPPIER: Gerry Frappier, for the record.

Certainly, the English language has limitations, as every other language does, and certain words mean certain things to different people.

Over the years we've tried different nomenclature for the rating system. We for a while we had

numbers; we had letters; we've had different sets of words. I think no matter which one you do, there can be a perception that is less than accurate. And that has to come from having a definition, as you're saying.

So the word "satisfactory" means different things to people. If you look at our definition of what we mean by satisfactory, hopefully that makes it a little bit clearer.

I think the entire sort of scheme around rating is something that is a tool that staff is using to try to communicate. I think that we shouldn't think of this as being an exam that's being graded in high school sort of thing. So there isn't quite a sort of a one-to-one linkage with different things.

There is judgment involved. There's judgment involved by all of our specialists in providing input to it. There's judgment involved by our management team in reviewing the over thing. So there is -- and I think that's a good thing. I think we have input of over, as mentioned in the thing, over 200 people input into this thing. This rating system allows us to get all their various judgments along with very quantitative findings and put it together into something that we believe communicates to the public.

Part of it is quantitative and part of it

is qualitative. And so coming to your last point with respect to it looks like there's a similar sort of rating, I'll ask Brian Gracie to explain a little bit as to how the qualitative and quantitative aspects can sometimes intervene.

MR. GRACIE: Brian Gracie, for the record.

In terms of how the ratings are developed, yes, they have evolved somewhat over the years. It's been mentioned that there's a lot of findings that go into the report. So at the base level, CNSC staff are looking at specific areas, the components of the safety and control areas, looking at very distinct findings and coming up with evaluations, satisfactory or fully satisfactory in most cases for these specific areas.

And this is relatively straightforward in that a specific area might have a REGDOC or a CSA standard associated with it. And it's relatively clear for an individual specialist to make that judgment about that.

Once the specific areas are rated, they're assigned a number. And this is described in the appendix for the ROR, Appendix B. And then at that point, the SCA rating is an average of the numerical ratings for the specific areas. So that part's really clear.

And what I will say at that point, for all of these ratings, is that these definitions -- we're

talking about the definition itself of satisfactory versus fully satisfactory, in particularly -- the key words I think in the definitions are related to meeting requirements or exceeding requirements and meeting expectations or exceeding CNSC staff expectations.

So bear that in mind when we go to the next step, which is coming up with the overall rating. So the particular point that's been raised comparing some of the ratings, for example, if a lot of the ratings at the SCA level are satisfactory, how do you get a fully satisfactory rating at the overall plant rating.

So the overall plant rating is a judgment. And this is something that was new that was done this year. I guess to compare with, if you think about it at the SCA level, the requirements are fairly well defined and they're -- a lot of the requirements that exist for these various programs are sort of qualitative in nature. It'd be difficult to say you actually exceed them. You either have a program or you don't.

But there are a few that you could say that they are exceeded. So in certain places, a safety and control area is identified as fully satisfactory. The licensee has gone above and beyond what the typical licensee has done, maybe gone beyond what the existing requirements are.

When staff developed or, sorry, came up with the overall plant rating, this was a judgment. And there they're looking at it in the same way. Is the licensee basically meeting all the requirements? And are there any areas where they're sort of exceeding their expectations? And so it's not a quantitative counting of how many SCAs, but they're making that judgment at the overall plant rating -- sorry, at the overall level, making that judgment not just based on the ratings. But other things that were considered were just what happened with events during the year. Were they addressed; were there any events at all; were they few in nature; were they serious. Overall trend and a certain overall professional judgment, if I could call it that, about the status of the plant.

So that's how it was done. I hope that helps clarify.

THE PRESIDENT: Question to staff.

One of the comments the intervenor makes is it was around accessibility, that the ROR is only available in English and it only then gets translated before it's -- once it's finalized, and that that may preclude some folks from commenting on it.

What are your thoughts on that?

MR. FRAPPIER: Gerry Frappier, for the

record.

So in short, he is correct. At this point in time, the document is available in English. Once we publish it, it will be available in English and French.

We have looked at -- it really becomes a pragmatic issue. We've looked at several different sort of approaches to trying to get the translation done beforehand. And really it just -- it stretches out the amount of time. It's a very sizeable document. The translation time required would add time to us being able to bring it before the Commission. And so at this point in time, we -- our preference is to bring it before the Commission as an English document and make it available in both English and French once it's finalized.

THE PRESIDENT: But the issue here is folks who want to intervene who may not have that opportunity because of language restrictions. Do we get requests to get it translated prior to it getting finalized?

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

So there is opportunity for anybody who wants to comment in French -- obviously, they can comment in French -- but to get information in French, they can make that request to the secretariat for any of the CMDs or

information in it.

THE PRESIDENT: Thank you.

MS MCGEE: Ms Penney.

MEMBER PENNEY: Question for all the licensees and then for staff.

Around community liaison committees, I guess the question is, is there a requirement for them? And then to the licensees, do you have them? Do you have these committees? And do you post the minutes of those meetings on websites, as the intervenor is recommending?

MR. DUNCAN: Brian Duncan, for the record.

So we have what's called a community advisory council. There's one for the Pickering station, a separate one for the Darlington station, to reflect the communities that those power plants are situated within.

We've had those advisory councils for many years now. It's an important part of how we interface with the community. Clearly, you know, we talk with municipalities, we talk with the officials, of course, the elected officials in those municipalities. But having community members review the work we're doing and having that direct feedback is very, very important to us.

And yes, we do publish the results of those meetings, the minutes of those meetings.

MR. SCONGACK: James Scongack, for the

record.

So from a Bruce Power point of view, our approach to this has evolved over the years based on actually feedback from many of the people that would be part of a community advisory committee. And what the approach that we have taken is to -- through a series of MOUs and other arrangements, what we really use is existing forums that are in place to communicate information.

So I'll give you an example. We have a memorandum of understanding with the municipalities surrounding the site. And we meet regularly with those municipalities, provide briefing materials that are then posted online. We also, based on some feedback from the municipalities, it was really clear to us that the best way for us to get information out to the public was to use their existing forums, which are really transparent. So while it may not be the top television viewing show for everybody, it is amazing the number of people who follow their local council meetings, go and access that information. And we have found that to be an incredibly successful approach. We work with the municipalities, make that available on a regular basis, but also utilize those public forums. So the information we're providing can be added in to those existing channels they already have.

There's some specific areas we focus on.

For example, we do regular stakeholder briefings with groups such as the health unit, who will often get incoming information requests. And it's really important that they're able to understand the broader context. That was particularly important around KI pill redistribution. And also our hospital corporations who, you know, when it comes to whether it's health issues, environmental issues, dynamics in the community. And we interact with those folks regularly.

But we have moved away from a kind of a one-stop sort of community advisory committee, because the feeling was -- at least related to Bruce -- that the municipalities wanted us to use those existing channels that they had.

M. OLIVIER : Donald Olivier, Hydro-Québec.

Donc, on a des équipes de relations avec le milieu, qui sont là pour nous aider à prendre en charge toutes les questions que le milieu pourrait avoir. Mais aussi, il y a des rencontres récurrentes qui se font avec le Comité consultatif en environnement de la Ville de Bécancour. Donc, sur ce comité-là, il y a aussi un membre du Grand Conseil Waban-Aki. Donc, ces rencontres-là pour l'instant, depuis 2015 on en a eu deux. À chaque année on leur offre la possibilité d'aller les rencontrer. Ils nous ont demandé d'y aller à deux reprises. Pour l'instant,

évidemment, c'est une rencontre avec des membres du conseil de la municipalité, des gens du milieu. Donc, les documents de compte rendu sont disponibles au public.

MS DUGUAY: Kathleen Duguay, for the record, NB Power.

We provide several pathways to provide information to our communities and members to the public, as well as receiving requests. We participate into speaking engagements; we meet with municipalities; we participate to some local events where we are invited to speak. We do have a community relation liaison group that is very effective. They are key stakeholders in our communities and they also are our ambassadors who bring the information back.

A lot of the information that we share with our community relation group is also shared through different ways through our website, through our newsletters. And we do have minutes of meetings. Therefore, they're not published on our website. So we appreciate Mr. Gordon's feedback there and we value his feedback. So in consultation with the community liaison members, we have agreed that we will be posted those minutes on the website, and we thank Mr. Dalzell for his intervention.

MEMBER PENNEY: Thank you for that.

Staff, is there a requirement for community liaison committees?

MR. FRAPPIER: Gerry Frappier, for the record.

I'll ask Meghan Gerrish to come up.

But perhaps before we get to that specific detail, I would point out there is a requirement for there to be a communication program, as we've talked about, and that can be done in several different ways, depending. Obviously, a rural community is a little bit different than the Pickering environment. And so we have to take a look at that program and make sure that it makes sense for that location.

And just before I turn it over to Meghan, he also mentions about the Indigenous side of things. And so there is heavy engagement with Indigenous groups, certainly at both Bruce and at Point Lepreau, where they're quite involved. And that a requirement on us from the Commission, actually, for us to be setting up very specific engagement committees. And we are doing that.

There's also a requirement on the industry to be doing engagements as per the REGDOC on Indigenous engagements, and they are proceeding with that.

With respect to the communications requirements and how we assess whether it's acceptable, I'd

ask Meghan to comment on that.

MS GERRISH: Meghan Gerrish, for the record.

The CNSC does require licensees to seek feedback from their community stakeholders. So we're not prescriptive in terms of you must have a community liaison committee, but we do require that there is a feedback loop, a mechanism in place in order to tailor communications and information to the specific needs of the target audience or the community in the vicinity of the facility.

So as you can appreciate, every community is different and they have different needs and different desires for communication and different information sharing. So the CNSC at this point is satisfied with the work that each licensee is doing in terms of maintaining that feedback loop with their target audiences.

MS MCGEE: Ms Penney. Oh [indiscernible]

MEMBER BERUBE: So I'm looking at this particular submission here, and I'm looking at page 57. And he comments on looking at the impacts of climate change on NPPs over time. And obviously, there's a fair amount of anxiety, given the latest IPCC report, which you're probably all familiar with. If not, it's the Intergovernmental Panel for Climate Change, I think it just came out last month, which has some pretty dire projections

if you actually look at this thing carefully. And I could see how the members of the public would have -- be quite concerned about this.

And this question goes to staff specifically. I know you've address this, basically, in your supplemental, but I'd like to just have you reiterate how looking at those projections, such as organizations such as the IPCC are addressed through your regulatory processes and over a longer period of time in terms of the safety and security. Thanks.

MR. FRAPPIER: Gerry Frappier, for the record.

I'll ask Candida Cianci to come up.

And just while she's on her way up, I would point out that we do have a requirement for environmental risk assessment to be performed every five years. That certainly takes into account the science of the day and the conditions of the day. So as -- if climate change results in differences in the environment, that will be captured at that point. We also participate in many of the both international and national groups associated with climate change.

And perhaps Candida can give us some more information on that.

MR. McALLISTER: Andrew McAllister,

director of the Environmental Risk Assessment Division.

Mr. Frappier really touched on I'll say a number of different intersection points that we use in our regulatory oversight in respect to climate change.

And certainly, the other ones that perhaps weren't mentioned were, for example, we have a memorandum of understanding with Environment and Climate Change Canada, so we can make use of that resource as far as climate change science goes.

From time to time, there might be special studies. You may recall Bruce Power discussed their plans in their relicensing this past year about launching a climate change study. They've engaged us, the regulators, and other stakeholders, as to what that may look like. So that's an example of a sort of a specific one that might have an output that might then feed back into our overall environmental protection framework, for example.

And again, with upcoming potentially new legislation there will be a need to look at re-examination of guidance and CNSC staff has historically been involved in development of that guidance during -- for the *Canadian Environmental Assessment Act 2012* there was working groups put together of federal experts and we were involved in those sorts of activities and we anticipate to be involved in future activities such as that.

MS MCGEE: Ms Penney?

MEMBER PENNEY: This isn't really a question, it's a comment and maybe a request to staff. On page 46 of the intervenor's -- 48 of the intervenor's submission there is a link to CBC Morning Show in New Brunswick where he discussed with the host the unfortunate process safety failure at the Irving Refinery.

And, you know, among process safety specialists sharing of lessons learned from process safety and the response to it is extremely important for everybody to learn by it. Of course, this event happened a week after the CNSC and NB Power had undertaken their emergency response. So, I would hope that in the context of the process safety failure at Irving, you know, everybody was on -- they were well exercised.

I guess my request is, and I don't expect anyone to be able to answer it here today, but in terms of the New Brunswick NB Power's sharing of information and lessons learned in the New Brunswick process safety community, what can we learn from that incident, how it was responded to by the proponent, by the provincial organizations, our partners who would have participated in the emergency response exercise back in October.

So, my request is for some follow-up at some point in the future with respect to what can we learn

from that Irving Refinery process safety failure?

And I'm kind of jumping on -- I did listen to the intervenor's interview and it really highlighted the fear that would be in the community around how important communications are immediately, the things that he thought they did well, the things they could have done better to kind of calm people in the face of that real unfortunate emergency.

MR. FRAPPIER: Gerry Frappier, for the record. So, certainly that was a noteworthy accident that just happened. I'm not sure if our communications group have done the lessons learned out of that, so I'll ask Meghan if she wants to add something to it, but certainly we will and similarly New Brunswick Power might have...

But I would comment on the overall psychosocial impact and trying to get to the root of things like fear and worry and anger and that, and I believe that that was one of the big lessons learned out of the Fukushima accident as well, is that there is a need to really take these under consideration. Maybe the biggest impact of nuclear accidents are really more around those things than they are about actual radiation exposure.

And we have taken that into account both from an emergency management perspective, from a scientific analysis perspective, from a communications perspective and

you'll see that there's much more attention, for people who have been following this for a few years, if you like, much more attention being paid now to the communications piece and how do we ensure that instead of having a vulnerable group from a mental health perspective we have a group that has rigor about understanding of what's going on, whether it's normal operations or abnormal operations.

With respect to lessons learned on New Brunswick, I'm not sure if NB Power wants to add anything to that or -- oh, and perhaps Peter Elder might want to add to it.

MS WARD: For the record, Krista Ward.

So, we have discussed this onsite, you know, what we can learn out of that unfortunate -- the event at the refinery and we also work closely with EMO on any lessons learned that we could have out of this event.

I pass it over to Roger Shepard on the line, if there's anything that you would like to add as well, but we're definitely looking at how we can learn from it.

MR. SHEPARD: Yes, President Velshi and Commission Members, thank you.

I can pass on that we're a very small province and the Provincial Emergency Measures Organization are stood up for many events, one being the oil refinery

fire as well as the propane accident in the City of St. John in January, as well as our exercise. We are currently activated for a severe windstorm. So, many of the same players who deal with a radiation emergency at Point Lepreau also deal with other natural and industrial accidents.

The City of St. John is a very industrialized city and they were stood up for our exercise and they're stood up for many industrial events as well. So, we are awaiting the after action review from the oil refinery and that will be discussed at a provincial level even though that accident was inside the municipality of the City of St. John.

MR. SCONGACK: James Scongack, for the record. If I could just add, obviously a lot of dialogue in response to your question on public communication and we're certainly going to take those lessons learned, work with NB Power as well, but I should say even more importantly from our perspective is one of the things our emergency protective services group is putting a lot of focus on is where is there OPEX from outside of the nuclear industry in terms of fire prevention? I mean, the best outcome is that we don't have any fire events. And so, we continue to put a very significant focus on fire prevention onsite and our fire chief has taken an action to find out

whatever OPEX there is coming out of the event itself even though it's a fundamentally different kind of operation than a nuclear plant, what lessons learned are there from a prevention perspective, how can we incorporate those lessons learned from not only this but other fires and other events we've seen in other sectors to be not only leaders in emergency response but more importantly fire prevention.

