

Canadian Nuclear  
Safety Commission

Commission canadienne de  
sûreté nucléaire

Public meeting

Réunion publique

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Le 20 août 2015

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

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

Commission Members present

Commissaires présents

Dr. Michael Binder  
Mr. Dan Tolgyesi  
Dr. Sandy McEwan  
Ms Rumina Velshi  
Mr. André Harvey

M. Michael Binder  
M. Dan Tolgyesi  
D<sup>r</sup> Sandy McEwan  
M<sup>me</sup> Rumina Velshi  
M. André Harvey

Secretary:

Secrétaire:

Mr. Marc Leblanc

M. Marc Leblanc

General Counsel:

Avocate générale :

Ms Lisa Thiele

M<sup>e</sup> Lisa Thiele

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Ottawa, Ontario

--- Upon commencing on Thursday, August 20, 2015  
at 9:02 a.m. / L'audience débute le jeudi  
20 août 2015 à 9 h 02

**M. LEBLANC** : Bonjour, Mesdames et Messieurs.  
Bienvenue à la réunion publique de la Commission canadienne  
de sûreté nucléaire.

We have simultaneous translation, as always.  
Please keep the pace of speech relatively slow so that the  
translators have a chance to keep up.

Des appareils de traduction sont disponibles  
à la réception. La version française est au poste 2 and  
the English version is on channel 1.

We would ask that you please identify  
yourself before speaking so that the transcripts are as  
complete and clear as possible.

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

I would also like to note that this  
proceeding is being video webcast live and that archives of  
these proceedings will be available on our website for a 3-  
month period after the closure of the proceedings.

I would also ask that you please silence  
your cell phones and other electronic devices.

Monsieur Binder, président et premier

dirigeant de la CCSN, va présider la réunion publique d'aujourd'hui.

President Binder.

**LE PRÉSIDENT** : Merci, Marc.

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

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

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

I would like to start by introducing Members of the Commission that are with us here today.

On my right is Monsieur Dan Tolgyesi.

On my left are Dr. Sandy McEwan, Ms Rumina Velshi and Monsieur André Harvey.

We have heard from our Secretary, Marc Leblanc. We also have Ms Lisa Thiele, General Counsel to the Commission, with us here today.

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

Please refer to the updated agenda published on August 13th for the complete list of items to be presented today.

In addition to the written documents

reviewed by the Commission for this meeting, CNSC staff will have an opportunity to make presentations, as will some of the licensees, and Commission Members will be afforded an opportunity to ask questions on the items before us.

I would like to take the opportunity to close an item that was opened in the context of an earlier Commission proceeding. I will say it in French.

Cet item est au sujet de l'événement survenu en mars 2015 au Centre Hospitalier Universitaire de Québec, impliquant l'usage non-autorisé d'une substance nucléaire par Pro Rayons-X Inc. Cet événement avait été rapporté à la Commission en mars dernier et une discussion avait eu lieu lors de la réunion de la Commission des 17 et 18 juin. Le personnel de la CCSN a déposé une note de service au Secrétariat, qui a été diffusée aux commissaires, et les commissaires sont satisfaits des conclusions et ont accepté de fermer ce dossier.

Donc, c'était pour le verbatim de sorte que le public soit au courant que le dossier est maintenant clos.

Mr. President.

**\*CMD 15-M29.A**

**Adoption of Agenda**

**THE PRESIDENT:** So with this information, I would like to call for the adoption of the Agenda by the Commission Members, as outlined in Commission Member Document CMD 15-M29.A.

Do we have concurrence?

**MEMBER VELSHI:** Yes, Mr. President.

**THE PRESIDENT:** For the record, the Agenda is adopted.

**\*CMD 15-M31**

**Approval of Minutes of Commission Meeting held  
June 17 and 18, 2015**

**THE PRESIDENT:** I would like now to call for approval of the Minutes of the Commission Meeting held on June 17 and 18, 2015. The minutes are outlined in Commission Member Document CMD 15-M31.

Before proceeding, are there any comments? I understand that, Ms Velshi, you have some question about a particular item.

**MEMBER VELSHI:** Yes, President, I do.

It was regarding the overexposure event at

the Montreal Neurological Institute. We discussed it at the last Commission Meeting and then staff did send an update, and I have some follow-up questions on that, if I can ask those of staff.

So the update that we got, I had no questions around estimates of whole-body and extremity doses but this was kind of an event that I suspect keeps staff, licensees and certainly Commission Members awake. We can put all kinds of controls, all kinds of procedures and you can still have humans doing stupid things and what didn't come across here is what is being done to prevent a recurrence.

The follow-up investigation done by staff had two findings. One was around better contamination control and the other one was additional staffing needs. Neither of those would have prevented this incident from happening.

I know staff interviewed the employee in question, who no longer is with the company, but never got an understanding on why he did what he did, what is the safety culture in that organization, what kind of supervisory monitoring is taking place to assess whether people are in the right fit state to work. So I still had all those questions because the update didn't cover any of those.

And I had one additional question, that when the employee tried -- that he said there was a spill, he went and reported it and it wasn't until a couple of days later that he tried to simulate that incident to try to determine what his dose was, but what happened when he reported the spill? Was there no follow-up done on his dosimetry at that time to find out what is the TLD, what do the extremity dosimeters show at that time?

So I had a number of questions on that. So if you didn't get all of those, I can go through those one at a time, but perhaps you can tell me how you are confident that those matters have been addressed adequately.

**MS MURTHY:** Kavita Murthy for the record. Good morning. So I will start by answering the second question first.

The initial report by the employee to his supervisor was that there was a spill in the hot cell and there was contamination in the lab. He did not report getting any contamination on his own self. So there was immediate verification by another person, who did not find any contamination, widespread contamination in the lab. Now, the hot cell, it is normal in the hot cell to have some high levels of radiation because of the type of work that is done.



Why did they not investigate? Well, they did investigate immediately after and ruled out -- the person did say at the time when he reported the incident that he was wearing two pairs of gloves. He said everything that indicated that he was wearing all the protective equipment that was assigned to him. So we were satisfied that immediately following the incident the institution did do what they were supposed to do.

Ten days later when he reported that he may have got some contamination on his body, the Radiation Safety Officer immediately filed a report to the CNSC and sent his whole-body dosimeter for immediate reading to Health Canada. So those are again exactly the things that we would expect them to do.

So again, when the dosimeter came back with the high reading, that was then we triggered -- the licensee triggered onto the fact that there was some anomaly in the reading. So something more needed to be done in order to do a deeper investigation into what had happened.

Regarding your first question, the two actions that you mentioned, those were just the actions that were raised immediately following the inspection. These were part of the order that was issued to the Montreal Neurological Institute.

And that was not the end of it because there was a Type I inspection and there were findings in the Type I inspection that the institution has systematically addressed and continues to address.

We have required them to have additional staff available so that they have backup, so that they have enough people to do the work safely and we have pressed -- part of our Type I inspections includes asking all employees that we interview questions about safety culture. That leads us to believe that there is no issue right now at the organization about safety culture and people being coerced into doing things that are not safe.

**MEMBER VELSHI:** So again, when you interviewed the employee, why did he do all the things he did and what can one do to prevent something like that? And it gets to the supervisory observation or someone to see if he fit to work.

**MS MURTHY:** Kavita Murthy for the record.

Yes, to a certain extent we don't believe that the actions that the employee did can ever be prevented. They were not rational actions. They were actions that were completely outside of what he had been trained on, what he had been instructed on. He was not wearing any of the protective equipment that was given to him. He was not wearing his dosimeters.

Can we at all times prevent someone from doing things like that? I think that would be a very difficult task for us to say yes, 100 percent of the time, we can prevent people from doing irrational things.

We don't understand exactly why he did the things he did, why he felt that he had to cover up to the extent that he did. We do require some supervisory oversight on employees to make sure their mental state is fine and they can do the work that they have been assigned.

Again, there were no prior indications that there were any problems with this employee. He had been working at the institution for five years and he had -- up to that point there was no indication that there was any issue with his behaviour or his state of mind.

**THE PRESIDENT:** Is he still employed by -- is he still holding the same position?

**MS MURTHY:** Kavita Murthy for the record.

No, he was not -- he left. He has left the institution. He does not work there anymore.

**THE PRESIDENT:** We are trying to find a way of whether we are satisfied that the file is closed really. You seem to believe that yes, it is. Does it make sense to wait until -- there are a couple of outstanding items. You have to update the menu and you have to do, I guess, the next follow-up. So maybe you will submit another update on

this to close this particular item. Does that make sense?

**MEMBER VELSHI:** Yes. And if you add the human factors element to it, I would like someone to look at that. For us to say, well, there is nothing we could do to prevent something like this, is not reassuring at all. Many of our facilities depend on us having more controls than that, I believe.

**THE PRESIDENT:** Dr. McEwan?

**MEMBER MCEWAN:** Thank you, Mr. President.

The one little bit that concerns me is what I think may be an important root cause of this. If you look at page 5 of your report, the second last paragraph:

"All interviewees were asked about the production safety balance, responding consistently that safety is prioritized over production, noting that this may not have been the case in the past." (As read)

So I would like to see some proactive measure by staff actually monitoring that there isn't backsliding and just trying to understand what might have occurred in the past. Because if there really was very significant pressure to produce over safety -- and I can actually see how that could occur -- then I think we need to put more controls or at least more oversight into

ensuring that that doesn't occur again. So I would find that helpful as well.

**MS MURTHY:** Yes, thank you. We have noted that. We will look into those and provide information.

**THE PRESIDENT:** So you will provide an update in a reasonable time, right?

**MS MURTHY:** There is a follow-up inspection planned in September. So soon after that we should be able to provide you with an update.

**THE PRESIDENT:** Okay.

So aside from this item, are we happy with all the rest of the minutes?

**UNIDENTIFIED SPEAKER:** Yes.

**THE PRESIDENT:** Okay. So for the record the minutes are now adopted, besides that particular item.

**\*CMD 15-M32**

**Status Report on Power Reactors**

**THE PRESIDENT:** So the first item on the agenda today is the Status Report on Power Reactors, which is under Commission Member Document CMD 15-M32.

I understand, Mr. Howden, you will take us through this. Go ahead, please.

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

Good morning, Mr. President and Members of the Commission. My name is Barclay Howden.

With me today are our Power Reactor Program Division Directors plus technical support staff who are available to respond to questions on the Status Report on Power Reactors, which is presented in CMD 15-M32.

The document was finalized on August 17, 2015 and I have no further updates on the Status Report as presented in the CMD.

This concludes Our Status Report and staff is available to respond to any questions you may have.

**THE PRESIDENT:** Thank you.

So let's start with Ms Velshi.

**MEMBER VELSHI:** I have no questions.

**LE PRÉSIDENT :** Monsieur Harvey?

Monsieur Tolgyesi?

**MEMBER TOLGYESI:** Just one on Pickering. Do you have any updates on this impingement, with what happened June 17th? There was an investigation. The Fisheries and Oceans has launched an investigation. Do you have any updates on that?

**MR. GILBERT:** Ken Gilbert for the record.

I will ask Robin Manley to respond to that for me, please.

**MR. MANLEY:** Robin Manley, OPG Director of

Nuclear Regulatory Affairs.

OPG has provided several reports to the CNSC staff per our ongoing reporting obligations and, as you know, we gave a report to the Commission at the last public meeting on June 17th.

At the end of July this year we also filed our annual Pickering Fish Impingement Report for 2014 with the CNSC staff and in that report we provided a separate section to report on specifically this matter.

By way of further update, I can tell you we continue with our investigation as to the causal factors and additional mitigation measures which we might take. However, that work is not yet complete.

Currently, the fish diversion system, that is the net, is fully functional. It is being regularly monitored and there have been no further similar type incidents.

Additionally, on June 23rd of this year, two Officers from the Department of Fisheries and Oceans attended at OPG and on their arrival they administered a caution to OPG that the DFO had commenced an official investigation into the incident under the *Fisheries Act*.

Thereafter, OPG's legal counsel spoke with one of the investigating officers. The legal counsel confirmed that OPG will cooperate with the investigation,

though of course being mindful of the fact that OPG must be able to fully and appropriately defend itself against any charges that may be laid.

OPG continues to provide all requested information sought by the DFO and the CNSC in respect of each regulator's entitlement to information under its powers of investigation and inspection and we are continuing with our own investigation into the cause and further reporting will be made to the CNSC.

**THE PRESIDENT:** Any idea of timelines, by when?

**MR. MANLEY:** Robin Manley for the record.

We do not have a timeline at this moment as to the completion of the investigation, but it is ongoing and we will update the CNSC staff when we are complete.

**THE PRESIDENT:** Okay. Thank you.

Dr. McEwan?

**DR. MCEWAN:** No questions.

**THE PRESIDENT:** No other questions? This is the shortest Status Report in my memory, so that may be a good thing. So thank you.



**\*CMD 15-M34**

**Ontario Power Generation Inc.**

**Minor injury incident of security staff at Pickering  
Nuclear Generating Station**

**[CMD 15-M34 contains prescribed security information and is  
not publicly available]**

**THE PRESIDENT:** So let's move on to the next item, which is the Event Initial Report concerning a minor injury incident of a security training staff member at Pickering Nuclear Generating Station, as outlined -- I guess this is kind of a confidential item. So staff, do you want to make a short statement and whatever issues associated with this will have to be discussed in camera. Go ahead.

**MR. AWAD:** Thank you, Mr. President.

My name is Raoul Awad. I am the Director General of Security and Safeguards at the Canadian Nuclear Safety Commission.

On July 8, 2015, approximately at 10:45, one of OPG's security training staff at Pickering Station was performing routine checks on one of the training equipment. He accidentally and unintentionally caused a minor injury to another security training staff member standing nearby. The injured staff was given first-aid and transported to

Ajax Hospital for further assessment. He was released from the hospital hours later and returned back to the station.

Notifications were made, as usual practice, to the CNSC and OPG Joint Health and Safety Committee.

We are ready to answer all your questions in the closed session. Thank you.

**THE PRESIDENT:** Thank you.

Before moving to the next item on the agenda

--

We will actually have an in camera session a bit later on. We will let you know the timing.

So before moving to the next item on the agenda, CNSC staff will provide, I understand, a couple of updates, verbal updates.

The first one is regarding an incident that occurred at AREVA's McClean Lake Mill on July 16.

Dr. Newland, I understand you are going to update us?

**DR. NEWLAND:** Indeed I am.

Good morning, Mr. President, Members of the Commission. My name is David Newland and I am the Acting Director General of the Directorate of Nuclear Cycle and Facilities Regulation.

Do we have Mr. Mark Langdon on the line?

**THE PRESIDENT:** Mr. Langdon, can you hear

us? Anyone? Not connected.

**DR. NEWLAND:** Okay.

**THE PRESIDENT:** Okay.

**MR. NEWLAND:** So this is a short update on an event that occurred on July 16, 2015. There was an incident at AREVA's McClean Lake Mill in northern Saskatchewan in which a worker was injured resulting in a lost time injury. The individual was working on a high temperature dryer called a calciner when he came into contact with heated uranium product resulting in a burn to his foot. He was transferred to the hospital the next day and he will return to work on August the 26th.

CNSC staff are reviewing AREVA's initial reports and corrective actions taken to prevent a similar occurrence and are satisfied with the progress made to date.

The incident was reported on AREVA's website and on ours. We do not plan for a formal EIR and this incident will be reported further again to the Commission at the time of the annual update.

That's the completion of my update. Thank you.

**THE PRESIDENT:** Question, anybody? Ms Velshi, I see you -- okay. We will await for the report.

The next verbal update is concerning Best

Theratronics. Again, I say, Dr. Newland. It's still your file, I guess.

**DR. NEWLAND:** Yes, unfortunately. Good morning.

I have with me to my left Mr. Michael Rinker, Director of the Nuclear Processing Facilities Division.

This is a short verbal update regarding the status of the financial guarantee of one of our licensees, Best Theratronics.

This update is in response to direction from the Commission that it wished to be immediately informed of any non-conformity of Best Theratronics with its licence condition on financial guarantees.

Best Theratronics Ltd. operates a nuclear substance processing facility located in Ottawa, Ontario. The Class IB licence was issued by the Commission following a public hearing held on May the 8th, 2014. At the time of that hearing a financial guarantee had not been established. Consequently, the Commission required Best Theratronics to have a financial guarantee for the decommissioning facility in place by January the 31st, 2015.

After a hearing of the Commission held on January the 30th, 2015 the Commission amended the licence

to extend the date for Best Theratronics to have an acceptable financial guarantee in place to April the 30th, 2015.

In March 2015 the Commission accepted the financial guarantee of approximately \$4 million Canadian for the future decommissioning of the facility in the form of a letter of credit including the schedule for funding, the financial guarantee as proposed by Best Theratronics. The payment schedule accepted by the Commission was as follows:

- The first installment was due of \$1 million to be added to the letter of credit by July 2015.
- Other installments are then due December 2015, May 2016 and October 2016, at which time the financial guarantee would be fully funded.

In its decision the Commission directed CNSC staff to report to the Commission on the progress of the financial guarantee funding through annual reports. In addition, the Commission requested to be immediately informed of any non-conformity with the payment schedule of the financial guarantee instrument.

In a letter to CNSC staff dated July the 27th, 2015 Best Theratronics stated that it had not been able to fund its financial guarantee. At this time the CNSC has not received the updated letter of credit as per

the funding schedule approved by the Commission and stipulated in the licence conditions handbook.

CNSC staff notified Best Theratronics repeatedly that failure to meet the funding schedule would result in non-compliance with condition 1.3 of its licence.

CNSC staff is following its practice of graduated enforcement to bring the licensee into compliance. At this time staff are considering placing an order on Best Theratronics to ensure that its licensed activities are limited to commensurate with its existing financial guarantee. Other enforcement actions will be considered if Best Theratronics does not bring itself back into compliance with its licence.

That concludes staff's updates and we are available to answer any questions that the Commission members may have. Thank you.

**THE PRESIDENT:** Okay. Let's open the floor. Questions?

Mr. Tolgyesi...?

**MEMBER TOLGYESI:** What you said that there is a letter of credit which eventually will be replaced by instalments of one million eventually to be fully funded, is this letter of credit still in force or it's not?

**DR. NEWLAND:** So there is an existing letter of credit for \$175,000. What staff intends to do is to

place an order to limit Best Theratronics' operations so that their operations are commensurate with that value. Once Best provides an adequate and fully funded guarantee then we will restore Best Theratronics' licence to its -- we will remove the order.

**MEMBER TOLGYESI:** You received the letter on July 27th from Best Theratronics because you are saying "your letter dated July 27 aroused significant concerns". What reasons were given by Best Theratronics?

**DR. NEWLAND:** I would say that Best Theratronics really didn't give any adequate reasons.

**MEMBER TOLGYESI:** It just said that we will not fulfil our commitment; we will not deposit the one million?

**DR. NEWLAND:** They have stated that they are attempting to get that letter of credit but they have been unable to do so in their discussions with banks.

**MEMBER TOLGYESI:** It's still fully operating, Best Theratronics?

**DR. NEWLAND:** At this time, yes, until we place the order.

**MEMBER TOLGYESI:** My last, is that this order of limiting activities up to the value of letter of credit which is \$175,000, what it will involve in operations because it could happen that they will shut the

door?

**DR. NEWLAND:** Sorry, could you repeat the question, please?

**MEMBER TOLGYESI:** That if you limit the activities, licence activities to Best Theratronics to the value of this letter of credit, \$175,000, you know in proportion, that means that activities of Best Theratronics will be so diminished that they will be quite limited. Eventually it will also say that you should suspend your activities.

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

What Best has proposed to us in a plan that they would remove a number of their sources that exists onsite that are more of a legacy source. They have perhaps more than 200 sources, six of which are used in their day to day operations; two Czech sources and four other sources.

The remaining sources are sources that they could divest of and dispose of without affecting their day to day operations but it would substantially reduce their disposal costs against the financial guarantee.

In addition, they have an inventory of depleted uranium for which they could divest of that they are not using in their day to day operations.

So they have put a plan for the sources with



a date. They have explained in writing their intention to get -- divest of the depleted uranium but not with a date yet. And then the remainder of their sources for which they do build devices with are stored at Nordion. So those are covered under Nordion's financial guarantee, irrespective of ownership.

So their plan is to divest of the majority of their sources onsite that would reduce the cost for disposal.

**THE PRESIDENT:** Anybody else? Dr. McEwan...?

**MEMBER MCEWAN:** So I think this is a follow-up question to that answer. If I understand it, your best estimate of the total clean-up costs is of the order of \$4 million. That is for payments that are required. So if --

**THE PRESIDENT:** I'm not sure where you get the \$4 million? I don't recall that.

**MEMBER MCEWAN:** Well, \$1 million for -- four installments of a million dollars.

**THE PRESIDENT:** Yes, okay. So just from my memory they were planning to be a Class IB outfit and I think those were plans. I don't know if ever they got realized into that kind of activity. So I'm not sure that the \$4 million now represents anything real. Somebody can clear me up on this?

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

There are -- as Dr. Newland mentioned, we are in evaluation with respect to regulatory action we need to take.

The proposal for an order is, we most likely will be issuing an order and it will be a designated officer order. So all of the discussion will be -- the order will be referred to the Commission, and Best Theratronics will be given an opportunity to be heard as in the order to meet the conditions of the order.

So while we're trying to give assurance to the Commission that they are not in non-compliance because of their inventory, the financial guarantee must address the disposal of the sources, not by Best Theratronics. So our evaluation of the financial guarantee is based on removal of the sources by a third party, so hence, the \$4 million comes in according to their inventory that they currently exist.

So what they proposed to us is a plan, because we gave them the option before we shut them down -- and I personally had the meetings with the CEO of the company -- and the frustration is, the company's not taken it very seriously, so this is the last chance they have, so that they are putting themselves into compliance.

And one way to get themselves into

compliance is, of course, to meet the conditions of the order. But before the order is issued, they presented to us a plan by which they will reduce the inventory in order to match their existing letter of credit.

And we are not going to sit back, but we are going to bind them legally in order to make sure that the conditions of the order will be met at all times.

But I'm not going to disclose what the conditions of the order are going to be because that will jeopardize the rule of procedure and the opportunity to be heard.

So we are looking at all of regulatory enforcement action in order to make sure that we'll put them back into compliance.

The plan they presented to us, ink on paper, is acceptable, but we're going to monitor the action of Best Theratronics so they're able to execute what they promised us to do.

Obviously, they have not met the conditions of the licence that the Commission has issued and now we are into the enforcement mode with Best Theratronics in order to render it -- put them back into compliance.

**THE PRESIDENT:** Dr. McEwan...?

**MEMBER MCEWAN:** So clean-up is entirely related to divestment of sources, or are there any other

elements to the clean-up that would add to cost?

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

The clean-up is for -- the majority of it is -- you know, if you can characterize it, the highest or the high risk sources that they have on board, in addition to some of the secondary activation associated with the operation of high energy LINACs.

So that's why we're taking proper enforcement action to ensure that whatever operations they will have, it will match the financial guarantee.

**MEMBER MCEWAN:** So how many opportunities have you given them to meet their financial guarantee?

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

When Best Theratronics came for their application for a Class 1B facility in May, 2014 they did not have a financial guarantee in place and the Commission set a licence condition for them to have it in place by January, 2015.

So they were in compliance, but without the financial guarantee because they had that condition. They could not get a financial guarantee, so they again asked for their licence to be amended to the end of April and then they came up with a plan.

So these were accepted conditions for which Best to meet its financial guarantee, more than a year

without a financial guarantee, but in compliance because their condition in their Licence Condition Handbook had incorporated the schedule.

Now that they actually are not meeting the schedule they are, as of August 1st, out of compliance for the first time.

**MEMBER MCEWAN:** So why would you consider an order and not a licence suspension?

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

Dr. McEwan, we are evaluating all of our enforcement actions. So, again, whatever we take as an enforcement action, it's going to be reviewed by the Commission -- let me put it this way -- so that's why we are looking at multiple options.

So potentially could be a recommendation from staff to the Commission to either amend their licence, suspend their licence or put conditions on them, allow them a little bit -- not allow them, as a matter of fact. They are responsible to be in compliance. They put themselves out of compliance and they better put themselves back into compliance.

