

Canadian Nuclear
Safety Commission

Commission canadienne de
sûreté nucléaire

Public meeting

Réunion publique

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Le 26 janvier 2017

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

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

Commission Members present

Commissaires présents

Dr. Michael Binder
Dr. Sandy McEwan

M. Michael Binder
D^r Sandy McEwan

Secretary:

Secrétaire:

Mr. Marc Leblanc

M. Marc Leblanc

General Counsel:

Avocate générale :

Ms Lisa Thiele

M^e Lisa Thiele

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Ottawa, Ontario / Ottawa (Ontario)

--- Upon commencing on Thursday, January 26, 2017
at 4:19 a.m. / L'audience débute le jeudi
26 janvier 2017 à 16 h 19

Opening Remarks

MR. LEBLANC: It's mostly people who were already here earlier today, so good afternoon and welcome to the public meeting of the Canadian Nuclear Safety Commission.

For those who weren't here, we have simultaneous interpretation. We would ask that you keep the pace of speech relatively slow so that the interpreters have a chance to keep up.

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

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

Mr. President...?

THE PRESIDENT: Thank you, Marc.

Good afternoon and welcome to the meeting

of the Canadian Nuclear Safety Commission. Welcome to all of you who are joining us via webcast and teleconference.

My name is Michael Binder, I am the President of the Canadian Nuclear Safety Commission.

I would like to start by introducing the members of the Commission that are here. It's a long list. On my left is Dr. Sandy McEwan. We have heard from Marc, our Commission Secretary. We also have Ms Lisa Thiele, Senior General Counsel to the Commission, here with us 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 agenda published on January 23rd for the complete list of items to be presented today.

CMD 17-M2.A

Approval of Agenda

THE PRESIDENT: So with this information, I would like to call for the adoption of the agenda by the Commission, as outlined in CMD 17-M2.A.

Do we have concurrence?

For the record, the agenda is approved.

CMD 17-M3

**Approval of Minutes of Commission Meeting
held on November 10, 2016**

THE PRESIDENT: I would like now to call for the approval of the minutes of the Commission Meeting held on November 10, 2016, as outlined in CMD 17-M3.

Any comments?

MEMBER MCEWAN: I just have one question, Mr. President, and that is on the EIR from Vancouver, item 17 in the agenda. We were going to check if it was indeed the technician who injected -- the technologist who injected or otherwise, just to be accurate on that one item.

THE PRESIDENT: I perceive the answer coming toward us.

MR. MOSES: Colin Moses, Director General of Nuclear Substance Regulation. Thank you for that question and the opportunity to clarify.

As we reported in December, the dose was administered, but we erroneously reported that the dose was administered by the Nuclear Medicine Technologist. It was in fact administered by a radiologist with the assistance

of the technologist.

THE PRESIDENT: So the minutes will be corrected with the proper language into it.

MR. MOSES: Yes.

THE PRESIDENT: Okay.

Any other? Anything else?

Okay, thank you.

CMD 17-M4

**Approval of Minutes of Commission Meeting
held on December 14, 2016**

THE PRESIDENT: I would like now to call for the approval of the minutes of the Commission Meeting held on December 14, 2016, as outlined in CMD 17-M4.

Any --

MR. LEBLANC: If I may, Mr. President, the correction that we just brought was for the December minutes. I think we have approved without correction the minutes from November earlier, because there were two sets of minutes today. So the comment or the question from Dr. McEwan was with respect to the second, the December 14.

THE PRESIDENT: Okay, thank you.

Nothing else?

MEMBER MCEWAN: Nothing else.

THE PRESIDENT: All right.

CMD 17-M5

Status Report on Power Reactors

THE PRESIDENT: So the first item on the agenda is the Status Report on Power Reactors, which is under CMD 17-M5.

I understand we have a representative from the nuclear power plant in the room and we have some representatives on the phone.

So let me check the people on the phone from OPG. OPG, can you hear us?

MR. GRANT: Yes, we can.

THE PRESIDENT: Okay, that's it. Thank you.

So let's get into the actual question session, but first I understand, Mr. Frappier, you have some comments to make.

MR. FRAPPIER: Thank you, Mr. President and Members of the Commission.