MR. ELDER: Just to add, Peter Elder, Vice-President CNSC of Technical Support and our emergency planning group is under me.

We, as New Brunswick -- NB Power has said, these are the same provincial emergency organizations that deal with all these incidents. So, there is -- certainly within every province there is a way to share information, these after action reports on the real emergencies as well as sharing information on the nuclear exercises.

So, we'll come back to you and explain how that process works and we do look at this and make sure that our role is, if we see something of significance in one province that we think should be shared across the country we do have mechanisms to do that as well. So, we'll look at these ones and get back to you.

As was pointed out in the interview, one of the things that Mr. Dalzell did say is that the fact

that the CNSC does force the nuclear industry to actually practice means that in the nuclear area that a lot of these communication issues are practised, whereas in other areas it doesn't seem that there's any requirement to actually have practices.

So, but we will also look at the actual events and where the -- are there lessons -- there are clearly lessons to be learned, the question is, are those already part of the process within the nuclear action plan or do they need to address -- make improvements across the board.

THE PRESIDENT: There are a couple of other issues that the intervenor has raised that I wanted to ask.

So, the first one is to Bruce Power around exceedence of hours of work for certified staff. This is on page 18 of the intervenor's submission and this issue comes up in every annual ROR.

And staff, in your presentation you said you've looked at what corrective actions Bruce Power has proposed and you're hopeful that this will reduce, you didn't say eliminate this issue.

So, is this something that's kind of inevitable and just given the unique nature of Bruce's operations and location that this will happen? Can this

not be eliminated?

MR. CLEWETT: Len Clewett, for the record. So, we track each of those occurrences and take corrective actions. The most common cause for hours worked could be severe weather in the wintertime or an illness that an employee calls in. We take action to make sure that we get another employee there as soon as possible.

The other area, especially at Bruce A, we've worked on the number of certified staff which have increased significantly over the past few years and we'll continue with our operations pipeline to make sure we have, you know, adequate staff at both Bruce A and Bruce B stations.

THE PRESIDENT: So, your answer is you can try to reduce it, but can't guarantee that you can eliminate it, which all other NPPs seem to have been able to do.

MR. CLEWETT: Len Clewett, for the record. So, you know, our target is always zero, but as I say, sometimes with severe weather or a last minute illness we have to -- and the other thing I'll comment on there -- and anytime we have someone that has to work additional hours, we have a very strong fitness for duty program, so that individual and the rest of the crew are monitored very closely for fitness for duty until we get another employee

to take their place.

THE PRESIDENT: Thank you. And my second question is, the intervenor raises the question around dose to the public and he makes reference to Figure 10 in staff's CMD.

So, the question is really to Gentilly-2 and I recognize that the doses are really low. If you can get the slide up that would be good.

But in 2017 the public dose has gone up, in fact it's the highest amongst all the NPPs and I just wondered what activity if any that's underway would have resulted in a higher dose to the public from Gentilly-2 in 2017?

M. OLIVIER : Donald Olivier, Hydro-Québec.

Concernant la dose au public, effectivement, c'est sûr qu'il y a un lien assez direct avec les interventions qui ont eu lieu à G-2, et puis les années 2013, 2014 et 2017 sont les années où est-ce qu'on a fait les campagnes de transfert de résine vers nos enceintes de stockage. Donc, il y a eu un relâchement de carbone 14 qui était prévu. Donc, pour nous, oui, c'est plus élevé, mais c'est des cibles qui étaient déjà prévues. Donc, c'est principalement dû au transfert des résines.

Et puis aussi, évidemment, à chaque année on doit regarder l'individu critique, et cette année en

particulier l'individu critique a changé parce que c'est rendu un chasseur-pêcheur, mais l'année précédente c'était de l'agriculture de subsistance. Donc, il y a certains facteurs aussi comme ça qui peuvent influencer les valeurs.

Mais je vous rassure que c'était prévu, ces doses-là plus élevées. Mais évidemment, on s'entend tous qu'elles sont quand même très faibles, mais c'est plus élevé que prévu, et puis on devrait revenir à la normale dès cette année.

THE PRESIDENT: Thank you very much.

CMD 18-M39.6

Written submission from Dr. Sandy Greer

MS MCGEE: The next submission is from Dr. Sandy Greer as outlined in CMD 18-M39.6.

Are there any questions from the Commission Members on this submission? Dr. Lacroix?

MEMBER LACROIX: Yes, thank you.

According to this submission, on page 69 of the ROR it says, and I read -- I quote:

"OPG's ROR project is not likely to cause significant adverse environmental effects...provided that the mitigation measures recommended

by the joint review panel are implemented." (As read)

And Mrs. Greer mentions in her submission that the JRP's conclusions are seriously contested by a number of well informed citizens who did extensive independent research to raise serious questions.

Now, my question to CNSC staff is, have these research results been peer reviewed and published in the open literature? And the second is, what are these serious questions?

MR. FRAPPIER: Gerry Frappier, for the record. So, the intervenor is making reference to the DGR project that went through a very major joint review panel with a lot of data brought forward. With respect to the particular items here, Candida will provide us with some response.

MS CIANCI: Candida Cianci, for the record. So, I'm the Director of the Environmental Assessment Division.

So, the concerns and the research reports I believe that Dr. Greer is making reference to would have been concerns that she raised as part of the public hearings that were held, so there were over 33 days of public hearings held on the deep geological repository hearing and all of that is part of a public record. Any

intervention is posted on our public registry, so that would've been part of that public hearing process.

MS MCGEE: Ms Penney?

MEMBER PENNEY: Don't go anywhere. So, the intervenor says -- or criticizes that you can't track emissions or discharges by isotope and I think you have a response in your supplementary document, but if you could just talk about that for us because I was a little confused. I see some reporting I do think by -- maybe it's by element, so, maybe if you can explain to me the criticism about tracking by isotope and what we can do; where is the science?

MR. FRAPPIER: Gerry Frappier, for the record. Thank you for the question and I think Kiza is going to provide some response to that, yeah, so just to give her a minute to come up.

MS SAUVE: It's Kiza Sauve, for the record. So, I'm just trying to get my thoughts straight. Can I just get you to re-orient me one more time, please.

MEMBER PENNEY: So, I think -- I think what I understand is, the intervenor is saying -- says you can't -- that we're not doing -- you're not doing -- somebody's not doing the science correctly because they're not tracking by isotope and, yeah, radionuclide inventory, implying that there's science available that we're not

using.

THE PRESIDENT: Maybe we can get OPG to try to respond to that first.

MS MORTON: Lise Morton, for the record. I hope I can bring some clarity. So, I believe you are referring to page 4 of the intervention.

So -- and I recall a lot of this discussion at the DGR public hearings so I'll maybe provide a bit of context.

So, just be very clear there is a clear inventory of all the wastes and there is a clear inventory of the current wastes in storage and also the projected inventory at the time of a repository and it's all on the CO website. So, there's something called a DGR waste inventory report and it does go in by radionuclide by isotope.

I believe what's likely being referenced here and was discussed at length in the DGR public hearings was the use of scaling factors. So, in some cases where you can't do characterization of a particular radionuclide scaling factors may be used. So, I recall that discussion.

But absolutely the waste inventory report is very detailed by waste stream and radio isotope.

MR. FRAPPIER: Gerry Frappier, for the record. And just to be clear, the DGR is a separate --

completely separate from the ROR, if you like. There's been quite, as was mentioned by Candida, an awful lot of work that's been done on that over several years. I was not personally involved in it so I can't really speak to it, but it is still in the process of being reviewed. OPG made reference to it. There's quite a body of both discussions, evidence, opinions and lots of science that has been put forward, but this is maybe not the best venue to try to get into all that.

MS MCGEE: Mr. Berube? No?

Thank you very much. The Commission will now break for lunch and return at 1:20 p.m.

--- Upon recessing at 12:19 p.m. /

Suspension à 12 h 19

--- Upon resuming at 1:20 p.m. /

Reprise à 13 h 20

CMD 18-M39.5

**Written submission from the
Canadian Environmental Law Association**

MS MCGEE: Good afternoon. The next submission is from the Canadian Environmental Law Association as outlined in CMD 18-M39.5. Are there any

questions from the Commission Members on this submission?

THE PRESIDENT: Before my fellow Commission Members ask questions related to this intervention, I would like to make a general comment with respect to the interventions' treatment of matters that are unrelated to this ROR, which is about the 2017 safety performance of Canadian nuclear power generating stations and the 2016/2017 assessment of the waste management facilities located at the NPG sites.

Part of the intervention is about how the CNSC ought to improve public participation rights. Statements concerning participation at Commission proceedings is a systemic issue on which the intervenor has given the Commission its views which will be taken into consideration. The Commission itself is looking at how RORs can be more effective, and stakeholder views are important to this. In fact, I've already had some preliminary discussions with CELA about this.

However, I do not wish for this public proceeding, which is to consider this particular 2017 ROR, to become the place for consultation or consideration of systemic process issues. I will note here that I do not have any concern that the Commission's treatment of intervenors gives rise to a reasonable apprehension of bias on the Commission's part, nor do I have any concern that a

duty of fairness has been breached as a result of the structure of today's process.

I would encourage the Commission Members to consider the intervention in as much as it engages with this ROR that we are considering today.

MS MCGEE: Questions from Commission Members?

Ms Penney.

MEMBER PENNEY: Thank you. The question is for Staff, and it's around the -- well, I guess Staff and industry, around the working group associated with potassium iodide distribution. Just pass that over. When was the terms of reference written? When will the public be invited to participate? Those sorts of questions.

MR. FRAPPIER: Gerry Frappier, for the record. So --

THE PRESIDENT: Sorry, Mr. Frappier. I just want to check, is Mr. Nodwell on the phone?

MR. NODWELL: Hi, Dave Nodwell, Office the of --

THE PRESIDENT: I'm not done, sorry.

MR. NODWELL: -- Fire Marshal and Emergency Management.

THE PRESIDENT: Okay, thank you. Thank you. Sorry, Mr. Frappier, carry-on.

MR. FRAPPIER: No problem. So the Commission will remember at the Pickering hearing we discussed about having a working group that would be put together between ourselves, the province and the licensees to take a look at KI pill distribution. That working group is starting to take form. We've had some terms of reference that have been started, still in draft form.

I believe Mr. Jammal would like to add to that.

MR. JAMMAL: Ramzi Jammal, for the record. Just to confirm that it took us a while to get the working group together; dealing with government officials at all levels is not an easy task. I'm not throwing anyone under the bus here, but it took sometime to get input on the draft of the terms of reference with respect to the working group.

Having said that, as mentioned by Mr. Frappier, we will going out to consult on the draft terms of reference. We did take into consideration the comments from all our government partners, provincially and federally.

In addition to that, I would like to put on the record, even though CELA says we're not moving fast enough, but we're going as fast as we can humanly possible, that there will be greater engagement for stakeholders with

respect to the terms of reference and the findings of the working group with respect to the KI distribution.

So I commit the fact that potentially we will be an advisory committee involving other stakeholders so that we are able to allow them input and overseeing the progress that's being done and made.

So we commit to then between now and the end of this calendar year that the TORs, the terms of reference, will be out for public consultation.

MEMBER PENNEY: Did I understand you say, so the terms of reference will go out for public consultation before the end of the year, but that the working group or committee would include others other than government from all three levels in the industry?

MR. JAMMAL: Ramzi Jammal, for the record. That is correct. There will be an advisory committee separate from the working group that will allow other interested parties. I'll be very specific, the interested parties who came before the Commission at the Pickering hearing, we were going to knock on their door to ask them to be part of the advisory group.

MEMBER PENNEY: So an advisory group and an oversight committee, so two different groups basically?

MR. JAMMAL: Ramzi Jammal, for the record. I would not call it an oversight committee, but it will

provide an input with respect to the terms of reference and the findings of the report itself.

Now, this is going to be sounding as a surprise to my colleagues who are on the phone. That is not a surprise and I am not interfering with the process or the progress that is being done, but definitely strategically we need to put in place an advisory committee to engage the stakeholders.

THE PRESIDENT: Mr. Jammal, is it premature for you to share with us who you're thinking to be members on this advisory committee?

MR. JAMMAL: For the record, it's Ramzi Jammal. It will be premature, because I have not approached the individuals. I can say to you though it will be representation from the industry, representation for us to take probably best practices from other municipalities or agencies, and will make this public probably in January, after we consult -- not consult, request input and membership on the advisory committee from the intervenors or stakeholders.

THE PRESIDENT: So just to confirm. Civil society organizations would be members, could be members, of this advisory committee?

MR. JAMMAL: Ramzi Jammal, for the record. The answer is yes, if they are willing to be a member.

MEMBER PENNEY: Just a follow-up question around basically the minutes. You said the terms of reference are going to be made public for public comments. I think the intervenor also recommended that the minutes from these meetings be made public. Have you got an opinion on that yet?

MR. JAMMAL: Ramzi Jammal, for the record. The composition of the working group is being finalized and the working group will decide with respect to the publication of the minutes. I'm not saying no, but we have to take into consideration any confidential or prescribed information will be protected. If we make reference of the work group findings in the CMD, that will be publicly available.

THE PRESIDENT: Again, a follow-up question on this. The intervenor in their submission says that the formation of this working group has been delayed because the Pickering record of decision has not been issued. I'm not sure how the two are related. Is this factually correct?

MR. JAMMAL: Ramzi Jammal, for the record. They're two separate issues. It's got nothing to do with the Pickering decision. Once I made the commitment at the Pickering hearing, we started the work in parallel. So I'm not sure who said what to whom. From a factual

perspective, it has nothing to do with the Pickering decision.

The direction from the Commission was very clear, Ms Velshi, at the time when you encouraged Staff to proceed.

THE PRESIDENT: Thank you.

MEMBER PENNEY: A question around planning and protection for drinking water. The intervenor states that there aren't enough plans in place, there isn't enough protection. I just wanted to start by maybe having the Staff clarify what the jurisdiction is for planning around drinking water protection.

MR. FRAPPIER: Gerry Frappier, for the record. So, as we've mentioned with respect to emergency planning when it's within the site, the expectation is that the licensees will have plans in place that'll take care of all of the requirements.

When it's off site, as in the case of drinking water, that would be a provincial matter. Perhaps Mr. Nodwell would like to comment on the drinking water aspects of the emergency management plan?

THE PRESIDENT: Mr. Nodwell.

MR. NODWELL: Thank you and good afternoon. Dave Nodwell, Office of the Fire Marshal and Emergency Management, for the record.

First of all, my apologies I'm not able to attend in person today. I was tied up chairing a stakeholder meeting this morning. So, as a result, I'm phoning in.

I'd like to preface my remarks by saying that the impact on water supply to the nuclear accident is a part of the technical study that is currently underway. We've referenced this study in the past. We're well into the study at this point, and one of the key deliverables on this is to assess severe accidents and, among other things, impact on drinking water supplies.

Regardless of what the study shows, the PNERP has, and in fact it's always had, a very detailed environmental radiation monitoring process in place to determine if there is a hazard that's imposed not only by water, but food and milk supplies in a nuclear emergency.

So the Environmental Radiation and Assurance Monitoring Group, and I'll refer to it from this point on as the ERAMG, is a multijurisdictional organization which forms a part of the PEOC and includes representatives from provincial ministries as well as federal departments. For example, we have Health Canada and the CFIA, and CNSC Staff for that matter as well, with appropriate subject matter expertise to carry-out the monitoring to analyze the results and to make protective

action recommendations to command based on internationally-accepted intervention levels which are established in the new PNERP.