So let us go through graduating enforcement action, exhaust all what we've got from regulatory tools, I will come back to you very shortly. When I say very shortly, it's very imminent, as my colleagues say, that

we'll be updating the Commission sooner than later with respect to our action with respect to enforcement.

**THE PRESIDENT:** Are they aware that you're going to make this presentation here today?

**MR. JAMMAL:** Were they aware? We are providing an update to the Commission today on notification to the Commission.

**THE PRESIDENT:** Why did they choose not to show up? I hate to have a fettered discussion here without them in place here and I think we should wait for you to take action on your own powers. We don't tolerate non-compliance for long.

I'm surprised they weren't here to actually try to explain, but I remember the discussion. We asked -- I asked, I personally asked them a couple of times, why do they want to be a Class 1B with all the additional conditions that's required. If they cannot be a Class 1B, they can revert to what they were before and that is a normal licensee with small, low risk kind of activities.

So what I would suggest we do now is, we'll allow you to do the job, but please report back as to how you're going to deal with non-compliance. Does that make sense?

M. Harvey...?

**MEMBER HARVEY:** Well, as I understand it,

the Commission has nothing to do with the order now. I mean, the order is given by the staff. So we would have the opportunity after that to hear from the company, but I don't think we have to now to interfere with the staff.

**THE PRESIDENT:** That's what I'm saying.

**MEMBER HARVEY:** Oh, right. I think they have to do what they should do. And you mentioned that to reduce the inventory would reduce the amount, but could that be done in a very short period and what would be the cost to do that? Do you have an idea?

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

As I previously mentioned, they presented us with a plan and the plan seems to be reasonable with respect to the timeline and they will be depleting -- or not depleting, but transferring and disposing of the sources in a matter of 60 days or so, but I will ask Mr. Rinker to give you precision.

But the plan that's been given to us, the reduction of the potential liability in order to meet the existing financial guarantee seems to be adequate.

But we will -- again, this is their plan. So we are evaluating what they submitted to us and then once we take the regulatory action, we will put on them the requirements with respect to, by how quickly they have to dispose of the sources and we will be reporting back to the

Commission that they themselves, either they accept the condition of the order as they are, or they will request an opportunity to be heard and that will be before the Commission.

So the order will have to be referred to the Commission, so you're going to have an update within a few days with respect to what is the regulatory action we are taking.

**THE PRESIDENT:** Okay. All right, thank you. Are there any other interesting updates?

All right.

So the next item on the agenda is the Regulatory Oversight Report for Canadian Nuclear Power Plants, 2014, as outlined in CMD 15-M30 and CMD 15-M30.A.

Marc...?

MR. LEBLANC: The Notice of Public Participation, 2015-M-02 was published on June 16<sup>th</sup> of this year inviting the public to comment in writing on this meeting item.

The draft report filed by CNSC staff was made available on the same date on the CNSC website in both official languages.

July 16<sup>th</sup> was the deadline for filing by intervenors and the Commission received two written submissions from the public.



The President will soon turn the floor to CNSC staff for their presentation, but before opening the floor for questions, the President will invite representatives from the different licensees to provide comments on the report, if any.

After a first round of questions, we will go through each written submission filed by the public and the Commission Members will then have an opportunity to ask questions to staff and licensees on these submissions.

I note that the security ratings are part of a public document filed by CNSC staff, I just want to remind the Members that sensitive questions pertaining to security, if any, will be dealt with confidentially at the end of the question period in a closed session.

Representatives from CNSC staff and affected licensees, as necessary, would be invited to join the Members in the ante room, as necessary. There is no plan at this moment to go in the back room for this purpose, except with respect to the security incident that was alluded to earlier.

Thank you.

**THE PRESIDENT:** Thank you, Marc.

So, before starting the presentation, I understand we have a representative from the Office of the Fire Marshal and Emergency Management who are joining us

via teleconference.

I understand Mr. Suleman and Mr. Nodwell will be on line. Can you hear us?

Anybody from the Office of the Fire Marshal? I guess not.

Okay. So now let's move on to a presentation by CNSC staff and I understand, Mr. Howden, you're going to make the presentation?

Please proceed.

**\*CMD 15-M30/15-M30.A**

**Oral presentation by CNSC staff**

**MR. HOWDEN:** Thank you.

Good morning, Mr. President and Members of the Commission. I'm Barclay Howden, Director General of the Directorate of Power Reactor Regulation.

Today I have the pleasure to present for information the Regulatory Oversight Report for Canadian Nuclear Power Plants, 2014 edition.

The Report, hereafter referred to as the NPP Report, provides a summary of the regulatory oversight and safety performance of Canadian nuclear power plants.

Included in the Report is the annual update on the Fukushima Daiichi nuclear accident response, the

neutron over power protection update and an update on the Pickering Risk Improvement Plan and the Aging Management Program. As well, the presentation includes an update on the Darlington New Nuclear Project.

The NPP Report will be presented by the management team from the Directorate of Power Reactor Regulation. They are assisted by Directors from the technical support branch, who are available to answer any technical questions the Commission may have.

Today's presentation will begin with highlights of the nuclear power industry safety performance in 2014. The presentation will continue with details regarding the station safety performance and regulatory developments.

Towards the end, the presentation will focus on industry regulatory developments and will close with general remarks.

Before I turn the presentation over to the Directors, I would like to present the executive summary of the industry safety performance. This summary will provide you with the context for the station-specific highlights, including current challenges the industry is facing.

As summarized on this slide, CNSC staff have made the following observations with respect to the safety performance of nuclear power plants. There were no serious

process failures of operating systems at any nuclear power plant that could potentially challenge protective barriers. No member of the Canadian public received a radiation dose above the regulatory limit of one millisievert per year.

There were no exposures of nuclear energy workers at Canadian nuclear power plants above the regulatory dose limit of 50 millisieverts per year. There were no environmental releases from the nuclear power plants above the derived release limits.

The frequency and severity of injuries and accidents involving workers were minimal. In fact, the overall accident severity rate and the accident frequency for Canadian nuclear power plants remained lower than that of other Canadian industries.

All licensees complied with their licence conditions concerning Canada's international obligations, and no NPP events above the lowest NS level were reported to the International Atomic Energy Agency.

I'd like to point out here that these positive outcomes were the result of a multitude of provisions undertaken by each licensee and are, in general, a reflection of good organizational management and control.

This slide summarizes the ratings for the safety and control areas and the integrated plant ratings for the licensees and the industry as a whole. As you may

recall, we have four rating categories; namely, fully satisfactory, satisfactory, below expectations and unacceptable.

Regarding the overall station safety performance, the integrated plant ratings were fully satisfactory for Darlington and Bruce B, and satisfactory for the remaining stations. The integrated plant rating for Bruce B improved from satisfactory in 2014 to fully satisfactory in -- from 2013 to 2014, fully satisfactory now. For the remaining stations, their integrated plant ratings were unchanged from the previous year.

Across the industry, the average ratings for fully satisfactory for conventional health and safety and security as they were in 2013.

In 2014, the industry waste management rating improved to fully satisfactory. The industry rating for the remaining 11 safety control areas were satisfactory.

Overall for the stations, 14 safety and control areas were fully satisfactory and the remainder were satisfactory. This represents an improvement of three additional fully satisfactory ratings in comparison to 2013.

No safety and control areas were rated as below expectations or unacceptable. The absence of below

expectations or unacceptable ratings is the same result as in 2013, reflecting CNSC's confidence in the licensees' safety performance during 2014.

NPP ratings are based on findings from inspections, desktop reviews and other compliance verification activities conducted by CNSC staff. For the first time since the SCA framework was introduced in 2010, there were no medium or high rated findings assessed. This outcome is a reflection of the continuous improvements being made by the NPP licensees.

CNSC's commitment to safety and regulatory excellence led to ever-increasing focus on the areas which are indicated on this slide.

Firstly, industry continued in its efforts towards the recategorization of the remaining CANDU safety issues, or CSIs. By February 2015, there were six CSIs to be recategorized. Three of these were large loss of coolant, or large LOCA, CSIs, and three were non-large LOCA CSIs.

Industry is making good progress on all the remaining CSIs, and CNSC staff are monitoring the effort. A Commission Member Document giving an update on the status of the CSIs is being prepared for presentation to the Commission in 2016.

Secondly, increased attention was directed

to oversight of aging facilities. Following CNSC safety assessments of aging management programs and inspections of pressure tubes and feeders, the Commission approved the operation of the Bruce A and B and the Pickering reactors up to 247,000 equivalent full-power hours.

CNSC is also focusing on oversight of licensees as they prepare units for refurbishment or safe continued operation.

In addition, CNSC staff continue to focus on the conduct of transitioning activities from operations to safe storage at Gentilly-2 during 2014, followed by future decommissioning.

Lastly, CNSC strives to continuously improve the safety of operating facilities through the introduction of modernized regulatory documents and safety standards into operating licences.

Furthermore, in response to the Fukushima-Daiichi accident, CNSC requested each licensee to implement safety upgrades to reduce the risk of accidents and to demonstrate the effective emergency management.

In the area of emergency preparedness, CNSC published in 2014 REGDOC 2.10.1, "Nuclear Emergency Preparedness and Response", which includes a requirement for NPP operators to provide support to provincial and municipal authorities for the implementation of potassium

iodide, or KI, pre-distribution. All licensees have either completed their pre-distribution or are on track to complete by December 2015 target. Details of pre-distribution are as follows.

OPG has planned a public campaign for September 2015. Pre-distribution will occur in October 2015, with completion by the end of November 2015.

Bruce Power has procured and started the distribution of KI pills within their 10-kilometre primary zone, and targets completion by the end of the summer 2015.

New Brunswick Power has already distributed KI pills within their 20-kilometre planning zone since 1982.

An update on KI present distribution will be given at the next Commission meeting.

The sixth progress report on the status of the review of the new Enhanced Neutron Overpower Protection, or E-NOP, methodology has been included in the 2014 NPP report. NOP trip set points are designed to provide effective reactor protection through tripping the reactor whenever the neutron flux reaches a pre-established value, primarily in response to slow loss of regulation events.

Bruce Power and Ontario Power Generation have completed all major activities related to NOP



methodology and submitted reports documenting results during 2014.

CNSC concluded from their review of the licensee's submissions that the installed NOP trip set points provide adequate margins for slow loss of regulation events and that no compensatory measures are required until August 2017.

In the area of Enhanced NOP, work is in progress, but E-NOP has not been accepted by CNSC staff. In March 2015, Bruce Power and OPG submitted their final responses to CNSC staff comments with respect to measures and improvements the licensees were making to address the path forward for acceptance of the enhanced methodology.

CNSC staff are currently reviewing the licensees' responses.

A major joint nuclear exercise -- emergency response exercise titled "Exercise Unified Response" was held from May 26 to 28, 2014, at the Darlington nuclear power plant. This exercise involved OPG and over 50 off-site agencies, including CNSC. It provided an opportunity for emergency response organizations to test and improve their capabilities.

Exercise Unified Response was a success, resulting in valuable lessons learned and experiences for the participants. An update on the exercise will be

presented to the Commission by CNSC staff in December 2015.

I will now ask Mr. Peter Corcoran, Director of the Power Reactor Licensing and Compliance Integration Division, to provide background information on the annual NPP report and present the industry benchmarking of safety performance indicator.

**MR. CORCORAN:** Thank you, Mr. Howden.

Good morning, Mr. President and Members of the Commission. I will provide background information on this NPP report and its format, the public comment process conducted earlier this summer and information on Canada's nuclear power plants.

CNSC staff have established a compliance verification program which lays out the conduct of activities such as surveillance and monitoring by on-site inspectors, inspections and desktop reviews. The results from this program are used by CNSC staff to determine the safety performance and the ratings that are provided in the NPP report.

CNSC inspectors track actions against licensees until they are closed, and verify the closures through follow-up inspections. More than 1,100 findings were derived from CNSC compliance activities and assessed by CNSC staff to provide the ratings for the NPP report.

Additionally, NPP licensees submitted,

during the year, 378 event reports and 122 scheduled reports, and these were reviewed and assessed by CNSC staff also.

NPP licensees are responsible for ensuring safe operation of their stations, whereas CNSC staff independently verify the licensees' performance. As shown in this table, the compliance verification activities conducted by CNSC staff included inspections, event reviews and other compliance activities. These activities represent over 17,000 person-days of effort by CNSC staff.

As a result of the compliance activities conducted during 2014, CNSC staff concluded that all licensees operated their reactors in a safe manner and ensured compliance with regulatory requirements.

I would also like to point out that the information in this table was not included in the draft NPP report. However, it will be added to the published report next month, and it will be included in the report going forward.

CNSC staff assess the safety performance of licensees using a ratings methodology that was established in 2010, and is based on multiple sources of inputs covering 14 safety and control areas. The inputs for the assessments including findings extracted from inspections, field rounds and desktop reviews. These findings come from

the assessments conducted by CNSC staff at the specific area levels within each of the SCAs.

The specific area ratings are then rolled up into a computational method and, in certain cases, there is the need for professional judgment where the final assessment falls on or near the interface between two ratings. This assessment process is conducted for all safety and control areas.

The SCA ratings are combined using weighting factors to produce the integrated plant ratings, that is, the overall rating for each nuclear power plant.

During 2014, CNSC staff presented to the Commission two event initial reports for events that had the potential for involvement of the Commission with respect to decision-making responsibilities. CNSC staff followed up on the licensees' corrective actions for each of these events and concurred with the actions implemented.

There were no event initial reports submitted for Bruce A and B, for Gentilly-2, or for Point Lepreau in 2014.

The 2014 NPP report was posted on the CNSC web site for public comment from June 16th to July 16th of this year. The posting was announced on CNSC web site, through social media and through the CNSC mail-out list.

In addition, advertisements were placed in

15 Canadian newspapers.

Two interventions were received on the report. The comments can be summarized as follows.

Positive feedback on the thoroughness of the report, and a continuing concern regarding the licensees' ability to qualify sufficient numbers of certified staff, though there was acknowledgement by the intervenor of improvements having been made in this area.

During 2014, CNSC staff assessed the licensees' personnel certification programs and determined that these meet regulatory requirements. CNSC staff are satisfied with the ability of the licensees to qualify staff for certified positions.

As this map shows, there are four multi-unit plants in Ontario, and one single-unit plant in each of Quebec and New Brunswick. In 2014, six nuclear power plants had operating licences for a total of 22 reactors in Canada. Of this total, 19 reactors were operating during the year.

The reactor at Gentilly-2 completed the transition to the safe storage state on December 2nd, 2014. At Pickering, Units 2 and 3 remain in safe storage consistent with previous years after they were defueled in 2008.

The Canadian nuclear power industry

continues to provide over 15 percent of Canada's electricity supply. During 2014, in Ontario, 62 percent of the electricity produced in the province was generated at nuclear power plants, and for New Brunswick, 28 percent of the electricity provided was from a single nuclear power plant.

These percentages highlight the contribution this industry makes to Canada's energy production. CNSC is committed to effective regulatory oversight of this industry.

This graphic depicts the status of each of the 22 licensed reactors -- nuclear power reactors in Canada at the end of 2014. Of the total, and as stated earlier, 19 reactors are operating or have been returned to service as shown by the blue and green bundles, respectively, and these -- and three reactors are in a safe storage state as depicted here by the red bundles.

In 2014, the Gentilly-2 station completed the transition to a safe storage state following the 2012 decision to end operations. This station is indicated on the slide in red.

This ends the background section of the presentation. I will now continue with a brief summary of industry benchmarking for 2014.

As you may recall, CNSC began to report on

performance comparisons between the Canadian nuclear plant licensees and other national and international organizations a few years ago. The approach has continued to evolve, and comparisons involving five performance indicators, some of which are benchmarked, will be presented here today.

As shown in this slide, the first comparison is the number of unplanned reactor trips per 7,000 operating hours. I should perhaps point out at this point that 7,000 approximates the number of operating hours in a year for most nuclear power plants around the world.

The data on this slide shows the performance of Canadian nuclear operators in comparison to that of the World Association of Nuclear Operators, or WANO.

It can be seen that, in 2014, the number of reactor trips for Canadian reactors is significantly better, that is, lower than the industry performance target of 0.5, or half a reactor trip per 7,000 operating hours, and remains lower than the WANO value.

The Canadian industry trip rate has increased slightly in 2014, but the change was not considered significant. Overall, the Canadian industry is maintaining a low trip rate.

This next figure compares the unplanned capability loss factor for Canada versus WANO values. WANO

uses this indicator to monitor industry's progress in minimizing outage time and power reductions that result from unplanned equipment failures or other conditions such as maintenance outage extensions, forced outages and unplanned load reductions.

This slide does not represent a safety issue, but focuses, instead, on electrical power output. The indicator reflects the effectiveness of plant management in maintaining systems available for electrical generation.

The darker-coloured regions at the bottom of the bar graph represent the UCLF. The lighter-coloured regions represent the total actual energy production capability, taking into account energy losses due to planned outages.

Under Regulatory Document 3.1.1, which became effective in 2015, additional safety performance indicators that align with WANO will be available in future NPP reports.

This next slide, accident frequency, is a measure of the number of reportable injuries resulting in lost time or medical treatment and the number of fatalities at a station per 200,000 person-hours worked.

This slide shows the accident frequency for the Canadian nuclear industry indicated in light blue



versus other Canadian industries and workplaces. And in case you can't read it, I'll just point out that the blue is WorkSafe New Brunswick, the bright blue is WorkSafe BC, the purple is the Canadian Electricity Association, and the red is the Canadian Nuclear Safety Commission.

The -- it can be seen that the accident frequency for the Canadian nuclear industry remains a very low, and lower than other Canadian workplaces. The accident frequency for the Canadian nuclear industry and for all licensees decreased in 2014. Moreover, the Canadian nuclear industry continues to be a safe industry in terms of the frequency of workplace accidents.

Staff also wish to point out that there were no work-related fatalities at Canadian nuclear power plants in 2014.

This slide shows the estimated annual dose to the public which is attributed to both airborne emissions and liquid releases from Canadian nuclear power plants.

In 2014, this was well below the one millisievert dose limit for members of the public for all Canadian nuclear power plants. In fact, they were approximately 1,000 times lower.

Please note that because the doses are very low, we have used the logarithmic scale on the left. Each

unit on a logarithmic scale represents a tenfold increase in the value of the estimated dose.

The public dose data confirms that Canadian licensees' programs continue to be effective in protecting the public and the environment from radiological releases. The dose to the public is only a very small fraction of the regulatory dose limit.

This graph also shows that the doses from Canadian NPPs are much lower than the average annual effective doses from natural background both in Canada and worldwide.

This next slide shows the distribution of effective doses to workers for 2014 as well as the five-year trend. The percentage of workers at Canadian nuclear power plants who received a total effective dose of less than one millisievert has remained higher, at 80 percent -- has remained 80 percent or higher since 2010, a testament to the continued effectiveness of the licensees' radiation protection programs.

CNSC staff note that this has increased to 85 percent of the workers in 2014.

I would further point out that no worker among the more than 25,000 monitored received a dose exceeding the regulatory dose limit of 50 millisieverts per year in 2014. The radiation protection programs

implemented by licensees are protecting workers in the Canadian nuclear power industry and resulting in low numbers of workers in the higher dose ranges as shown on this slide.

The presentation will transition now to the summaries for the individual stations. Mr. Barclay Howden will begin by covering the Bruce A and B and Darlington stations.

**MR. HOWDEN:** Thank you, Mr. Corcoran.

Bruce Power is licensed to operate the Bruce A and B nuclear generating stations, each located on the shores of Lake Huron. Both stations consist of four CANDU units each.

In 2014, at the Bruce site, all eight units were operational.

In May 2015, following four days of public hearing in Kincardine, the Commission renewed the Bruce A and B licences as a single licence. The new licence is for a five-year period and will expire in 2020.

As the licences were just renewed through an extensive licensing process with detailed Reasons for Decision published on July 9th, 2015, staff conclude there is no new information to report to the Commission. Thus, I'll go through the slides fairly quickly.

It should be pointed out that the NPP report

was prior -- was prepared prior to the publishing of the detailed Reasons for Decision.

This table shows the 2014 performance ratings for the safety and control areas for both Bruce A and B. Overall, the integrated ratings for Bruce A remained at satisfactory, while the integrated rating for Bruce B improved to fully satisfactory.

Here are the good practices at Bruce A and B. In addition, security was also fully satisfactory in 2014.

This slide provides an update on the *Fisheries Act* authorization process. CNSC Staff have included that licensed activities at Bruce Power, as authorized by the *Nuclear Safety and Control Act*, have had no significant impact on the fish population, hence the environment is being protected.

A new licence is in place now and the new licence conditions handbook has been updated with the information outlined in this slide.

This slide summarizes the major projects and initiatives that were discussed during the licence renewal hearing. In particular, the 37M Fuel Project and the Bruce A environmental assessment follow-up program.

I will now move onto the Darlington facility. Ontario Power Generation is licensed to operate

the Darlington Nuclear Power Plant which consists of four units.

All four units at Darlington were operational in 2014. OPG also operates at this site a tritium removal facility, which is designed to reduce levels of radioactive tritium in the heavy water.

As Part 1 of the licence renewal hearing was held yesterday, we are not going to go through the slides in detail.

This table shows the performance ratings for the safety and control areas for Darlington. Overall, Darlington received an integrated plant rating of fully satisfactory. Darlington has received this rating consistently for the past seven years.

Here are the good practices at Darlington. In addition, operating performance was also fully satisfactory in 2014.

OPG is also addressing some work safety challenges in conventional health and safety.

This slide provides a history of the licence amendments and licence conditions handbook revisions up to yesterday, so it is right up-to-date

This slide summarizes the refurbishment information that was presented yesterday to the Commission.

Shown in this slide is an outline of the

study of the consequences of a hypothetical severe nuclear accident that was touched upon yesterday. The final English version of the report will be made available to the public today. The English and French versions will also be published to our website in September. The conclusions from the study are summarized in this slide.

That concludes the summary on Darlington.

I will now turn over the presentation to Mr. Miguel Santini, Director of the Pickering Regulatory Program Division.

**MR. SANTINI:** Thank you, Mr. Howden. Good morning, Members of the Commission and Mr. President.

The Pickering Nuclear Generating Station consists of eight reactor units. This table shows 2014 performance ratings for the safety and control areas at Pickering. The performance in relation to protection and security remain unchanged and fully satisfactory in 2014.

The performance for Pickering in the remaining 12 safety and control areas were satisfactory. Overall, the integrated plant rating for Pickering was satisfactory in 2014, unchanged from the previous years.

Now, I would like to discuss Pickering's safety performance highlights, focusing first on good practices.

In the area of radiation protection, OPG

continues to implement at Pickering a highly-effective and well-documented ALARA program which is based on industry best practice.

Under security it is noted that OPG maintains a robust and efficient nuclear response force. In addition, OPG has implemented world design and effective drills and exercises at Pickering. The introduction of enhanced screening technology has improved access control at this station.

The Commission removed regulatory hold points for continued operations from the Pickering licence in 2014. The Commission requests that OPG produces an annual update on the aging management program and fitness for service of major components and on the detailed risk improvement plan.

The 2014 NPP Report contains the second annual update of these topics. Here we present the highlights of these submissions.

First, an update on the Pickering aging management program and fitness for service for major components. The planned inspections of fuel channels, feeders and steam generators were completed as per their scope.

The following was determined through these inspections. The mean diameter of the pressure tubes were

within the service limits. The highest hydrogen concentration in pressure tubes were within service limits. The inspected feeders had wall thickness greater than the minimum allowable. And finally, no steam generators exceeded the limit of tube plugging.

Overall, CNSC Staff are satisfied with the results of the 2014 major component inspections and confirm the findings met CNSC regulatory requirements.

The second request by the Commission was for OPG to submit an annual update of the initiatives to further reduce the risks identified through this PSA at the plant. In compliance with this request, OPG submitted the status of implementation of the risk reduction plan.

The initiatives which involve physical improvements to the plant include extension of auxiliary power supply emission times to 72 hours; upgrades to the fire protection barriers on the cable trays; and modification to the emergency makeup water supply to heat transport system and to the boilers.

Other improvements such as refinement of the models or addition of the Fukushima upgrades modelling also improve the final results of the core damage frequency or large release frequency of the PSA.

