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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 microsieverts. 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 microsieverts 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: Microsieverts 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

