Canadian Nuclear Safety Commission	**Commission canadienne de sûreté nucléaire**
Public meeting	**Réunion publique**
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Public Hearing Room 14th floor 280 Slater Street Ottawa, Ontario	Salle d'audiences publiques 14e étage 280, rue Slater Ottawa (Ontario)
Commission Members present	**Commissaires présents**
Dr. Michael Binder Dr. Ronald Barriault Ms. Rumina Velshi Mr. André Harvey	M. Michael Binder M. Ronald Barriault Mme Rumina Velshi M. André Harvey
Secretary:	**Secrétaire:**
Mr. Marc Leblanc	M. Marc Leblanc
General Counsel :	**Avocate général:**
Ms. Lisa Thiele	Mme Lisa Thiele

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Ottawa, Ontario

--- Upon commencing at 9:02 a.m./
L'audience débute à 9h02

Opening Remarks

M. LEBLANC: Bonjour, mesdames et messieurs. Bienvenue à la réunion publique de la Commission canadienne de sûreté nucléaire.

We have simultaneous translation. 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.

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 dans environ une semaine.

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

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.

THE CHAIRMAN: 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 or teleconference.

I’d like to begin by introducing the Members of the Commission that are here with us today. On my right is Dr. Ronald Barriault; on my left is Ms. Rumina Velshi and Mr. André Harvey.

We’ve heard from our Secretary, Mr. Marc Leblanc, and we also have Ms. Lisa Thiele, General Counsel to the Commission. She’s here on the podium.

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

Please refer to the agenda dated June 6 for the complete list of items to be presented today.

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

Mr. President?

THE CHAIRMAN: Okay. With this information I’d like to start by calling for the adoption of the agenda by Commission Members, as outlined in CMD 12-M31.

Do I have concurrence?

For the record, the agenda is adopted.

2. 12-M31

Adoption of Agenda

THE CHAIRMAN: I will now call for the approval of the minutes of the Commission Meeting held on May 2nd and 3rd, 2012. The minutes are outlined in Commission Member Document CMD 12-M32.

Any comments, additions, deletions?

Okay. Therefore, I would say that we have approval.

So, for the record, the minutes are adopted or approved.

3. 12-M32

Approval of Minutes

of Commission Meeting

held May 2 and 3, 2012

THE CHAIRMAN: We'll now proceed to the Status Report on Power Reactors, which is under CMD 12-M33. And I understand that Mr. Rzentkowski will make the presentation. Please proceed.

4. Status Reports

4.1 12-M33

Status Report on

Power Reactors

DR. RZENTKOWSKI: Thank you very much, Mr. President, Members of the Commission.

For the record, my name is Greg Rzentkowski and I would like to provide a further update to information included in the status report on power reactors, which is CMD 12-M33.

There are some changes which I would like to bring to the Commission's attention. Section 1.1, Bruce A, Unit 3, the unit is currently at 91 percent of full power. New software has been installed on the exciter for the generator, allowing the unit to return to full power.

Section 1.2 Bruce B, Unit A, the unit is currently at 93 percent of full power. The boiler tube has been repaired.

Section 1.3, Darlington, Unit 2; the unit is now at full power. The issue with the amplifiers on shutdown system 2 has been resolved.

Section 1.4, Gentilly-2, le réacteur est à 83 pourcent de la pleine puissance, limité par le manque de radioactivité. Le problème avec la machine à combustible empêche les rechargements du réacteur.

Section 1.6, Pickering B, Unit A; the unit is now at 87 percent of full power. The unit was synchronized to the grid on June 18, following a 10-day long forced outage to repair a fuelling machine.

Section 1.7, Point Lepreau refurbishment; the reactor building leak rate test was completed successfully. The leak rate was measured to be below the regulatory limit of 1 percent per day.

This concludes my update to the status report.

THE CHAIRMAN: Thank you.

Okay. The floor is open for questions.

Monsieur Harvey?

MEMBER HARVEY: Just one question. We see that they had some problem with the fuelling machine at Pickering B and c'est la même chose à Gentilly-2. Ils ont eu un problème.

Est-ce qu'il y a certaines similarités, similarities between the two problems? Is it the same thing for the other operator? I mean is it a generic problem?