For instance, crediting the Phase 1 emergency mitigating equipment, or EME, in the PSA models



reduced the core damage frequency up to 80 per cent and the large release frequency up 83 per cent.

Phase 2 EME and credit of the severe accident management guidelines, also from the Fukushima action plan, are expected to further reduce the core damage frequency and large release frequency results.

CNSC Staff are satisfied with the current status of OPG's implementation of the risk reduction plan.

On whole site probabilistic safety assessment the development of a pilot project for the Pickering site is continuing and on target for completion in 2017.

During the reporting period the Pickering operating licence was amended once and the licence condition handbook was also revised once. Details of these amendments and revisions are given in the CMD and here we present the reasons for the amendments and the significant changes to the LCH.

Regarding projects and initiatives underway at the station, I will describe the activities related to management of end of life.

OPG continues with planning and implementing measures to ensure safe operation of Pickering to the end of commercial operation. The Continued Operations Plan, or COP, covers the implementation of the Pickering B

integrated safety review to ensure safe operation beyond 210,000 equivalent full-power hours.

Only three actions remain open in the COP, and it is targeted for completion by December 2015.

The Sustainable Operations Plan, or SOP, will become effective in January 2016, and it is focused on actions required to ensure the continued safe operation of all units approaching the end of commercial operation.

Finally, in accordance with the operating licence, OPG has to submit to the CNSC by June 30<sup>th</sup>, 2017 the permanent shutdown dates for the Pickering reactors.

I will now turn over the presentation to Monsieur Benoit Poulet, le Directeur de la Division du programme de réglementation de Gentilly et Point Lepreau.

**M. POULET** : Merci, Monsieur Santini.

Monsieur le Président, membres de la Commission, bonjour.

Gentilly-2 est une centrale à tranche unique de type CANDU 600 exploitée par Hydro-Québec.

L'exploitation commerciale de Gentilly-2 a pris fin le 28 décembre 2012. Le réacteur a alors été mis à l'arrêt et toute production d'énergie électrique a cessé. Au cours de l'année 2014, Gentilly-2 était en transition vers l'état de stockage sûr et a complété cette transition et atteint l'état de stockage sûr le 2 décembre 2014.

Le présent permis de la centrale est en vigueur depuis le 1er juillet 2011 et expire le 30 juin 2016.

En 2014, Hydro-Québec a demandé à la Commission de modifier le permis de Gentilly-2 afin de prendre compte de l'état cœur déchargé et du passage à l'état de stockage sûr.

La Commission a revu et accepté cette demande, et la modification de permis a été complétée le 22 juillet 2014.

Ce tableau montre les cotes de rendement attribuées à Gentilly-2 pour l'année 2014 pour chacun des domaines de sûreté et de réglementation.

Le rendement de Gentilly-2 pour chacun des domaines de sûreté et de réglementation à la centrale Gentilly-2 a été jugé satisfaisant. Le rendement global à la centrale a lui aussi été jugé satisfaisant.

Hydro-Québec a poursuivi les travaux de transition requis pour placer la centrale dans un état de stockage sûr tout au long de l'année 2014.

Hydro-Québec a terminé le drainage et l'assèchement des principaux systèmes nucléaires. Le plan de fin d'exploitation a été examiné et accepté par le personnel de la CCSN en mai 2014. Le personnel de la CCSN a conclu que les plans et les procédures d'Hydro-Québec

rencontrent les exigences réglementaires et qu'ils ont été mis en œuvre de manière à assurer la réalisation sécuritaire des activités et des opérations.

Gentilly-2 a atteint l'état de stockage sûr avec le combustible usé, stocké dans les piscines de stockage de l'installation prévues à cet effet, le 2 décembre 2014.

En 2014, Hydro-Québec a terminé la révision du rapport de sûreté de Gentilly-2, en conformité aux exigences réglementaires. Le personnel de la CCSN avait assisté à une réunion technique pour discuter de la méthodologie employée avant la soumission du rapport. Le personnel de la CCSN s'affaire actuellement à examiner le rapport de sûreté maintenant révisé.

Dans le domaine de la protection-incendie, Hydro-Québec a soumis son programme révisé de protection-incendie en 2014. Le personnel de la CCSN a examiné le programme et conclu qu'il était acceptable et conforme aux exigences réglementaires.

Le domaine d'intérêt réglementaire pour Gentilly-2 en 2014 était l'aptitude fonctionnelle.

Hydro-Québec a soumis en juillet 2014 des mises à jour de ses programmes de surveillance et d'inspection pour les structures, systèmes et composants importants sur le plan de la sûreté. Le personnel de la

CCSN a revu ces programmes et a rencontré les employés d'Hydro-Québec plus tôt cette année, en avril 2015, pour préciser l'information et les révisions requises pour que les programmes rencontrent les exigences réglementaires. Les programmes de surveillance et d'inspection d'Hydro-Québec seront sujets à une inspection par le personnel de la CCSN plus tard cet automne.

Au cours de la période de rapport, le permis d'exploitation a été modifié une fois par la Commission. Cette modification avait pour objectif de mieux aligner les exigences du permis avec la réalisation des activités de stabilisation et la nouvelle configuration des systèmes et de l'équipement de la centrale.

Le manuel des conditions de permis a aussi été révisé une fois. À titre d'exemple, le manuel des conditions de permis a été modifié pour inclure des mises à jour aux documents d'application de la réglementation, notamment la mise en œuvre du REGDOC-3.1.1, qui a remplacé le document S-99.

I will now continue with the Point Lepreau Generating Station safety assessment portion of the report.

The Point Lepreau Nuclear Power Plant consists of a single CANDU 600 reactor that is operated by the New Brunswick Power Corporation.

The Point Lepreau Generating Station was

operational throughout 2014. The operating licence was renewed in February 2012 and it will expire in June 2017.

This table shows the 2014 performance ratings for the safety and control areas at Point Lepreau. The performance of this station in conventional health and safety remained at fully satisfactory, while the remaining safety and control areas were rated as satisfactory. Overall, the integrated plant rating for Point Lepreau was satisfactory, the same as it was in the previous year.

I would now like to discuss the Point Lepreau safety performance highlights, focusing first on good practices.

CNSC staff rated conventional health and safety at Point Lepreau as fully satisfactory. In 2014 there were no lost time injuries at the station. The accident severity rate and the accident frequency both decreased to zero during the year and these were the lowest observed in the industry.

In the area of emergency management and fire protection, CNSC staff confirmed that the industrial fire brigade equipment and performance enhancements were successfully deployed in 2014. New Brunswick Power completed the implementation of a comprehensive fire response program, which includes effective response capability, procedures and training.

In addition to the good practices, New Brunswick Power is also addressing a number of areas of regulatory focus concerning the Point Lepreau Generating Station.

When renewing the licence in 2012, the Commission decided to include a regulatory hold point which required New Brunswick Power to comply with CSA standard N293-07, "Fire protection for CANDU nuclear power plants," by December 31, 2014. This hold point was removed in mid-December 2014 pursuant to the licence condition by the Executive Vice President following CNSC staff confirmation three evaluations and inspections that New Brunswick Power had completed the improvements required to comply with this CSA standard.

In the area of seismic qualification, the Commission required that New Brunswick Power complete a site-specific seismic hazard assessment and share the results through its public information program. The seismic hazard assessment was submitted to CNSC in May 2015. This assessment is currently being reviewed by CNSC staff and Natural Resource Canada staff and the review will be completed by the end of December 2015.

In addition, New Brunswick Power submitted tsunami and wind hazard studies in 2015 and requested closure of Fukushima action items 2.1.1 and 2.1.2. These

were the only Fukushima action items that still remained open for this licensee. CNSC staff is currently reviewing the submissions and this review is also expected to be completed by the end of December 2015.

During the reporting period, the Point Lepreau operating licence was amended twice and the Licence Conditions Handbook was revised three times. Details of the amendments and revisions are given in the CMD and this slide presents the reasons for the amendments and the significant changes to the Licence Conditions Handbook.

Regarding projects and initiatives at Point Lepreau, I would like to describe the efforts in 2014 in the environmental protection safety and control area.

New Brunswick Power continued to implement an effective environmental risk assessment, or ERA for short, and management program in accordance with CNSC requirements.

New Brunswick Power submitted the Point Lepreau ERA for CNSC review in June 2015. New Brunswick Power will review and update its ERA in accordance with CSA standard N288.6 to ensure it remains current with existing operations.

Fish impingement monitoring was conducted at Point Lepreau in 2013 and in 2014 and larval and egg entrainment monitoring began in 2015. CNSC staff is



satisfied with the implementation of the monitoring program by New Brunswick Power and are currently reviewing the results with Fisheries and Oceans Canada staff.

New Brunswick Power is required to conduct a self-assessment and submit the data for review by CNSC staff to determine whether an application for a *Fisheries Act* authorization is required.

This concludes the Gentilly-2 and Point Lepreau presentations. Thank you for your attention. I will now turn the presentation back to Mr. Howden.

**MR. HOWDEN:** Thank you, Mr. Poulet.

Before I start this section I will just make a correction on the record about the SARP report, which is the study of consequences of a hypothetical severe nuclear accident. The report won't be published today but it will be published very shortly. They are very close. So I jumped the gun a little bit on our staff in the back of the room there.

This next section of the presentation will focus on the progress of industry in regulatory developments. Specifically the section will provide the annual update on the industry response to the Fukushima Daiichi accident. Also, I will provide the annual update on the new nuclear project being undertaken by OPG at Darlington.

Licensees are continuing to address the 36 Fukushima action items, or FAIs, as detailed in the CNSC Integrated Action Plan. Since the last Fukushima update, Canadian NPP licensees submitted update reports number 5 and 6. These reports provided details of the activities completed by licensees, together with the status on the implementation of the Fukushima follow-up activities.

To date, all short-term FAIs are closed. All medium-term FAIs are closed for all stations with the exception of two FAIs. A request was received from New Brunswick Power in June 2015 for the closure of the two remaining medium-term FAIs and this request is being reviewed by CNSC staff. The review is expected to be completed by the end of 2015. Overall, the industry is on target to complete all FAIs by the December 2015 deadline.

To follow through on the closure of FAIs, station-specific actions were raised, where necessary, to monitor FAI implementation through the compliance verification program.

CNSC staff are conducting compliance oversight of Fukushima-related modifications and upgrades, including emergency mitigating equipment that has been purchased, installed and made operational. A four-level approach for inspection has been established, including field verifications, confirmation of equipment

commissioning, sampling verification and demonstration of performance.

Additionally, CNSC staff have witnessed and participated in two separate large-scale exercises, including Bruce Power's Exercise Huron Challenge in 2012 and OPG's Exercise Unified Response in 2014.

The CNSC baseline compliance verification program now includes inspection of licensees' emergency mitigating equipment as per the established CNSC routine inspection program.

This slide provides the annual update on the Darlington New Nuclear Project.

On August 17, 2012, a panel of the Commission issued a power reactor site preparation licence to OPG for the Darlington New Nuclear Project for a 10-year period until August 17, 2022. However, on May 14, 2014, the Federal Court released its decision on the judicial review of the environmental assessment, or EA, and ruled that the EA was to be returned to the Joint Review Panel for further review and the licence to prepare a site was quashed.

During 2014, CNSC staff coordinated discussions involving OPG, Ontario ministries, local municipalities and stakeholders on land use planning as part of the follow-up.

In June 2014, the Federal Court decision was appealed and the arguments before the Court of Appeal were heard on June 2, 2015. The decision is still pending.

In the meantime, OPG continues to pursue, at its own discretion, several work activities for which a licence is not required, including bank swallow monitoring and mitigation and land use planning. And, as I mentioned, we were coordinating some of the work in that area.

The next slide will summarize the overall concluding remarks on the safety performance of the nuclear power plants in Canada and safety improvements being introduced by licensees.

Based on all the compliance activities, CNSC staff made a number of general conclusions with respect to safety performance of NPPs in Canada in 2014, namely:

- nuclear power plants operated safely;
- the integrated plant ratings were determined to be fully satisfactory for Darlington and Bruce B and satisfactory for the remaining stations;
- all licensees received either satisfactory or fully satisfactory ratings for their safety control areas;
- Gentilly-2 has completed its transition to the safe storage state;
- licensees are implementing safety

enhancements by addressing action items and making continuous improvements to the safe operation of their facilities. The industry is on target to complete all Fukushima actions by December 2015 as per the CNSC Integrated Action Plan;

- licensees are continuing their work with implementing safety upgrades to further reduce the risk of accidents and to resolve CANDU safety issues. CNSC staff are monitoring the licensees' efforts in this area.

Mr. President, Members of the Commission, this concludes the presentation of the Regulatory Oversight Report for Canadian Nuclear Power Plants 2014 edition. Thank you for your attention and staff are available to answer any questions you may have.

**THE PRESIDENT:** Thank you.

Before we start the question period, I would like to give an opportunity for the licensees to have any comments on the NPP report. So let me start with Bruce Power.

**MR. SAUNDERS:** Bruce Power, Frank Saunders for the record.

Now, we are happy as usual to participate in the report. We think the annual report is an excellent chance to provide an overview on the industry.

We had some pretty extensive discussions, as

you know, in April on our licence renewal and there has not been significant change since that point in time, although, you know, we are happy to talk about some of the things like maintenance backlogs which have continued to improve since that point in time.

One action coming out of that hearing was the KI pill distribution and we do have an update. If you have the time or interest, we will provide that. That work is essentially complete at this point but we are happy to give you an update and a little more detail if you like.

**THE PRESIDENT:** Thank you.

OPG?

**MR. DUNCAN:** Brian Duncan for the record.

Good morning. We appreciate the opportunity to participate and answer any questions you may have.

We were here yesterday for Part 1 of our relicensing hearing, where obviously a lot of the issues were discussed there, and with Part 2 coming up we will have more than ample opportunity to answer any other questions you may have at that time. Thank you.

**THE PRESIDENT:** Thank you.

NB Power?

**MR. GRANVILLE:** Yes.

Good morning. For the record, my name is Sean Granville. I am the Site Vice President, Chief

Nuclear Officer at Point Lepreau Nuclear Station in New Brunswick.

As we mentioned in previous years, this is a very good process to document and report on the status of power reactors in Canada and it has really strengthened the system.

We concur with the content of the report as it relates to Point Lepreau and we are in particular proud of the focus that our team places on safety. You know, we have gone 678 days since our last lost time accident, which is more than 4 million hours when you count NB Power staff and contractors. But we are not complacent about this strong safety performance and we continue to focus on behaviours that drive a healthy and robust safety culture.

We think 2014 was a good year for us but we are not satisfied with compliance and so we are focused on excellence and our Navigating -- we call it our Navigating for Excellence Plan is what we are using to drive that.

So we would be happy to take any questions on the report but, like I said, we are in full concurrence with the report. Thank you.

**THE PRESIDENT:** Hydro-Québec?

**MR. OLIVIER:** Yes.

Monsieur le Président, Mesdames et Messieurs les Commissaires, je me nomme Donald Olivier, directeur,

Production nucléaire à Hydro-Québec.

Je suis accompagné aujourd'hui d'Annie Désilets, ingénieure en sûreté nucléaire, et de Steve Plante, chef soutien technique.

Le rapport préparé par le personnel de la Commission est un exercice pertinent et indispensable. En effet, l'exercice permet d'avoir un regard extérieur sur notre travail, permet d'évaluer notre performance par rapport à l'industrie et contribue à l'établissement des objectifs dans une optique d'amélioration continue.

Comme mes prédécesseurs ont eu l'occasion de vous le démontrer lors de notre passage devant la Commission en décembre dernier, l'année 2014 a été particulièrement chargée en termes de réalisations. Nous avons dû maintenir un rythme et un volume d'activités, avec toute la rigueur qui s'impose, pour finaliser les grandes étapes du déclassement qui ont permis de déclarer l'état de stockage sûr piscine le 2 décembre 2014.

J'aimerais vous présenter les huit principales étapes liées au processus de déclassement qui ont été réalisées conformément au plan détaillé de stabilisation transmis à la CCSN en mars 2013.

Dans un premier temps, nous avons complété le drainage et l'assèchement du circuit caloporteur et du circuit modérateur.



Ensuite, il y a eu la mise en baril et l'expédition du liquide du caloporteur pour valorisation.

Nous avons également procédé à la vidange des réservoirs de résines usées contaminées, suivi d'une seconde campagne de transfert des résines vers les installations de gestion des déchets radioactifs solides.

Nous avons aussi continué la mise en retrait des différents systèmes devenus non requis dans le bâtiment réacteur et le bâtiment turbine.

Ensuite, nous avons mené les travaux de réfection de la piscine.

Les équipes ont également travaillé à la mise à jour du système de gestion de la qualité et du plan de gestion du vieillissement.

Enfin, la transition s'est poursuivie entre l'équipe de déclassement vers l'organisation permanente, qui prend graduellement la relève des opérations depuis le 1er janvier 2015.

Nous tenons à souligner le travail des employés qui se sont appliqués à réaliser chacune des tâches avec professionnalisme dans un contexte exigeant.

Nous avons connu une multiplication des activités tout au long de la transition vers l'état de stockage sûr piscine.

À noter que les doses en radioprotection,

tant pour les employés que la population, sont restées faibles et bien en deça des limites réglementaires, tout comme par le passé.

Sur le plan réglementaire, l'année a été marquée par la modification de notre permis d'exploitation afin d'y refléter la diminution des risques liées au nouveau contexte de la centrale.

En 2015, nous poursuivons avec le personnel de la CCSN le travail relatif au renouvellement du permis, qui vient à échéance en juin 2016. Tel que nous l'avons toujours fait, nous allons assurer la planification et la réalisation des activités de la prochaine période, ainsi qu'une surveillance de l'installation nucléaire, dans le respect des exigences réglementaires et des impératifs de sûreté et de sécurité.

Merci de votre attention.

**LE PRÉSIDENT** : Merci beaucoup.

I think it's a good time for us to break for about 10 minutes before we start the question session.  
Thank you.

--- Upon recessing at 10:43 a.m. /

Suspension à 10 h 43

--- Upon resuming at 10:58 a.m. /

Reprise à 10 h 58

**MR. LEBLANC:** While people are getting ready to resume, we will just verify if we have some people online.

Do we have representatives from the Office of the Fire Marshal online?

**MR. NODWELL:** Yes. Dave Nodwell, Office of the Fire Marshal Emergency Management online.

**MR. LEBLANC:** Yes. Good morning, Mr. Nodwell.

**MR. NODWELL:** Good morning.

**MR. LEBLANC:** Do we have Derek Mullin from NB Power?

**MR. MULLIN:** Yes. This is Derek Mullin from New Brunswick Power.

**MR. LEBLANC:** Thank you.

And just in case, is there anybody else online? And there shouldn't be.

Thank you very much.

**THE PRESIDENT:** Okay. I would like to now open the question session and I would like to start with Ms Velshi.

The way we would like to do it is, you know, kind of a quick rotation, one question for as many rounds as it takes.

**MEMBER VELSHI:** Thank you.

So I would like to start off by congratulating industry and staff on another really good year, and special congratulations to Bruce Power for Bruce B getting a fully satisfactory rating.

My first question -- I will probably direct it to staff -- is we only got two interventions and we see this annual review as a very key mechanism of getting public involvement in the process and engagement. So I wondered if you had any thoughts on why so few and other opportunities we could explore. Perhaps it's just because we have gone through the Bruce licensing hearings and Darlington coming up that there is less interest but I wondered what your thoughts were on that.

**MR. HOWDEN:** Barclay Howden speaking.

Yes, you will recall in previous years we had substantially more intervenors and a lot of them didn't necessarily have positive comments on the performance but were more negative. We followed our same process but we do suspect that because Bruce and Darlington relicensing are falling in the same year that the intervenors are putting their efforts there because they have limited resources to do that. So this would be a third thing they would have to do.

We can touch base with them and sort of say,

you know, you normally intervene and you haven't, can you give us feedback why and whether the process should be changed? I think that's all we can say at this point.

**MEMBER VELSHI:** Thanks for confirmation.

Thank you.

**LE PRÉSIDENT :** Monsieur Harvey?

**MEMBRE HARVEY :** Merci, Monsieur le Président.

My question is quite general. I thought I read somewhere in the report that the Canadian nuclear power is safer than ever. Well, if we look at all the studies, the complete measures taken and the equipment added to the station after Fukushima, I mean you have a sentence somewhere saying -- just a moment -- in your presentation that you are improving, something like that, improving safety at Canadian nuclear power plants.

I just want the staff to comment on my impression that because of that, because of all that has been done by all the licensees, that the power is safer than ever. Am I right to think like that?

**MR. HOWDEN:** Barclay Howden speaking.

Monsieur Harvey, yes, I think you can make that statement. So we really had to focus on continuous improvement from the perspective of the licensees and if you really look at the safety cases, we really focus on

defence in depth and there are like five layers to defence in depth.

If you look at the -- there's sort of two things contributing to the strengthening of those barriers.

One, through the refurbishment projects, the ISR projects, the licensees have been identifying areas where they can put in significant improvement. So Darlington yesterday, I think two of the significant ones were the shield tank overpressurization and the filtered venting that's being added.

In addition to that, the second part is from Fukushima, which really focused on the lower layers of defence in depth in terms of mitigation or prevention of accident progression, so the addition of the emergency mitigating equipment and a lot of focus being put on emergency measures and the interface between the onsite and offsite.

So I think, based on that, the barriers have been strengthened and you can say that the plants are operating safely, more safely or safer. But in the end it's a continuous improvement, I think. So as we learn things, we can't be complacent, we need to put in more that is needed as we learn from research and development, operating experience at Canadian plants and elsewhere and just any other information that comes up we need to be

cognizant of at all times.

So I think your impression is correct.

**MEMBER HARVEY:** So maybe I would like to have a comment from the industry. How do you see that? Do you have the same feeling?

**MR. SAUNDERS:** Frank Saunders for Bruce Power. Happy to start.

Yes, I think -- I mean if you recall back to our hearings in April, we talked extensively about the probabilistic safety analysis work and in virtually all cases we have seen improvements in an order of a decade or a factor of 10 to reduce accident frequency or predicted risk.

That was primarily because of both the additional assessments we did and then the additional layers. I mean Fukushima has essentially added a whole new layer of defence that didn't exist before. So the portable equipment, the ability to hook it up and to do that, has undoubtedly added another layer of defence and one that was specifically aimed at unpredictable events, something that we didn't foresee or didn't predict and so the consequence was a very significant move and the PSA result is because of that.

**MEMBER HARVEY:** You would say that even if we had the -- one could say that the aging factor is a real

current factor. So despite that, you have this impression that we are safer than ever?

**MR. SAUNDERS:** Yes. I mean the aging factor is a slightly different thing, right? It's about how you operate the plant and the reliability of the equipment that's there. Most safety systems are poised systems anyway, so they really don't -- they don't wear out much because they don't operate essentially. You very seldom operate your safety system.

However, there are important reliability issues that you need to deal with aging. Just like any other piece of equipment, you need to keep it repaired, and that's what we do. So aging, although it has the potential to impact, we don't allow it to impact because we fix and change and replace things as is needed.

You have seen in our program in the updates over the years -- I didn't bring it all with us, but, you know, we have spent -- I have forgotten the exact number but several billion dollars since 2001 upgrading and adding equipment and changing, and we have a very extensive program going forward under asset management which operates really separate from the refurbishment. So we would do this anyway.

The refurbishments, as most people talk about them, are those things that we can't do in a normal



sort of outage, that we need an extended outage to do. We call that major component replacement rather than refurbishment. The overall refurbishment of the plant and maintaining the plant fit to operate goes on every day and if you looked at our asset management schedule you will see that over the next 10 years we actually have it all laid out where those replacements are occurring and when and what work is being done.

And so, you know, that's not a thing that you really allow to deteriorate. You continue to maintain the plant to make sure it is fit for purpose.

**MEMBER HARVEY:** Thank you.

**THE PRESIDENT:** Thank you. Dr. McEwan?

**MEMBER MCEWAN:** Thank you, Mr. President.

I recognize this is the 2014 report but I would like to take Mr. Saunders up on his offer of an update on the KI program because I think that was a very important initiative that I would really like to understand how it went.