If it's determined that the banning of consumption of water may be necessary, these recommendations would be made by the ERAMG, and the direction to carry-out these controls would then be made to the appropriate emergency response organizations.

Emergency supplies, and I'm speaking specifically of water here, would be brought into the affected areas just as would be the case for any other emergency situation where shortages result. Those situations do occur on a somewhat frequent basis where water treatment plants are down in communities or other issues arise that result in the need to ship in drinking water.

These are normally undertaken at the municipal level as per the way emergency management's structured in Ontario. But the province would certainly be engaged, as needed, through the provincial emergency operations centre to provide that kind of support. Again, we have provided that kind of support in the past to other municipalities.

So I think there's a very strong program in place through the ERAMG to ensure that water supplies

are safe to drink and, if not, that adequate supplies could be brought in to those members of the public that require it.

THE PRESIDENT: Thank you. Mr. Shepard, are you on the line? Do you have anything to add from New Brunswick's perspective?

MR. SHEPARD: Yes. For the record, it's Roger Shepard, Manager of Provincial Nuclear Preparedness in New Brunswick.

We have very similar to what Mr. Nodwell pointed out, of course on a smaller scale. So we've actually exercised this on exercise Synergy Challenge in October where we deployed provincial departments responsible to do sampling as part of the ingestion pathway monitoring plan to include water.

Our Department of Environment and local government has a list of all drinking water sources in southern New Brunswick, so they become priority for testing. We put restrictions of course on consumption of drinking water, growing plants, gardens, food, fish and so on until they are sampled by our teams that are deployed by our technical advisory group at the provincial level.

Thank you.

THE PRESIDENT: Thank you.

MS MCGEE: Any other questions? Ms

Penney.

MEMBER PENNEY: One question. The intervenor is seeking proof of adequate contingency planning for the protection of drinking water. So what we just heard is that there are plans, and I think attached to the document that they provided there's the Ontario Provincial Liquid Emission Response Plan, and I guess it's a couple of years old, but now that there's a new PNERP perhaps it's going to be updated, I don't know. You said that there's also a technical study being undertaken that is addressing contingency planning around potable water.

So, you know, where does someone in the public find their proof of adequate contingency planning? I guess that question goes back to OFMEM again.

MS MCGEE: Mr. Nodwell.

MR. NODWELL: I'm sorry. Thank you for that. Dave Nodwell, for the record.

I just wanted to clarify a point, that the technical study is not dealing with supplies of potable water, but is dealing with an assessment of the radiological impacts of a release on drinking water supplies.

So there's two levels to look at here. The first would be the PLERP, which was referenced, and that's dealing with smaller spills that would occur at a

site, a tritium spill is a good example of that where the impacts on the water would be above acceptable levels for tritium in drinking water. So that plan details how that would be dealt with in terms of limiting the supply of that water to the public and so forth.

Where we get into the nuclear accident part and the impacts of a radiological plume on water supplies, that's where the PNERP comes into play. I reference as well that the PNERP is a public document on that.

But I think the question that's here is around contingency plans to supply water. I think that's probably the question that you'd like me to address. So what I'm going to do is challenge the inherent assumptions that contingency plans are a good thing to have and that not having those contingency plans is a bad thing.

Quite frankly, to develop contingency plans in advance of every eventuality is absolutely impossible from a logistical standpoint, but also inconsistent with best practices related to emergency management and, quite frankly, wouldn't lead to a better response.

To put that into context, we have approximately 55 hazards that are identified in the Province of Ontario that we have looked at in detail. So

you can imagine building contingency plans for every eventuality.

What is important here above and beyond contingency plans is that there is a response organization that has the systems in place, that has the decision making ability and the capability to deal with those issues and resource needs as they require.

I'll give you an example of this. A year ago we received a request from FEMA through Public Safety Canada during Hurricane Harvey that hit Texas. The request that we got early that one morning was for baby supplies, blankets and hygiene kits.

Now, we don't have a contingency plan to procure and supply baby supplies, blankets and hygiene kits. But we do have the systems and the procedures in place to do that kind of thing effectively and efficiently.

Now, we didn't activate the whole PEOC based on that request, but we activated our logistic section which moved very quickly to procure the funding to procure the supplies, and within 12 hours there was an airplane departing the Trenton Air Force Base headed for Texas located with baby supplies, blankets and hygiene kits.

So I think that's a classic example of the need to have that kind of system that's able to respond to

things that you don't necessarily anticipate that are required, and you can't anticipate all of those needs.

Now, if we were in a position where we had to supply water and we received a request from Durham Region to supply water to different locations in the region, we would certainly assist with that, as we have in the past in terms of getting potable water supplies from the private sector, and we are able to do that.

If we ran into challenges with that, we would certainly go to other provinces if need be. But more likely, and you may be aware that Ontario recently signed an NEMAC agreement, that's an Northern Emergency Management Assistance Compact, and that compact is between a number of provinces in Canada as well as a number of northern states, and I don't have the full list in front of me, but it would include states such as New York, Michigan, Wisconsin, and a number of other states.

So this establishes mechanisms to secure whether it's water or generators or water pumps or whatever might be required, to be able to get them into our province, on site where they're needed very very quickly.

So that may be kind of a long answer, I apologize for that. But it's something that we feel very very strongly about, and really the focus needs to be on the effectiveness and capability of that response

organization and its appropriate systems.

MEMBER PENNEY: Thank you for that, and especially for the clarification around the PLERP being around small spills, not large emergencies.

A quick question around water treatment plants. In the context of an emergency, would there be feedback from the water treatment plants to your organization that...? Who would be shutting down water treatment plants if they had contamination in the water supply? How does that work? Just explain that to me.

MR. NODWELL: Thank you. Dave Nodwell, for the record. There is a couple of mechanisms for that. Essentially, the local Medical Officer of Health, and this is all linked in through the PEOC, in the case of a liquid emission that the PLERP would be dealing with, it'd be the local Medical Officer of Health would be ordering precautionary or protective measures. The Community Emergency Management Coordinator would implement those particular measures as directed by the local Medical Officer of Health. Then the Municipal Works Department would arrange to have reservoirs filled up or whatever other mechanism would be appropriate.

Where we get into the PNERP, it's many of the same players that would be involved, but the Ministry of Energy or, I'm sorry, Environment and -- Conservation

and Parks -- I'm sorry, we've had some Ministry name changes, so I'm stumbling over a few of them -- has some specific responsibilities in the PNERP around water quality. In particular, those would be to identify municipal and non-municipal drinking water systems that are regulated under Regulation 170/03, and the *Safe Water Drinking Act* by subzones in the affected zones, as required. So they're going to be providing leadership in terms of that.

They also have the responsibility of identifying drinking water systems in First Nation communities, again by subzones in affected zones or areas, as required. They would provide support either directly or through the PEOC, and this is identified in the PNERP, to local Medical Officers of Health regarding the implementation of drinking water precautionary and protective measures. They would also support drinking water systems during the recovery phase of a nuclear accident as well.

So certainly there'd be a lot of leadership that would be provided by that Ministry, specifically in terms of Durham Region, but through the Provincial Emergency Operations Centre where the Ministry is very active in both the operations section and the ERAMG as well.

So I hope that clarifies some of those mechanisms.

THE PRESIDENT: Thank you, Mr. Nodwell.

Okay. I think that takes care of the interventions. We'll now open the floor to the Commission Members for other questions on the regulatory oversight report.

Dr. Lacroix.

MEMBER LACROIX: Thank you, Mrs. President. Well, first of all, I would like to thank CNSC Staff for preparing this CMD 18-M39. It's a very informative document.

I also appreciate the reply to the intervenors, the way you presented the information in two columns; the left column where the questions are raised, and the right column with the answers. Not only is it easy to read and understand, but it's also easy to remember.

So my first question, it's not so much a question as a general comment. I would say I have two arguments that I would like to present to you. They do not necessarily reflect what I think, but it's also -- it might be a perception from the public. I want CNSC Staff to reply to these two arguments, counter-arguments I would say.

They both are related to the Independent

Environmental Monitoring Program developed by CNSC and the way I will present the first argument is that I will use an analogy. The protection of the environment is somehow or kind of like keeping your pants up. What I mean by that is that the licensee, in order to protect the environment, has to provide a belt and what I have realized is that CNSC comes up with its own independent program, so it's sort of suspenders.

So my question to CNSC staff, or my argument is that if we need suspenders on top of the belt, is it because the belt is not strong enough to support the pants? And if it is not, then why is that so? On the other hand, if the belt is strong enough to support the pants, then is it cost-effective to have suspenders? Could we spend the resources devoted to maintaining the pants up to something else, to a different safety and control area? So that's the first argument that I call the suspenders.

Now, the second argument is that the major licence holders in Canada are in the business of producing kilowatt hours of electricity, they are not in the business of protecting the environment. I understand that protecting the environment is a regulatory requirement and they have to comply with it, but if I put myself in the shoes of a licensee, I will not attempt to overdo it, I will not attempt to excel in protecting the environment, I

will satisfy myself with the satisfactory, I will not aim at fully satisfactory, because I know that CNSC has its own environmental monitoring program and it will shoulder some of the work. In other words, my question to CNSC staff is that isn't CNSC staff becoming some sort of an enabler to the licensee with its own program?

So these are two arguments, the first one the suspenders, the second one is the enabler. So I would like to have your counter arguments on this. Thank you.

MR. FRAPPIER: Gerry Frappier, for the record. And will ask Kiza Sauvé to come up and help me a little bit with this.

So we have been very clear that our Independent Environmental Monitoring Program is not a replacement for the licensees' environmental monitoring program. They have requirements that are under their licence to be doing monitoring, they have a very complete and comprehensive set of monitoring that is required, and we are going to, as part of our oversight program, ensure that that monitoring is in place.

However, independent of that, and I guess primarily for a public confidence perspective, we have said that we would be doing some independent monitoring just to make sure that we are not missing something, but it is certainly not as comprehensive as the licensees', and not

intended to be.

But perhaps Kiza can give us a bit more how the two fit together.

MS SAUVÉ: Thank you.

So my name is Kiza Sauvé, I'm the Director of the Health Science and Environmental Compliance Division. Your question has been asked to me before and I like talking about this, so thank you.

So I would like to start by saying that our compliance efforts on the licensees' programs have not diminished in any way since the Independent Environmental Monitoring Program has started. The licensee is responsible for their environmental monitoring programs, they are responsible for meeting the CSA standard on environmental monitoring. And the IEMP, it is actually an international requirement for regulators to have an Independent Environmental Monitoring Program. So that is one of the reasons that it started.

Another reason we have it is the public -- it provides another sense of assurance that there's independent monitoring that's happening. Our program also can be responsive to the public, and especially indigenous communities. So the licensee's program is a very scientific program and is monitoring exactly the places that it needs to monitor. Our program can be a little more

responsive and go, say, upstream when scientifically it might not make sense to monitor up there, but if there is an indigenous community living upstream, they like to know that we are out there monitoring. And in fact they come with us sometimes and monitor up there as well. They see what we are doing. And similarly with families. I have a cousin that lives near Pickering, you know, I can show her that we have sampled the beach where her children swim. So it's just another layer that is really helpful for the public, the indigenous communities.

And is there any more that we should add?

So I will just finish by saying that the trust factor, it adds that extra layer. And so I will comment on the time and resources involved. The compliance aspect on the licensees' programs has not diminished and this program is a little more on top of that.

MR. FRAPPIER: Gerry Frappier, for the record.

So perhaps for the second part with respect to how motivated licensees are, perhaps that's something they would like to comment on, but I would suggest that our program and our set of requirements are world-class requirements, they must meet them whether they want to or not. We will be doing compliance oversight on it to make sure that it's in place, to make sure it's

working, to be reviewing results of the test and that.

Having said that, I don't think we have any difficulty with any of our licensees having them feel they have a role to play in environmental protection, but perhaps they would like to talk for themselves on that.

THE PRESIDENT: Maybe, Mr. Jammal, you want to speak first and then we will get the licensees to talk.

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

My intervention is as the Chief Regulatory Operations Officer here. We would never give you a recommendation as a Commission to license any licensee -- even though the NPPs are in the business of producing power, they are mandated by the law to protect the environment. So we would never come before you with a recommendation if our assessment does not determine that their activity is protective of the environment. So that's the first step.

We hold them responsible with respect to their program. So they come to us with a program and our staff review the operational requirements and then on a cyclical basis we do an environmental risk assessment to ensure that the operation's changes, let it be for increase or decrease, is protective of the environment. And for

every step of the way there is a continuous -- I know my colleagues who are specialists in environmental assessment will not agree with me, but we always assess for the environment under the NSCA. So there is always a trigger with respect to the environmental protection that we oversee. But the prime responsibility for safety -- when we speak of safety, it's not just radiological safety, it's the safety of the public, the environment and the workers and for safe operations to be produced.

So the law prohibits us from giving you a recommendation if the environment is not protected, and our compliance regime, as my colleagues demonstrated to you and actually informed the public and the Commission through your question, that we will monitor the environmental protection and we will not be afraid to suspend operations. And many of our licensees, as a demonstration of the protection of the environment, have been either fined by the regional authorities or we went after them from the CNSC perspective.

THE PRESIDENT: Okay. I will give the licensees an opportunity to comment on Dr. Lacroix's opening remark.

MR. CLEWETT: Yes. Len Clewett, for the record.

You mentioned about environmental

standards. We always strive for excellence and strive for zero impact to the environment and take it very seriously, as we do with all safety pillars. And as was commented earlier, you know, our families, the communities, we all breathe that air and drink the water, so, like I say, we are always striving in this area for excellence and we have a continuous improvement plan.

I will ask James Scongack to talk a little bit more about the Environmental Health Index that we monitor.

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

One of the shifts that we made in Bruce Power space is to think about how do you constantly drive that continuous improvement indicator and so we now are two years into our new Environmental Health Index. And essentially what we were seeing was record environmental performance year after year after year and we decided to create a new index which we continue to drive, which is really about how do you get ahead of events. So you don't just have an event and take a hit in terms of an index, what are the things you can proactively do, and we are finding that Environmental Health Index, in our view it's industry leading and continues to drive those highest levels of excellence.

The one other comment I would make -- I won't try to do the belt and suspender analogy, but the one comment I would make is that I always think we have to -- as a licensee we always have to try to find that right balance. And you talked about -- and I agree with the comments of CNSC staff on, you know, it adds public confidence in terms of the independent monitoring and we often reference that, but we also have to ensure that we don't add layer upon layer of monitoring the same points, the same data. I agree with the comments made. You know, we constantly are striving, for example if an indigenous community has a specific interest, how do we involve them in the monitoring, or an interested party, what do we do there? I would also caution against adding layer upon layer of independent monitoring because from my perspective how I often see that is there are some folks who will never accept the factual data for what it is and so the solution to that is not re-sample the same thing 10 times over.

In the areas for example I think that CNSC has selected for their monitoring program, I think those are appropriate because they tend to be areas of heightened concern. But I do see for example -- and not just in CNSC regulatory space, with our various other environmental regulatory agencies -- a situation where in response to stakeholder comments we have to make sure we don't

overcompensate and repeat work over and over and over, because at the end of the day, and you saw this from our licence renewal hearings in May, we want to invest more money in environmental improvement initiatives that we are actually not required to do to operate the plant, to Mr. Jammal's point. So unnecessary layer upon layer of regulatory burden, you know, can take away from those things we actually want to do in the community. Zero question that we need to meet the regulatory requirements and, as Mr. Clewett said, far exceed them.