DR. RZENTKOWSKI: Yes, those outages, or just power reductions associated with the fuelling machine failures are becoming more common and -- because the design features are exactly the same -- probably the aging factor is affecting the performance of fuelling machines.

About a year ago, if I could remember, we prepared a briefing note to the Commission on the same subject. I would like Mr. Phil Webster to summarize the content of this briefing note.

MR. WEBSTER: Thank you, Dr. Rzentkowski.

Monsieur Harvey, yes, as was just indicated we gave the Commission a briefing about a year ago to roughly describe the complexities of the fuelling machine and to describe and to describe that the because of the complexity, it's not unusual for them to suffer mechanical or electrical or hydraulic failures.

However, the forced outage rate as of a year ago was not declining. There were, as far as we could tell, no aging effects. Maybe it’s time for us to revisit that calculation in the light of the recent failures.

But without deferring to my colleagues, my impression is that there is no similarity between these two particular failures at Gentilly and Pickering A.

MR. RINFRET: Francois Rinfret, for the record, Director for the Gentilly Regulatory Program.

Je vais continuer en français pour le cas de Gentilly, si vous voulez.

Oui, comme M. Webster vient d’indiquer, ces machines sont très complexes. Elles sont essentiellement des robots, donc plusieurs pièces mécaniques.

Ce que j’aimerais compléter simplement dans la phrase -- l’énoncé qu’on a fait c’est que ces défaillances de machines à combustible ne représentent pas un risque pour l’exploitation de la centrale ou pour les travailleurs ou la population.

Alors ce sont essentiellement des défaillances ou des manques d’entretien ou des difficultés et qui posent un problème économique, donc une réduction de puissance. Ça devrait mettre en lumière un peu l’effet de ces défaillances.

MEMBRE HARVEY: Oui, je comprends bien, puis je le demandais pas dans -- je comprenais qu'il n'y avait pas de risque nécessairement, mais ça diminue la capacité de la centrale et -- le rendement, c'est-à-dire, de la centrale, ça fait que c'est un problème qui est assez important.

Est-ce que c'est un problème à Gentilly-2, par exemple, qui est cyclique? Est-ce que ça devient de plus en plus fréquent? On peut remarquer que c'était plus fréquent maintenant que c'était, bien sûr, les premières années, mais que le problème empire.

M. RINFRET: François Rinfret.

Sans avoir fait d'études spéciales pour soit accepter les informations qu'on a déjà données dans la note à la Commission, il ne semble pas y avoir de lien et puis de pertes économiques directes et importantes reliées à ça. Ça fait quand même un bon bout de temps, quelques mois peut-être, qu'on a vu notre disponibilité de machine à combustible à G-2.

Alors ça ne semble pas être un problème en train de s'étendre.

MEMBRE HARVEY: Mais vous mentionnez qu'il n'y a pas de similarité entre les deux, mais est-ce que c'est des problèmes de même nature? C'est quand même le même type d'équipement. Est-ce que c'est les mêmes défaillances?

M. RINFRET: Je ne connais pas la réponse précise sur la composante de la pièce qui aurait fait défaut cette fois-ci, si c'est une pièce qui est en attente d'être remplacée ou pas. Je ne connais pas la nature de ça.

Je pourrais toujours revenir avec cette information-là. Je voulais essentiellement parler de ---

MEMBRE HARVEY: Mais c'est pas devenu un problème de nature générique dans le sens que les exploitants se mettraient ensemble pour trouver ou pour améliorer la performance de ces équipements-là?

M. RINFRET: Je ne pense pas que pendant les périodes d'arrêt ou les périodes de réfection que la machine à combustible est une préoccupation majeure pour l'exploitant. C'est une question, je pense, de gestion de l'entretien et des pièces de remplacement.

THE CHAIRMAN: What -- let -- okay, let me jump in on this one. I don't remember what the briefing note says, so don't assume we do remember.

But what seems to me strange is that -- it's more of a question. If you're going to refurbish a whole plant, does the fuel machine also get fixed because what's the point of refurbishing and trying to get defficiencies if the fuel machine doesn't work?

I thought it was a separate kind of piece of equipment. And it seems strange that we still have problems that can be fixed while the machine is running, I assume, or else I don't understand the relationship between the fuel loading machine and the actual reactor.