**MR. SAUNDERS:** Okay, sure. Frank Saunders for the record.

James Scongack is with us, he is our VP for Corporate Affairs and his group was the main implementation part of this program, so he will take you through the presentation. I will just bring it up here.

**MR. SCONGACK:** Great. Thanks, Frank.

Good morning. James Scongack for the record. So we have a short PowerPoint presentation for Members of the Commission on our KI redistribution program. I think it is a really timely update. This was an area, as you noted, of significant interest in our relicensing hearing in Kincardine this past April.

So I will just move to the first slide and we have a short video that we also want to share with Members of the Commission that will really give you a bit of insight into how we are engaging our local communities in this important program.

So, as mentioned, in April, Bruce Power, alongside the Municipality of Kincardine and the Medical Officer of Health, we formally launched our redistribution campaign of potassium iodide tablets.

And the reason why we call it as much as possible a redistribution is we didn't want to leave local residents with the impression that we had never stocked these tablets around nuclear facilities. It was really important that we gave people the message that this was always an emergency preparedness component that we were very mindful of, but this was really about recognizing that, you know, looking at best practice and in the post-Fukushima world that it made sense to look at how these

were distributed across the region.

So there were really four elements to this program.

The first element was really focusing in on the 10-kilometre area around the Bruce site. That includes about 1,500 sort of homes, dwellings and businesses. And the reason why that was important is that was the area where these tablets would actually be left in people's homes.

And of course, despite the fact that people around the site -- and I think you saw this at the licence renewal hearing -- have grown very comfortable with nuclear power in the Bruce County region over the last 50 years and, you know, our polling to our public attitude research shows that, by introducing a new component where we are actually adding a tablet that we are asking people to keep in their homes could have created a nervous dynamic where people felt that the plant was less safe as a result of doing this. As Mr. Saunders indicated, we can see that by every metric the plants are as safe as they have ever been and by many multiples in fact safer.

So it was very important for us to engage in that 10-kilometre area and I'm pleased to confirm that we have completed distribution to all 1,500 of those dwellings and residences in that area and I will talk about that a

little bit more in a second.

Then we had the 50-kilometre area around the site, which includes about, you know, sort of 65,000 sort of dwellings or residences or mailboxes and that's a program that is nearly complete. We are waiting for schools to come back into session in September because obviously the work we are doing with the local school boards updating their own emergency planning is an important component to this, but for all intents and purposes we are about 90 percent complete across the 50-kilometre area.

There were two other very important elements to this.

The first was around public education and I will show you a video here in a second.

The second was -- and it actually came out of a conversation that we had at the April hearings, where one of the intervenors raised some concerns around what is Bruce Power doing to make local residences aware of these various emergency plans that we put in place.

Obviously, especially in the post-Fukushima world, we have a very sophisticated emergency preparedness organization, but as we have moved away in our homes from things like telephone books in the drawers and information that people used to keep around their homes, there was a

concern raised, and I think it was a reasonable concern, about how are we making sure that we are communicating with people the things that are important to them and their homes from an emergency preparedness point of view and I will talk a bit about that in a second.

So if it's okay, Mr. Saunders can maybe put our video on, which I think is on the next slide, and this is a video that we have shared throughout the region and open houses, community meetings. It will give you a bit of a sense on how we have worked with the municipalities and explains the program in a bit of detail.

--- Video presentation / Présentation vidéo

"Late in 2014 the Canadian Nuclear Safety Commission came out with new requirements for nuclear power operators to essentially take a fresh look at how potassium iodide tablets were distributed around nuclear facilities."

"Largely and they fall into a provincial jurisdiction about whether they should be pre-distributed or not. In Canada they were done different ways depending on the jurisdiction they were in. In New

Brunswick, for example, they have been pre-distributed for years, here in Ontario and in the Kincardine area they have been held centrally, mostly at the Township. However, CNSC has opted to create a common method across the country and Ontario has accepted the notion of pre-distribution."

"Just like everything in the nuclear industry, we tend to look to best practice around the world and many utilities around the world have actually had enhanced distribution of these potassium iodide tablets for a long period of time.

Sometimes when you're introducing a new emergency preparedness measure one of the first things is that it can lead people to feel as if there is an increased risk than there was before when, as we know, the nuclear industry in this region in particular has operated for 50 years safely and reliably and

during that time has built up a lot of confidence in the host municipalities. We are always looking at ways of doing things better and that also is included in emergency preparedness.

This has been a collaborative effort in particular within the 10 km area, it has been a joint effort with the Municipality of Kincardine.

In addition, the Grey Bruce Medical Officer of Health has been instrumental. It's really important that when members of the public have questions on, in particular, these types of health issues that they have healthcare professionals that they can go to and have their questions answered."

"Potassium iodide is basically a salt pill, so you take it, it dissolves. It is completely absorbed into your bloodstream. The thyroid will take all the iodine out of it that it can actually possibly use,

the rest will be excreted through your kidneys. Basically our thyroid gland sends out hormones that moderate our metabolic rate and it requires iodine for that hormone. So we need to have a small amount of iodine in our diet all the time.

Every day, especially if you are growing and you're young, you use a fair bit of iodine. What we are doing with the potassium iodide tablet is to block that uptake with a large dose of nonradioactive iodine so that if you get exposed to radioactive iodine you won't absorb it, because we know if you do absorb radioactive iodine into your gland, eventually your risk of thyroid cancer 20 or 30 years down the road becomes higher.

The best time to take it is about three hours before the exposure, not more than six hours before. However, if the exposure happens you want to take it as soon



as possible after the exposure. If it's longer than 24 hours it's not useful and you don't need to take it.

There are good instructions in its, 130 mg tablet is what you need for an adult, 65 for adolescents, and then for children there's a recipe of how to dissolve the tablets and give them the appropriate amount for their weight. In the instructions it certainly mentions that you only take one a day and taking more than that is not useful, your body will simply excrete it.

It has a 10 year expiry date on it. Now, it's a salt so, as you know, salt in your cupboard doesn't really expire, although there is a best before date usually on a package. It probably will have to be renewed in 10 years just because of that."

"We are fully complete. The redistribution of tablets within the 10 km area and now we are moving into

a next phase where we are going to maintain and enhance that.

And one of the great things that we have available to us is our Visitor Centre facility which is located in the 10 km area. It's going to be a permanent facility where people can go and get more information on KI, where they can go and pick up additional tablets, where we can update mailing lists, and this is now going to be a real one-on-one relationship with people.

The second component of it is the 50 km area. What we are in fact doing in that 50 km area is not pre-distributing them to households, we are making them available in more pickup locations.

One of the things we are offering residence within that 50 km area the opportunity to do is, if they would like to have them in their homes they are welcome to do so, we have an abundance of these potassium

iodide tablets available in the unlikely event of a nuclear incident and we have actually distributed vouchers to people so they can go to a local pharmacy and pick these up if they so choose."

"So a leak from a nuclear plant of contaminated material to the public is highly unlikely and for a number of reasons.

First, there are many systems which protect the fuel so the fuel doesn't fail. If you don't have a fuel failure, you can't have a leak.

On top of that, we have a very robust containment system, so even if we should have a fuel failure the containment system will control radiation and keep it intact within the plant. Between those two systems, that would make it highly unlikely that any release will actually occur to the public.

The CANDU plant is one of the few plants in the world and has two

different ways of shutting the plant down, fast acting shutdown systems. We call them shut down system 1 and shutdown system 2. Both of these will independently shut the plant down. They are located in different places, they operate by different means and they have a different means of creating the shutdown so they are redundant and diverse in the way that we would talk about them."

"Every municipality has to have an Emergency Management Plan, it's mandated by the province, so we have to have plans in place for all sorts of disasters. Bruce Power has been instrumental in getting our Emergency Preparedness up to top level standards. Safety is number one, they double check, triple check and review constantly so I am quite confident in their safety management and their emergency preparedness."

"The reality is, is that the most likely events around this area

have nothing to do with our nuclear facility, they are things like severe weather and those types of things which we experience very regularly in the area, so one of the things Bruce Power did was work with the surrounding communities to make information available on a range of sort of safety first or emergency preparedness items. The more information people have, the more confident they are in what we are doing here. So we are very pleased about that, because that's the intention here, is giving people more confidence in the safety of facilities, not less."

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

So you have heard enough from me through the video, but just in summary, really kind of three important kind of summary points for the Commission.

As I mentioned, the 10-kilometre area is complete. This is now going to move into a sustainability phase.

You know, I really do want to recognize the Medical Officer Health Office, the municipality. This was a real sort of grassroots effort, a lot of small open houses, a lot of door to door, a lot of one-on-one meetings. I think that is really what has allowed this to go smoothly, that sort of personal interaction. Frankly, I think the immediate neighbours around the site deserve that personal action or that interaction to the extent we are able to do that.

Fifty-kilometre area, that has been rolled out for some time now. Dr. Lynn, our Medical Officer of Health, and myself hosted a community conference call, a telephone town hall on Tuesday during the day and in the evening for any members of the public who wanted to call in and ask questions about the 50-kilometre area and I think, you know, not really a lot of concerns raised. I think this type of communication has really helped.

And then the final thing I will just note -- and I think members of the Commission were provided a copy -- we have commenced a mailing to 65,000 households within 50 kilometres of the site and this is a community safety guide that we have developed jointly with the three county levels of government. We will also be making these available in municipal offices and various pickup locations.

The concept behind this is we had a requirement obviously from a nuclear point of view to make something available in people's homes. We thought it would be a missed opportunity to not also include in that other types of emergencies that, frankly, are more likely to occur.

So this is in many ways to replace the phonebook that people used to have in their drawer and in the back pages of the phone book there used to be emergency preparedness information. People just don't -- many people don't have phonebooks in their homes anymore. So, you know, we thought that this document would be nice to have and we plan to update this in conjunction with our local levels of government every year.

Happy to answer any questions.

**THE PRESIDENT:** Thank you.

Mr. Tolgyesi. Sorry.

**MR. LEBLANC:** May I first?

We used a slide deck. For the record, we have now attributed to it a CMD number and that will be CMD 15-M30.3. So if anybody needs a copy, we will make them available. Thank you.

**THE PRESIDENT:** And this will show all in the video? What about it?

**MR. LEBLANC:** I cannot do anything about the

video. Thank you.

**THE PRESIDENT:** But are you guys going to post --

**MR. LEBLANC:** The video will be part of the transcripts in terms of the audio part of it.

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

Anybody that would like their own special copy of the DVD is welcome to get in contact with us and they can have one. It's also on YouTube.

**THE PRESIDENT:** Okay. And this is there also? Is your brochure online also? Most of the kids don't keep anything in a drawer.

**MR. SAUNDERS:** It's actually all at that "Be Prepared" website. It's all there.

**THE PRESIDENT:** Okay, thank you. Monsieur Tolgyesi?

**MEMBRE TOLGYESI :** Merci, Monsieur le Président.

Un, je voulais féliciter le staff pour le rapport annuel et aussi pour la présentation parce que je trouve que la présentation était assez concise. Elle n'était pas trop longue, pas trop courte. Vous avez exprimé tout ce qu'il y avait à faire. Parce qu'il y en a, de temps en temps, qui se laisse emporter.



Now, there is something that you should adjust. It's not a typing error but a colour error. When you are looking at your slide number 5 and Table 1 in the Executive Summary, okay, it's the same table. It's the same table. And when you compare that to Gentilly-2 safety performances you see that in slide 5, in Table 1 there is no mention that conventional health and safety, waste management and security were fully satisfactory instead of satisfactory. Now, I don't know. Which one is good?

When you look at safety ratings you just go to slide number 5 and page 119. It's in the Gentilly-2.

--- Pause

**MR. HOWDEN:** Mr. Tolgyesi, I understand your question. So what you're saying is -- Mario, could you bring up this slide, please?

--- Pause

**MR. HOWDEN:** Yes, so this is for each plant.

**MEMBER TOLGYESI:** It's okay. It's okay.

**MR. HOWDEN:** Are you okay?

**MEMBER TOLGYESI:** I understand. Yes. Yes.

**MR. HOWDEN:** Okay.

**MEMBER TOLGYESI:** I was not looking at the left column. I was looking at the right one.

My question is regarding Fukushima because when you are saying -- when you are looking, is there a

difference between Fukushima Action Plan and implementation? I mean when you are saying that Fukushima Action Plan, its action items are closed except three of them for three sites that's one thing, and other side when you are talking about implementation because -- I'll tell you why.

Because when you are looking at page 61 on your report you are saying that there is a four level approach and it will be also applied for the compliance verification of equipment still to be delivered to the licensee which means they are to be delivered, installed and verify the compliance.

So when it's closing, you know which one is closed and to what extent, could we say that it's closed when we know that several equipment is still not on the site? They are in the order. They are not on the site. They are not installed.

**MR. HOWDEN:** Okay, yes. You have it correct.

So for the Fukushima action items, for the action items we raised them and then as they are being -- licensees are putting in their proposals and their plans at that level we have been -- we were able to close those action items at that high level.

When you go down to the station level which

is the implementation that you are talking about, in all cases not all the actions have been implemented fully at the stations. So what we are doing with our compliance verification approach which is the four levels; you know, field verification, confirmation of equipment, commissioning and turnover to operations. That is very -- that second one is very much a review of licensees' paperwork. The third one is then sampling where we actually go out and confirm that everything is in place. And the fourth one is the one where we actually observe drills, exercises. So you are correct.

So we could have the action plan closed by the end of this year which is our expectation but we are tracking the implementation plans of each station to make sure that they get fully to closure.

We have a regulatory information bank that we use to track all the actions that has an audit trail. So at any time an inspector can go in and see where everything is done. We have details on the particular stations. If you have questions the directors can answer that.

But you are correct. The action plan can be closed but we still can be tracking implementation of the specifics at the stations.

**MEMBER TOLGYESI:** Because lots of times what

we are facing that they are plans. I am not talking about this specifically but, you know, there are plans and the plan is really nice and it's there. It's completed, but execution and implementation it's eventually never completed. So to make sure that in a public perspective they understand that, okay, all plans are finalized. We are indeed now implementing and we implemented that up to, I don't know, 80 percent is implemented. Okay.

**MR. HOWDEN:** That is correct. That was one of the reasons we wanted to highlight in the Fukushima update that we had the four stage compliance approach to demonstrate to the Commission and provide you with confidence that we are tracking the actual station-specific items right to closure.

**THE PRESIDENT:** Sorry, I lost my -- Thank you. I lost my spot here.

I'm back to the top of the line. Ms Velshi...?

**MEMBER VELSHI:** Thank you.

My question is to staff. It's more around the methodology and the process, specifically around the measures that are using the comparison basis. So let me start off with the measures that have been presented.

In the past I think I have seen maintenance backlogs being presented, high MRPB incidents which -- and

I know you are trying to streamline and pick the high ones, and you also mentioned that you are going to be using some additional WANO measures.

So maybe you can share why maintenance backlogs, for instance, and high MRPB incidents are not here and what are the additional WANO measures you are planning on presenting in the future?

--- Pause

**MR. LAFRENIÈRE:** Ken Lafrenière, for the record, the Bruce Regulatory Program Director.

So if I understand your question correctly, Commissioner Velshi, the maintenance backlog we traditionally reported on indicators under the old S-99 system.

**MEMBER VELSHI:** Sorry. No, I think even on for the annual reports you would show us comparisons on maintenance backlogs.

**MR. LAFRENIÈRE:** Correct. So those backlogs, those indicators came out of the old S-99 event reporting requirements for performance indicators.

We are moving to 3.1.1. All the licenses were amended at the beginning of this year. So there is a slight lag in the collecting of the data for those maintenance indicators to essentially remove them to an INPO WANO system which would provide more details on

maintenance backlogs and re-categorization deficiencies and elective maintenance and so on. So that will be -- that will appear in the next annual report.

However, having said that we still continually monitor maintenance and we have assurance that the backlogs are adequate and reducing.

**MEMBER VELSHI:** Thank you.

**MR. HOWDEN:** I missed what your second indicator was. I'm sorry.

**MEMBER VELSHI:** High Maximum Reasonable Potential for Harm Incidents.

**THE PRESIDENT:** Why don't we open it up? Remember we approved how many SPIs as indicators? I mean a lot of your ability to put indicators, benchmarking and all those things. So if I understood correctly, you are going to develop more and more of those and put them in the annual report.

**MR. LAFRENIÈRE:** So Ken Lafrenière again. Yes, Mr. Binder, we have improved all the indicators. Essentially, I will give you a little bit of a history because it's important.

The indicators that we developed originally were sort of 1998 vintage. When we went to the new regulatory reporting requirement document 3.11 we looked a -- as per the direction of the Commission we wanted WANO

indicators, more international indicators. We wanted the industry to put forth the indicators that they had developed over time and were using so that there was no duplication of effort.

So the 3.1.1 reflects all those. The number, we actually went from about 16 indicators to 31, 32 in the area of performance indicators. There is unfortunately a little time lag. So we are collecting all that data. They are currently in conformance with the 3.1.1 requirements, but the indicators that will reflect the new regime will be more under the 2015 report, this actual report.

Having said that, all the indicators evolve with time and so the indicators that, say, in the accident severity rate areas, we realize that we want to go to sort of more industry standards. So for that particular area we adopted a Canadian safety -- Canadian Electrical Safety Institute indicator in that. So now we have a much better comparison against other industries, so the types of industries and then that -- all those data will appear in the next 2015 report.

**MEMBER VELSHI:** Thank you.

My last one is on exactly the conventional safety comparison ones. And I see that you do a comparison against the CEAA but also other energy industry. Would it

not be more appropriate to do the comparison against, say, the chemical industry or industries known to have superior safety performance?

**MR. LAFRENIÈRE:** Actually, we do look across. When we developed those indicators we did look across all the industries and that's what we are attempting to do.

The nuclear industry actually leads the way in superior safety performance and that's -- I think it's reflected in the indicators. So we try to give you a cross-section and a standardized reporting format so the data, so we are comparing apples and apples.

The chemical industry indicators we are not -- we don't -- we haven't included them this year, but we can certainly look at improving.

**MR. HOWDEN:** So I just got a whisper in my ear that we have been trying to get hold of those ones but we either didn't have them or we are unable to get them in time.

But thank you for that and we'll look at that for 2015. Thanks.

**MEMBER VELSHI:** Thank you.

And my last one on this whole methodology one is around emergency management and the rating. And I just wondered. I am sure there has been improvement within



that satisfactory range but there was just so much activity in 2014 around that with a lot of drills and exercises and the emergency mitigation equipment and so on and didn't see any fully satisfactory.

So is there a big gap from getting there or was there just a lot of improvement within the satisfactory range?

**MR. LAFRENIÈRE:** Ken Lafrenière, for the record.

It's a work in progress to move to the fully satisfactory in the emergency management area. CNSC has just published a new regulatory document in that area. As you are aware it's included in the Bruce licence and it is included in the proposed Darlington licence.

The industry have made significant enhancements in that area driven by Fukushima and driven by some of the drills that have been discussed in front of the Commission. So it's an area or work in progress.

**MEMBER VELSHI:** Yes. So I know that it's an area of work in progress. I just wondered what would it take to get to be fully satisfactory or is there still a big gap to get there?

**MR. LAFRENIÈRE:** I don't think there is -- Ken Lafrenière, for the record -- I can speak for the Bruce Regulatory Program.

There are no big gaps. There are things. Actually, the KI distribution would be one. Obviously we want to see that in place before we can say they are fully satisfactory. But there are no big gaps.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Monsieur Harvey...?

**MEMBRE HARVEY :** Merci.

On Slide 21 it's about the Unplanned Capability Loss Factor. I see that since 2011 there is an increased trend which is well over the WANO performance. There is no safety issue but there is some close. Will that increase cease, stop the -- what is the cause of that increasing trend?

**MR. HOWDEN:** So Barclay Howden speaking.

So even though we've not represented it as a safety issue, we have reflected it as effectiveness of plant management in maintaining systems available for generation. So I think that would be a good question for the industry to comment in terms of they are dealing with forced outages, extended maintenance outages in terms of the trend there.

We put it in because the Commission has always been interested in this and it is a very interesting performance indicator, not necessarily on safety but it gives you some insight into the management of the plant.

**MEMBER HARVEY:** As long as you don't know the cause you cannot say that there is no safety issue, I mean. So I would like that the -- some explanation.

**MR. CLEWETT:** Sure. Len Clewett with Bruce Power, for the record.

Something we look at very closely is unplanned losses. We just haven't recommended or discussed this. Not really a safety significance but more of a generation and review issue for us.

So in 2014 at Bruce Power over that year we really focussed on equipment health. Had a few lingering issues from the restart that affected generation. Also had some issues with our switchyard. Specifically in the switchyard we have had five losses in 2014. We have taken actions working with the switchyard owner.

So year to date in 2015 we have had zero losses. So that included significant investment in the switchyard from Hydro One and we have replaced the two most significant breakers. Also completed some bridging actions on the 230 switchyard. So I believe that has past us.

In fact, year to date across the whole site that number for the last three-quarters exceed 8.3 percent for the fleet. At Bruce it's been 1.3 percent which is slightly under the WANO average. So I believe we have made great progress.

We still have some actions we are continuing with equipment health across site but we believe we have made the most important actions and completed them and we will continue to see good progress.

**MR. DUNCAN:** Brian Duncan, for the record.

If you look across the OPG fleet we have seen some challenges. As well, as Len mentioned, we have seen challenges at Darlington with main output transformers in particular and some of the electrical maintenance on that that we have been going after.

Pickering, if you look at their track record, we had seen a trend at Pickering where they were having issues with secondary side equipment that was causing short outages, causing loss of production. And they put in place actually an equipment reliability program that really started back in 2010 and we are starting to see the results of that now. Their performance has been -- they have gone through a period where their performance wasn't acceptable to us and their performance now is starting to improve and we are seeing the results of that program.

So for both of us the focus is on staying ahead of the aging equipment and making sure that we take care of these secondary side issues.

**THE PRESIDENT:** This is kind of an average

right across the industry. Are there -- in averages you usually mask some -- so let me be direct. I thought Point Lepreau they had a lot of outages which was surprising outages, given that it's a recently refurbished facility. So is there anything in there that we should read some systemic issues?

**MR. GRANVILLE:** So for the record, Sean Granville, Point Lepreau.

So we have -- yes, we had some equipment reliability challenges coming out of our refurbishment. You know, we invested heavily as part of the refurbishment and we got a brand new reactor. We have significantly improved the safety of the plant in terms of more robust safety systems. We put in a third standby generator. We had put a containment filter vent system. We have obviously put \$125 million worth of fire upgrades, so a lot of investment in the plant, a lot of investment in the safety side.

A number of the -- on the conventional side of the plant the plan is to transition, for example, our long term capital plan into more equipment reliability side and the conventional side. What we are finding coming out of the refurb is -- we call it the "bathtub curve" where we are finding more problems that are just -- that we're experiencing and we are a couple of years away from

actually building that into our capital plan.

So, for example, we are in an outage right now on the turbine side of the building with issues with our reheaters. They were in our capital plan but we weren't planning on doing it until 2019.

So we understood the issue. We weren't as quick on the trigger as we needed to be in terms of our capital plan. We are now transitioning into looking at more reliability-based capital improvements.

You know, we have been -- we've dropped our backlog. We talked about maintenance backlog. Our backlog is by more than half in the last year. And the industry also looks at the backlog and looks at the most critical work. So we call -- "corrective critical" is the most significant of the backlog and we have reduced it from 44, 15 months ago, to we are down to one today.

So a lot of effort but we are -- you know, we are sort of paying the price of that first early start-up from the refurb.

**THE PRESIDENT:** Thank you.

Dr. McEwan...?

**MEMBER MCEWAN:** Thank you, Mr. President.

I think this is a question for staff. Can you remind me how the integrated plant rating works? Because if I am looking at this it's not intuitive why one

is fully satisfactory and one is satisfactory. And I guess the second part of that question is, are there WANO benchmarks that would apply to this type of integrated rating?

It's on page 2 of the Executive Summary.

**MR. HOWDEN:** Barclay Howden.

Okay. On the first one, the integrated rating, I am going to ask Peter Corcoran to describe it. You are getting a rating at a safety control area. There is a roll-up from the specific areas but I'll let Peter describe that.