Thank you.

THE PRESIDENT: OPG...?

MR. DUNCAN: Brian Duncan, for the record.

You know, I would offer that when you say we're not in the business of protecting the environment, of course we have to be. I think the evidence, the simplest evidence is -- and there are many things that transcend the legal requirements. There are the things the public expects of us, there are things we have developed through our social licence to be able to operate these facilities that are very near and dear to their hearts. The best evidence I would offer is to simply look at the public dose from our power plants in the course of the ROR period and it is far, far below what is legally allowable and yet every one of our plants still has internal targets that are

more aggressive each year than they were the previous year. We are not satisfied that we are three decades lower than the limit, we want to be even better than that. We believe we owe that to the public, we believe we owe that to the communities that we operate these plants in. And if we weren't in the business of protecting the environment, we wouldn't be allowed to make kilowatts.

MEMBER LACROIX: Thank you for your counter arguments, it's very convincing.

THE PRESIDENT: I just want to make sure that Point Lepreau, do you have anything you want to add?

MS WARD: For the record, Krista Ward.

So our environmental monitoring is an important part of operating our nuclear facility. It ensures that through measurement sampling and analysis that the health and environment and people are protected. One thing that we have for everybody on the station, we have a station handbook and in this handbook, under "Leadership Excellence" we say, understand and value your responsibilities in the environmental management system. So that's something that everybody carries with them.

And in Mark's opening statement we also mentioned about we just completed the process of updating to the ISO 14001 Environmental Management System to the latest standards and one of the strengths that came out in

that audit was that, you know, our environmental program is really ingrained into our systems and into our work.

Something that, you know, is a little different with where we are location-wise since we are on the Bay of Fundy, we do really have the responsibility to protect that as far as, you know, because there is a big, you know, a food -- that is, you know, where a lot of our food comes from, from the local area. So we have that responsibility to protect that.

THE PRESIDENT: And Gentilly-2...?

M. OLIVIER : Donald Olivier pour le verbatim.

Le commentaire serait juste à l'effet que le programme de surveillance indépendant, le PISE qui est conduit par la Commission, juste vous dire l'effet que ça l'a eu. On a rencontré à deux reprises le Comité consultatif en environnement de la Ville de Bécancour, et puis comme Gentilly est en décroissance puis on doit continuellement s'adapter, ça l'a réellement eu un effet sécurisant pour eux, parce que bien qu'ils sont membres du Comité consultatif en environnement, ce ne sont pas tous des spécialistes en environnement. Donc, je crois qu'ils ont confiance en ce qu'Hydro-Québec fait, mais ça l'a eu vraiment un effet positif en termes de confiance par rapport aux opérations qui ont été faites à G-2, le fait

que le PISE a été conduit évidemment par la Commission, puis qui convergeait avec ce que nous on arrivait comme résultats.

THE PRESIDENT: Thank you.

Ms Penney...?

MEMBER PENNEY: I have a question about safety, conventional safety, so section 2.8 of the document. I was really pleased to see the performance numbers. We may have seen some of these graphs this morning in the presentation, but I can't tell you right now which ones. Figure 11 has the accident severity rate for all the plants and then industry as a whole. Accident frequency, which in my mind, because it includes medical assist -- I think the way you have defined it, it's injuries, lost time and medically treated -- it's a more sensitive parameter. And then you have industrial safety accident rate, which is lost time. And through the document -- and in that one there is a WANO industry target for the industrial safety accident rate. There isn't a target for the other two, accident frequency and accident severity, and I heard just then in talking about internal targets in the environment world you have action levels compared to your actual limits. So my question is around conventional safety to each of the operators or licensees. Do you have a target, an internal target that you try to

accomplish in the conventional safety world?

MR. CLEWETT: Len Clewett, for the record.

Yes, at Bruce Power we do have targets with regards to safety, and for all injury rate this year we had a target of 0.40. We have done some benchmarking and with the "You Can Count on Me" initiative I referred to earlier, for 2019 our target is going to be 0.20, so we are going to reduce that in half and we will look to continually improve that performance. With regard to lost time injuries our target is always zero.

MEMBER PENNEY: So the target, the .4, is that the severity rate or the frequency, accident frequency?

MR. CLEWETT: Len Clewett, for the record.

That's all injury rate, which would include LTIs and MTIs.

MR. DUNCAN: Brian Duncan, for the record.

So similarly, OPG has targets for both severity and frequency, and again those targets, we monitor them very closely and we are seeking each year over year to improve on those targets. We are moving to a new system now, TRIF, total reportable injury frequency, which encompasses a little bit more beyond just the severe events. We believe that will help us uncover some of the lower level events, if you will, and make sure that we are

getting ahead of those and staying ahead of those.

MEMBER PENNEY: And so can you tell me your internal target?

MR. DUNCAN: Yes. I believe it's 0.22. Oh, sorry, Brian Duncan.

MEMBER PENNEY: New Brunswick...?

MR. POWER: Mark Power, for the record. Consistent with what we are hearing from the other operators, we also have similar industry standards that they report on at Point Lepreau. And also in the opening speech we talked about the importance of safety to us and the fact that we recently just achieved five years or 8.9 million person hours without a lost time accident. So we have consistent targets similar to the rest of the other operators. We review those monthly and we do make sure that we are paying a lot of attention to this every day, every job.

MEMBER PENNEY: Do you have a number for me?

MR. POWER: I don't have the number off the top of my head, no.

MEMBER PENNEY: Okay. Often in the plant it's published and everybody is working towards it, that sort of thing, whether it is a TRIF or an AR or whatever, right?

M. OLIVIER : Donald Olivier pour le verbatim.

Donc, à Hydro-Québec, évidemment, la majeure partie de nos opérations sont avec les centrales hydroélectriques, puis évidemment, on a aussi Gentilly-2, et Gentilly-2 est en décroissance. Donc, je voudrais que la cible est là pour l'ensemble de l'entreprise. Et puis on sait que dans l'hydraulique, nos taux de fréquence sont supérieurs à ce qu'on observe dans le nucléaire, et puis le plan c'est d'arriver pour l'ensemble des opérations d'Hydro-Québec à un taux de fréquence à 0,5 d'ici 2021. Mais G-2 se tient quand même à un taux de fréquence assez bas. On a eu un événement seulement dans les mille derniers jours.

MEMBER PENNEY: And I wondered, for staff, I guess in future copies of this document, in some parts in the document you refer to one performance measure, in other parts it's another performance measure. Is there a way to standardize it and actually reflect the fact that they are doing good work where they are setting a lower target internally, similar to our action levels versus derived limits?

MR. FRAPPIER: Gerry Frappier, for the record.

Yes. Certainly when it comes to accident

statistics there's lots of different ways of putting them down. We have tried a few ways here. I think it has been a couple of years we have been using these ones. We can certainly look at seeing if there is a more consistent way and I think what you're saying is have some idea of what industry's own targets for themselves are and is there a way of projecting. We will take that under advisement for sure.

MEMBER PENNEY: Thank you.

THE PRESIDENT: Mr. Berube...?

MEMBER BERUBE: Yes. Thank you very much for this very detailed report. I'm sure there's many, many, many, many person-hours going into doing this and of course these are absolutely, in my opinion, very essential to overseeing the safety and security of the facilities, especially when you add the NPPs.

I have a couple of general questions and then we will get into some site-specific stuff. So this first question is for CNSC staff. Where are we right now in the whole-site PSAs at this point and how long before you figure we have valid models for all NPPs?

MR. FRAPPIER: Gerry Frappier, for the record.

I would ask Smain to come and tell us about where we are with whole-site PSA.

MR. YALAOUI: Yes. Smain Yalaoui, for the record.

As for your question regarding the whole-site PSA, it was a requirement from the Commission to the Pickering Nuclear Generating Station to complete the whole-site PSA by 2017. This was done and the submission was submitted to the CNSC and we made the presentation to the Commission in December 2017 where we provided the early results of the 2017 whole-site PSA Pickering. It was a pilot project.

Now, the question is how others are going to proceed. With Darlington we are just waiting for this project to be completed to receive a path forward. Did we learn something from this exercise? Bruce Power is coming with the methodology for a whole-site PSA by the end of this year. So this is the status right now.

MR. FRAPPIER: Smain, just before you go, do you want to talk a bit about what's happening on the international dimension to this as well, please?

MR. YALAOUI: Yes. As per the international -- Smain Yalaoui for the record.

As per the international effort there is now a current project which is ongoing with IAEA just to go with sort of a pilot project just confined to four units. This is with too many simplifications and the project is

taking -- we started it in 2016 and CNSC is part of this project as well as the industry. This will be completed by 2019, but with all simplifications. It's not -- like we are not looking at all initiating events at all plant operating states, different attributes of the whole-site PSA.

On the other side as well, like from international there's a project in -- like the most famous one is the U.S. site-level PSA which was started in 2012 and is still not completed. It is just for the local station. And there are some projects in Korea, for example they started the multi-unit PSA in 2016, it's going probably to be finished in 2021. Just to give you a sense, this is a big project, it takes five or six years to develop, as the example of the U.S. NRC. Up to now we don't have -- and CNSC participation to this IAEA project just to develop the first phase, the methodology, we contributed and the OPG approach has been added to the Annex of this report which will be published by 2019. So the OPG approach is one of the approaches that was recognized internationally.

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

Maybe just to wrap it up. So there is lots of interest in having some kind of site-wide risk

indicator. There are different methodologies, OPG -- and the Commission has seen the OPG methodology in December. But there's lots of interest elsewhere and there's lots of different approaches to how we should be doing that and I think that at this point in time we are trying to absorb a little bit of what some of those other approaches are and with the IAEA we will be able to have some kind of maybe best practices, maybe suggested practices, I'm not exactly sure exactly what is going to come out of it. In the meantime our own industry is moving forward with a Canadian approach.

THE PRESIDENT: A question for OPG. So there is only one area in this entire report where performance has actually deteriorated -- as you look at the different safety and control areas, they have either stayed the same or have gotten better -- and that's the radiation protection area for Darlington. And this is in 2017 and staff in their presentation talked about the reasons why they have given it that rating. And what we have heard so far in 2018 is that you really don't seem to have made the kind of improvement that one would have hoped for.

So I would like to hear from you first on what your reaction is to this particular rating, what are you doing about it and when do you expect to get back to where you were, and why are you where you are?

MR. DUNCAN: Brian Duncan, for the record.

I will start and then I will turn it over to Ephraim Schwartz, our Director of Radiation Safety.

In 2017 the rating declined for the reasons staff have described. In particular, we had one event where we did not -- we do not maintain adequate control of some motors we shipped offsite to be refurbished and so we put specific corrective actions in place to manage that and we have evidence to show that that issue is behind us and similar issues are behind us.

But there certainly have been other challenges in the radiation protection area. The fact that we were dismantling a reactor, the fact that we have, give or take, 3,000 additional people onsite and have had to train and develop radiation protection awareness in a much larger population of radiation protection professionals, if you will, and technicians that do the monitoring of this work has been a significant challenge. And we have had some challenges, we have had some tremendous success. If you look at the refurbishment program overall, our collective radiation exposure is better than target.

So we certainly have had -- we have certainly demonstrated that we can do a lot of that work well, but we have had challenges. And so we are looking at that. You know, we have looked at the alpha exposure, we

have looked at some of the circumstances that allow that to happen. We have looked in our own internal assessments at opportunities where we could better utilize these technicians, we could better improve the monitoring capabilities, remote monitoring capabilities, better instrumentation and ways of detecting to watch what the workers are doing. It has been a big challenge.

I think we have turned the corner. I think we have made a lot of improvements. We certainly have learned from those events. That is not to say that there won't be challenges in the future, but I do believe we have turned the corner. I do believe we are getting better results now and I think it bodes well for the future.

But I will let Ephraim jump in as well.

MR. SCHWARTZ: Ephraim Schwartz, Ontario Power Generation, Director of Radiation Safety.

Yes, 2017 did have some unique challenges. In particular one that had drawn the attention and is called out in the report is related to the motors that had been shipped offsite as part of our unconditional transfer process. We were not satisfied with what had happened. We did form a root cause investigation to get to the bottom of how we got into that space and put in corrective actions to prevent a similar event from occurring.

Basically we have adjusted our procedures. We adjusted training to ensure that our people were aware of that OPEX. We have had follow on -- potential transfers that were stopped when workers followed the new process or had a good questioning attitude and discovered contamination where contamination was not expected and so we have not had a follow on repeat incident. That gives me some confidence that we have taken the right corrective measures to address that.

Other spaces where the CNSC have identified -- and again, we are working towards ensuring that we have the right processes and rigour around our records. Our qualified staff make hundreds of routine and non-routine radiation surveys. The majority of those do go into our record system, they are being verified. We have put in some controls to ensure that they are being verified in accordance with our process and we are following up on that. So those are some of the things that we addressed from 2017 which spoke to the change in the regulatory assessment.

We are not satisfied, we continue to strive and move forward. We have spoken to the CNSC site staff, Ottawa staff and the Commission with regards to the events of this year and we continue to move forward to understand and address the concerns of our workers because

their safety is paramount to us, as well as the management team and the regulator.

THE PRESIDENT: Staff, your thoughts on OPG's assessment and do you think they have turned the corner?

MR. FRAPPIER: Gerry Frappier, for the record.

So with respect to 2017, as we noted, there was a problem with the transportation -- or with the shipment of motors and that was perhaps a surprise and they have taken actions that we believe are sufficient to correct -- I was going to say that flaw, if you like, in their procedures.

Looking forward to 2018, because we have a pretty good sense of 2018 since we are already in November, we are still concerned with their radiation protection but perhaps more with the second aspect that Mr. Duncan mentioned, which is in particular around the refurbishments. They have lots of contractors in. So far what we have seen is we believe they have a good program. They have to make sure it is executed properly.

We have put in place some enhanced oversight of the activities, in particular looking at radiation protection, and we are continuing to have those enhanced oversights in place until we are satisfied that

things are going to be good.

And if you want more details, I could ask Caroline Purvis to provide some more information.

THE PRESIDENT: I think I saw her move up front. Oh, she moved back.

MS PURVIS: Good afternoon. I'm Caroline Purvis, Director of the Radiation Protection Division.

I'm not sure I have a lot to add other than to support what has already been said. There were some identification of downward trends in performance last year and that is reflected in the ratings of the ROR today. As we look at the events that have occurred this year, there are certainly some areas where enhanced oversight is necessary to ensure that workers are protected. But notwithstanding, I think the licensee is responding well. They are providing information when requested, they are willing to work with us, and from that point of view I am encouraged. I think refurbishment is a significant undertaking and what we as a regulator want to do is to set a precedent that we will be using moving forward, so making sure our expectations are clear so that all the work into the future, not just for this licensee but for others undertaking refurbishment will do so in a safe manner.

THE PRESIDENT: Thank you. I'm sure we will be getting into a lot more questions on the challenges

associated with refurbishment, but I have just been told that Mr. Nodwell needs to sign off in the next few minutes, so I just want to give the Commission Members a chance, if you have any more questions of him, to do so.

Mr. Nodwell, I will turn the floor to you, but are you happy with how the implementation plans have come along and the technical study that is underway?

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

Yes, I have been very pleased with the progress that has been ongoing. We had a meeting yesterday, an all day meeting of the Nuclear Emergency Management Coordinating Committee with all of the stakeholders that are named in the PNERP. It was a very good meeting, we covered a lot of ground and very pleased with the progress to date.