DR. RZENTKOWSKI: Any necessary repairs and replacements to the system components are being performed as a part of the refurbishment. Specifically, is there any work done on the fuelling machine? I am not aware of that and we can probably ask Mr. Frank Saunders, who is present in the room, because they are just finalizing the refurbishment of two units, Unit 1 and 2 at Bruce B.

THE CHAIRMAN: By all means. And I assume that when -- you want to bite here -- and I assume that when Point Lepreau finishes, that they're not going to have any more of the same kind of issues with the machines?

MS. SWAMI: Laurie Swami, OPG.

For refurbishment, part of the program that we're looking at for Darlington includes analyzing the fuelling machine reliability and developing a program to ensure that we have that reliability during refurbishment as we defuel, as well as when we come out of refurbishment because, obviously, fuelling machine failures are of concern to us because they affect our generation. So that's why we focus a lot of attention on that.

With respect to Pickering, we're doing the same analysis now on the forced loss rates. We're developing a program to put in place a repair strategy so that we limit the amount of derailing to the fuel machine. So that's the program for OPG.

MR. SAUNDERS: And certainly there's significant -- I'm sorry, Frank Saunders for the record -- there's certainly significant fuelling machine work in the Unit 1-2 program as there was in Unit 3-4. You don't entirely have to do fuelling machines within refurbishment outages, though.

And so typically what we do with fuelling machines is we have a spare head, we call it, and spare pieces to the thing. We refurbish those. Take them off, essentially, take them away, refurbish them, and then we swap it out. So there is a fair amount of work usually in the refurbishment work itself.

Often, though, that's on the components that we have a hard time getting at during operation. During normal operation, we have a program that does this all the time because if we can't fuel, we can't produce power, obviously. It's like a car running out of gas; you just slowly slow down. So it becomes a big commercial driver as well.

So we have both on power and, you know, maintenance and refurbishment strategy and we do other piece as well. We're in the big refurbishments as well.

THE CHAIRMAN: But does the reactor -- when you do maintenance on the fuelling machine, does the reactor have to be off or the reactor can still operate?

MR. SAUNDERS: No, the reactor operates. The fuelling machine is just a way of adding fuel to the reactor, so when it's not attached to the reactor, you can work on it as you see fit. It does get a little bit radioactive, so it's a dose issue.

But like I say, we do have -- the main bulk of the fuelling machine, which we call the head, the piece that actually hooks on and does the work, we actually have spare heads. So while two of them may be in use, we can take the spare one and refurbish it separately and then take it back in and mount on the ---

THE CHAIRMAN: So how do you explain that -- so I still don't understand how you get outage and power derailing because of fuel loading. If you can fix it while it's running, something doesn't compute in my mind.

MR. SAUNDERS: Well I think that ---

THE CHAIRMAN: What am I missing?

MR. SAUNDERS: I think the important thing is, I mean, we fuel every day essentially. So to keep the reactors running, we’re fuelling one reactor every single day. There's not, in these reactors, a lot of excess reactivity, so you have to fuel all the time.

If, for some reason, you're fuelling machine breaks and you have to go do maintenance on it and that takes you a couple of days, you could get into a spot where you're starting to de-rate the reactor, simply because you don't have enough fresh fuel in it.

So it's not a safety issue. You only have a certain amount of reactivity, and if it's running low, you have to turn the power down, essentially. And that only takes two or three days. So that machine works all the time. Like I said, that's why we have a spare head and we refurbish the spare head.

But you can get an unexpected failure even though you have a refurbishment program. And if that failure requires you longer than you might expect the fix, then you get into D ratings.

MEMBER HARVEY: Just to say that the -- quite often that capacity to continue to operate while refuelling is one of the advantages of CANDU. It's presented like this. And if the equipment's not working well, this advantage is a little bit disappeared.

THE CHAIRMAN: Mr. Jammal.

MR. JAMMAL: For the record, Ramzi Jammal.

There's one thing I would like to clarify in this discussion. The question is with respect to the repairs and everything else. That's very valid.

But one thing I would like to reiterate and confirm to the Commission that this is a reliability issue, not a safety issue. The reason we report to you of de-rating because it is not a planned event. So there is a reliability issue from an operation perspective. At no time the safety is being jeopardized.