**MR. CORCORAN:** That's correct. Peter Corcoran, for the record.

I might answer your second question first. We are not aware of a global indicator from WANO. Otherwise, we would have used that.

But the second, my second answer is for your first question. And, yes, as pointed out, in all cases we roll up more granular findings and ratings into a rating for that safety and control area and then we do, do a weight distributed average of the 14 safety and control areas in order to come up with the integrated plant rating. It's done with numbers.

You know, we did demonstrate that last year to the group when we met with them in October. We had the

Commission in an indoor session to walk them through the actual combinations of those.

And when we get close to the borders we do a validation check with the regulatory program director to ensure that we are reflecting through this rather simplified score card what's really happening with that licensee in that particular program.

**MEMBER MCEWAN:** So, again, just so that I think members of the public have a clear understanding, each of the safety and control areas would not have the same weighting in the roll-up to the integrated plant rating and within each of the safety and control areas you would effectively be integrating multiple measurements to achieve that safety and control area rating?

**MR. CORCORAN:** Peter Corcoran, for the record.

That is precisely correct. Thank you.

**THE PRESIDENT:** Thank you.

Mr. Tolgyesi...?

**MEMBRE TOLGYESI :** Merci, Monsieur le Président.

This is regarding fuel performance issues. When you are -- according to the report, annual report, there are no issues at Lepreau which was recently refurbished. However, the other operations are



experiencing various issues. There is debris at Bruce, black deposit at Pickering and there is -- at Darlington it's kind of root cause analysis was the reason.

Could we assume that these fuel performance issues are age related?

**MR. DUNCAN:** Brian Duncan, for the record.

If you look at the issues we had earlier last year with fuel performance at Darlington, it was not at all age related. Ultimately we started in a process both in-house and with the manufacturer of our fuel to look at, why were we seeing more fuel defects.

We started looking at, you know the standard across the industry is you look for is there foreign material in the manufacturing; is there foreign material in my reactors? And both of those were not the cause.

Ultimately, what we were able to find is that over time all elements of fuel manufacturers have a range of tolerances, if you will, you know, the weight of the pellets, the diameter, the length, the ovality of the tubes. And over time what we had found, in particular one large batch of fuel, that all of those elements, all of the tolerances were at the top or bottom end, depending of the limit. And then when you added all of that up we were having issues where frankly the pellets were just too tight in some of those bundles.

So you know, upon recognizing that we have looped back to look at those tolerances, to look at our acceptance of -- wait a sec. We can't have everything pile up on itself. And since that time, since September of 2014, we have run defect-free in all four cores and we are getting excellent, back to traditional for us, performance from our fuel.

Now, I have Ken Gilbert here from Pickering. Ken is the Director of Operations and Maintenance over there and he would be able to speak further on black deposit.

**MR. GILBERT:** Around black deposits -- sorry, Ken Gilbert for the record. I am the Plant Manager at Pickering.

You know, we are seeing improved performance over all of the inspections we have done since this was identified. We are not seeing the significant heavy build-ups that we did originally see. Overall it is a chemistry issue. We have made adjustments to chemistry, understanding what changes needed to be made and, as I said, we continue to see clear improvements.

Some of the technical pieces of that I can pass over to Jeff Lehman if there are further technical follow-up questions.

**THE PRESIDENT:** Thank you.

Back to Ms Velshi.

**MEMBER VELSHI:** Thank you.

My question is for OPG regarding Pickering. If you turn to slide 44 on staff's presentation, on waste management, Pickering has a rating of satisfactory, Darlington is fully satisfactory and I wondered why -- actually, sorry, it's probably a question better for staff first and then OPG -- if they have the same programs, because I understand it is a standard program for all of OPG, why Pickering's performance would not be deemed as the same level as Darlington's.

**MR. HOWDEN:** So in terms of the waste management programs, they do share the same programs but it comes down to implementation. I would like to ask Miguel Santini to comment on that and our waste people may need to support the answer.

**MR. SANTINI:** Miguel Santini for the record.

The results of the rating for waste management at the Pickering station are due to some findings that we found during the inspections. These are minor findings but nonetheless they are considered in the factoring of the different contributors to the rating for the safety and control area.

**MEMBER VELSHI:** So give me an example of the kinds of findings you would have come across.

**MR. SANTINI:** I don't recall the exact details. One of the findings was related to the control of the waste management packages before they were shipped to the western management area at Pickering -- at Bruce, sorry. If you want I can get the details later on. I don't recall the exact details right now.

**MEMBER VELSHI:** Yes, just some examples on what is the delta that results in them not having a fully satisfactory rating. Thank you.

**LE PRÉSIDENT :** Monsieur Harvey?

**MEMBRE HARVEY :** Merci, Monsieur le Président.

I have a few questions to Hydro-Québec, so can I use one, two or three?

**LE PRÉSIDENT :** Vas-y.

**MEMBRE HARVEY :** I will pass my turn after that. We will switch in French.

La première question, ça serait de... la Commission doit recevoir un plan détaillé de déclassement et on voudrait savoir où vous en êtes dans la préparation de ce plan, puis quand sera-t-il soumis à la Commission, au personnel?

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

Donc, il y a déjà un plan qui a été soumis,

mais la mise à jour, on est en train de la retravailler, et c'est prévu de venir vous la re-présenter à la session de décembre.

**MEMBRE HARVEY** : Est-ce que ça veut dire que vous avez eu des commentaires du personnel de la Commission sur le plan que vous aviez soumis?

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

Le plan qu'on a soumis à date était conforme aux attentes de la CCSN, du personnel, et puis on doit juste le mettre à jour d'ici la fin de l'année pour avoir un plan qui va... on va s'assurer que ça reflète la réalité pour l'atteinte de l'état de stockage sûr à sec, qui va être environ en 2020.

**MEMBRE HARVEY** : Le personnel, oui, j'aimerais avoir les commentaires de...

**M. POULET** : Merci. Benoit Poulet pour le verbatim.

Effectivement, comme le dit monsieur Olivier, Hydro-Québec a présenté le plan préliminaire de déclassement ainsi que l'étude des coûts au déclassement au personnel de la CCSN lors d'une rencontre qui a été tenue le 20 novembre 2014. Il y a eu quelques échanges de commentaires suite à cette présentation, et le plan officiel a été déposé -- ça, c'est le plan préliminaire de

déclassement et l'étude des coûts -- le 31 mars 2015, donc, un peu plus tôt cette année.

En même temps, Hydro-Québec a confirmé la validité de la garantie financière, tel que requis par le présent permis.

La revue du plan détaillé... du plan préliminaire, pardon, est en cours présentement. Le personnel de la CCSN et Hydro-Québec ont un protocole d'entente, et puis les échéanciers prévus pour le plan détaillé de déclassement est selon le protocole qui est présentement en vigueur.

**MEMBRE HARVEY** : Mais ça veut dire quand?

**M. OLIVIER** : Je n'ai pas la date avec moi aujourd'hui, mais présentement le plan préliminaire de déclassement prévoit une phase de dormance d'environ 40 ans. Donc, le besoin d'avoir un plan détaillé n'est pas immédiat puisque nous avons encore toutes les combustibles à transférer de la piscine de stockage à l'aire de... l'installation de gestion de déchets. Donc, la date m'échappe présentement, mais il n'y a pas d'urgence de mettre un plan détaillé à jour présentement.

**MEMBRE HARVEY** : Donc, Hydro-Québec, c'est une mise à jour que vous allez nous faire au mois de décembre?

**M. OLIVIER** : Donald Olivier pour le

verbatim.

Exactement, c'est une mise à jour qu'on va faire en décembre prochain.

**MEMBRE HARVEY** : Merci.

Quelques questions rapides. On peut voir à la page 39 du rapport de la Commission que pour ce qui est de la sévérité des accidents puis aussi la fréquence des accidents, Hydro-Québec est assez haut comparer aux autres stations. Qu'est-ce qui fait que le taux est à ce niveau-là?

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

Peut-être en débutant, je voudrais souligner que depuis le début de cette année, donc depuis le 1er janvier, taux de gravité et taux de fréquence sont à zéro. Donc, on a un bon début d'année 2015.

Nous, c'est que la façon que les accidents sont répertoriés, c'est selon les critères de l'entreprise; donc, il y a aussi le côté hydraulique. Ça fait que nous, nos critères sont plus larges; donc, on attrape davantage d'accidents. Donc, c'est ce qui explique, selon nous, le fait que les statistiques sont légèrement supérieures.

Il y a aussi une correction par rapport à ce qu'on a envoyé. Le rapport n'en tient pas compte, mais il y a une communication qui a été envoyée à la CCSN, au

personnel pour corriger les indicateurs 2014 à la baisse.

**MEMBRE HARVEY** : Commentaires?

**M. POULET** : Effectivement, comme l'a expliqué monsieur Olivier, il y a eu un ajustement des données pour l'année 2014, et je ne suis pas certain si elles apparaissent ou n'apparaissent pas dans le rapport.

Mais pour Gentilly-2, le taux d'accident impliquant des blessures, on regarde pour trois accidents de travail.

Il y a eu une électrisation d'un employé qui était sur une boîte d'aluminium dans l'arrière d'un camion. Ceci a été présenté à la Commission lors d'un rapport d'étape trimestriel.

Il y a aussi une coupure à la main nécessitant des points de suture alors qu'un employé ouvrait une boîte de couteaux.

Et également une blessure au dos lors de la manutention de batardeau avec un monorail. Ça résulté dans une infection temporaire de 33 jours.

Donc, ce sont les informations que nous avons. Je pourrais, avec votre permission, demander à monsieur Olivier de me corriger si je n'ai pas les bonnes informations.

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



Non, les informations sont exactes. Donc, le taux de fréquence pour 2014 est à 0,78 et le taux de gravité à zéro.

**MEMBRE HARVEY** : Page 121, c'est sur le minimum shift complement. Je vois qu'Hydro-Québec a la charge de préparer ce qui devrait être le minimum shift complement. Je m'excuse de la dire en anglais là, je n'ai pas la version française.

Je trouve curieux que... Est-ce que la Commission elle-même a une idée de ce que devrait être le minimum shift complement? Je vois que c'est Hydro-Québec qui le prépare, mais est-ce que vous avez des exigences particulières?

**M. POULET** : Effectivement. L'expression appropriée, c'est équipe de quart minimum. Minimum shift complement, c'est équipe de quart minimum.

Effectivement, la CCSN a des exigences réglementaires qui sont appliquées au titulaire de permis, et puis ces exigences demandent que des études soient faites par le titulaire de permis pour démontrer que dans le pire type d'accident ou advenant l'accident le plus grave que l'équipe de quart serait en mesure de répondre immédiatement à l'équipe de quart et de mettre en mesure le plan d'urgence d'Hydro-Québec.

Donc, présentement, au fil des années...

dans l'année 2014, effectivement, il y eu des travaux de validation des études qui ont été faites, qui ont été revues par le personnel de la CCSN, et l'équipe de quart a diminué graduellement en 2014.

Plus tôt cette année, en 2015, il y a eu une autre diminution de l'effectif minimum en centrale. Présentement, il y a en couverture 24 heures par jour, sept jours par semaine... il y a deux exploitants et cinq membres de l'équipe de brigade incendie qui sont sur le site au minimum 24 heures par jour, sept jours par semaine.

Alors, on s'attend à ce qu'ici la fin de septembre... Il y a des études qui sont en cours présentement. Il y a certaines modifications de système qui ont été faites pour faciliter... pour améliorer la réponse, les capacités de réponse à certains événements. Donc, lorsque ceux-ci seront faits, il y a une étude présentement en cours qui va essayer encore une fois de diminuer l'effectif de quart minimum en centrale. Le prochain jalon est prévu à la fin septembre 2015.

**LE PRÉSIDENT :** Je pense que c'est assez...

**MEMBRE HARVEY :** Une dernière. Une dernière quick.

**LE PRÉSIDENT :** S'il vous plaît.

**MEMBRE HARVEY :** C'est à la page 129. C'est Fisheries authorization. Je suis surpris de voir qu'Hydro-

Québec a reçu une note qu'il devrait s'adapter aux nouvelles exigences à propos de la *Fisheries Act*. Je suis surpris de voir, étant donné que la station est... Qu'est-ce qu'il y a encore à faire au niveau des poissons? Parce que la centrale ne prend plus tellement d'eau dans le fleuve. Qu'est-ce que qui fait... Je trouve que ça... Je ne sais pas pourquoi ça s'applique à Hydro-Québec.

**M. POULET :** Benoit Poulet pour le verbatim.

Effectivement, la consommation d'eau qui vient du St-Laurent a grandement diminué depuis l'arrêt de la centrale. Il n'y a aucun doute là-dessus.

Cependant, je vais donner la réponse préliminaire, mais je vais demander à nos gens d'évaluation environnementale de peut-être compléter ma réponse. C'est plutôt une réponse assez technique au point de vue de la loi sur l'utilisation de l'eau. Donc, je vais demander à mes collègues de compléter ma réponse.

La CCSN a une entente avec Pêches et Océans Canada concernant les établissements qui utilisent de l'eau sur des voies d'eau publiques, incluant le St-Laurent, et puis il y a un besoin d'effectuer une étude pour voir si un permis, une autorisation spécifique est requis de Pêches et Océans. C'est à peu près la limite de ce que je sais. À présent, il n'y a eu aucune décision, aucune application de ce règlement, étant donné la situation qui est très

dynamique à Gentilly-2 depuis 2013.

**LE PRÉSIDENT :** O.K.

**M. POULET :** Mais je vais laisser...

**THE PRESIDENT:** I'd like to expand this question. I don't know if Fisheries and Oceans are with us. Do we have anybody here...?

Okay, what about the environmental -- the people who are actually dealing with this file?

**DR. DUCROS:** Yes, it's Dr. Caroline Ducros from the Environmental Assessment Division.

**THE PRESIDENT:** And I would like also to put Point Lepreau -- I understand Point Lepreau also managed to get an application, and I'd like to hear from Bruce, where they are on their application.

**DR. DUCROS:** Okay.

**THE PRESIDENT:** So what's going on in those three stations? And I really would like to understand who would think that decommissioning Gentilly-2 devrait avoir une autorisation. Ça ne fait pas de sens.

**DR. DUCROS:** Okay. So we're not at that point to decide whether or not they will need an authorization or not.

Where we are with Gentilly, to begin with, is we are planning on having a meeting with them just to see how many fish are being impinged and entrained through

the existing turbines that exist. So, and to see whether that level of death to fish would require an authorization or not.

So, I mean, it's really early days. We haven't had that meeting yet, but it could be that in 2015 we might require an impingement and an entrainment monitoring -- like results to see whether that number is enough.

But we haven't had the meeting yet with Hydro-Québec and, when we do, it's going to require them to just do a self-assessment and tell us what those numbers are.

As far as Point Lepreau goes, we have met with them and discussed with Point Lepreau what the MOU requires and they are at the stage now where they've promised to us that they would come back to us with a self-assessment.

Did you want me to go on about Bruce Power? So where we are with Bruce Power is -- and they can elaborate a little bit more -- but we met with them in March to discuss the commitment to submit an authorization. At this stage we're looking for their proposed mitigation and offset measures.

And Bruce Power are also planning on engaging with the First Nations before they come back to us

with that document.

And in terms of the follow-up monitoring program, we are still working with -- from our point of view, with the First Nations and we have had the Saugeen Ojibway Nation submit to us a database so, with their concerns with the impingement and entrainment monitoring.

So that work is ongoing. And in terms of the timelines, I think I'd have to pass that over to Bruce Power for when they expect to be able to submit to us that information.

**THE PRESIDENT:** Anybody wants, from the industry, to quick update?

**MR. SAUNDERS:** Frank Saunders for the record for Bruce Power.

Yeah, we are currently in the information session stage with the First Nations groups. We've met with a number. We are still waiting on the Saugeen Ojibway meeting and right now they're predicting October for that meeting.

We've supplied a significant amount of material to them at their request and there's more to be transferred at the meeting as soon as it's arranged.

And really that's driving the timeline at the moment, the calculations. That basic work has all been done, it's really into the discussions with the First

Nations now to be able to move forward with the applications.

**THE PRESIDENT:** Anybody else?

Okay. Dr. McEwan...?

**MR. HOWDEN:** Dr. Binder, before we start, we've got the information on the Pickering waste management inspection findings. Can we just provide those for Madam Velshi?

Thank you.

**MR. SANTINI:** Miguel Santini. During the inspections there were six findings identified by CNSC staff. Two of those findings were positive, but there were four findings that did require improvement. Those findings are all of low significance, but however, when they are plugged into the formula, the end result is they downgrade the rating.

So the findings are related to hazardous waste generation, housekeeping, procedural adherence and hazardous waste documentation.

Specifically one -- this is related to the maintenance of the inventory of the waste. There were some gaps in terms of what was documented.

**MR. RINFRET:** Francois Rinfret for the record.

For Darlington, your question, Madam Velshi,

referred to some comparison within OPG, so we thought that we would bring in the Darlington perspective.

And with me today is Madam Suzanne Karkour. She's an inspector at the Darlington site, our office there, so I would ask her to answer the question.

**MS KARKOUR:** Suzanne Karkour for the record, site inspector at the Darlington station.

So as part of our daily routine activities CNSC staff conduct inspections at the station on a quarterly basis, they are unannounced inspections, to ensure that the waste collection, segregation and minimization were conducted in accordance with licensee procedures and programs and that meet regulatory requirements.

So CNSC staff during 2014 did not observe any non-compliances or areas for improvements in that area and, as a result, CNSC staff graded the waste minimization procedures and practices as fully satisfactory for this particular safety and control area.

Thank you.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Thank you. Dr. McEwan...?

**MEMBER MCEWAN:** Thank you, Mr. President.

I guess I just need a little reassurance. So we've heard the Fukushima action items, that most have



been completed and the files are closed. Presumably, though, going forward this is a dynamic process and those elements that have come out of the Fukushima Action Plan relate to ongoing inspection activities and that there is a clear way that we can identify the integration of those activities into the routine operational monitoring and planning going forward. And that if we wanted, we could pull out, in three years' time, in five years' time, where those sit now in routine activities and feed back to the original plan.

**MR. HOWDEN:** Barclay Howden. That is correct. So we have a tracking system called the Regulatory Information Bank, so when an action is open it can be tracked through to closure and then when it gets folded into what we call our routine or baseline program, those things continue -- they are planned on a yearly basis, so we'll be able to track them back to say, okay, we said this was closed five years ago, we were satisfied, but we'll be able to go forward and say -- to see whether there's been erosion or deficiencies as time goes on.

So we do have that ability to do that. When we put out our plan on a yearly basis, it's usually done in a risk informed manner, so if there's areas where we're paying more attention to, those will get more attention.

But in all these areas with the Fukushima

Action Plan, these are areas that we look at on a regular basis, like emergency preparedness, EME, equipment, anything that does -- that is focused on potential degradation of the defence in depth barriers, those get higher priority.

But we do have a tracking system, so if you ask this question in five years, the staff would be able to come back, to be able to say, yes, we're continuing to review that that EME, equipment is being maintained and operated and tested on a regular basis, or any other safety or safety-related system.

**THE PRESIDENT:** Let me try to express the way I understand what's going on between the Fukushima plan and the implementation.

So a plan is a plan, but it goes into implementation once a hard commitment has been made and it goes into your LCH for implementation. Did I get this right?

**MR. HOWDEN:** Correct.

**THE PRESIDENT:** So okay. From now on it's being monitored, there's a commitment, there's a licence commitment to do this and you can always report back, if you wanted, to tie back into.

That's my understanding. Is that correct?

**MR. HOWDEN:** That is correct, because the

expectation is, so the initial set of verifications which we described today is to show that the station-specific implementation plans are being executed.

Then what they've done is, now they roll these into their day-to-day programs, this additional equipment or additional capabilities and it's all within their programs and we use the compliance verification criteria within the LCH to track that.

So all the Fukushima action items have been captured into the LCHs and that's what the inspectors use to do the inspection.

**MEMBER MCEWAN:** So I think it would be very helpful in the report to have that overtly stated so that members of the public looking at it, it's very clear that this is not simply an exercise in completing and closing a file, but that it has become part of day-to-day operations.

**MR. HOWDEN:** Thank you. So in the published version we will add that explicitly to the document.

**THE PRESIDENT:** Thank you.

Mr. Tolgyesi...?

**MEMBER TOLGYESI:** This is on page 16, Table 3, which is a number of unplanned transients. And what you are saying, that unplanned reactor trips, they are automatic reactor trips only, does not include manual reactor trips. How many manual reactor trips do we have

and are they due to operations problems?

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

I think I could clarify that. The manual trip is something which required for an operator action. Typically it would happen before the automatic set point takes place, but similar procedures would direct the operator to manually trip the reactor.

Does that answer your question?

**MEMBER TOLGYESI:** Yes, because my -- because what I'm asking is, if there are so many and they are high number because we are saying that, okay, the rate of transience is very low, okay. It's 0.38, which is an increase over through last three years, but it's not so high. But if you include all these manual reactor trips if it's a high number, that means that the rate will increase.

**MR. GRANVILLE:** So Sean Granville, for the record.

I'd give you an example from Point Lepreau. We had -- in 2014, we had one manual reactor trip. That was a test that was done as part -- at the start of our planned outage. It's something that's done as part of testing the shutdown system, so that is not included in the industry in terms of, you know, this metric. It's really - - this is really a metric that measures how often the shutdown systems are challenged and operate.

**MR. LAFRENIÈRE:** Ken Lafrenière, for the record.

I want to give the Commission assurance that the -- this is just an indicator to reflect the automatic actions of the shutdown system. All trips -- matter of fact, all changes in power are reported by the licensees to the Commission through the 3.1.1 reporting requirement and we review each of those instances, whether it was a manual trip, a non-planned change in reactor power, and to assure ourselves that the licensees took appropriate action, understood what happened and were conservative and followed their procedures.

This indicator actually just reflects the nature of indicators. They look at a sort of a segmented area of a particular program, but it's just one piece of information that staff would use in coming to an overall conclusion. And in this case, it's -- we look at everything in the area of transients, from event reporting, from our own inspections, from our inspectors doing control room rounds and data from this indicator to put together a complete picture, so the reactors are not changing power frequently, they're not being tripped frequently. This represents the automatic action of the shutdown systems and a small portion of what is going on.

**MEMBER TOLGYESI:** So what you are telling me

that the manual reactor trips are not as important, like automatic reactor trips.

**MR. LAFRENIÈRE:** Ken Lafranière, for the record.

No, I didn't mean to imply the importance. I meant, actually, the opposite.

Any unplanned change in reactor power, whether manual or through automatic action, is reviewed by the CNSC. The licensees have procedures in place. The personnel are trained in -- are trained on all power changes to understand, to make sure the procedures cover it, to do appropriate diagnostics and to -- and to follow procedures and ensure that they know what's going on at all times.

The unplanned reactor transients indicator that you're speaking to only focuses on the automatic action of the design of the plant. And in that way, we're able to compare that with other plants internationally. However, when we look at this -- the whole area of operating performance, that is a small portion of the information that we use to look at and to gather a complete picture.

Having said that, I think Mr. Clewett was talking about operator response.

We have rules in the -- in the Canadian

nuclear industry that we don't credit operator response, but we certainly would expect an operator to manually trip a reactor if something untoward was going on. And we follow up on all those.

Those are all reported through three point - through the reporting requirements, document 3.1.1, to the Commission. We follow up on all -- on every one of those instances, even if it's not a reactor trip, even if it's a small change in reactor power, just to make sure that they're all completely understood and that there's adequate understanding and oversight in this area.

**THE PRESIDENT:** Okay. Back to Ms Velshi.

**MEMBER VELSHI:** For staff, a comment for your consideration. I didn't see anything in the report on the Darlington refurbishment environmental assessment judicial review appeal. And maybe for the sake of completeness, it would be good to include something on that.

**MR. HOWDEN:** So I don't have it at my fingertips, but it's still in process. I don't -- I can't remember all the details, but I don't believe a hearing date has been set for that. The only hearing that's been held was on the Darlington new build, which was --

**MEMBER VELSHI:** No, I understand. I just -- I just thought we should make reference to what the status

of it is.