The tech study, as you know, is underway. We were able to contract ENERCON to that project during the summer. We are expecting that we will get a report from them in the early part of the new year.

I would like at this point to express my appreciation towards OPG and Bruce Power as well who have supplied a great deal of information to ENERCON which is invaluable in the analysis that they are conducting.

In terms of the implementing plans, again

very pleased with the progress. As you know, as was mentioned at some of the relicensing hearings, we had the Bruce and Pickering implementing plans approved. We are in the final stages right now of the Darlington implementing plan. That will be going into the approval process very shortly. As you know, we have had changes with government, so there are processes that need to be figured out and revamped and so forth, but we have a strong commitment in terms of moving forward on that implementing plan.

Similarly, we have made good progress on the Fermi 2 implementing plan, so we have been working with Amherstburg and we have reengaged with Amherstburg subsequent to the new government coming in. So we are pleased with the progress on that.

And then finally, we are planning to initiate the transborder plan and the other radiological implementing plan this year. Probably not into approvals this year, but we will be getting moving on those plans this year.

So, yes, we are very happy with the way things are going. There has been a tremendous amount of activity and a lot of it -- I would reference as well the EPREV study -- or, rather, the EPREV mission which is coming, the IAEA review which is coming to Ontario and New Brunswick in June of 2019. So we have been reviewing a lot

of our documents and, you know, the relative status of our plans and procedures and so forth relative to IAEA guidance. So a tremendous amount of activity and I'm very pleased with the progress that is being made.

THE PRESIDENT: Thank you very much, Mr. Nodwell.

Dr. Lacroix...?

MEMBER LACROIX: I have a couple of short questions. On page 27, Table 7, I see that the number of shift supervisors at Darlington are significantly larger than that at Bruce and Pickering. Is there a reason for that?

MR. DUNCAN: Brian Duncan, for the record.

Just quickly jumping along here. There are two reasons. First of all, I had had a backlog, if you will, of trainees and I graduated -- in that time period I graduated a couple of bigger classes of new shift supervisors. Part of that was in anticipation of some of the attrition we expect in this year and into next with folks retiring out, and part of that was the extra demand we knew that the refurbishment program would need. In particular, as we position from a deconstruct/reconstruct phase into a restart phase we know we are going to need additional oversight. We are going to need additional horsepower, if you will, in the control room as we bring

that unit and the components and systems back into service. So a little bit was fortunate, I graduated a couple of classes back to back. A little bit was no, no, part of the plan was to have extras to help with this period of time.

MEMBER LACROIX: Good. Thank you.

Second question. On page 31 concerning the industry performance, the WANO target says for PWR and BWR it is half unplanned scram per 7000 hours and for pressurized heavy water reactors it is twice this number. Is there a reason?

--- Pause

MEMBER LACROIX: My question is directed maybe to CNSC staff. Probably they have the answer.

MR. FRAPPIER: Gerry Frappier, for the record.

I don't have the answer, so I'm not sure if Vali has the answer.

I'm not sure we have the answer as far as -- I mean the numbers are there that WANO does have a different level. I'm not sure if there's a technical reason or whether that's -- where that reason comes from.

MEMBER LACROIX: I hope it's not a question of reliability.

--- Pause

MR. FRAPPIER: So I think we will have to

get back to you guys on that one and provide a more fulsome answer.

MEMBER LACROIX: Okay. And a third question, a short question?

THE PRESIDENT: [Off microphone].

MEMBER LACROIX: Okay. Okay.

On page 46 you talk about the preventive maintenance completion ratio, the PMCR, and according to CNSC when this ratio is 88 percent it is satisfactory. What is fully satisfactory? And how is this ratio defined?

MR. FRAPPIER: Gerry Frappier. I would ask Eric Lemoine to come and give us some insight into this.

--- Pause

MR. LEMOINE: Eric Lemoine, for the record. I am the Director of the Systems Engineering Division.

We tried to give a little bit more explanation on the maintenance indicators this time, in particular trying to set out that there is really no line in the sand specifically for satisfactory or fully satisfactory, but it's not the same level of measurement as you have for the SCAs, let's say. But in terms of what the PMCR is telling us, so that's the preventive maintenance completion ratio, I will get -- I will ask Mr. Yong Chang

to explain to you how we calculate that and what it's telling us basically.

MR. LIU: Yong Chang Liu, for the record.

I am the Technical Specialist for the Maintenance Program.

The PM completion ratio is calculated based upon the total completed PM work against the total complete PM work plus the CM, which is corrective maintenance work. So the meaning is for the safety-related system, in particular for those systems important to safety it is expected the PM program will have a sound PM program to be implemented to reduce the number of failures. So in this case, based on our calculation or our trending internally -- because this is not a nuclear industry indicator but it's more a maintenance program indicator across not only the nuclear industry, also the general industry for example. So based on our trending we estimate roughly 80 percent is a line we treat as satisfactory. So basically if for a system, if we have 20 percent CM work and 80 percent of TM work, we treated this system as being well maintained by their PM program.

MEMBER LACROIX: Okay. Thank you.

THE PRESIDENT: Before I turn this to the next person -- and I can't remember whether it was Bruce Power that mentioned that they use an Equipment Reliability

Index. Is that an indicator kind of that will give us the same insight as these backlog measures do? I will ask staff that.

MR. LEMOINE: So the Equipment Reliability Index actually is not an index that we use from a safety perspective, it is actually a combination of some of the indicators that we get as part of the REGDOC-3.1.1 reporting, but it also has some other indicators that are more important let's say for production aspects. So as part of our maintenance strategy we don't actually look at that specific index, but we do look at some of the inputs to that index.

THE PRESIDENT: Thank you.

Ms Penney...?

MEMBER PENNEY: Thanks.

I have a question on environmental management. It's on page 62 of the document and it really -- it says that the Western Waste Management Facility has its own DRLs and the other two waste management facilities we deal with in this document don't. So my first question is why, why don't they have their own DRLs?

And then Point Lepreau has an action limit which is set at 1 percent and the others are at 10 percent, and my question then again is why? Why is Point Lepreau's

so much lower or an order of magnitude lower than everybody else's? So short zingers.

MS MORTON: Lise Morton, for the record. So I'm going to turn that over to Raph McCalla. He will be able to speak to the DRLs.

MR. McCALLA: Raphael McCalla, for the record. I am Director for Environment for OPG.

So first of all, the reason why the Western Waste Facility has its own DRL is because it's a standalone site, so to speak, whereas at Pickering and Darlington we roll that into the overall DRL for the entire site again, which includes both the power plant as well as the waste facility. So that's the only reason why.

MEMBER PENNEY: You can't separate out the emissions or discharges or it would just be an inordinate amount of work for a very small return? Is that what I hear you saying?

MR. McCALLA: That is correct.

MS SAUVÉ: Kiza Sauvé, for the record.

I will tackle the action level. At this time Point Lepreau has requested an action level of 1 percent. The power plants currently have that 10 percent action level. You will see in the next couple of years as N288.8, CSA Standard N288.8 starts to be implemented, action levels will likely be coming down more. But at this

time the important thing to remember is the actual emissions are extremely low and action levels aren't being met, whereas action levels should be used as a measure of control, so we would like to see them come down in the near future.

MR. FRAPPIER: Gerry --

MR. POWER: Mark Power, for the record.

As you just indicated, we did request this action level to be reduced to by the 10 percent because our reporting was nowhere near the limit, so we challenged conservatively to drive this down to 1 percent.

MEMBER PENNEY: Thank you.

MR. FRAPPIER: Gerry Frappier, for the record

I would just like to add, because it is something that we discussed when the new REGDOCs associated with environment were coming through, that we're trying to change our philosophy a little bit with respect to action levels, to instead of having it set at areas that would indicate perhaps we need to do something to protect the environment, but to use them instead to be looking at processes and our processes under control. So now you bring it tightly to what the industry can accomplish, so that if any day they do not, that's an indication that there's maybe some problem with the process. But it will

be a challenge for the public to understand it does not mean it's an environmental issue.

MEMBER PENNEY: It's good to have -- to lower your targets, yeah.

THE PRESIDENT: Mr. Berube.

MEMBER BERUBE: We're talking about waste management; that's perfect.

This question is for CNSC staff, and it's got to do with looking at the collective nature of what's going on with all the NPPs at this time where we're doing decommissioning work, we're doing refurb work. And actually that's going to generate a tremendous amount of waste.

So I'm looking at probably your response to do we have, first of all, the waste handling capacity within the collective group of operators to handle this, and second of all, do we have the capacity at storage sites to actually handle all this waste, and is it being managed appropriately at this point? Can we actually manage it appropriately, given how much is going to be coming?

MR. FRAPPIER: Gerry Frappier, for the record.

And I'd ask Karine Glenn to talk about the waste coming from refurbishment projects.

MS GLENN: Karine Glenn, for the record.

I'm director of the Waste and Decommissioning Division.

So the short answer is, yes, that is something that we look at not only when we are looking at doing the assessments and recommendations towards approving a refurbishment project, much like we just did with the Bruce renewal, but it's also something that we look at when we're looking at the licensing of the waste management facilities.

And in 2017 we had a hearing for the Western Waste Management Facility, which included a request by the proponent to increase the storage capacity at that site in anticipation of the upcoming work at the Bruce site.

So what I can say is the waste is currently being managed safely. There is sufficient provision in the licensees' current licenses to manage the volumes of waste that are going to be generated from the refurbishment activities. And furthermore, in the OPG's plan for their DGR, they did account for refurbishment waste to be in place within the DGRs in the volumes that they put forward for those facilities.

MEMBER BERUBE: And the other question pertaining to dry fuel storage, spent dry fuel storage. I see there's been -- at least if I interpret this correctly -- some work done on increasing security in these

facilities in terms of the ability to delay an overt incident. Is there anything that we can discuss in open session or would you rather talk about that somewhere else?

MR. FRAPPIER: Gerry Frappier, for the record.

I'd ask Richard Tennant to come and discuss a bit about security provisions for the dry storage, I think is what you were making reference to.

MR. POIRIER: Good afternoon, Yves Poirier, for the record.

Could I just ask you to ask that question one more time.

MEMBER BERUBE: I'm curious to know what has been done in terms of increasing security on dry storage facilities.

MR. POIRIER: There are a few facilities that have expanded their protected area to increase the demand, and there is plans in the future for some increase to the facilities, for example Western Waste. But there are no increased security measures in place.

They have improved their equipment and some procedures, and they're aligned with the practices that are in place at nuclear power plants, which brings them to a level that are satisfactory.

THE PRESIDENT: A quick question. And I

think I'll ask OPG and then maybe staff can comment.

Is there a reason why we haven't consolidated the licences of the waste management -- Western Waste Management Facility and the RWOS-1?

MS MORTON: Lise Morton, for the record, and certainly CNSC can comment on this as well.

As I'm sure you are aware, they are different types of licences. So the facilities or the reactors are under a PROL, of course, and the waste facilities are under a waste facility operating licence. So very different types of licences in that sense. And very specifically to the Western site, because it's an OPG facility, you wouldn't have the opportunity, if you will, to consolidate it with, for example, the Bruce Power operating licence. So very separate licences.

THE PRESIDENT: So is the RWOS the waste operating site?

MS MORTON: Lise Morton, for the record.

So R-W-O-S-1 or RWOS-1 is under a different type of licence again, and that's because it's in caretaking mode. So it's under more of a nuclear substances type licence. But it's a slightly different licence.

THE PRESIDENT: Yeah, so that was the one I was asking. Could that not be consolidated with the

Western Waste Management Facility licence?

MS MORTON: Lise Morton, for the record.

So I apologize for that. Well, presumably it could; however, we are in the middle of dismantling the spent solvent treatment facility. And at some point soon, I believe we're anticipating next year, once we've done the final radiological surveys, et cetera, we'll be actually coming forward at some point with the next step of that licence. So to consolidate now just simply wouldn't make sense.

THE PRESIDENT: Thank you.

Dr. Lacroix.

MEMBER LACROIX: Question for Pickering.

In 2016, the IAEA conducted a OSART mission to evaluate Pickering operational safety performance against IAEA safety standards. And there's supposed to be a follow-up mission in 2018. Has this mission taken place and could you reveal some of the results of this mission?

MS SMITH: Stephanie Smith, for the record.

So we did have a follow-up visit from OSART. That occurred September 17th to September 21st.

So what the purpose of the return visit is they looked at some of the suggestions and recommendations

that they gave us and gave us an assessment on where we were.

So out of that evaluation, the team concluded that OPG has a strong commitment and made tremendous effort to address all the findings. Three important findings were fully implemented, and this is from the recommendations from the OSART. Enhanced work control process for timely repair of equipment important to safety, improvements in development and implementation of corrective actions, and better identification and elimination of industrial safety hazards. So those were the ones that they came and they were very satisfied with our response.

There was a couple action plans that they also reviewed. They said that we've made excellent progress to date. That was around our housekeeping in some areas of the plant, conduct of plant event investigations, and control of auxiliary chemicals and substances.

So overall we got a very good response. The report will be published in three months and that will be available on the IAEA website.

MEMBER LACROIX: Thank you. And will there be another mission in the near future?

MS SMITH: Not at Pickering. I'm not sure about --

MEMBER LACROIX: Okay.

MS SMITH: -- the rest of Ontario Power Generation.

UNIDENTIFIED SPEAKER: I'm not sure either.

MS SMITH: I don't believe right now we have one in the books.

MEMBER LACROIX: Okay, there is none planned. Okay, thank you.

MEMBER PENNEY: I have two questions for Gentilly-2.

One is on page -- one pertains to something on page 59. It basically says there's no -- and it's under conventional safety. It says there's no MOU between the CNSC and the Government of Quebec around -- and so that's the first question.

The second question is on page 67. And it says that the emergency plan has been abolished since the status of the facility changed. So the question there is, is I guess to CNSC, after the licensees, what kind of an emergency could occur at a facility like Gentilly-2, and is there adequate emergency response supported by the facility and the provincial government.

So the first has to do with an agreement with the provincial government around conventional safety

and the fact there is no MOU. The second has to do with the emergency response.

Hydro-Québec.

M. OLIVIER : Donald Olivier pour le verbatim.

Peut-être juste préciser qu'en 2016, il y avait le plan de mesures d'urgence nucléaire de Gentilly-2. Donc, l'Agence de la santé, le ministère de l'Environnement et les municipalités en faisaient partie, et puis, considérant l'évolution des risques à Gentilly, il avait été convenu d'abolir ce plan de mesures d'urgence là. Donc, quand on est venu vous voir pour le renouvellement de la licence en 2016, c'était déjà fait, cette décision-là de ne plus avoir de plan de mesures d'urgence à grande échelle pour Gentilly.

Et puis, évidemment, on a encore un plan de mesures d'urgence local qui respecte les standards d'Hydro-Québec parce qu'on a encore des risques. Les deux enjeux de sûreté qui demeurent à Gentilly-2 sont reliés au système de refroidissement de la piscine, donc c'est un enjeu qui demeure, et puis aussi à l'entreposage d'eau lourde sur le site. Donc, c'est les deux enjeux qui demeurent, et puis, évidemment, le plan de mesures d'urgence couvre ces deux cas-là. Et puis le plan de mesures d'urgence, comme je vous disais, qui était

spécifique à Gentilly-2 lorsqu'on était en exploitation a cessé en 2016.

MEMBER PENNEY: Did you want to provide any information on the -- why there's no agreement between the Quebec government and CNSC with respect to conventional safety, why there's no need?

MR. FRAPPIER: Gerry Frappier, for the record.

I think that's probably more appropriate for CNSC staff.