Now, the CANDU's advantage, as M. Harvey mentioned, is the fuelling online. However, things do happen. But again, I'd like to confirm to the Commission, not to interfere with your discussion, but to reiterate the fact it's a reliability issue and not a safety issue. And the operators will have to take every measure in order to ensure that the operation is properly done.

But again, keeping in mind that the reason it's being de-rated, or lower the output, as Mr. Saunders mentioned, because the fuel is being used up and you need extra fuel.

But again, in conclusion, it's a reliability issue rather than a safety issue.

MEMBER VELSHI: A couple of questions for staff. For Bruce Unit A, with the boiler tube leak, were there any emissions as a result of the leak?

DR. RZENTKOWSKI: The boiler tube leak is a normal operational occurrence. As you know, there's several thousands of tubes inside the steam generator, which are subjected to many degradation mechanisms. In particular, stress corrosion cracking or fretting at the support plates. So many of those tubes develop some minor leaks and they are being plugged during the normal operation.

If there was any release, it would be to the secondary containment. But there's a regulatory limit established for the leak of the steam generator tube. I don't remember the regulatory limit. Can someone help me please?

MR. SAUNDERS: Yes, we have licensing limits on the size of the leak, which is not actually driven by the release to the environment; it's driven by reactor safety issues. So it's typically 12 KGs, or 12 litres per second is the limit. We don't normally go that far.

We have to let the leak grow a little bit so we can find it. We found through past experience we can detect very small leaks, and then you shut down to fix the tube and you can't actually figure out which tube is leaking. So we let it grow to a size that we know we can find and then we shut down.

There is some very small increase in tritium release because your boiler -- there's no direct connection between the boiler and the outside world except for boiler blow downs, which does put some of that water into the CANDU cooling water duct. So there's a very small release there, but it's really not detectable on the overall release.

MS. VELSHI: Thank you.

And last question on Bruce Unit 1. Where your note says the focus is -- as far as refurbishment at Bruce A, what's -- any expected return-to-service date for that?

MR. SAUNDERS: Sorry, which unit did you ask?

MEMBER VELSHI: Unit 1. That’s the priority unit right now; correct?

MR. SAUNDERS: They’re all priority units.

Yeah, we’re actually -- that’s progressing on plan. So we’ve already sent the letter to request the release of the shutdown guarantees there so you’ll see the dates as they come along. And it’s a fairly long process, as you’ll remember with Unit 2 it’s a one step at a time.

But it’s progressing along actually quite well, always the advantage of being the second unit.

THE CHAIRMAN: While we’ve got you here, can you make a comment then on Unit 2 on the generator and what’s the kind of status and what’s the delay in returning it to service?

MR. SAUNDERS: Frank Saunders again.

We’re still working the dates exactly but what we’re doing essentially is reworking the schedule to do a number of things in parallel that we would have normally done with the turbine in service.

For example, we can do a number of low power tests on the reactor by putting steam to a different condenser that doesn’t spin the turbine.

So we can shorten a number of other things we would need to do.

Right now we’ve disassembled the stator from the Unit 2 generator and have removed most of the bars that carry the power inside that stator and, in fact, that was where the failure was.

Testing is nearly complete and once we have that done and know how many we need, then we’ll have a better notion exactly on the timing.

Part of this is understanding, you know, how broad the failure is and how many new parts you need and whether you can get them in a timely fashion.

So a little uncertainty on the date but I would say that in general the damage was less than we expected so we're looking forward to a reasonably good answer at the end of the day, but I couldn't give you a date today and be comfortable on giving you a certain one. Another couple of weeks ought to get us to a point where we can say that quite clearly.

THE CHAIRMAN: But I'm really curious whether that particular incident was forecastable and whether Point Lepreau was about going through the process, did they check the generator now.

I'm trying to understand whether that incident taught everybody else kind of a good practice.

MR. SAUNDERS: Frank Saunders again.

You can be sure we spread the information around and certainly you can be sure Point Lepreau called us to ask about the problem and so we've made sure that everybody knows.

It's a very difficult problem to detect, this particular one, because this was, in essence, a new stator that we had put in. We took the old one out to refurbish it, put a new one in. Even though it had been in our shop for 20 years it was unused, it was a spare, so we were just -- you know, as part of our refurbishment, put the new one in, take the old one out and refurbish it and have it for the next unit.