**MR. HOWDEN:** Okay. Just for completeness. Okay. Thank you.

**THE PRESIDENT:** Mr. Harvey?

Dr. McEwan? Ms Velshi?

I don't believe it. I got lots of questions.

Go ahead, Mr. Harvey.

**MEMBER HARVEY:** On page 14 of the report, you've got a Table 2, number of certification per station and certified position precede the table, but I would have had -- appreciate to have another column.

Is that any requirement from the staff? I mean, for Bruce we've got 83, but is it enough? Is it well over? Is it -- so it's difficult to appreciate the -- those numbers.

Because you receive comments and you mention it in your presentation that there was some difficulties to certify people. And I've got that table there, but I don't know if it's -- everything is okay and --

**THE PRESIDENT:** Well, I'd like to piggyback on this because in the page before that, on page 13, I hear that REGDOC 2.2.2 will not be implemented until 2016 to 2018. Why?

So I think the two of them are related.



I hear some staff in there, so can somebody start replying?

**MR. HOWDEN:** So I -- Barclay Howden.

So I think there's two issues. So it's 2.2.2 is personnel training, and then there's another one on certification. So this is on the number of certifications, certified staff. So I'd like to just comment on that because one of the intervenors had actually raised that.

So at this point in time, we're satisfied that there is enough certified staff and we'll take under advisement your comment that maybe another column to show where they're at. But at the same time, we do have concerns that they maintain the number of certified staff because those numbers, if they get too low, they start to impact minimum shift complement. And if licensees are trying to avoid at all costs minimum shift complement violations, then they start to stress on to their hours of work, people working longer hours, for sure.

In terms of 2.2.2, I'd like to -- my colleagues from the Directorate of Safety Management to comment on the implementation of that document.

I think we noted yesterday that Darlington, we had written in our CMD that it was going to be 2017, but we updated in our presentation that they're actually

already compliant, so they will be implementing that on -- if a new licence is issued on January the 1st.

So I'd like to go to my DSM colleague.

**MR. VESLEY:** Martin Vesley, for the record. I'm the Acting Director for the Training Program Evaluation Division.

I'll start by making some introductory comments, and then I'll also invite industry to comment back.

Since the publishing of REGDOC 2.2.2, the scope has changed slightly. It is important to note that staff consider that the industry is in compliance already. That was part of the regulatory burden that was discussed when the document was published. And as such, what remains to be done is this required gap analysis just to make sure, so to speak, that all the Is are dotted, that the Ts are crossed and there is some work that's continuing to that end.

But as Mr. Howden alluded to, it is our belief that the industry is compliant. It's just it seems a slight formality now to ensure that the gap analysis is, in fact, completed, and completed in a robust fashion. We are compliant now.

I'd also invite and I think it would be appropriate in this case for the industry to respond.

**THE PRESIDENT:** If it's essentially the same and there's no big deal and they're already compliant, I don't understand why a gap analysis would take two years to implement.

**MR. MANLEY:** This is Robin Manley, for the record, Ontario Power Generation.

We have done a gap assessment for OPG against REGDOC 2.2.2, and we -- there is no gap. We are compliant now.

**THE PRESIDENT:** So you can be compliant and implement it like --

**MR. MANLEY:** January 1st, 2016 is the plan for the Darlington licence; correct.

**THE PRESIDENT:** Okay. So 2018.

**MR. SAUNDERS:** Frank Saunders, for the record.

**THE PRESIDENT:** Is that you, Frank?

**MR. SAUNDERS:** I'm not sure if it's us or not, to be honest with you, but this is a discussion that we've had before around Regulatory Doc, and it's one thing to actually be compliant in the field. It's another thing to be able to demonstrate to CNSC staff that you meet all those requirements. It's a quality control and a quality assurance thing, and there's significant burden in doing it.

So basically, you have to go through every step in the REGDOC, pull out all your procedures, all your stuff, check them all, verify they're all accurate and put that report back, take some time. And that's why --

**THE PRESIDENT:** But I heard from staff right now that they're essentially compliant now, basically.

**MR. SAUNDERS:** Yeah.

**THE PRESIDENT:** So I don't -- so I just don't see that there's a big gap between what you think and what they think.

**MR. SAUNDERS:** Yeah. Well, I know. But when your staff come out to the field to do the inspections, they say, "Prove you're compliant", right. So it's a trust but verify type of relationship.

So we don't like to sign off on compliance until that work is done because we like to be sure that we actually are fully compliant. There may be some areas where you need to do a little bit of work.

And so that's why there's a delay. It's not a hesitation in doing it, but we like to have absolute assurance that when we say we're compliant to a requirement that we really and truly are compliant.

**THE PRESIDENT:** Thank you.

Anybody else questions?

Well, I've got a few. First of all,

somewhere in page 111, it's a little statement about closing of Pickering. The first time I see this that given the uncertainty -- I'm looking at -- I think it's the third paragraph in the middle, "Given the uncertainty of the" -- let's see. No, I'm looking at the paragraph before that:

"In 2004, OPG informed CNSC staff that the permanent shutdown date for Pickering unit has not been determined."

News to me. I thought 2020 was cast in iron.

**MR. GILBERT:** Ken Gilbert, for the record.

So 2020 is our current business plan, and we continue to -- you know, to plan our business around those dates. We are working with the province broadly on what the needs of electricity in the province are and how we will examine if there are other opportunities or options where we would be asked to go beyond that date.

We continue to operate the power plant assuming that it will operate to 2020 and beyond. We continue to maintain the plant expecting a long-term operation. That's important to us because, you know, a well-maintained plant that's well staffed is a safe plant, and that's the plant that I operate.

**MR. DUNCAN:** Brian Duncan, for the record.

As well, President Binder, you'll note that we're required, as part of the Pickering licence, to notify the CNSC formally in June 30th of 2017 what the end of commercial operation will look like for Pickering.

**THE PRESIDENT:** So are you still planning to give us as much heads up if plan will be changing?

**MR. DUNCAN:** Brian Duncan, for the record.  
Of course.

**THE PRESIDENT:** Okay. Thank you.

On page 52, there's a good list. I actually like this table that gives Regulatory Documents and implementation date, et cetera. And again, a general comment.

Some of the time horizons here really are worrisome to me, at least. Again, the probabilistic safety analysis June 30th, 2019, last time I remember we were talking about 2017. So what am I not -- what am I not understanding here?

And the same management system, 2019. A lot of 2018. So are they all that difficult to implement? That's really what I'm looking for.

**MR. HOWDEN:** Barclay Howden speaking.

So implementation means that the licensees would be fully compliant at the time.

So I just want to talk a little about the

safety, deterministic and probabilistic safety assessments.

Right now, the licensees are in compliance with the existing regulatory requirements, but as part of the continuous enhancement, we require them to do updates to make sure there's always a match between licensed operations and the safety case scored by the PSA and deterministic. In other words, the safety case is always valid against the operational activities, so that's very important.

They always have to be operating with a current and up-to-date safety case. And the safety case is put together by doing deterministic analysis and probabilistic safety analysis. And the safety report is updated on a five-year cycle, so these things are mirroring that cycle, but it doesn't mean that there's no work being done in the meantime.

So a perfect example is they do things on a continuous prioritized basis, so on the deterministic side, OPG has already updated their loss of moderator heat sink analysis using the new methodology. Darlington has updated their new PSA to 2015 but, as they go forward into the future, the new PSA requirements or the updated requirements are you have to do multi units, you have to include external events, although our licensees are already compliant. You have to look at other sources of

radioactive potential like irradiated fuel bays, and they've done a lot of work there. They have to have public disclosure requirements.

So there is work being done on these areas, and a perfect example is Pickering is doing a pilot PSA for multi units that the other parts of the industry are going to use.

So in our view, these are reasonable timelines.

In terms of for the management system, so they're compliant with the current management system 05 and they're going to 12. I'd like to invite one of my management system colleagues to provide their view of why it'll take till 2019. And the industry may want to comment in terms of the impacts it has on them.

**MR. WONG:** My name is Paul Wong, Acting Director of Management System Division.

For the implementation for management system 12, most of the power reactor licensees are effectively meeting the majority of the -- the standard. There's very little differences between the 12 and 05 for power reactors.

Darlington, for instance, their implementation date is January of next year. So a lot of the dates, I'm not actually 100 percent sure why we chose



'19. I suspect it's related to licence renewal.

Perhaps -- again, I would like to pass it over to the licensee to perhaps give some more details about the dates that they are willing to implement the standard.

**MR. DUNCAN:** Brian Duncan, for the record.

So okay, I don't have it by fingertips the dates that I'll achieve all of these. What I can tell you, though, in general -- and Frank spoke to that earlier.

So for example, REGDOC 2.6.3 on aging management, that cuts across a whole swath of different programs that we're compliant with today, and we're doing a gap analysis now on all of the things we do today and what we'll have to do to make sure we meet that REGDOC, and that gap analysis is -- has taken us most of this year and we'll have it complete around October of this year. And then, from then, you know, we're committed to making the implementation date, but it's not -- when you total up these changes, it's a significant amount of effort to make sure that, yeah, on that day, you know, if audited, if examined by Commission staff, we will be fully compliant.

There's a lot of work in some cases. Not for all of them. And for some of these, certainly in a licence year like I'm in with probabilistic safety analysis, you know, we're ahead on some of that already.

But in total, there's a fair bit of work to make sure that all -- everything lines up so that we can absolutely be assured that the day we say we're in compliance, we're -- we can be examined and we are in that space.

So as I said, I don't -- I can't honestly tell you. I don't have all the dates in front of me for all of my compliance dates, but we work -- we work closely with staff to make sure that we're prioritizing these properly and we're going after them crisply.

**THE PRESIDENT:** Well, you know, the intent of it as regulated was to clarify and to make sure both sides understand the requirement. It wasn't to impose new regulation, and some of you have been complaining that, through the new REGDOC, we -- that wasn't the idea. The idea is you're either going to pay because of the uncertainty and you're going to have, later on, in an inspection, going to have a debate what it's really meant to have been inspected and audited or you agree up front what the requirements are.

So I am not buying that it takes forever, particularly if our staff already believe that you are compliant.

By putting long-term dates, I think you give the impression is there's a huge gap here between what it is and what it should be. And I don't think that's really

what's at play here, so I really believe that the two sides should get together and try to speed some of those things and find a way to -- not to impose new burden, but just to make sure that the requirements are really well understood.

**MR. DUNCAN:** So Brian Duncan, for the record.

And forgive me. I didn't want to imply that we believe these were more complicated or -- you know, in a lot of cases, these new REGDOCS are going to bring great clarity to the areas. And if you look at the implementation dates, a lot of them are behind us or very near term, and we will absolutely work with staff to make sure we actually keep these as crisply as we can.

**THE PRESIDENT:** Okay. Just two more quick items here.

On page 32, when people talk about our safety system test performance, there's a table here. Every time you talk about the safety system, I get very, very interested in the details. So I was astounded by the total number of tests.

Maybe I don't understand what those tests are, but the tests and then the missed safety system test, what does it mean, precisely, when you're having Bruce A 8? What's this number "8" mean?

**MR. SAUNDERS:** Frank Saunders, for the

record.

There are a lot of safety system tests because there's a lot of components in the safety system, so every component has to be tested at a pre-determined frequency. So for example, your shut-off rods and systems are tested weekly and so forth.

And so when we add that up over a year, you get many, many thousands of tests.

You do get occasions where you can't do the tests exactly as scheduled. For example, if we had a problem with one channel on a particular safety system, we need to have that channel in service before we can do that next scheduled test. The test can get delayed a day or two until you get the repair done, and when you have the channel on service, then you can do the tests.

So when you talk about safety system delays, that is what they are. There was some condition in the plant that prevented you from testing it on the day you had it scheduled and it was a day or maybe two days later that you did the test.

The frequency of the testing is all about measuring the reliability of the system. So the fact that the dates vary slightly, really it doesn't matter, you still get the data and so forth. The biggest risk I guess you would say if you were a little late testing a system

and it failed, then that all factors into your reliability and you will have lower reliability number as a consequence of it.

But that is not typically the case, these systems very seldom ever fail. The issue really is you just may be in a plant configuration that you can't do a test on a particular day and it has to get held off for a little bit to do it.

**THE PRESIDENT:** Okay. So I didn't get a sense, so does this test include also the shutdown systems?

**MR. SAUNDERS:** Yes, it includes all safety systems, and the shutdown systems are probably the ones that drives the largest number because they do get tested. I mean, basically you are testing a shutdown system every shift pretty much, so --

**THE PRESIDENT:** So can it non-availability of a shutdown system?

**MR. SAUNDERS:** Oh, no. No, that is a different story, right? So missing a test is different from unavailability. When you are late on a test it just means you didn't do the test. If you did the test then it failed, then it would be unavailable, and that is reported in its own right, right?

So unavailability or a failure of a system to perform its function is a different category.

**THE PRESIDENT:** Staff, you want to...?

**MR. HOWDEN:** Mr. Saunders just gave a very accurate description of what the tests are for. They really are part of the reliability data and not related to unavailability, unless they fail a test, and then that impacts the unavailability. But he gave a very accurate description of those tests.

**THE PRESIDENT:** Monsieur Tolgyesi?

**MEMBER TOLGYESI:** (off microphone) page 31 is that, "Missed tests represent negligible risk." Says, "the test will be performed in the next outage." What you are saying, that these are all tested every week, that means the reactor is shutdown?

**MR. SAUNDERS:** No, that is -- the way our systems are designed, they are designed on a channel basis. So a trip requires, for example, if you have a three-channel system in order for -- and we are talking about a trip circuit, for example, to trip the reactor requires two of the three channels to trip.

So what you do to test the system is you take a channel out of service, which means you have one condition already met. Anything else trips, you go. So now you are one out of one. And so that is how you do the testing. So you in fact, you know, go from a two out of three to a one out of two function, that the third channel

is taken essentially out of service, the test is done, and then it is back, right?

And so the whole system is designed to let you test it that way. There are some tests that are related to outages because they are related to equipment that is part of that. But the majority of the tests are not outage-related, they are mostly related to operating equipment.

**MEMBER TOLGYESI:** Is there a reason why at Point Lepreau it is so high a number of tests although it is one reactor compared to Bruce A where there is four reactors, B...? You know, it is a quite high number, 12,000, where at Bruce, at B, you have four reactors and you have 12,000 tests. It is some specific reason?

**MR. GRANVILLE:** For the record, Sean Granville.

It is a question I ask everyday at the plant. So there is a couple of answers to the question. One is our threshold for what we call a test and then how we divvy up those tests is a little bit different than the industry. So we have done some benchmarking and we are going to align essentially our accounting system similar to the other plants.

But, you know, we also have instances in some systems where, quite frankly, I think we over-test.

And in a poised shutdown system, you know, that really doesn't have impact on the system. But on a system such as a standby -- or diesels, you know, running them too often is not necessarily good from our equipment reliability perspective.

So we are putting together a plan to basically review that, compare ourselves to the industry, and get more inline. Because, you know, this -- yes, I agree with you, we do a lot of testing.

**THE PRESIDENT:** Anybody else? Anything else?

So my last comment, I would like to compliment actually staff. I didn't check with Commissioners, but I like the structure of this report, of this presentation.

And particularly, we will look more and more for indicators, you know, that compare the industry as a whole against benchmarks and using industry measures, so we don't invent new ones. Whatever they use as a safety, we should see if it is -- as we done in the SPIs.

I also would like to thank you. And I think you should continue to update us on the CSI and the research. It was good to see what is going on with the research. Hope some of the research will come to an end sometime, particularly on the LOCA and the large LOCA and



all that stuff.

So I find it very good reading here. And it will be interesting at least to the public to hear that you continue to do research in all of this.

So I thought that was very good. And benchmarking internationally also, I think, was very useful. So thank you for that.

And, Marc, I think we need to do some interventions?

**MR. LEBLANC:** Yes. We have two submissions that were filed by the members of the public. So I will list each of them and ask if the members have any questions on these.

**\*CMD 15-M30.1**

**Written Submission from Power Workers' Union**

The first written submission is from the Power Workers' Union as outlined in CMD 15-M30.1.

**THE PRESIDENT:** Any comments?

No.

**MR. LEBLANC:** The second --

**MEMBER VELSHI:** Sorry, I have --

**MR. LEBLANC:** Oh, Madam Velshi?

**MEMBER VELSHI:** Question to Staff.

So in this submission the PWU raises a concern on page 2 on human performance management, "PWU continues to be concerned with the licensee's ability to qualify a sufficient number of personnel in certified positions." And I know it is a concern that you don't necessarily share, but I just wondered why the PWU would have that concern?

**MR. HOWDEN:** Barclay Howden.

I would say we (off microphone).

Sorry. We do share the concern, not from the standpoint that (off microphone).

Okay. We share their concern.

--- Laughter / Rires

So we have concluded that the number of certified personnel at the sites are adequate. However, I did express earlier that we always are keeping an eye on this very closely from the minimum shift compliment perspective and from the -- if that is met, but puts stress on hours of work and other things that could cause fatigue for performance purposes. So I think we do share it.

I think from our standpoint it is to make sure that they continue to bring more and more certified workers into the fold. And I think there were discussions during the Bruce hearings where coming out of their Units 1 and 2 outages they are working away at getting people

through their training program and certified.

So I think the union does look around and see where the stresses and strains are on the certified workers maybe working, you know, more long shifts or those types of things. So we do share it to a certain extent.

**THE PRESIDENT:** This is a follow-up on this.

So in Pickering, how do you maintain certified experts who will know if the shutdown is 2020? It is not far away from now. How do you retain your so-called experts and the people you want to keep?

**MR. GILBERT:** Ken Gilbert, for the record.

In terms of people in classes that are training to take on these positions, we are seeing good throughput on the Pickering A plant and on the Pickering B plant. We have increased the numbers of throughput.

The people that we bring on into these programs see a long-term future in nuclear power in Canada. And, you know, in speaking to them and their families, we do spend time with, you know, the extended families of people as they come onto the program to explain to them the commitment that they are making to the safety of the public and the communities they live in and the investment that is being made in them.

And they understand that it is a long-term investment for them. We are not seeing any problem in

getting highly qualified interested people to take on these demanded jobs.

**THE PRESIDENT:** This is very reassuring, because I have to tell you in talking to my regulator friends internationally from Germany to the Swedish and the Finnish, retaining highly-skilled employees in this business now is getting to be difficult.

So what you are telling us is you don't see difficulties here?

**MR. GILBERT:** I certainly don't see difficulties in getting committed people to take on the training. Sorry, Ken Gilbert, for the record. Absolutely no issues there.

We recognize that people at the end of their careers, you know, when they become in a position to retire and move on, you know, sometimes they do. For us as well though, we do look towards those potential people to help us and retain them potentially at the end retirement.

The numbers that we have for certified staff are adequate, and I invite you to look at the pipeline for the Pickering 1 to 4 and 5 to 8 plant, and we have adequate people in that pipeline to allow for people to retire and move on.

**THE PRESIDENT:** Thank you. Anything else? Go ahead.

**\*CMD 15-M30.2**

**Written Submission from  
Canadian Nuclear Workers' Council**

**MR. LEBLANC:** The next written submission is from the Canadian Nuclear Workers' Council as outlined in CMD 15-M30.2.

Any questions from the members?

Dr. McEwan?

**MEMBER MCEWAN:** Thank you.

I would like help understanding the sentence at the top of the second page of the letter, "CNWC member unions capably provide an additional level of oversight to regulatory oversight by the CNSC Staff." It is not intuitively obvious to me what that means.

**MR. HOWDEN:** Barclay Howden speaking.

I tripped over the same sentence as well. I don't think they are saying they are providing oversight over ourselves, I think they are just saying they are a complimentary, they see their unions within their group as complimentary to provide assurance and maybe confidence to the Commission that there is people besides us who are keeping a close eye on the industry to operate safely.

**THE PRESIDENT:** I understand Mr. Shier was

here yesterday. He is still there? Maybe he can explain this sentence.

**MR. SHIER:** David Shier, President of Nuclear Workers' Council, for the record.

I think Mr. Howden put it exactly the way our intent was. We have -- as we indicate, the industry is very highly unionized and those unions are members of our council. And if there is any issues that come up, they are the people -- their reps are the people boots on the ground, so to speak, and they identify them pretty quick.

And we have good interactions with the employer, they bring them up and, as we have always indicated, we have developed a relationship with the CNSC Staff at different sites as well. So I think it is just an assurance that there is also -- the unions are part of the stakeholders in the industry and definitely support the safety systems and are part of it.

So I think that, Mr. Howden's perspective, is exactly what our intent was.

**MEMBER MCEWAN:** Thank you. Very helpful.

So I mean, effectively, your members would have absolute confidence at each of the sites that if there was an issue that concerned them or that they felt was leading to an unsafe practice, they could intervene and prevent that without having either concern from the

management or that it wouldn't be listened to and that there wouldn't be some action taken?

**MR. SHIER:** David Shier, for the record.

Yes, that is exactly the intent. As we have indicated at other hearings, like this hearing, there is several different safety processes, committees, lots of interaction with the union and the employer representatives, for example, and OPG and Bruce Power, the Vice-President of Nuclear -- for the Power Workers meets on a regular basis with the CNOs and at other levels the organization union reps meet on a regular basis as well.

So there is definitely a very strong connection there. So any issues would be dealt with immediately.

**THE PRESIDENT:** Any other?

I think this concludes this item.

Marc, what are we going to do with the rest of the afternoon?

**MR. LEBLANC:** Well, I will look at the members to make sure they will be in agreement.

So what I propose is that we take a short break because we have been here for a few hours, five minutes, and then we will proceed with the in-camera session on the security issue right away. So we can free-up the industry representatives. And this will be all part

of a lunch break, an extended lunch break. And we will resume, if you are okay, Mr. President, at 2:15 with next agenda item?

Do we have...? Yes?

**THE PRESIDENT:** But they may not be online by 2:15.

**MR. LEBLANC:** No, they didn't know what time it was. It was approximate, so I will be able to --

**THE PRESIDENT:** Oh, I see.

**MR. LEBLANC:** Yes. So we will inform the next item, Madam Miller and others that are participating, Mario, that we will resume at 2:15.

Thank you very much. Safe travels.

**THE PRESIDENT:** Thank you.

--- Upon recessing at 12:53 p.m. /

Suspension à 12 h 53

--- Upon resuming at 2:21 p.m. /

Reprise à 14 h 21

**\*CMD 15-M33**

**Oral presentation by CNSC staff**

**THE PRESIDENT:** Okay. The next item on the agenda is a presentation entitled Overview of the 5th



Review Meeting of the Joint Convention on the Safety of Radioactive Waste Management and on the Safety of Spent Fuel Management, as outlined in CMD 15-M33.

I understand we are going to have representatives from the NWMO.

NWMO, are you online?

**MR. GIERSZEWSKI:** Yes, we are.

**THE PRESIDENT:** Okay.

And we have OPG?

**MS MORTON:** Yes, OPG is online.

**THE PRESIDENT:** All right.

And we have people from CNL?

**MS MILLER:** Yes, CNL is online.

**THE PRESIDENT:** Okay, thank you.

So I will now turn to CNSC staff to make the presentation. I understand, Mr. Jammal, you will get us going.

**MR. JAMMAL:** Thank you, Mr. President.

Good afternoon. For the record, I am Ramzi Jammal, Executive Vice President and Chief Regulatory Operations Officer at the CNSC.

I was the head of the delegation to the 5th Review Meeting of the Joint Convention, but if you are asking yourself why you are seeing this presentation for the first time or such update to the Commission, that will

be the first time we are having a standalone presentation to the Commission with respect to Canada's activities at the Joint Convention.

With me today, on my left, is Ms Karine Glenn. She is the Director of the Wastes and Decommissioning Division.

With me also is Ms Lenora Makin and Ms Julie Mecke, Project Officers from the Wastes and Decommissioning Division.

And of course, as you heard, we have our colleagues on the line who are members of the Canada delegation.

Very briefly, this presentation is an overview of the 5th Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

CNSC staff will highlight the signatories to the Convention who did not meet their obligations. I believe this probably is the first time publicly we will be stating contracting parties who did not fulfil their commitment to the Convention.

I will also highlight to you Canada's effort for improvements with respect to the Convention on Global Safety.