So in the province of Ontario, for instance, we do have an agreement between ourselves and the Ministry of Labour as to how we're going to interact with respect to convention health and safety. It's been quite evolved -- or quite involved, rather, and is appropriate, given the amount of activity that there is.

With respect to Quebec, we don't have a formal agreement of that nature, but we do have an interaction with the group in Quebec. Name's -- I've forgotten the name right off the top of my head. And we can give to you a little bit more information on that, either ...

--- Off microphone / Sans microphone

MR. FRAPPIER: With respect to the emergency management, it's not quite correct to say there

is no emergency management plan. I know that that's what we've said, yeah. Probably written a little bit -- could've been written a little bit differently.

As M. Oliver mentioned, they do have emergency plans. Emergency plans have now been folded into the overall Hydro-Québec emergency plan for many of their facilities, with specific aspects for, yeah, Gentilly-2, given the current condition and risks with respect to emergency and security as well.

But with respect to the agreement with labour, that has not caused any difficulty with respect to us being able to interact with the labour group in Quebec.

MEMBER PENNEY: I would assume you have an agreement, an MOU with the New Brunswick government as well for conventional safety.

MR. BURTA: John Burta, for the record.

Yes, there is an MOU in place with Work Safe New Brunswick, and occasionally Work Safe New Brunswick inspections are conducted jointly with CNSC site staff inspections. So there is an MOU in place, and we do work with the provincial health and safety regulator.

MEMBER PENNEY: And thank you for that.

And so this sentence here that says that there is no emergency response plan, perhaps that needs to be revised, because that is a bit misleading.

MR. FRAPPIER: Yes, thank you, and we'll look into that.

THE PRESIDENT: Mr. Berube.

MEMBER BERUBE: Yes, some specific questions. The first one's actually for Bruce.

Looking at your fractured toughness model here, just could you bring us up to date on where you are on that testing right now and development of those parameters.

MR. NEWMAN: For the record, Gary Newman. I got most of that, just the tail end part you kind of trailed off.

MEMBER BERUBE: Yeah, I'm trying to understand where we are right now in the fracture toughness testing going on for your licence that's been renewed. If you could just bring us up to speed on where you are on that right now.

MR. NEWMAN: Okay. Great.

Thank you very much, and for the record, Gary Newman.

So we had laid out a testing plan, and I think we may have talked a little bit about that at the licence hearing. That plan is still being adhered to. It's on track.

And we're doing some additional, you know,

discussions and so forth directly with the CNSC to make sure that everything we're doing there is being properly conveyed to the technical teams on both sides of that equation.

So we think it's progressing in accordance with our original game plan, and we're quite pleased with the progress. We're also working very closely with OPG on that same program.

MEMBER BERUBE: And yeah, the other question I should have asked you in the hearings too is while we're -- and something that just slipped my mind at the moment. Maybe you could bring me up to speed on this, because we mentioned it here, is your containment filtering system. Is that an active or a passive system?

MR. NEWMAN: For the record, Gary Newman. That is a passive system.

THE PRESIDENT: We'll take a break and back at five after three. Thank you.

--- Upon recessing at 2:51 p.m. /
Suspension à 14 h 51

--- Upon resuming at 3:07 p.m. /
Reprise à 15 h 07

THE PRESIDENT: If you can please take

your seats.

So I think we're back to you, Dr. Lacroix.

MEMBER LACROIX: First, I have an announcement to make. I found a SmartPen on the 12th floor in front of the elevator, so if someone is looking for it.

Okay. Concerning the ROR, on page 184, this question is addressed to Bruce Power. It concerns the fuel design. It says that Bruce Power has experienced some problem with fuel bundle vibration. And I would like to know what is exactly this problem and how is it addressed.

MR. NEWMAN: For the record, Gary Newman.

So for a subset or small number of channels in our Bruce B units, we have both -- we have 480 channels in total. We have an inner zone and an outer zone. This only influences about 24 pairs of channels in the outer zone, because it's basically an acoustic phenomenon that sets up a resident frequency such that it excites the fuel string to a small degree. And what we do find in a few cases is endplate cracking occurs. And it's a fatigue-induced cracking mechanism.

MEMBER LACROIX: When you say it's an acoustic problem, is it related to the flow itself, the bubbling at the end of the channel?

MR. NEWMAN: For the record, Gary Newman.

It's related to the actual pulsation

that's created from the impellers in the primary heat transport system. And so it has a specific beat frequency that actually creates an acoustic excitation for the actual fuel string. So we get in some cases -- not always, but some cases we get a minor amount of cracking in the endplate.

MEMBER LACROIX: And have you experienced such a problem in Bruce A?

MR. NEWMAN: For the record, Gary Newman. No, no such -- don't have the same kind of configuration exactly in the Bruce A units.

MEMBER LACROIX: And what about Darlington or Pickering?

MR. DUNCAN: Brian Duncan, for the record. Darlington experienced that in the very early days of construction. In fact, on Unit 2 we had to go back -- and we did it on the subsequent units -- and change out the impellers on the primary heat transport pump motors to get away from that excitation range, that acoustic vibration issue.

MEMBER LACROIX: Thank you.

MEMBER PENNEY: Thanks for that.

My question really is around refurbishment, Darlington refurbishment. I didn't find there was a lot of meat in the document about

refurbishment, so I'm giving you an opportunity to tell me a little bit more about how it's going. I see that there's an IIP and everything we hear every meeting is that things are on schedule or whatever. Please tell me more about refurbishment. It's a big project and must have challenges associated with all these additional contractors on site doing things in the plant that normally wouldn't be done. So an opportunity to tell me about refurbishment.

MR. DUNCAN: Sure, Brian Duncan, for the record.

It's a really interesting project, and I know if I don't turn this over to Gary, he will feel left out. But I will tell you there's -- it's a project where, yes, we are on schedule. Yes, we are on budget. Yes, our collective radiation exposure is better than target. There are many, many positive things happening with this refurbishment.

But let's let Gary talk a little bit about it.

MR. ROSE: Thank you, Commissioner. I'll start off with maybe just a high-level overview of where the project's at, and then I can talk about challenges. And maybe there's some follow-on questions to that.

So we are on day 755 of our project. We're 69 per cent complete all of the work that is schedule

on the project. A hundred and twenty-four of our 171 work windows are complete.

I'll now shift into the four -- we managed the project into four pillars, safety being paramount, followed by quality, schedule, and cost.

From a safety performance, we talked earlier about total recordable incident frequency. We are at 0.40 TRIF, which is about 10 times better than the Ontario construction sector for a project of this nature. The project has worked over 11 million hours since 2010 without a lost-time accident. Notwithstanding the conversations that we've already had on the radiation protection, our overall collective radiation exposure is better than planned. That target was aggressively set based on experience from prior refurbishments.

I'll shift now to quality. Quality is an integral part of everything that we do. Each of our vendors have a quality program inspection and test. Tests are done for each of the major work scopes. OPG has a role to oversee the inspection test plans and make sure that the contractors are doing what they're expected to do to make sure that we get a good quality product at the end. But quality is inclusive of all the documentation and sign-off, et cetera, that need to be submitted for each of the thousands of work packages that are going on within the

project.

So it's an ongoing effort to maintain the level of records and documentation that's required to close this project off.

Now, shift to schedule. We're currently in what we call Segment 3, which is the reinstallation phase of the program where we're putting components back into the reactor. We've done our calandria vessel inspection. That is complete with no issues. We've completed our calandria tube installation. Today, we'll be installing our third fuel channel of 480, with a forecast to complete that by mid-February 2019. Parallel to that we've got 174 of our feeders currently installed.

Shifting to bulk work. A large portion of our bulk work is complete. We've got 22 of our 58 systems already returned to service. Includes a lot of reactor regulating systems, primary side cleaning is done on our steam generators. We're currently performing inspections. Moderator valves are complete. The installation of our auxiliary shutdown cooling modification is in progress.

Lastly, from a cost perspective, the project is doing well. We are forecasting to be on plan in terms of both cost and schedule at this point in the project.

With respect to key challenges, we have a

large number of workers in our plant that are new to nuclear. We've drawn from all areas of Canada as well as the U.S. So we've had to do extensive training of supervisors and staff that are coming to our plant, and that is a continuous effort.

When you get into safety, although our safety performance is good, in the early stages of refurbishment we had to take a lot of proactive measures to establish the protocol or the set of expectations that we wanted workers to be adhering to within a nuclear environment, something that they would have not acknowledged outside of the nuclear environment. So I think we've made our workers from the construction industry safer persons in the way we've approached this refurbishment.

There are challenges, you know, on a mega project when you've got thousands of people and thousands of tasks. There are challenges each and everyday with steps or tools or processes, et cetera. But when you step back and look at the mega project as a whole, I think overall it's in a very good position to have a successful project outcome on Unit 2, and we're happy where we are at this point in time.

When it comes to our interface with the regulator and the Integrated Implementation Plan, our IIP

plan is on schedule. We've completed all the requirements for 2017 and are well underway for the requirements for 2018. We meet with the regulatory team, meet weekly with the Staff, the CNSC Staff, by video conference.

We're maintaining that open dialogue and relationship. We have a return to service protocol, and commitments are being tracked on a monthly basis, we issue reports. Overall, we're confident that the commitments we've made to the CNSC with respect to returning Unit 2 to service and meeting the reactor control hold point milestones that we have, and the four regulator hold points, that we are on track to meet all of these commitments.

MEMBER PENNEY: Can I have a follow-up question? So thank you very much for that really quite informative -- so 69 per cent complete. Is that 69 per cent complete Unit 2? This is how new I am, are you going on to do another unit after Unit 2?

MR. ROSE: That is correct. We are 69 per cent complete of Unit 2. When Unit 2 is complete, we'll move on to Unit 3. We're planning to start Unit 3 one to two months following the completion of Unit 2. Midway through Unit 3 we will start Unit 1, and when Unit 3 is done, we will start Unit 4.

MR. FRAPPIER: Gerry Frappier, for the

record. If I could just add. We are planning, in February, to come back to the Commission at the Commission meeting in February, and have a major presentation or OPG will give a major presentation on the refurbishment, where it's at, what all the type of work that has been done, and we'll have an opportunity to really delve into the refurbishment project for you.

THE PRESIDENT: So just to make sure that we all get an opportunity to ask whatever questions we have on refurbishment as opposed to jumping from one topic to another. I have a couple that I just wanted to get clarification on. So, by the way, that was a very helpful update. Thank you.

The TRIF, does that include your contractors as well, the performance that you -- the number you...?

MR. ROSE: Yes, it does. We actually record all of their trade hours for contractors on site, we break it out between our contractor performance and our performance. But, yes, it does, and they're both relatively the same right now.

THE PRESIDENT: Thank you. So it's more a comment to Staff. In your supplementary CMD, when there was a question about the safety indicators to include contractors, I think the Staff comment was it's difficult

to get the hours worked by contractors. But clearly, OPG's not having that issue.

MR. GRACIE: Brian Gracie, for the record. That is correct. We had difficulty obtaining information previously related to these performance indicators. As described in the supplemental CMD, the issue wasn't necessarily finding how many injuries or lost time accidents there were, but getting a handle on the number of hours, which is how we normalize that --

THE PRESIDENT: No, I understand that. But we've just heard from OPG that they do have those numbers of hours worked.

MR. GRACIE: Yes. So then the question would be, if we can get something similar for other licensees to compare with or possibly just produce some results for Darlington or OPG, if it's done fleet-wide. So that's something we can certainly discuss, because we're interested in pursuing that.

THE PRESIDENT: Well, maybe I can ask the other licensees to comment on how easy is it to get numbers of hours worked by contractors so we can normalize the injury rate.

MR. CLEWETT: Len Clewett, for the record. We do track that data and have that data, so certainly will be able to provide it to the CNSC.

THE PRESIDENT: Perfect. So we've got OPG and Bruce Power. Point Lepreau?

MR. POWER: Likewise, we track it, but we do not include it as it stands right now.

THE PRESIDENT: Okay. Hydro-Québec?

M. OLIVIER : Donald Olivier.

Donc, il y a peu de contracteurs à Gentilly. Ce serait quand même relativement facile de les avoir, mais pour l'instant, ils ne sont pas compilés dans nos statistiques.

THE PRESIDENT: Okay, thank you. So that takes care of that first one. The second one is on the IIP, and you said you're tracking to schedule. I don't have the slide in front of me, but I recall the CNSC presentation not for 2017, but for 2018, there were 52 planned tasks or activities and to date 15 are done. So are you still confident that you'll meet the 52 by the end of the year?

MR. ROSE: Gary Rose, for the record. Of the 58, 43 are completed by OPG. Sorry, one task is closed by the CNSC already, and eight are on track for completion by the end of 2018 so, yes.

THE PRESIDENT: Thank you. My last one is for Staff. On Slide 24 where you're providing your level of effort, I was surprised to see that for Darlington for

2017 you said the level of effort was very similar to 2016. Given that refurbishment had started and we heard that the early days were quite challenging in particular, I'm just surprised that there wasn't greater oversight or demand on the regulator.

MS RIENDEAU: Nathalie Riendeau, for the record. I think this is an issue where you have -- you're trying to provide a message across, and you're actually not providing -- you're trying to be too succinct and you don't give the right information.

The issue is with Darlington actually. Our compliance activity required more inspections. Naturally, our inspection activity in 2017 went up, and it actually went even further up in 2018. The reason why the total effort was steady is because this is not a licensing year for Darlington, so the amount of effort required for licensing was less. So overall, the performance in terms of total effort was fairly steady.

THE PRESIDENT: So look at this slide. Because even for compliance you're showing the trend has been stable.

MS RIENDEAU: Yes. So, like I said, there was some discussion internally about the accuracy of the compliance, if it was accurately reflecting the refurbishment effort.

THE PRESIDENT: Can you please -- okay, go.

MR. GRACIE: Brian Gracie, for the record. I would just add that this particular calculation, looking at the compliance number, as it's described in our presentation. So it's a comparison of the 2017 year versus the average of the previous four years. There was, in fact, a small increase in compliance to the order of 3 per cent. Which, just for the purposes of drawing arrows, we took that to be basically steady.

There was a certain breakdown where I believe, and correct me if I'm wrong, but inspections related to refurbishment were way up, and I think inspection effort was way up.

But a big part of the compliance number that you see here, and it's a very large percentage, it's other activities related to desktop reviews of other reports, and that in fact is I believe the lion's share of the compliance effort. That's the part that sort of went down and offset the increase in the refurbishment related number.

THE PRESIDENT: Thank you.

Anyone else for questions on refurbishment? Mr. Berube.

MEMBER BERUBE: Yes, thank you very much.

It pertains to Darlington. Actually, I haven't seen your file, and so forgive my ignorance on this. I think we're all kind of in the same place right now, being new Commissioners.

But what's your current in-service date for Unit 2 at this point?

MR. ROSE: Our target is to be February 2020. Based on the progress of the project, we're likely forecasting today about November 2019.

MEMBER BERUBE: You're comfortable with that target at this point?

MR. ROSE: Yes.

MEMBER BERUBE: The other question I've got is looking at EPG-3 installation, and that's a Fukushima event requirement or is that part of your planned retrofit?

MR. DUNCAN: Brian Duncan, for the record. The EPG 3 was not a requirement of Fukushima, it was a safety improvement opportunity that we undertook to overall improve the reliability of our emergency power systems.

MEMBER BERUBE: Since you've opened that up, what are the primary reasons for doing that, and where did you locate it as a direct result?