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

Reactor Regulations.

With me today are the Power Reactor Regulatory Program Division Directors plus some technical support staff, who are available to respond to questions on the Status Report of Power Reactors which is being presented under Commission Member Document 17-M5.

We also have representatives from the licensees, as you just mentioned.

As you will note, as always is the case, the status report has to be submitted a little bit ahead, so in this case it was finalized on January 20th. So I would like to report a few updates to that report.

First, that Bruce Power, Unit 4 has returned to service and is now at full power.

Also with respect to Bruce, I would like to update on a previous incident that we have just been informed about and that is that we have been informed that the Ontario Ministry of Labour has charged Bruce Power under the *Occupational Health and Safety Act* after completing its investigation into a worker injury that occurred in February of 2016. You will remember the Commission was informed of this event in CMD 16-M18, where it involves a worker who suffered bodily burns as a result of a flash that occurred due to hydrogen interaction while

working on the Unit 8 generator rotor. So not a very radiological accident, but an occupational health and safety accident with hydrogen and on the non-nuclear side of the plant. CNSC staff will continue to offer assistance to the Ministry of Labour as required and will update the Commission as this matter progresses.

Moving on to Pickering, the Commissioners saw fuelling machine unavailability data at the last Commission Meeting, so that is one of the actions that are in the minutes that we just discussed. Appendix A contains the Pickering fuelling machine unavailability trend data that we received from OPG.

At Darlington, a worker injury was reported on Monday, January 23rd. An employee at Darlington working on Unit 2 reactor vault tripped and fell, breaking the bones in his finger and his hand in the process. The employee will be absent from work for four days and CNSC will continue to monitor this event as well.

Also at Darlington, Unit 2 defuelling campaign was completed on January 11th, which is about a month ahead of schedule. So this is part of the refurbishment, first step of the refurbishment, to defuel the unit. The defuelling was originally forecast for February 9th.

And last thing, Point Lepreau is currently running at 93 percent after a turbine governor valve malfunction during a test. Troubleshooting is underway and we don't have any immediate safety concern. We will be following up on that one as well.

So this concludes the Status Report on Power Reactors and we are available to answer any questions you may have.

THE PRESIDENT: Thank you.

Dr. McEwan...?

MEMBER MCEWAN: Thank you, Mr. President, and thank you for the trend data on the refuelling.

One of the units in the first paragraph that you have put in, fuel handling contribution to forced loss rate, what do the numbers mean on the Y axis?

MR. FRAPPIER: Gerry Frappier, for the record.

This is a document or information that we received directly from OPG, so I would ask OPG to answer any questions you might have on that.

MR. GRANT: Fraser Grant. Good afternoon. For the record, Fraser Grant, Director of Operations and Maintenance from the Pickering site. Online we have Kathleen Carew, our Fuel Handling Manager, and at this time

I would ask Kathleen to please answer the question.

MS CAREW: Thanks, Fraser.

For the record, Kathleen Carew, Senior Manager of Fuel Handling.

So your question is regarding the unit with respect to the forced loss rate graph and the units would be percent -- it's a percentage that were not available to be at 100 percent full power. Is that the graph? Does that answer your question?

MEMBER MCEWAN: That answered my question, yes. I just couldn't work out what the 1.5 and the 2.5 was for.

MS CAREW: Okay.

THE PRESIDENT: Okay. I'm a bit slow, so I'm trying to understand. So what does it mean, in 2014 almost 7 percent of the time it was down? Is that what it means?

MS CAREW: No. So the forced loss rate, that's an aggregate number for the station. So the time that the units, Unit 1, 4, 5, 6, 7 and 8, are not running at 100 percent full power, and so what that represents is the time that either units were derated or shut down due to fuel handling issues. So it's a percentage measure of the time that you could be at 100 percent but you were not.

THE PRESIDENT: So 7 percent of the time, this is lost time from 100 percent, is that what it is?

MS CAREW: That's correct, yes.

THE PRESIDENT: Okay.

Anything else?

MEMBER MCEWAN: Yes.