So I will start with four countries, Iran,

India, Mexico and Pakistan, that have nuclear plants and therefore they manage spent fuel and radioactive waste. These countries are not signatories to the Joint Convention.

So, in brief, the Table of Contents does not need much elaboration but the presentation will focus on the outcomes of the Review Meeting and will summarize the conclusions.

The Appendix to this presentation is a summary of Canada's responses to the challenges identified at the 4th Review Meeting in 2012 as well as Canada's responses to some of the main written questions we received following the peer review. The questions were received due to our national report that is on our website and so did the presentation we made at the Joint Convention.

With this, I will pass on the presentation over to Ms Makin.

**MS MAKIN:** Thank you, Mr. Jammal.

Good afternoon, Members of the Commission. My name is Lenora Makin. I am a Project Officer in the Wastes and Decommissioning Division and a member of the Canadian delegation to the 5th Review Meeting.

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, hereafter referred to as the Joint Convention,

is an international agreement governing all aspects of spent fuel and radioactive waste management. Canada was one of the first countries or contracting party to endorse the Joint Convention, which came into force June 18, 2001.

It represents a commitment by participating contracting parties to achieve and maintain a consistently high level of safety in the management of spent fuel and of radioactive waste as part of the global safety regime for ensuring the proper protection of people and the environment. This commitment is achieved through the peer review process, promoting open and transparent discussions, culminating in a review meeting.

The contracting parties taking part in the Joint Convention are required to attend a review meeting held every three years. The last such meeting was held recently, on May 11-22, 2015, and the next meeting, the 6th Review Meeting, will be held in 2018.

Other obligations include submitting a national report and responding to questions posed by other contracting parties. The review meetings are held as an incentive instrument for the purpose of meeting the obligations of the Joint Convention and to encourage open and frank discussions between contracting parties.

A key component to the success of a review meeting is the active participation of contracting parties

to the peer review process. It is through the enhancement of national measures and international cooperation that nuclear safety is achieved.

As of August 14, 2015, there are 70 contracting parties, with Botswana's recent accession to the Joint Convention. However, at the time of the 5th Review Meeting there were 69 contracting parties.

A trend that is evident from review meeting to review meeting is some contracting parties are not fully meeting the obligations of the Joint Convention. This slide shows some statistics from the 5th Review Meeting.

Currently, there are no inherent consequences or formal investigations as to why contracting parties are not meeting the obligations. This continuous trend and lack of inherent enforcement mechanisms has led Canada to propose improvements to the peer review process such as writing letters to contracting parties Head of State, investigating why some contracting parties are not meeting the obligations and bringing this issue forward to the IAEA Board of Governors. I will speak to this issue and Canada's efforts for improvement later in this presentation.

Being a contracting party is important to Canada because it allows Canada to perform a structured self-assessment of the adequacy of adopted safety measures.

It provides a forum for sharing experience and international cooperation among regulators and between regulators and industry.

For example, through contacts made at the Joint Convention, CNSC staff were able to share experiences with other regulators in Sweden and Finland on the regulatory oversight of deep geological repositories.

It also ensures the public that national arrangements for spent fuel and radioactive waste management conform to international agreements and it provides a good reference through the development of a national report. This report is typically given to members of the public as well as staff of the CNSC.

I will now provide some background details on the 5th Review Meeting and Canada's participation.

The Canadian delegation to the 5th Review Meeting was led by the CNSC, with Mr. Ramzi Jammal as head of the delegation and members from Natural Resources Canada, Ontario Power Generation, Nuclear Waste Management Organization, Canadian Nuclear Laboratories, Hydro-Québec and Nordion. The delegation consisted of 17 people, six CNSC staff and 11 members from the other mentioned bodies.

The responsibilities of the delegates range from the delivery of Canada's presentations to posing questions during other contracting parties' peer review

sessions and even to delegates undertaking the role of a review officer. The delegation worked very diligently and performed at a high standard internationally to successfully meet the obligations of the Joint Convention.

Canada submitted its national report in advance of the deadline of October 10, 2014. The report contains information current up until March 2014, covering all aspects of how Canada safely manages its spent fuel and radioactive waste.

Following the submission of the national report, Canada received 91 written questions from 14 contracting parties in the areas of the long-term management of spent fuel, waste minimization techniques, experiences to date with administrative monetary penalties, waste classification and clearance of radioactive material and aging management.

Canada was one of the first contracting parties to post its national report, questions and answers and presentation, making it publicly available on the CNSC website. In addition, Canada is one of a handful of contracting parties to post its national report and questions and answers to the IAEA Joint Convention website.

Country groups are established for each review meeting by dividing contracting parties into smaller more manageable groups. Each country group is a collection

of contracting parties, some that have well-established nuclear programs and nuclear power installations and some that have very little radioactive waste resulting from programs such as nuclear medicine.

While Canada's national report was being peer reviewed by other contracting parties, the Canadian delegation was performing reviews of 22 contracting parties' national reports. This included contracting parties within Canada's country group, such as Armenia, Denmark and Uruguay, contracting parties belonging to the G8, such as Germany, the U.S. and France, as well as other contracting parties of interest such as Finland, Sweden and Kazakhstan.

Following the Canadian delegation's review of the national reports, Canada posed 79 written questions.

This slide provides an overview of the resources required for the preparation and conduct of the 5th Review Meeting.

Approximately 25 CNSC staff in addition to members of the Canadian delegation began drafting the national report in January 2014. Following its submission to the IAEA in October, the Canadian delegation began its peer review of other contracting parties' national reports and a submission of follow-up questions.

In the timeframe of October 2014 to April



2015, members of the Canadian delegation and over 20 CNSC staff provided responses to questions posed to Canada on its national report.

In total, 3.4 full-time employees from the CNSC and 1.2 full-time employees from the remaining members of the Canadian delegation were required to ensure that Canada successfully met the obligations of the Joint Convention.

I will now cover the main outcomes from the 5th Review Meeting.

Following Canada's presentation, it was determined that the challenges for Canada from the previous Review Meeting had been addressed and closed.

A subsequent peer review session identified five new challenges for Canada. These were industry's access to suitable skills and resources, suitable resources to ensure regulatory oversight, to find an acceptable site and a willing host community for a spent fuel repository, to implement the GoCo management model and complete the procurement process, and to develop an integrated strategy for non-OPG low and intermediate level waste. These were largely a reflection of the challenges that Canada had self-identified in its presentation.

Canada had also identified a number of good practices in its presentation. However, these were not

accepted. This situation was experienced by many other contracting parties and was due to the fact that a more stringent and specific definition of a good practice had been applied for the first time at a Review Meeting of the Joint Convention. This new definition now harmonizes with the definition used by the Convention of Nuclear Safety.

As a result of the bounding definition, only 19 good practices were identified for all 69 contracting parties. That is in comparison to over 100 identified at the 4th Review Meeting.

Nevertheless, the peer reviewers did identify a good practice for Canada. This was in relation to the enhanced safety of radioactive sources, specifically by establishing very low cost financial guarantee means for smaller licensees and by design requirements that facilitate the recycling and reuse of sources and to minimize the inventory of disused fuel sources.

At the 5th Review Meeting, the contracting parties agreed on several improvements to the guidelines that will help promote full active participation and increased membership.

Contracting parties made recommendations to the President of the 5th Review Meeting to send a letter to the DG of the IAEA to recall the importance of further promoting adherence to the Joint Convention and providing

assistance to those contracting parties participating for their first review meeting; to make a presentation at the annual code of conduct meeting promoting adherence to the Joint Convention; and to collect, assess, report and take actions on the concerns from current contracting parties and adhering to the Joint Convention.

In addition, it was decided to hold at least one topical meeting on the safety challenges and responsibility issues related to the disposal of spent fuel or radioactive waste in another country than the one where it was generated.

An extraordinary meeting will also be held where the President is to discuss his findings from consultations with contracting parties not adhering to the obligations of the Joint Convention.

The Open-Ended Working Group is a separately chaired session during the review meeting where contracting parties propose and discuss potential improvements to the Joint Convention. Canada submitted a joint proposal with France for assessing and enhancing the commitment of contracting parties to the peer review process.

Although consensus by contracting parties was not reached, there was general support for the intent of the proposal to promote participation. This included reflecting in a summary report the extent to which

contracting parties have fulfilled their obligations under the Joint Convention; sending a letter from the President of the 5th Review Meeting to those contracting parties who have not fulfilled their obligations; and providing a final overview of the 5th Review Meeting at the next organizational meeting.

On the margins of the Joint Convention, 15 bilateral meetings were held with members of the Canadian delegation. Discussion surrounded such topics as management of radioactive waste, including the status of DGR programs and opportunities for collaboration between regulators.

These meetings resulted in Canada proposing to hold the first multinational regulators workshop on deep geological repositories for sharing regulatory knowledge and experience with advanced regulators on the licensing process for deep geological repositories. The CNSC offered to host the first meeting and has tentatively planned for early 2016.

Thank you. I will now pass the presentation back to Mr. Ramzi Jammal.

**MR. JAMMAL:** Thank you very much, Ms Makin.

So, in conclusion, during the 5th Review Meeting, contracting parties devoted some time to identify challenges common to many of the participating countries.

These challenges are referred to as overarching issues and they consist of staffing, staff development, funding, knowledge management and other human resource areas; maintaining and increasing public involvement and engagement on waste management and to provide public confidence and acceptance; contingency plans for management of radioactive waste from a significant nuclear or radiation accident; and management of disused sealed sources.

Hence, all of the contracting parties for the upcoming review meeting in 2018 will have to address these issues.

With respect to the overall conclusion, the Joint Convention continues to be an available tool to all contracting parties and specific for Canada by allowing a peer review process and to share good practices and to discuss emerging issues.

Canada continues to be a strong participant and we are being a leader in transparency and continuously meeting the obligation of the Joint Convention.

At this point, I would be amiss not to thank our federal partners and the licensees who contributed, and stakeholders, to the successful participation of the Canada Joint Convention.

Our next steps will be that CNSC staff will

update the Commission on Canada's participation for the next Joint Convention Meeting as part of our annual regulatory oversight report for radioactive waste, and that will be presented to you in 2018.

With this, I conclude the presentation. We are available to answer any questions you may have.

**THE PRESIDENT:** So before we get into questions, I really would like to hear from your partners. So why don't we go through any comments from NWMO.

**MR. GIERSZEWSKI:** Yes. Good afternoon. Paul Gierszewski here. I am a Director, Safety and Licensing at NWMO.

I participated previously in the national report preparations. This is my first time actually attending a Convention Review Meeting and I think I would echo some of the points that Mr. Jammal has said, that I think it is very helpful, these national reports, as a structured self-assessment for ourselves, knowing that they are going to be peer reviewed.

And then also reading the national reports from the other countries, I think they are very good summaries and then when you go to the meeting itself you have a chance to get clarifications with other countries that are doing similar things. That, I think, is a helpful forum to do so. So I found this to be a useful exercise.

**THE PRESIDENT:** Thank you.

OPG?

**MS MORTON:** Hello. Yes, it's Lise Morton, Director of Low and Intermediate Level Waste Operations for OPG.

Again, I would echo similar sentiments. It was my first time participating as well on the Canadian delegation and going to the Joint Convention. Similarly to what you are hearing, I think the opportunity to review various country reports ahead of time, certainly right off the bat there is an opportunity there for some good lessons learned and some information exchange, but then in particular I think being at the Convention and being able to go to different country group presentations, everything from what they refer to themselves as micro-countries such as Iceland, to some with very complex programs. The one that stands out for me is Kazakhstan, a very significant complex program that needs some international support.

So very interesting to get all of those lessons learned and bring some of that back to our organization. Thank you.

**THE PRESIDENT:** Thank you.

CNL?

**MS MILLER:** Yes, it's Joan Miller, Vice President of Decommissioning and Waste Management for CNL.

This is actually my third Convention. So I have been part of the Canadian delegation for the last number of Joint Convention Meetings.

I too echo the comments made by my colleagues from CNSC, NWMO and OPG. I think we all learn from and value the peer review process. It certainly provides for me a very global perspective on the management of used fuel and radioactive waste materials, so we learn a lot. The peer assessment process helps to ensure that our programs are directed to meet those challenges that other contracting parties put out for us. So we find it very beneficial and very pleased actually that we have the opportunity to support the Canadian delegation. Thank you.

**THE PRESIDENT:** Okay, thank you.

So let's open up the floor for questions, starting with Ms Velshi.

**MEMBER VELSHI:** Thank you, Mr. President.

So it seems it's unanimous this was very beneficial. So how many Joint Conventions are there in our line of business?

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

If you mean, Ms Velshi, how many conventions from a nuclear perspective, there are -- I have to go by memory -- four that I know of. So there is the Convention



of Nuclear Safety, there is the Joint Convention with respect to the waste management, there is the Convention on Early Notification with respect to Emergency Preparedness, and there is one more, I'm forgetting the title.

But all three Conventions -- two of them, CNSC is the lead. For the Convention on Early Notification it is Health Canada with respect to emergency preparedness and recovery. And the third one I will have to look at Lise for support on the Convention of -- thank you. For the record, it's the Convention of Physical Protection of Nuclear Materials, CPPNM.

**MEMBER VELSHI:** Thank you.

It was particularly slide number 14 on the feedback you got from the peer review and the challenges that were identified and then that slew of 19 best practices. Were any of these surprises or were these all part of your self-assessment and identification?

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

Sorry, was it slide 14 or 19? Fourteen.

Madam Velshi, as part of our self-assessment we identify challenges that we foresee as Canada as a country with respect to the future convention and issues to address. So what you see before you here, the list on this slide, are self-identified by Canada that were agreed upon

by other countries.

So, in other words, in our country grouping we make our presentation, we identify how we closed and addressed the issues from the previous Convention, and there is actually deliberation and consensus with respect to closure or non-closure with the issues. The same thing applies for the identification of the future challenges. So there were no added new challenges for us to address other than the global overarching element for the Convention itself.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Well, still on this slide, these are wonderful commitments. Who is going to do what here? First of all, let me pick one. On the last one, it's very nice, you self-identified. So who is going to lead on this and by when? It is us, NRCan -- NRCan is not online. Who is going to come with this integrated strategy?

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

By all means, that is the integrated strategy for non-OPG low and intermediate level. Before I pass it on to my colleague, Dr. Joan Miller from CNL, the discussion is under way with respect to the industry itself, OPG -- I mean all the licensees of the CNSC, let me

put it this way, so that they are establishing a strategy and activities taking place with respect to low level. But I will pass it on to Dr. Joan Miller.

**THE PRESIDENT:** But the next Convention is in --

**MR. JAMMAL:** Twenty-eighteen.

**THE PRESIDENT:** Twenty-eighteen. That's not that far away. Why --

**MR. JAMMAL:** It is not. So hopefully in our report we will be able to identify the progress associated with this.

**THE PRESIDENT:** Okay.

**MS MILLER:** So it's Joan Miller, for the record, from CNL.

So the Canadian Nuclear Association and Canadian nuclear leaders had got together and established a nuclear forum, a leaders forum, and they identified a number of actions.

One of the actions and the action team that they have put in place is in fact to develop a coordinated and integrated strategy for the long-term management of all radioactive waste materials but not uranium mine and mill waste.

So all of us in the industry, CNL, OPG, Hydro-Québec, Point Lepreau, NWMO, we are all working

together to develop that strategy. We have outlined a very brief workplan looking at various principles for that strategy and we have formed our working group and what we are looking to accomplish is that we would have a recommendation on sort of what the industry structure might look like that we can present to the leaders sometime early in 2016.

So really what we are trying to do is to make sure that we are coordinated and integrated in whatever strategy. Strategy doesn't mean that you have one solution, it may mean many solutions, but we have coordinated and we are integrated in our overall approach. So that work is under way.

**THE PRESIDENT:** Thank you.

Dr. McEwan?

**MEMBER MCEWAN:** Thank you, Mr. President.

So you mention in the Appendix as part of sort of the outcomes of the 4th were discussions around Fukushima. How comparable have other countries been in their approach to Fukushima and trying to develop lessons learned and action items to take from it? Is there broad comparability or huge ranges between the different agencies?

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

That is a very valid question. The Fukushima lessons learned were addressed at two conventions, the Convention of Nuclear Safety, which is actually focused on nuclear power plants, and the Joint Convention of the Waste.

The CNSC, actually we are one of the -- I want to call it very few -- one of two countries who actually applied the Fukushima lessons learned to all of our major facilities, to include non-nuclear power plants, uranium mines and mills and major facilities, even right down to the accelerators, to address the capability of emergency mitigation equipment and maintaining safe shutdown if there is a need to shut down.

So we did stand out with respect to Fukushima lessons learned from the action plan and implementation of improvements. The challenge, as you know, from Fukushima is becoming the recovery and that's why you would see in our challenge. Overarching challenge is the recovery post an accident, and that is currently a huge gap internationally because there is definitely a major confusion between what is a regulatory dose limit versus what is a health dose limit. That's the challenge, the inconsistency that currently exists around the world with respect to addressing recovery post an accident or even the cleanup.

What really stood out from the Convention is the cleanup activity in Japan. Off the record a lot of people will tell you it is unnecessary cleanup that was being done and now the issue is how do you deal with management of such low level waste, and that's really one of the outstanding -- sorry, one of the striking issues came out from the Joint Convention is what do you do post-accident.

**MEMBER MCEWAN:** Something just apropos of that. How is Japan going to deal with it, because they must have cubic tonnes of soil of low level waste?

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

I can re-update you with respect to my discussions with the Scientific Secretary of the ICRP, who is currently in Japan this week to talk about the community involvement. I asked him that question: What is the plan with respect to actual baseball fields filled with dirt? On my visit to Fukushima itself, the exposure dose rate in the middle of that field is .5 microsieverts per hour.

So the plan for now is to leave it where it is, but the Japanese officials are establishing an overall national strategy in Japan on how to deal with this waste. To me, it's a strong, strong effort and probably unnecessary challenge that we will be facing, but the work

is done and they have to deal with what they have on their hands.

**THE PRESIDENT:** I think the Japanese are going to teach the whole world about some of the challenges and what to do with them because some of them are real challenges, some of them artificial challenges, because it will come to try to deal with what does 1 mSv mean to health, because people are saying that if it's 20 mSv per year you can probably go back, but the population says how can we go back when you told us 1 mSv is the regulatory dose. So people know that they are getting compensation right now. So nobody is going to move as long as they are going to get compensation to stay where they are.

So there are lots of issues with cleanup, what to do with topsoil, what to do with the rest of the stuff, and in fact the liquid containers, water, contaminated water, that some of us argue that they are good enough to spill into the ocean, but again, they have a limit that they can't get anybody to agree to do that. So they are storing vast amounts of stuff. So they have huge challenges and in many ways they will set up the path about what is reasonable and what countries should start thinking in a recovery process.

Monsieur Harvey?

**MEMBRE HARVEY :** Merci.

How would you compare the 5th Review Meeting to the others and mainly the previous one? I'm talking of the participation, the interest and the involvement. It seems that there is a certain number of countries that are quite involved. I assume the leadership and many countries that are there, probably those countries will be the more beneficial from the -- would get benefit from such, but they seem to be there but not really being there.

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

Thank you for your question. You are correct, a lot of the contracting parties who can benefit from the peer review sometimes do not present a report or they present nothing or they don't even ask questions.

There is -- when I met with the President of the Joint Convention and we were trying to address the issue of -- you have two groups in the countries. I will start first with the small countries who feel intimidated to submit a report of 400 pages or 300 pages. The issue is not the voluminous element, it's the guidelines sometimes associated with -- the guidelines associated with the information to go into the report is very intimidating.

So that's one element. So a lot of contracting parties who are small, with just waste management or only radioactive source countries, voiced a



concern of how voluminous or do they need to do 200 pages of a report.

So the direction from the open working group is no, they will establish a work group. That's the agreement that came actually from what Canada proposed with the President of Joint Convention. And we mentioned, Iceland is a good example, to say you can have your report graded to your own activity and it does not need to have this big, complex information as the guidelines request to do, or request of the contracting parties. That's where the element from some contracting parties.

But the biggest problem is the Head of States. So in other words we are assigned -- "we" being the CNSC -- assigned to be the lead on behalf of Canada, but the issue is if for example the regulator did not perform in accordance with the obligation of the contracting parties, if the head of the regulator is not engaged, they will get a letter from the President of the Joint Convention. They can sit on it, there are no recourse or consequences.

So the problem right now is, the political masters of the regulators or the establishments that are responsible to prepare the report do not know that they are not meeting their obligations. So that's one other deficiency that needs to be addressed.

On the other major countries that we stated who are not signatories to the Joint Convention, there is another element. Again, I'm getting a bit legal, technical here. On the Convention of Nuclear Safety there is a section that addresses the management of fuel or waste management of -- section 19 of the Convention to address the waste management, but the problem is at CNS, even though I pushed for it at the previous CNS so that the peer review should really challenge the countries that some of them have nuclear power plants who are not signatories to the Joint Convention to address the waste management. But the practice is, they say, "Oh no, waste management will be addressed on the Joint Convention but not be addressed under the Convention of Nuclear Safety."

So I gave you a long-winded answer. The point here is small countries, some of them feel intimidated, innocently not able to do it, but some of them are purposely not doing it. But the endpoint is the recourse. The consequences are not being driven to the Head of States or even to the Board of Governors of the IAEA so that the politicians are aware of non-fulfilment of the obligation.

I will ask my colleagues if they have anything else to add.

**MS GLENN:** Karine Glenn for the record.

Just to give you an idea in comparison.

So we mentioned at the 5th Review Meeting there were 69 contracting parties. At the 4th Review Meeting in 2012 there were 63. So the numbers are fairly comparable. In 2012, six countries did not submit a report versus four in 2015.

The biggest change was in countries posing questions, so actively participating in the peer review process. In 2012, nine countries did not pose any questions, and in 2015 that number jumped to 26 countries did not pose any questions.

And the number of countries that did not attend the meeting in person -- some of them submit reports but don't attend and participate in the actual peer review process -- was nine in 2012 and eight in 2015.

**MEMBER HARVEY:** Okay. Merci.

**THE PRESIDENT:** Thank you.

Monsieur Tolgyesi?

**MEMBER TOLGYESI:** I have one about Japan, you know, lessons learned in Japan. Considering the challenges Japan is facing now, you know, we are saying that it's hundreds of thousands of tons of low or medium radioactive material removed, population moved, regulatory limits versus safety limits, you know, 1 mSv against 20 or whatnot, huge economic costs.

When you are looking backward, do you say that Japan was overacting and overreacting and how do you establish appropriate actions in emergency situations to not jeopardize the post-emergency?

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

The problem with the Japanese is the absence of international consistency with respect to what is a health limit and what is a regulatory dose limit has caused them a lot of challenges. So in other words, there was a political commitment made that cleanup will take place down to 1 mSv level.

The infrastructure in Japan itself -- and I'm going to state it even though its public information right now, the IAEA has published its summary report -- there was really a gap and conflicting oversight between the regulator and inactive regulators. The operator had their own way of complying with the regulation.

For example, the PSR. For me to find out when I interviewed the Japanese utilities, they will do a PSR but then they will never submit the report to the regulator. So there was no follow-up, there was no implementation on continuous enhancement.

With respect to the response to the emergency, any member state to include Canada who is not

establishing the health limit with respect to the recovery phase, and the response phase, and the evacuation doses will be in the same situation.

So the lesson learned from Japan is every member state, contracting party, should have the discussions during normal situations to address and establish regulatory requirements, if there are no regulatory requirements, established guidelines for evacuation, for recovery and so on and so forth. To include the public consultation, because part of the challenge in lessons learned is the unknown, the political commitments and the pressures that the politicians received from NGOs or other stakeholders to take action. So there are a lot of elements that take place.

So, as we all know from Japan, the evacuation orders did more harm to the population than the actual exposure itself. So all of these elements combined will have to be addressed by every regulator and national countries at the national level in the absence of the international consistent approach to include the public for education so everybody knows what to do.

And the Commission has put in place requirements in our LCH from potassium iodide pre-distribution, but Health Canada is updating their own guidelines and the Commission will be following that very,

very closely.

I will pass it on to my colleagues if anyone else has to add anything to it.