MR. DUNCAN: Brian Duncan, for the record. EPG 3 is actually located just south of the existing EPG 1

and 2. There were a couple of reasons we needed a third Emergency Power Generator. For one thing, three is always better than two. But more complex than that, both of EPG 1 and 2 are getting to end of life and will require replacement themselves. There is a requirement, as part of the ability to operate the station, that I must always have one EPG available.

When I get to a point where I'm going to take either of EPG 1 or 2 out of service, if I only had two that would mean the entire station would hang on one EPG. It's months of work to replace one of those jet engines, rework the building structure and the like.

So looking ahead, knowing what we're going to be up against, it really made sense to me, a lot of sense from the safety and analysis point of view, but it also made sense from a practical point of view to say, no, a third machine is the way to go.

THE PRESIDENT: Dr. Lacroix.

MEMBER LACROIX: Yes. I don't know if I'm allowed to ask this question, but I'll ask it anyway to Darlington. Has there been a CANDU reactor refurbished outside Canada?

MR. DUNCAN: Brian Duncan, for the record. Yes.

MEMBER LACROIX: In South Korea?

MR. DUNCAN: Korea.

MEMBER LACROIX: Okay. So can you compare the refurbishment project in South Korea to Darlington, for instance, in terms of let's say the culture, safety, the timeline schedule, the budget?

MR. DUNCAN: Brian Duncan, for the record. I can tell you the Korean refurbishment, when you look at it overall, is a successful project. I know Gary and the team looked very closely at the lessons learned from there. It's a little more difficult to do comparisons like budget, because of the way they flow their money. You know, it's a different business environment, if you will.

But let me kick it over to Gary, if there's any specific points.

MR. ROSE: Thanks again. Gary Rose, for the record. We did benchmarking of the Wolsong refurbishment as we did with Point Lepreau, Embalse which is currently underway, as well as, of course, Bruce Power refurbishments.

In terms of schedule and work progress, absolutely, we benchmarked that very closely, understand their sequencing. You know, we like to think that we took the knowledge from them and improved upon that in our building of our plans. But I actually spent some time at Wolsong doing benchmarking and bringing that information

back.

In terms of safety and costs, as Mr. Duncan says, it's much more difficult to attest to. Quality in the end, I mean, it's paramount, it's part of what we do, and then documentation.

So really, it's the schedule where our focus was, understanding what the work scope was, and how they approach the work, the tooling that they used to achieve each of the steps within it. We understood what their OPEX was and made changes to the tooling to improve their performance with our refurbishments.

Also to add to that, is we have a number of people on our project that were actually at those projects as well. Whether it be the Bruce Power project, Embalse, Wolsong, or Point Lepreau.

MEMBER LACROIX: Thank you.

THE PRESIDENT: Anyone else on refurbishment? Last question. Something that's been in the news recently is skilled trades availability and the Minister saying something about not having to re-sequence work. Is that a risk that you see down the road?

MR. ROSE: Gary Rose, for the record. It's a risk that I think we carry and I know Bruce Power carries as well. We extensively collaborate with Bruce Power on this risk. We have over the last couple of years

started to integrate much more with the school systems, with the Ministry of Labour, Ministry of Education, et cetera, to really increase the level of influx of new folks into the trades.

We're reaching to demographics which may not have traditionally entered the trade, such as women or Indigenous persons entering the trades.

We're trying to get engagement much earlier than we would have in the past before decisions are made. There's an ongoing effort in that way. In each of our contracts with our vendors we've got clauses for them to bring apprenticeships into their companies as well.

When it comes to collaborating with Bruce Power, in addition to those activities, we're looking at are there any opportunities to sequence our schedule in such a way where a crew may be doing feeder removals at Darlington and then move and do feeder removals at Bruce, and then come back. It's easy said, but when you get into different projects that have different paces and different challenges, it's challenging to execute. But notwithstanding, we are considering those types of opportunities.

THE PRESIDENT: Thank you. I was really glad to hear you say that, with this influx of the workforce, changing the whole outlook and culture and

importance of safety for this new wave of workforce.

So how many people have gone through the Darlington refurbishment project to date?

MR. ROSE: Gary Rose, for the record. We're probably in the 4,000 plus range. I should add also, we had our fifth open house at Darlington very recently and we had 2,800 people at the refurbishment site within a six-hour period looking at and understanding that.

Many of those folks are people that are interested. We had our schools, the college's representative there, and there's a lot of influx of people that want to understand what refurbishment is about, but looking for opportunities to enter the industry.

THE PRESIDENT: Thank you very much for that.

Ms Penney.

MEMBER PENNEY: I'm not sure this is about refurbishment, but it's on page 99 and it just -- I'm not sure what it means. It talks about a non-compliance, "two low significance non-compliances," the second being non-compliance observed with respect to workers complying with program requirements for non-routine bioassay submissions.

I'm asking someone to explain that to me, what that means. Thanks. It's at Darlington, so someone

at OPG should be able to answer that.

MR. DUNCAN: Brian Duncan, for the record. I'll ask Robin Manley, actually, if he could help me with that.

I mean, I can explain what a non-routine bioassay non-compliance is, but Robin will have some of the history.

MR. SCHWARTZ: Ephraim Schwartz, for the record. So at OPG we have a two-prong approach where we look at bioassay samples. One is a routine program, and that is every worker is assigned a frequency, depending on the type of work that they're performing, the risk of being exposed to tritium and other internal hazards, and they're required to comply with that. There's a full process where workers are removed from performing radioactive work if they don't comply with it.

In addition to that, we have enhanced sampling. So if you are performing work of a certain nature, then there are conditions that we specify on our radiological exposure permits that require additional samples over and above what are required by the routine dosimetry program.

That is the space where the CNSC identified and we worked to close the gap that some workers were not complying with that additional sampling, which

really doesn't affect their dose as much as it enables us to demonstrate for a particular job on a particular day that they had either zero or something. So it was really about pinpoint accuracy, when an uptake would occur with a given job. But we were always assigning dose correctly and accurately, and reporting that.

MEMBER PENNEY: So they would have to go somewhere else to be sampled again or -- and they didn't go or...?

MR. SCHWARTZ: It was a case of they just needed to go to the same facilities, basically the change rooms and the washrooms on the site, and submit another sample. So we've put in a process to ensure that we are monitoring for compliance against the REPs.

THE PRESIDENT: Okay. So we've finished with refurbishment.

Mr. Berube, anything else? Any other questions? Dr. Lacroix.

MEMBRE LACROIX : Oui. Une question pour Hydro-Québec. Vous avez retiré le combustible du réacteur nucléaire en décembre 2012, si je ne m'abuse, et vous allez le transférer dans un fût en 2019. Donc, vous laissez la grappe de combustible dans la piscine d'entreposage pendant sept ans. Ma question est peut-être un peu technique, mais je voudrais savoir quelle est la puissance thermique

dégagée par la grappe de combustible au moment où vous la retirez du réacteur nucléaire et sept ans plus tard, c'est-à-dire au moment où vous la retirez de la piscine d'entreposage?

M. OLIVIER : Je n'ai pas la réponse précise à votre question en termes d'énergie restante, mais ce qui est sûr c'est que... Je vais peut-être préciser, le réacteur a été déchargé en septembre 2013, et puis on a atteint l'état de stockage sûr piscine en 2014. Et puis, évidemment, oui, c'est un peu les études qui ont été faites qui nous amènent à considérer d'avoir un sept ans dans la piscine. Donc, en arrêtant la production en 2013, ça nous mène à 2020. Donc, si on ne transfère pas le combustible tout de suite, ce n'est pas par manque de capacité, mais surtout pour respecter le sept ans. Mais on a un graphique. Je l'ai en tête là, mais je n'ai pas les valeurs en mémoire. Mais il y a vraiment un graphique qui a été fait, une étude qui démontrait que le sept ans était la valeur à retenir pour le séjour en piscine.

MR. FRAPPIER : Gerry Frappier, for the record. Je pense qu'un de nos assistants a un peu d'information sur ça. Alors, je pourrais demander à Bruno de donner de l'information.

M. ROMANELLI : Bonjour. Merci.

Pour fins d'enregistrement, mon nom est

Bruno Romanelli.

Donc, il y a deux volets à la réponse que je vais donner.

Premièrement, il y a des études qui ont été faites suite à Fukushima au niveau de la piscine, à savoir la résistance de la piscine, aussi au niveau structural pour la piscine qui a été réalisée, et puis ces actions-là ont été, comme on expliquait ce matin, ont été fermées. La piscine est capable de résister... la résistance est suffisante.

Maintenant, au niveau de la charge thermique restante pour le combustible qui est dans la piscine, évidemment, il faut comprendre qu'à chaque jour ça diminue. Donc, on ne peut avoir un chiffre. Mais les derniers chiffres qu'on a vus, si je ne m'abuse -- Hydro-Québec pourrait me corriger -- on a à peu près, si je ne m'abuse, probablement 250 kilowatt dans la piscine de restant d'énergie peut-être, aux alentours de ça, je le sais pas.

M. OLIVIER : Donald Olivier, Hydro-Québec.

On ne peut pas confirmer la valeur précise, mais il y a environ 9000 grappes encore dans la piscine, une campagne d'environ 5000 grappes l'an prochain, un autre 4000 quelques en 2020. Donc, évidemment, la charge thermique diminue de plus en plus. Mais il y a

vraiment un graphique qui existe. Si jamais vous tenez à ce qu'on vous le fasse suivre, ça nous fera plaisir de le faire. Parce que comme Bruno disait, ça évolue dans le temps, donc, on pourrait vous dire à une date précise. Mais je crois que ce que vous voulez voir c'est un peu la décroissance dans le temps, et cette information-là est disponible.

MEMBRE LACROIX : D'accord.

J'apprécierais.

M. JAMMAL : C'est Ramzi Jammal.

Juste pour préciser, on va vous donner les valeurs, mais je vous le justifie, le fait que le décroissement se fait d'une façon exponentielle. Donc, comme ça été déjà mentionné par mon collègue, on a effectué des études après l'événement de Fukushima, et puis ce n'est pas juste la capacité de la piscine, mais la conception aussi du dry storage container, ou le storage à sec qui est conçu pour une grappe, disons, avec une charge thermique d'à peu près ce qui a été conçu. Mais on peut vous donner les valeurs.

MEMBRE LACROIX : C'est bon.

And I've got a second question. J'ai une deuxième question pour Hydro-Québec. Ça concerne les systèmes d'alimentation électrique et d'instrumentation et de contrôle.

Vous mentionnez dans votre rapport, ou dans le rapport en français que des modifications ont été apportées afin d'assurer la fiabilité de ces systèmes, et ça m'a interpellé en me disant, les systèmes n'étaient pas fiables auparavant ou qu'est-ce que vous avez fait comme modifications et est-ce que ça augmenté la fiabilité? Et si oui, bien, ça veut dire que ce n'était pas fiable précédemment. Je n'ai pas compris le sens de cette phrase.

M. OLIVIER : Donald Olivier pour le verbatim.

Parce que, dans le fond, un déclassement c'est être en changement continu, hein, c'est une transition. Donc, il y a eu beaucoup de systèmes qui ont été mis à l'arrêt, et puis ce qu'on a tenté de faire c'est beaucoup de simplifier les systèmes pour qu'ils soient en adéquation avec les opérations restantes à Gentilly-2. Donc, c'est principalement ça, parce qu'on a sorti... par exemple, on n'a plus de présence 24 heures/sept jours en salle de commande. Donc, tout ça a demandé qu'on simplifie les systèmes pour que s'il y avait un événement, qu'une personne puisse en prendre charge seule, alors qu'à l'époque il pouvait y avoir sept, huit, neuf personnes dans la salle de commande. Donc, ce qu'il faut retenir c'est surtout une simplification des systèmes en fonction de l'état de la centrale, l'état du site. Et puis,

évidemment, il y aura d'autres mises en retrait et d'autres simplifications qui vont survenir dans les prochaines années.

MEMBRE LACROIX : Merci.

MEMBER PENNEY: I have a question around Point Lepreau with respect to the environmental management, environmental protection, two-pronged, and I'm looking at page 164 of the document, talks about an ERA that was submitted, that in the future there's going to be an assessment of magnitude and extent of the thermal plume and then a broad risk assessment of its effect on the intertidal and near surface zone. So the question around that, the discharge cooling water.

The second part is -- and I may have missed it -- is around DFO application -- authorization application and status. I think somewhere in here it says something about an application. And do you have similar to what we're really familiar with with Bruce and Pickering, you know, nets to prevent impingement so, and entrainment.

So, that's like three or four questions.
Thanks.

MR. POWER: Okay. Thank you for those questions. For the record, Mark Power, and I'll turn it over to Nick Reicker who is our Superintendent of Emergency Preparedness and Environment, please.

MR. REICKER: Thank you. Nick Reicker, New Brunswick Power, for the record. So, the first question on the thermal plume assessment, currently we are working through that with a third party consultant that we are doing a full analysis of the thermal discharge from our condenser cooling water system.

In addition to that study and the measurements, we are working at the species at risk in any identified areas that are within that. So, as we work through that study we're also doing as a risk assessment from those species within the intertidal boundary and what those risks would be associated with and we are progressing through that for -- continuing through this year.

And could you please remind me on the next questions.

--- Laughter / Rires

MEMBER PENNEY: Thermal plume, intertidal, you mentioned that, entrainment and impingement, your DFO authorization and status.

MR. REICKER: Correct. So, Nick Reicker, for the record. So, as part of the impingement/entrainment study which was done we are working through a *Fisheries Act* authorization. So, we did submit a draft to the CNSC staff, we have reviewed those comments back, we are continuing to work with right holders, stakeholders and our

local community leaders on making sure that we have all the information to support a full application submission to satisfy all requirements of the *Fisheries Act* authorization.

MEMBER PENNEY: Staff, did you want to comment?

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

I just wanted to sort of confirm what was said by NB Power and, in fact, it's been a great engagement with the regulators on the matter. Thermal's obviously shared jurisdiction that we have with Environment Climate Change Canada. We have monthly meetings, all three parties to discuss the progress on the file. I had one of my staff out there a few weeks ago on the ground looking at what was being done and so we're satisfied with the progress made to date on the thermal plume studies.

With regards to the *Fisheries Act* authorization, I'll pass that to my colleague, but just to address one of your last items you mentioned about mitigation in place. So, the Point Lepreau is a much more recent station relatively compared to Pickering, it has a deep water intake, as well it has a diffuser on its discharge. So, from a modern plant perspective it's more

modern than Pickering is.

But I'll pass it over to Ms Cianci to speak to the DFO authorization.

MEMBER PENNEY: Could I have a quick question. So, is there any provincial involvement or because it's in the marine it's federal?

MR. McALLISTER: It's -- to the best of my knowledge, to date we've been interfacing with federal counterparts on it and perhaps NB Power would be in a better position to discuss any provincial jurisdiction involvement.

MR. REICKER: Nick Reicker, for the record. So, the jurisdiction on this where it is a marine environment does fall under Department of Fisheries and Oceans, so we have been working between them and with CNSC, also involved with Department of Environment Canada and Climate Change so that we are supportive on this, not as much with an environment local department side for provincial, but that information will be shared with them but the jurisdiction does lie federally under that.

MS CIANCI: Candida Cianci, for the record. I'm the Director of the Environmental Assessment Division. So, I don't have too much more to add other than what my colleague Mr. McAllister has indicated and NB Power, but just to confirm that, yes, we have been working

with NB Power as well as our colleagues at Fisheries and Oceans Canada under our memorandum of understanding to undertake those technical reviews of draft applications that we receive.

So, earlier this year in March we received a draft application from NB Power. Subsequently from that after our review of sufficiency, we provided comments and, as NB Power indicated, they are working on addressing those comments and we expect another draft application later this year.