I mean so there's obviously a lot of variability. If you just look at the last of the graphs you have a wide variability sort of over the 24 months, but overall the trend is probably going down. Is that likely to be sustained or is this partly a random issue that can't be predicted and is difficult to prevent?

MS CAREW: For the record it's Kathleen Carew, Senior Manager of Fuel Handling.

So I believe you are looking at the critical failure review data; is that correct?

MEMBER MCEWAN: Yes.

MS CAREW: Okay. So with respect to that, it is looking at discrete events, which is why you are not seeing a smooth graph and it looks choppy. And it is a relatively small number of events that create that metric, which is a contribution to its choppiness and apparent variability, and that's why we are looking closely at the trend and the trend has improved. So that's a measure of

critical failures associated with fuel handling equipment, so failures which would cause the fuelling machine to be unavailable.

THE PRESIDENT: So let me try to absorb all of this. The reason I'm sort of interested in this, even though people say it's not a safety issue, is this is -- when a fuel handling machine is not working, this is right down from your bottom line, it's an economic machine. You want to make sure that you always have this running so your machine is always available to get the plant running. So am I right to -- if you cannot fix that, to me, it raises all kinds of flags about what else can't you fix, which is less critical economically. Am I dotting the lines here, or whatever the expression is, correctly? Because it has always been, in all of CANDU facilities it seems to me, I couldn't understand why you cannot fix this fuel handling problem that seems to appear all the time. So what am I not understanding here?

MS CAREW: Okay. For the record it's Kathleen Carew, Senior Manager of Fuel Handling at Pickering.

You raise a good point on the economic impact of the fuelling machines and also on the safety impact of the fuelling machines. So you are correct in

that the goal is -- but for planned maintenance, because fuelling machines are unavailable at times for planned maintenance. So with the exception of planned maintenance, the goal would be to have the fuelling machines available at all times to maintain fuelling capability in the station. So it is not -- I would say it's not that we are not able to address the problems but that we do prioritize them, and fuelling machine issues are addressed promptly and what you can see is our consistent drive to reduce our corrective backlog. So right now there are no critical corrective work orders in our backlog and critical non-corrective -- or corrective non-critical work orders are at their lowest level, at a level of 14.

THE PRESIDENT: Okay, thank you.

MR. GRANT: Fraser Grant for the record, Pickering Nuclear.

Dr. Binder, if I could just supplement Kathleen's answer there as well.

So what I would tell you is that we are very proactive around fuelling machine issues. We do not tolerate them as much as we used to. We are also -- a key piece in this is as we progress through the station life there is an increased demand on the fuelling machines for fuel channel inspections which not only exercise the

machines more often than we would like but also takes away some of the normal maintenance windows that we have. So a complicated issue for us, but we are working through it. I think we can demonstrate that we are improving the performance of the machines as well at the same time.

THE PRESIDENT: Thank you.

MEMBER MCEWAN: Thank you.

THE PRESIDENT: Dr. McEwan...?

MEMBER MCEWAN: That's it.

THE PRESIDENT: Okay.

So first of all, on Darlington, when a D₂O leak occurred from Unit 1, did it shut down?

MR. KHANSAHEB: This is -- sorry, go ahead.

THE PRESIDENT: I just want to know if it caused the shutdown of the machine.

MR. KHANSAHEB: This is Zar Khansaheb for the record. I am the Director of Ops and Maintenance for Darlington.

No, the unit did not shut down. What occurred -- and just for the record, to correct the comments, the event occurred on January the 4th. What occurred was a D₂O and H₂O leak from our shutdown cooling heat exchanger. The alarm was received for this particular

parameter in the control room, and part of the procedure that they referenced quickly is to do some sampling downstream in the light-water side. It is a common alarm. It's a grouped pipe, which is they get the one alarm, and they had to determine which of the two heat exchangers was the one with the leaking tube.

They were able to determine it was heat exchanger 2, and they rapidly isolated it within about 15 or 20 minutes. So the unit remained running throughout the whole occurrence.

THE PRESIDENT: Okay. We're getting into the technical aspects here. I thought the whole idea was always that we'll always be able to detect a leak before a break. I thought any leak at all would trigger angst to the point of shutting down the unit, so I don't understand how you can isolate the leak and fix it while the units are running.