**MEMBER TOLGYESI:** So what you are saying is that there are two levels of actions, there should be a national level, okay, and it should be harmonized with the international to some extent, but also international about directly where you accept -- because you were saying that the problem was there is no international level accepted.

So how will you manage that? Because that is something which I will say is a tough cookie. Even it could be a national level because what you are talking about the example in Japan, but oversight was different -- different, how do you call it, organizations. How do you reach that? Probably we don't have that in Canada. We don't, but I think it is in several countries, or lots of countries you have these problems. So if for any reason it should happen, the nuclear industry across the world will be in a bad position.

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

There's two key points to address. Yes, at the national level is to have the discussions publicly for the public to understand what the guidelines will be or regulatory requirements.

On the international level, the big problem we have -- for example, we mentioned the ICRP recommendation of 20 mSv for people, for the public to return. A decision-maker who is not technical, who is political, who has to make a decision quickly will not be able to find this recommendation on one page where we can make reference to it. You have to go ICRP, Volume 110, page 210, paragraph 210, and so on and so forth, to even find two lines to say 20 mSv is okay to return.

So one of the things that we are doing and requiring the IAEA to do, and the ICRP to do, to put these one-page elements with a quick reference to say 20 mSv is adequate, 100 mSv is adequate based on the international consistency, but the work has always to be done at the national level.

That's one of the challenges the Japanese faced during the evacuation orders, every Member State started to declare their own on a scale and every Member State or internationally started to order evacuation of their citizens, which includes, for example, the French who evacuated their embassy right off the bat. As the President knows, we were advising our country in the -- sorry, our counterparts in the embassy to say stay put where you are, there is no need to evacuate. So you see now the difference. So now the Japanese who are in the

middle saying, is my life less valuable than the French who were evacuated, and so on and so forth.

**THE PRESIDENT:** I think we are starting to digress and moving into the safety side rather than the waste management and the safety convention for a different topic, a different time. I'm conscious of time here, so we should stick to our waste management convention here and I would like to move on to the next round.

Ms Velshi?

**MEMBER VELSHI:** Thank you.

So kudos to the Canadian delegation for sort of punching above their weight. I think this looks like you have made some great strides there.

So now I will ask a question on slide number 15, which was on good practice. In the presentation you had said there were 19 good practices in total that were identified. Were there any that -- and certainly as a regulator you felt, you know, rather than wait for the next revision of our REGDOCS or so, this is such a great idea I don't know why we shouldn't be doing it today. Were there any like those?

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

From a regulatory perspective there was nothing striking that we were missing from a clarity or enhancement for regulatory infrastructure as such. That's



the simple answer but I will ask my colleagues. I mean we did not come back and say that's a good practice that we can and should implement in Canada.

**MS GLENN:** Karine Glenn for the record.

I will just give you an example. Some of the best practices that were identified are some that we already do in Canada. For instance, I believe France was given a good practice for their transparency and openness, which Canada is very open in terms of being a regulator through our process and our hearing process, our consultation on our documents.

Another example that is perhaps a little more, I'm going to say, quirky is the Netherlands were given a good practice for their incorporation of art into the design of their waste facilities, and so for instance they are painting the buildings and as the material will decay in the waste facility, so will the shade of the colour the building is painted in.

**MR. JAMMAL:** I'm sure Joan Miller would like to --

**MS GLENN:** Yes. So that is just an example of some of the good practices that were identified. Some of -- many of them we were already implementing in Canada.

**THE PRESIDENT:** Dr. McEwan?

**MEMBER MCEWAN:** Thank you, Mr. President.

I think somebody mentioned issues of some of the smaller countries. Kazakhstan I think was specifically mentioned. I mean if I read my Economist correctly, they have significant issues with nuclear waste with the remnants of the Soviet Empire. Is the developed world doing anything to help them or are they entirely on their own? And if people are trying to help them, are they actually receptive to that or are they just hands off and we will deal with it?

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

Since my boss, the President, told me to stick to the Convention, the answer is yes. The Convention itself, all it does is highlight potential challenges.

I will ask Lise Morton from OPG to -- because she attended that presentation from that country grouping.

But there are elements internationally such as technical cooperation. The IAEA itself, where there are peer review missions assessing the capability of the country for waste, there is peer review for waste management. For example, the nuclear power plants or IRRS missions and that's why we want to establish in Canada a group with respect to the peer review of DGR from a regulatory perspective, not just a research perspective.

So yes, there are capabilities under the IAEA to assist these countries and to date they are receptive and they are trying to make improvements.

But I will pass it on to Lise if she has anything else to add specific to that country.

**MS MORTON:** Lise Morton for the record.

Yes. So with respect to Kazakhstan -- and again, I will just report on what was obviously reported at the Joint Convention -- it was the home of, and I will mispronounce it, the semipalatinsk nuclear weapons test site for Russia and on top of that a significant amount of uranium mines and tailings ponds across the country, so an incredible inventory of waste that they can't even fully document or characterize.

One of the things that's in their report and that they presented on is that there was international cooperation between Russia, Kazakhstan and the U.S. for 17 years to remove the plutonium from the test site and that's just become public now -- the work was completed in 2012 and it's just now become public and there was discussion about the international cooperation that they do get.

The one area that got some attention at the convention was the fact that from a regulatory oversight body perspective, they are very limited staff. So there were certainly, again, off-the-cuff discussions afterwards

and I know the Americans, in particular, were discussing, you know, raising some of these issues within their regulatory body as well.

So there was talk about the international cooperation. There seemed to be understanding that they needed help and they certainly seemed to be very receptive to that help.

**THE PRESIDENT:** Thank you. M. Harvey? M. Tolgyesi? Ms Velshi?

Okay, thank you for that and we will be around -- some of us will be around for the next one. Not sure this guy is, but some will.

--- Laughter / Rires

**THE PRESIDENT:** So we're looking forward to the good work, continuing good work in this particular area.

I would like to move on to the final item which is a presentation by CNSC staff on the forest fires in Northern Saskatchewan as outlined in CMD 15-M36.

I'd like to acknowledge the participation of representatives from Cameco Corporation, AREVA Resources Canada and CNSC staff who are joining us via video conferencing in Saskatoon.

Can you hear us?

**MR. CORMAN:** Yes. Can you hear us?

**THE PRESIDENT:** Yes, we can. Thank you.  
Dr. Newland, the floor is yours.

**\*CMD 15-M36**

**Oral Presentation by CNSC staff**

**DR. NEWLAND:** Good afternoon. So it's just me, oh, and Ramzi.

**THE PRESIDENT:** We've got our own line, a whole contingent here of people.

**DR. NEWLAND:** But we have Mark Langdon on the line.

**MR. LANGDON:** Yes, you do.

**DR. NEWLAND:** Okay. So, for the finale.

Good afternoon, Mr. President, Members of the Commission, my name is Dave Newland, I'm the Acting Director General of the Directorate of Nuclear Cycle and Facilities Regulation.

You've already heard who we have at the Saskatoon office and it will be Mark Langdon who will be really leading the presentation.

So this presentation will provide information on the forest fires that occurred this year in Northern Saskatchewan.

**THE PRESIDENT:** Sorry to interrupt you.

There's, I'm counting now, six people over there. So maybe since we see you here in high definition, so could you introduce yourself.

**MR. LANGDON:** Okay, I'll start. I'm Mark Langdon, Acting Director for Uranium Mines and Mills.

**MR. CORMAN:** Jim Corman, Vice-President Operations and Projects for AREVA.

**MS WALLACE:** Lacey Wallace, Project Officer in the Saskatoon office.

**MS EATON:** Sarah Eaton, Project Officer in Saskatoon.

**MR. ALONSO:** John Alonso, I'm Director of Transportation and Fuels Management for Cameco.

**MR. NAGY:** Kevin Nagy, Cameco's Director of Compliance and Licensing for Saskatchewan.

**THE PRESIDENT:** Thank you. Sorry, Mr. Newland, over to you.

**DR. NEWLAND:** Thank you. So this presentation will provide information on the forest fires that occurred this year in Northern Saskatchewan in the context of how they affect the operating uranium mines and mills.

We thought this would be of interest to Commission Members and, as you are aware, forest fires occur regularly in Canada every year, but they were quite

exceptional for North Saskatchewan in 2015.

So, Mark, I'll pass it over to you.

Thank you.

**MR. LANGDON:** Okay. Mark Langdon, for the record. Good afternoon Mr. President and Members of the Commission.

Forest fires in Northern Saskatchewan are a normal yearly occurrence. In 2015 an extensive period with little to no precipitation, combined with hot temperatures, provided the conditions for an increased number of forest fires of greater extent.

This slide displays that in 2015, as of August 12th, there were nearly twice as many fires which have burnt three times the total area compared to the 10-year average in Saskatchewan for a full year.

Fires continue to burn today, but at a reduced rate and intensity due to recent precipitation which has reduced the fire risk to a low rating.

Next slide, please. Although the fires were of greater number and extent in average, most of the fires occurred far to the south of the uranium mine and mill facilities. In 2015, there have been no fires in close proximity to the uranium mine and mill operations requiring active firefighting efforts.

Prior to 2015, conditions during 2003 and

2012 also resulted in more significant forest fire seasons. In both of those years, fires were burning in very close proximity to uranium mine and mill facilities. Licensees required active firefighting efforts in those years, working under the direction of the provincial firefighters, to ensure the operations were protected.

CNSC staff is confident with the licensees' capabilities to respond to threatening forest fires in protecting the uranium mine and mill facilities in cooperation with provincial authorities.

Next slide, please. As previously stated, the uranium mine and mill facilities in Northern Saskatchewan were not directly threatened by forest fires in 2015 and have continued normal operations.

Forest fires continue to burn today and are being actively monitored and managed by provincial authorities.

In 2015, a number of Northern Saskatchewan communities, including La Ronge, required evacuation due to smoke, as well as the extent and proximity of the fires. Evacuation notices for the communities have now been lifted and evacuees have returned to their communities.

Next slide, please. The fires affected a large portion of Saskatchewan either through the impact of smoke on air quality, disruptions to normal business



activities or to the direct safety of several northern communities. Thirteen thousand people were evacuated and displaced for several weeks to southern centres such as Saskatoon, Prince Albert and Regina which provided care and shelter during this forest fire event.

Uranium mine and mill licensees participated in the relief effort by providing assistance to community members and shelter organizations throughout the forest fire event.

Next slide, please. The forest fires resulted in situations and impacts to the mines and mills requiring their attention in mitigation. Licensee corporate crisis management was activated to help control and mitigate these impacts.

The mines and mills are dependent on transportation by trucking for operational supplies, including fuels, process chemicals, parts, food, et cetera. The fires to the south caused temporary road closures and delays for trucks and supplies.

To ensure the safe transport of personnel and supplies, the Ministry of Highways provided escorts for vehicle convoys. Critical operation supplies were monitored at the facilities and yellow cake shipments by truck to Saskatoon were voluntarily suspended through much of July.

Workers at the uranium mine and mill facilities are flown to work from pick-up locations in Saskatoon, Prince Albert, La Ronge and other Northern Saskatchewan communities.

Due to community evacuations, licensees had to modify employee pick-up points to allow people to get to work and get home to their families. Some employees were also released by the licensees to aid in the firefighting efforts in their home communities.

Licensees did not require evacuation of employees from their operating facilities due to the forest fires.

Next slide, please. Licensees have contingency plans to deal with emergency situations, accidents and natural disasters such as fires. Sites are equipped with firefighting equipment, fire trucks and ambulances to deal with such emergencies.

All facilities develop and train emergency response teams that are first responders to all site emergencies, both on the surface and underground. Part of their emergency response training is on fire prevention and firefighting. Emergency response teams from all uranium mine and mill facilities have mutual assistance agreements to work together whenever necessary. Uranium mine and mill facilities only fight forest fires when the fires directly

threaten their site and this is done under the direction of provincial wild fire authorities.

Licensee response is mainly in the form of fire prevention, such as maintaining or increasing fire breaks and setting up sprinkler systems around the facility. They do not actively go out from the facilities to directly fight fires.

In the event that a forest fire cuts off the main electrical power line grid, facilities have the ability to maintain full operations through on-site diesel generators. The amount of diesel stored at site and the ability to replenish diesel supplies is a contingency issue that is monitored by the licensees.

If on-site power is required for extended periods of time, the facilities can operate and maintain in a safe shutdown state with only critical systems operating such as effluent treatment or underground water pumping. The environment and the health and safety of workers would be protected.

Next slide, please. Licensees provided various forms of assistance to evacuees.

Saskatoon, La Ronge, and Prince Albert-based employees volunteered daily to assist Red Cross.

Eighty-one Pinehouse residents were temporarily housed at Key Lake operation.

Fire fighting equipment and personnel was provided to the community of Pinehouse to assist during community evacuation and collection bins were set up at licensee offices for donations.

Next slide, please.

The CNSC monitored the forest fire situation closely and kept up to date with fire progression through licensee reports, information from the Province of Saskatchewan and the local emergency operations centre.

CNSC staff kept management aware by providing a report to the CNSC Executive Committee while also actively communicating the fire status on the CNSC website, Facebook and Twitter.

Next slide, please.

The Province of Saskatchewan's Ministry of the Environment is the lead authority responsible for all forest fire fighting efforts in Saskatchewan. The province has developed a fire fighting program that provides resources and coordinates firefighting strategies. In cases of imminent threat to public safety it can order evacuation of the affected areas which in 2015 resulted in one-third of the northern residents being evacuated.

The province also maintains and supervises the use of public roads through the Ministry of Highways and Infrastructure. During emergency events transportation

routes may be altered or suspended based on the conditions encountered on the ground.

Next slide, please.

The 2015 forest fire situation in northern Saskatchewan attracted a significant amount of media attention both locally and nationally. As previously mentioned, CNSC provided updates on their internal and external communication networks in response to the heavy media coverage. Local newspapers and television stations provided daily reports of fire progression and impacts to the northern communities while provincial authorities responsible for managing the fires informed the public of the fire status by providing updates on Facebook, daily fire maps and highway closure reports.

Federal authorities such as Natural Resources Canada and Health Canada also provided updates on resources when required.

The licensees' social networking efforts were valuable in informing their employees and other interested stakeholders on operational issues and community assistance being provided.

Next slide, please.

To conclude the presentation I would like to reiterate that forest fires in northern Saskatchewan are a normal seasonal occurrence. In 2015, the unusually dry and

hot conditions resulted in an increased number of forest fires with greater intensity.

There have been no fires in close proximity to the uranium mine and mill operations that required employee evacuation or required active fire fighting efforts by the province and licensees to ensure that operations were protected.

CNSC staff is satisfied that the licensee's fire response management is effective and that their contingency plans are acceptable and protective of the health and safety of employees in the environment.

Communications to the public by CNSC and licensees were timely and transparent. Licensees mitigated operational impacts resulting in no risk to the health and safety of workers or to the environment at the operating mine and mill facilities.

CNSC staff and CAMECO and AREVA representatives are now available to answer any questions. Thank you.

**THE PRESIDENT:** Thank you. Let's start the question session with Monsieur Tolgyesi.

**MEMBRE TOLGYESI :** Merci, Monsieur le Président.

Even though the fire is far away the smoke is travelling long distances. Did you experience with

underground, specifically underground operations, smoke detection or problems for ventilation because underground you don't know then if the fire is underground or if it's just the smoke which is coming?

**MR. NAGY:** For the record, Kevin Nagy with Cameco.

The predominant wind direction where our facilities are located is from the northwest. So for the most part, the wind was blowing the smoke away from our facilities. That said, we did have a few smoky days at some of our facilities. It wasn't an issue at the facilities that we have, the three underground mines; McArthur River, Rabbit Lake or Cigar. It wasn't necessary to suspend mining operations at all. The smoke wasn't really a significant concern at those facilities.

We did have a day, I think, in early July at our Key Lake operation where it was quite smoky and visibility was quite poor. And we did suspend outdoor work and outdoor activities for that day until the smoke cleared.

**MEMBER TOLGYESI:** What's your emergency communication underground? Is this gas, stench gas or some other way to communicate employees for evacuation?

**MR. NAGY:** Kevin Nagy, for the record.

Yes, stench gas is one of the mechanisms

they will use to alert underground employees to report to refuge stations.

**MEMBER TOLGYESI:** And the last is what protective measures for consumables -- you know you store consumables on the surface; diesel, chemicals, reagents. Do you have any specific measures to protect in case of fire because the diesel could burn, chemicals could produce gasses? So what do you do?

**MR. NAGY:** Kevin Nagy, for the record.

Our fuel and chemical storage facilities at are operations are in compliance with both provincial regulations for storage as well as the *National Fire Code of Canada* requirements. The bulk fuel storage, chemical storage facilities are also generally located within the developed industrial apron of the facilities. So there is quite a bit of separation between, say, diesel fuel tanks and the surrounding forest.

And as well, as part of our precautionary measures when there is a forest fire in the vicinity we do have sprinklers that we can set up in the developed area of the facility. So that additional protection would be afforded to those tanks as well.

**THE PRESIDENT:** Thank you.

Monsieur Harvey...?

**MEMBRE HARVEY :** Merci.



Was the 2015 date that you have compared this year with the average, 10-year average -- but was 2015 the worst year among all those, the 10 recorded years?

**MR. NAGY:** That I don't know. It was? I can't hear you.

**MS WALLACE:** (Off microphone)

**MR. NAGY:** I don't know if 2015 -- was 2015 worse?

**MS WALLACE:** In numbers and area they are relatively similar to 2008 and 2012.

**MR. NAGY:** Okay. The 2015 year is relatively similar to 2012 but we aren't completed the full year yet. So we do not -- it probably will set a new record for the past 10 years. Like today there are still 47 fires burning.

**MEMBER HARVEY:** Yeah. We have to wait to have the final picture.

But over those 10 years have you been -- have you ever been in any obligation to seize the activity at the specific facilities or it never happened?

**MR. CORMAN:** Jim Corman with AREVA Resources, for the record.

At our operations at McClean Lake over the last 10 years we have never had to suspend operations due to forest fires in proximity to our operations. This year

was unusual in that the fires were located significantly at a distance from the site but they were expansive and cut off road access to the site.

So this was the first event that we had where we had blocked access to our operations for any extended duration of time. So that was the biggest challenge this year to deal with.

**MR. NAGY:** Kevin Nagy, for the record.

I believe in the presentation that Mark Langdon gave he mentioned 2012. There was a forest fire in 2012 that was threatening our Rabbit Lake operation. So we did safely shut down our mining activities, mining and milling activities and concentrated on removing non-essential personnel from this operation and then auctioning the forest fire under the direct supervision of the provincial wildfire authorities.

**MEMBER HARVEY:** One last question. Is the wind mostly blowing in the same direction every year at that time of the year or some time it could be different?

**MR. NAGY:** Kevin Nagy, for the record. The wind direction is predominantly from the northwest in northern Saskatchewan but it always seems -- it's an east wind.

**MEMBER HARVEY:** Okay. Thank you.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** Thank you. So a question for all three parties; AREVA, Cameco and CNSC staff: In the spirit of continuous improvement, anything from this set of forest fires that would get you to revisit your emergency management plans and programs, tweak them up or change anything?

**MR. NAGY:** Go ahead.

**MR. CORMAN:** Jim Corman, for the record.

From AREVA's perspective, some of the key takeaways were -- most of the key takeaways were all very positive. The mutual assistance agreement that was enacted between the various operators in the north was very beneficial in terms of keeping all of the operators apprised of changing situations in the north because it was a fairly dynamic situation.

We had meetings, conference call meetings with all the operations two times a day and tapped in at those meetings to the logistics side of support that was needed to keep all the operations going. Sharing of -- the offer of sharing of equipment and people and reagents between the sites was always on the table and took -- was taken advantage from time to time.

So if the -- from our perspective, the engagement of the crisis management teams and the mutual assistance agreements were very, very positive. There is

certainly some small learnings in terms of capacities that we maybe have for storage of summary agents on site that could be revisited. We have never experienced a road blockage of the extended duration that we had this summer. So that's something that as operators we will take away and look at the learnings from that and whether our reagent storage and our fuel storages at the sites are adequate.

**MR. NAGY:** Kevin Nagy with Cameco, for the record.

I agree with Mr. Corman. There was an awful lot of communication and a lot of pieces fell into place pretty quickly as the situation developed. So now that things have calmed down a bit we'll be looking to doing a lessons learned and perhaps one of the things to look at is just to formalize those, the communication and logistics that did have to occur so the next time an event like this happens we have those in place right off the bat.

**MR. LANGDON:** Mark Langdon, for the record.

Kevin sort of talked about what I was going to say. I think from a regulatory perspective, towards the end of summer I would like to meet with Cameco and AREVA and we can discuss lessons learned and how we can improve things, moving forward for the future, for the protection of the sites, the environment and all the employees.

**THE PRESIDENT:** And I would like to take

this opportunity to thank you, particularly Sarah for those wonderful updates, daily updates, and some of those maps. Some of those maps of the fires were breathtaking in their magnitude and expansion. So wherever you are getting this data, tell them that it's pretty impressive stuff. Thank you for the updates.

Ms Velshi...?

**MS WALLACE:** The one thing I would add for lessons learned but just not necessarily really to improve this, was the importance of social media. Social media really was the mechanism that the licensees used and also the Government of Saskatchewan used and also the Emergency Response Committee -- Emergency Operations Centre. That really was the best way to get that information out. Those were trusted sources so we knew that information was good.

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

**THE PRESIDENT:** You mean wireless services now goes all the way up north? Did Cameco now build infrastructure all the way up north?

**MR. NAGY:** Kevin Nagy, for the record.

Yes, there is cell service at our facilities.

**THE PRESIDENT:** I was thinking about the Aboriginal communities, which was always a challenge. Anyhow, you don't have to answer it right now.

I would like to move on to Dr. McEwan.

**MEMBER MCEWAN:** So just you have a lot of construction going on at McClean Lake at the mill. And with the road closures did you actually lose construction time and are you likely to be late in finishing your planned projects or was it something that you could catch up or deal with?

**MR. CORMAN:** Jim Corman, for the record.

The construction teams were slightly delayed. We had some materials that were delayed getting to site by about five days. Certainly, construction materials were low on the priority list of materials that we needed to move to site over this duration of time.

So there was some demobilization of contractors for a duration of about a week. We have been able to bring those folks back within about a week. Essentially that was the impact on the construction schedule locally in one area of the fabrication of our one steel building outside, but not a significant impact. It was about a week delay for, I think, about 60 steel workers had to stand down.

**THE PRESIDENT:** Okay. Mr. Tolgyesi...?

**MEMBER TOLGYESI:** I have one, the last one.

If it's a full evacuation how you will secure the site because there is access roads and you don't

control them. So how do you secure the site that there is not somebody who is coming and picking up material or any from a mill, radioactive, yellowcake or any other product?

**MR. NAGY:** Kevin Nagy, for the record.

We have had forest fires threaten our facilities in the past and we have evacuated non-essential personnel and safely shutdown our facilities. But those forest fires have been actioned by the province with their full forest fire fighting arsenal, if you will; water bombers, men and equipment. We would always have people onsite. So I am not sure that's a scenario that's likely to play out.

**THE PRESIDENT:** So is this such a minimum shift, that you must retain onsite a minimum number of people that will always remain onsite?

**MR. NAGY:** Kevin Nagy, for the record.

Are you talking about emergency response team personnel?

**THE PRESIDENT:** Well, whatever, whether it's fire, snow or earthquake, whatever; there will be some people in there 24/7.

**MR. NAGY:** Kevin Nagy, for the record.

We would maintain enough operational personnel to staff the essential safety control facilities such as our water treatment, water pumping, those aspects

of the facility, yes.

**THE PRESIDENT:** Monsieur Harvey? Ms Velshi?  
Dr. McEwen, no?

Thank you. I just want to take this opportunity also to thank you for looking after our visitors to Cigar Lake and McClean -- the McClean Mill. I think they were in there. And particularly our U.S. friends, they were very, very impressed with your operation. So thank you for that.

And I think this concludes our meeting, Commission meeting. Thank you all for participating.

Marc, is there anything you want to say to really close it?

**MR. LEBLANC:** So everybody in the room will have some interpretation devices. Please bring them back at reception.

Thank you.

--- Whereupon the meeting concluded at 3:44 p.m. /

La réunion s'est terminée à 15 h 44