MR. FRAPPIER: Gerry Frappier, for the record. If I could just add. So, I think what you're seeing here in this line of questioning is one of the advantages of being a life cycle -- full life cycle regulator so that we can have not just an environmental assessment that was done at one point in time, but because we have the requirement on the environmental risk assessment to be an ongoing thing it allows us to, you know, decades after the project is in place to still be looking to say okay, is there new research areas that we should be exploring, is there new environmental issues we should be considering and we'll continue to do that all the time. That's what our legislation requires us to do.

THE PRESIDENT: Thank you. I'll take this opportunity to ask folks from Department of Fisheries and

Oceans if they have any comments either on the ROR or just the discussion we just had.

Are you still on the line? Maybe we've lost them.

MS MCGEE: Fisheries and Oceans Canada, are you on the line?

MS THOMAS: Yes, Jennifer Thomas from Fisheries and Oceans Canada is on the line.

THE PRESIDENT: Thank you. So, did you just hear the discussion that happened for Point Lepreau, did you have anything to add to that?

MS THOMAS: Yeah. We're not the office that's reviewing that particular file, so I can't really comment on that one. I'm only in charge of the Pickering, Darlington and Bruce files, sorry.

THE PRESIDENT: Okay. So, well on those three files, anything you want to bring to our attention, or are you satisfied with how things are coming along?

MS THOMAS: Well, Darlington has an existing -- Jennifer Thomas again, DFO, for the record, sorry.

Darlington has an existing *Fisheries Act* authorization and they've been sending in their monitoring reports. OPG also has an authorization for the Pickering site and we're expecting an application from Bruce for a

Fisheries Act authorization.

THE PRESIDENT: Thank you. Back to you, Dr. Lacroix.

MEMBER LACROIX: Is that concerning this matter?

THE PRESIDENT: No, next round.

MEMBER LACROIX: Okay, next round. Sure. This is a question for my own information.

In Appendix I concerning the annual radionuclide releases to the atmosphere, the results are reported in terms of activity and when it comes down to noble gas the results are reported in terms of activity times energy in Becquerel times mega electron volt. And I was wondering, there must be a good reason for that and what is it?

MR. FRAPPIER: Gerry Frappier, for the record. I think Kiza Sauvé is probably in the best position to respond to that and I think she should be on her way.

I think they're going to confer for a second.

MS SAUVÉ: So, Kiza Sauvé, I'm the Director of Health Science and Environmental Compliance Division.

You saw that we had a bit of a discussion

there and so my staff have come up to help me out. It is how it is reported in the annual compliance report, so we will turn to the licensee if we need to, but we'll give it a shot.

MR. LATOUCHE: Gaétan Latouche, for the record.

Actually there's two different way that the licensee are providing information in there, so if they were going to do the characterization of each radionuclide, they will have provided the activity, but, as the CSA standard allows, they can use this way to weight monitor, basically, which is to have a gross gamma energy for the release which is a way to present the information, then they will compare with the most restrictive DRL for that group, basically. Instead of having separate DRLs, they will have one for a group of radionuclides.

MEMBER LACROIX: So, if I understand correctly, is that the radiation coming from noble gases, the decay of noble gases covers a wide range of energy and that's why you regroup it in terms of Becquerel times mega electron volts?

MR. LATOUCHE: Gaétan Latouche, for the record. Yes. Basically the way it's monitored will generate different energy and then it's reported that way.

MEMBER LACROIX: So, this is not the case

for instance for Becquerel gross beta and gamma, for instance the next column, if we look on page 279 for instance in Table I.9?

MS SAUVÉ: So, it's Kiza Sauvé, for the record. So, we may have to come back to you on this one.

MEMBER LACROIX: Okay. Thank you.

MS SAUVÉ: We'll be prepared and we'll come back before the end of the day.

MEMBER LACROIX: Okay. Thank you. Thank you. I appreciate.

THE PRESIDENT: Ms Penney?

MEMBER PENNEY: A question about the Western Waste Management Facility referring to page 214 under environmental management and protection. It talks about exceedences -- stack exceedences of SOx and NOx.

And my question is, why are there exceedences, what are you doing to create SOx and NOx in the waste management facility? I wasn't picturing that kind of activity.

MS MORTON: Lise Morton, for the record. So, NOx and SOx are created through the incineration process. Do you want more detail than that?

MEMBER PENNEY: No, I didn't picture incineration, but of course, if you are, okay.

And so this -- you've got your

environmental expert, this problem with the stack emissions and the stack measurement equipment has been fixed and...?

MS MORTON: Lise Morton, for the record. So, that's correct. So, specific to the NOx and SOx emissions it was -- we confirmed that, in fact, you're supposed to correct to 11 percent O₂ and there was an error in the software, in that particular part of the continuous emissions monitor. So yes, that was absolutely correct there.

MEMBER PENNEY: What are you incinerating?

MS MORTON: Lise Morton, for the record. So, we incinerate our low-level waste very specifically and, of course, that includes everything from protective equipment, plastics, et cetera.

THE PRESIDENT: Anyone else with any questions on the Western Waste Management Facility or even more broadly, any waste management facility? No?

I had a couple of very quick ones. Somewhere in the report for Lepreau and Gentilly-2 there's the mention of discussions to look at long-term solutions for the low and intermediate level waste there.

So, what are the options that are being considered? Maybe I'll ask staff to comment on that.

MR. FRAPPIER: Gerry Frappier. I'd ask Karine Glenn to provide some comments on that.

MS GLENN: Karine Glenn, for the record. It's actually up to the proponents to come up with the solutions with respect to their long-term waste management options, and so, I would have passed that question on to the licensee.

What I can tell you is that currently waste is being managed safely on site on an interim basis and that we continue to do oversight to ensure that that remains to be the case.

But I will ask Hydro-Quebec and Point Lepreau to speak to what solutions and what steps they've taken towards looking for solutions.

THE PRESIDENT: So, Point Lepreau and Hydro-Québec, I mean, if you can share any of this, I'm sure there's a fair bit of interest in that, but if it's too early in your days of discussion then I'll understand that as well.

MR. POWER: Point Lepreau, this is Mark Power, for the record. As indicated, we do have adequate facilities on site to manage this waste and we're continuing to work with the industry on a solution that is appropriate and cost effective for each facility.

We have adequate room now for the low-level waste to carry us to the end of life of the station and -- but we're also trying to reduce the

footprint of the waste and we are incinerating some of ours as well to get us extra capacity there.

As far as the fuel, we talked earlier about building extra canisters to hold the spent fuel, so we're also doing that at Point Lepreau and it's the intermediate waste that we are continuing to work on for a solution for long term.

And we will continue to keep the CNSC staff updated on our plans.

THE PRESIDENT: Thank you. Hydro-Québec, do you have anything to add?

M. OLIVIER : Donald Olivier, Hydro-Québec.

Donc, Hydro-Québec, on a les enceintes ou les structures pour évidemment stocker nos déchets d'une façon intérimaire. Il faut se souvenir qu'on avait construit des enceintes en prévision d'une réfection et qu'elle n'a pas eu lieu. Donc, on a quand même suffisamment de capacité.

Et puis, pour ce qui est de la disposition définitive, évidemment, ce qu'on souhaite c'est travailler de concert avec l'industrie pour bénéficier évidemment des dernières avancées. Donc, c'est sûr que nous, notre approche c'est de travailler en équipe avec l'industrie pour justement trouver une solution à long terme pour l'ensemble des déchets canadiens.

THE PRESIDENT: No one really answered my question. I know the waste is being managed safely now. In the report I had read that there are long-term permanent solutions that are being conveyed, are being discussed. But that's fine, you know, if those options aren't ready for discussion, then that's fine.

But my question wasn't, is the waste being looked after now, it's what are the long-term options that are being looked at?

MS GLENN: So, Karine Glenn, for the record. I can add a little bit to that, is that under the auspices of the COG group, if you'd like, there is a working group that is -- an industry working group that is looking at that particular issue and we are aware of the group, we're not -- CNSC staff are not part of the group, however, we are hoping that they will share as they proceed their progress.

And I don't know if anybody at the table -- I do see Lise Morton who is one of the leads for that group, perhaps she could provide some more detail about the progress that group is making.

MS MORTON: Lise Morton, for the record. So, yes, as pointed out, there is an industry group that's run through COG, CANDU owners group, it's called the Raw Waste Leadership Forum. I chair the group and Donald

Olivier and others are members of that group as well.

So, from an industry perspective, as you're well aware, for the two owner operators that have the largest volumes of waste, OPG, ourselves and Chalk River, there are two projects going through the EA process. So, from an industry perspective we're really looking at this, that we want to see those projects get through the approval process then we will be able to understand what we need to do with respect to further projects and we can bring forward further projects that would then address the remaining smaller volumes of waste that remain with the other operators.

THE PRESIDENT: Thank you. And still on waste, of all the inspection results from staff generally in the report the conclusion was there was nothing other than of low safety significance finding, there was only one that I could find that was medium and it had to do with waste and I think it was the management of contractors. So, it kind of popped out as this is kind of a more serious non-compliance certainly from inspections that the CNSC staff have identified.

Can you give us a bit more detail around that and what the status of that is today, please?

MS MORTON: Lise Morton, for the record.

Yes. It's referenced several times in the

report and it was in staff's presentation as well. So specifically during an inspection at the Darlington waste facility staff, in looking at the management system and looking at documentation, recognized a very valid gap, which was that in 2014 we had made a decision to stop source surveillance. This is where we send a source surveillance person from supply chain to the manufacturer and verify certain QA requirements. The decision had been made to stop that surveillance, but that was to be replaced by an equivalent review of the history docket as it came into the facility. And what staff rightfully found was that there was a gap where we had not completed the updates to the procedures such that that inspection wasn't being fully completed through the history docket review. So a very serious event in our mind, you're right, low level safety, and we are certainly continuing to remain confident in the quality and the integrity of the dry storage containers.

So in terms of whether it has been corrected, yes, in many fashions. So we made of course the required changes to governance that we had missed. We implemented a change management committee because this was recognized as a very -- a change that should have gone through a proper change management process and we clearly missed some steps in change management.

And specific to the DSCs, we have reinstated source surveillance at the manufacturers and we are actually going back as well through all of the DSCs that were not caught for this particular period of time. We are almost 90 percent through completing all of the review of those dry storage containers and we are on track to provide I believe the final submission to the CNSC staff on this by the end of January 2019.

THE PRESIDENT: Thank you.

Dr. Lacroix...? Ms Penney...?

There are a few maybe minor typos or areas that I think need clarification, but let me start off because I did have a question for Pickering around their backlogs. We did talk about it during the licensing hearing and I think it's page 130. And it was a question to staff. So while it's trending the right way, performance still leaves a lot to be desired compared to industry numbers. If I can just get to that page. Give me one more second.

Right. So corrective maintenance -- so first of all, the table says this is for 2016. Is it 2016 or 2017 on the title?

MR. FRAPPIER: I will ask Eric Lemoine to comment on that.

MR. LEMOINE: That is a typo. It should

say 2017.

Just on the topic, there are a few other typos in some of these tables as well just generically. I think the main one, though, is you will see on the right-hand column industry average, those are the right numbers in Table 18. On some of the other tables it actually says 98 for the second row.

THE PRESIDENT: Thank you. So that's 2017 and, you know, the seven compared to the four or the 81 compared to the 30, again, as I said, the trend is fine, but the numbers to me seemed high and so I was surprised to see staff saying that these are acceptable.

And then later on in the report there was some discussion that there just weren't adequate resources early on that had been applied to bring down the backlog and given the age of the plant and the importance of making sure that we do have the reliability certainly around the critical safety staff, maybe I can get OPG to comment on how satisfied are you with these backlogs and what are you doing to get closer to the industry average?

MS SMITH: It's Stephanie Smith, for the record.

So I am pleased to say actually that the data that's in this chart is actually outdated. We as an organization have put a real focus on reducing particularly

our corrective maintenance backlog. At the end of 2017 we actually had it down to zero. So right now we are currently sitting at two corrective backlogs, so you can see we're actually below the industry average. It was a real focus that we put on using both the work management and the maintenance organization. We now have a focus on our deficient corrective backlog, which is actually down to 49 against a target of 15. So there's a lot of work that we still need to do around our deficient, but we are using the things that we learned as we reduced our corrective backlog and applying that same focus and the same tools that we put in place for reducing the corrective to reducing deficient. So I expect by the end of the year we're going to be in a better spot even for our deficient backlog.

THE PRESIDENT: Thank you. I am very happy to hear that. And staff, if at the end of 2017 they were actually at zero, I think the report should recognize that. That's something for you to consider.

And then, again as I said, there were a couple of other minor typos. I can pass those on to you later, I can't find that. There was one where instead of licences it said licensees, or the other way around, but there was one where there was a WANO target given but the figure doesn't say so. But I can pass those to you as

you -- just make sure you pick those up.

Okay, one last chance. Any other questions?

If not, maybe I will ask staff if you have any final comments before we close off on this item.

MR. FRAPPIER: Gerry Frappier, for the record.

First maybe just on that maintenance question, so we will review to make sure we have the right numbers, although average quarterly work orders might be different than at the end of the quarter. But I think coming to the point as to why we see it as satisfactory is we definitely noted, even in 2017, the tremendous effort that the Pickering team was putting to getting maintenance under control. If you had been here -- actually you were here a few years ago, you will remember that it was quite the issue for a while.

But with that, staff is pleased to have had this opportunity to present to you. As was noted by Commissioner Berube, there's a lot of work that goes into this report. We do believe it's worthwhile to put it out there so that the public can see, but also to give yourselves an opportunity to see the complexity of some of the compliance program.

We will take into consideration some of

the intervenors' suggestions that were made, some of them very useful.

And I would like to thank all the team that is behind me. As you can see, I don't have to say very much, I just point to people. There's a lot of work that goes into preparing for this, but also there's a lot of expertise that understands this stuff very, very well. So I would like to thank my team for having supported us today.

THE PRESIDENT: Mr. Viktorov, did you want to say something?

MR. FRAPPIER: So the team has come through with the answer on the noble gases, so perhaps just before we conclude we can provide some information on that. Go ahead.

MR. ELDER: Good afternoon. Peter Elder, for the record. I am the Vice President of Technical Support and our Chief Science Officer. So I am putting on my Chief Science Officer role for this answer.

So this is related back to, Dr. Lacroix, how the CSA standard is developed and what the hazards are from the various different things that are being measured. So in terms of noble gases, the hazard is only an external hazard, so it doesn't have any -- they are noble, they don't interact with the environment, so how you do the

modelling is quite different than what we would do on other isotopes that react with the environment.

So for simplicity the industry has grouped all those together and just modelled them once. So you're only looking at dispersion modelling, you're not looking at any sort of environmental monitoring. But to cover off on that one the different energies, they group it not by only becquerels but they do it by energy as well. That is the way the derived release limit is calculated and that's why the data was presented.

Now, this is the first time we presented this data in this report. Reading it again, obviously we needed a little more context of why the numbers are different for different types of radiation or types of releases.

THE PRESIDENT: Okay. Thank you.

This concludes the public meeting of the Commission. I want to especially thank the licensees and your team that you brought here and being so forthcoming with responses to our questions. And above that is for the great performance that got reported today. So thank you and everyone else for your participation.

Kelly...?

MS MCGEE: If you borrowed interpretation devices, remember to return them at the reception and claim

your identification card.

Thank you. Bonne fin de journée.

--- Whereupon the meeting concluded at 4:10 p.m. /

La réunion est terminée à 16 h 10