MR. KHANSAHEB: Zar Khansaheb, for the record, Darlington and DOM.

This is in our shutdown cooling heat exchanger circuit. This particular heat exchanger is not used as part of normal on-power operation, it is used while we are in shutdown operations for plant maintenance. So we are able to complete this type of maintenance and review of

the heat exchanger leakage on power. There's no requirement to shut the reactor down for this particular type of heat exchanger.

THE PRESIDENT: So CNSC, are you satisfied how procedures were taken here?

MR. FRAPPIER: Gerry Frappier, for the record.

Yes, we don't have an issue here. And just to come to your comment, the Leak Before Break, that is often in front of this Commission that we're talking about, has to do with the primary heat transport system and certain key components, like pressure tubes and that.

In this case what we're talking about is a cooling heat exchanger that would not even be in use during sort of normal operations, and only becomes important once we have the unit in a shutdown mode. So as was explained, that's one of the reasons they could do the fix without having to do the detective work without having to turn the unit off.

THE PRESIDENT: Well, you know, on such items, when you're talking about things, a nice little diagram would have been useful to explain where and what and why.

I have one last question, and I think I'm

going to ask it all the time.

On Unit 2, which is under refurbishment, I'm trying to figure out whether any kind of an accident around in Darlington -- the employee tripped -- will that delay the refurbishment at all or not?

MR. KHANSAHEB: This is Zar Khansaheb, Darlington and DOM, for the record.

That particular event occurred inside our Unit 2 reactor vault. The individual was wearing his full radiation protection equipment. And what occurred there was he simply caught his rubber boot, which is part of the radiation protection ensemble, on the grating. He tripped, and in order to break his fall, he used his hand, and that's where the bone break occurred, and it was on his hand.

Of course, that injury was -- he took himself out of the vault, and immediately reported it to his supervisor. So there was no delay specifically on that event. The individual managed himself to come out of the vault and report the injury.

THE PRESIDENT: So all the refurbishment operation proceeded as normal?

MR. KHANSAHEB: During that part of the time, the refurbishment proceeded as normal.

It's Zar Khansaheb, for the record.

THE PRESIDENT: Okay.

Anything else anybody wanted to add? We heard all about Point Lepreau the whole morning, so I'm not going to get into that.

--- Laughter / Rires

THE PRESIDENT: And Gentille-2, still no news to report? I mean just that it's still continuing in safe...?

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

As has been decided, we won't be reporting on G-2 as part of the monthly nuclear power plant operating report of reactors, but there is no particular news from G-2. If there is particular news of importance from G-2, we would be making the Commission aware of it through our normal event indicators and that.

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

--- Pause

CMD 17-M6

Oral presentation by CNSC staff

THE PRESIDENT: The next item on the agenda is an information item to provide us with an update on the fitness for service safety and control area for the Chalk River Laboratories, as outlined in CMD 17-M6. This was a request from the Commission made during the April 6th, 2016 hearing.

I understand that we have representatives from the Canadian Nuclear Laboratory on the phone.

Mr. Cox, can you hear us?

MR. COX: Yes, I can hear you.

THE PRESIDENT: I understand we have also from our site office, Mr. LeClair.

MR. LeCLAIR: Yes, I'm here.

THE PRESIDENT: Okay.

So I guess now Ms Tadros will have some comments on this particular report.

Over to you.

MS TADROS: Thank you, sir.

Good afternoon, members of the Commission.

For the record, my name is Haidy Tadros.

I am the Director General of the Directorate of Nuclear

Cycle and Facilities Regulation.

With me in the hearing room is Mr. Nhan Tran, Senior Project Officer in the Nuclear Laboratories and Research Reactors Division; and you've heard from Mr. Jean LeClair, the Director of the same division, who's joining us remotely.

We are here to present the sixth status update on the fitness for service safety and control area of the National Research Universal, NRU, reactor and Canadian Nuclear Laboratories progress towards a "Satisfactory" rating.

Since the last update, in December of 2016, CNSC staff have confirmed, as per our table, that CNL has achieved a "Satisfactory" rating in the refurbishment of the rod monitoring system and establishment of the technical basis of preventative maintenance activities for safety-related systems.

The remaining activities to be carried out by CNL to achieve a "Satisfactory" rating for the fitness for service safety and control area relate to the installation of hardware.

CNSC staff continue to maintain regulatory oversight on all specific areas, and future updates to the Commission will continue to focus on those criteria where

CNL performance remains below expectations, namely maintaining and replacing, as required, the ion chambers and cables for the reactor protection and control systems and the refurbishing of Class I, II and III power systems.

We are available to take any questions you may have at this time.

THE PRESIDENT: Mr. Cox, do you want to add anything to this before we open up the floor?

MR. COX: Thank you.

David Cox, for the record, Canadian Nuclear Laboratories, Chief Nuclear Officer.

CNL concurs with the summary of information as presented by Haidy Tadros. I would only add that we continue to make good progress on the two remaining items as noted.

THE PRESIDENT: Thank you

Dr. McEwan.

MEMBER MCEWAN: Thank you, Mr. President.

I guess, again, congratulations to both CNL and to staff for the progress, but also the quality of the report. It really is very, very helpful. Thank you.

I guess I only have two very, very simple questions: the two target completion dates still likely for completion, and in item (c) on the first page, the

production of the additional spare parts will then solve the refurbishment inventory problem, and that will completely solve that issue for the balance of the operating life?

MR. COX: David Cox, for the record.

I'll work backwards, and start with respect to the spare parts. Yes, the inventory amount that is targeted, and is now in hand, will be sufficient for the remaining period of reactor operation.

MEMBER MCEWAN: Thank you. And do the target dates of, well, the 1st of April and 31st of May still look realistic and doable?

MR. COX: David Cox, for the record.

We continue to make good progress on that. I'll not that for the ion chambers in the maintenance outage just finished last week, we completed one additional set of ion chambers, so we've now finished 10 of 11. So we've have good confidence in completing that in May, the final item. And good progress is being made on the Class I, II and III power system refurbishment, with the majority of the work already completed, we're just working on a few remaining outstanding items.

MEMBER MCEWAN: Thank you.

THE PRESIDENT: So the chart of the NRU

overdue preventative maintenance job, I know it's missing January, but do we feel the trend will be the same, kind of going down?

MR. COX: David Cox, for the record.

We have the January data now in hand, and it shows a continued decline. There are 28 open overdue PMS in the month of January. So it shows continued improvement, and we believe, then, the improvements made in our work management system have provided us with the ability to sustain the lower level of open PMS.

THE PRESIDENT: So it begs the question here, do we need an update in March, or do we give them a break for one month and ask for a report in maybe April? Staff?

MS TADROS: Haidy Tadros, for the record.

That will be up to the Commission. As you've seen for the previous updates, we are on track, and I believe there was a criterion, that was finished ahead of schedule as well. So we are definitely on track.

The purpose for our table was, in essence, to show that the continued regulatory oversight does exist after a "Satisfactory" rating has been achieved. So while we are witnessing downward trending, which is always in the positive direction in this case, we will notify the

Commission should there be anything of particular interest or any changes that are either not according to schedule.

We do have an update specifically on part (b), so that would be on the first page. On the refurbishment of the Class I, II and III power systems, just a slight correction. The first inverter was actually completed in December 2016, and the installation of the second converter is on track to start in February 2017. So that would be the only point to update with regards to the status that was written here.

THE PRESIDENT: And then I guess so I know, are you recommending that we keep the momentum and report March like usual, or do we push it to April, because right now they're not scheduled to finish anything before April?

MS TADROS: Haidy Tadros, for the record.

That is correct, sir. Our recommendation is that April should be sufficient just to ensure that there is a level of confidence. The momentum is always there because we are always overseeing the work that is being done.

THE PRESIDENT: Mr. Cox, you agree with all this?

MR. COX: Thank you. I would concur with

that recommendation.

THE PRESIDENT: Okay, thank you.

Any other comment?

MEMBER MCEWAN: No comments.

THE PRESIDENT: So this will conclude the meeting of the Commission. Thank you all for your participation.

--- Whereupon the meeting concluded at 4:50 p.m /

La réunion s'est terminée à 16 h 50