This was, as we understand it at this point, a manufacturing issue in the way it was wired. That issue doesn’t really become apparent until the unit’s under load.

So all the testing that we do prior to start-up around, you know, insulation values and so forth, just did not detect this problem.

So I haven’t got a report yet that really says whether we could find a way of testing it and determining that but that will part of the root cause, which is just in the process of wrapping up. So if there’s a way, we certainly will be looking for it in the future because you don’t want to find out when you’re ready to put the power to the grid that you’ve got a problem.

THE CHAIRMAN: So has that now become part of standard procedures to go through when you’re ramping up for start-ups?

MR. SAUNDERS: Well, these things actually always were standard procedures, right, so we were going through the procedures when this event occurred.

You ramp up slowly, especially with new like this. When you’re starting, there’s a number of steps you’re doing as you ramp up. You’re testing currents, and breakers, and temperatures.

And we started to see it but these things happen very quickly so by the time you see it the event's over. So we got the data and then we were doing the tests that you would normally do.

The issue is, is there another test we could have done static that would have detected this problem. And, like I say, when we see the final root cause, we'll have a better anticipation.

We've had experts involved, in the root cause and in our own review, that understand these generators quite well and so we do expect to see some good recommendations come out of that. And, of course, we're paying particular attention on Unit 1.

THE CHAIRMAN: Dr. Barriault?

MEMBER BARRIAULT: Just briefly.

On Point Lepreau are they still on schedule for fall of 2012, if you'd care to comment?

MR. THOMPSON: For the record, it's Paul Thompson, Manager of Regulatory Affairs at NB Power/Point Lepreau.

Yes.

MEMBER BARRIAULT: The short answer is yes. Okay. Because we're hearing rumours that you're ahead of schedule; is that in fact is that a rumour, or is it just a rumour?

MR. THOMPSON: We are progressing well and we expect to be able to be online within that original predicted date by the fall of 2012.

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

THE CHAIRMAN: Anybody else?

Well, I've got some -- again, just for the record, when I see in 1.3 Darlington, when I see a comment like Unit 2 power was reduced due to a problem with some amplifiers on shutdown system, you know, like the moment you mention the word "shutdown system" my next question is, well, what does it mean to safety, et cetera?

Go ahead.

MR. WEBSTER: Thank you, Mr. President. It's Phil Webster for the record.

Yeah, we try to strike a balance here between explaining why a unit was derated but not swamping the Commission with technical information that would ---

THE CHAIRMAN: I'm sure you could provide another line. We'll allow you to do one more line.

MR. WEBSTER: But just ---

THE CHAIRMAN: There's no ---

MR. WEBSTER: Just for clarity, whenever anything goes wrong with the shutdown system channel it is rejected; that is it's a set or tripped state, which is the safe state. So whenever there's a problem with anything on STS-1 or STS-2, the operators set that channel to the trip state.

THE CHAIRMAN: But it doesn't compromise the shutdown system?

MR. WEBSTER: That's true.

THE CHAIRMAN: I mean, an amplifier I thought would be -- it's not an amplifier or a particular electrical circuit in the shutdown system?

MR. WEBSTER: It's part of what's called the trip logic. It's between the detectors and the actual trip devices, which in this case is poison, being STS-2.

What had happened, if the Commission wants more information, is an amplifier on channel hotel drifted low so the operators, as I said, set the channel to the trip state.

This was compounded by a second channel on the same shutdown system being affected by fuelling that partially shielded the detector. So it too was going low, which brings the risk of a spurious trip.

Now, a spurious trip clearly isn't as bad as not tripping at all but it is an unnecessary and unwanted transient.

So the operators derated the unit while they sorted out the two channels and within a day it was sorted out and back at power.

THE CHAIRMAN: Okay, thank you.

Anybody -- any other questions?

Okay, thank you.

The next item on the agenda is an early notification report regarding Bruce Power on low tritium level detected during a safety system test as outlined in CMD 12-M34.

Mr. Rzentkowski?

4.2 Early Notification Reports

4.2.1 - 12-M34

Bruce Power:

Low Tritium Levels Detected in

Emergency Water System (EWS)

Outfall during EWS Safety

System Test

MR. RZENTKOWSKI: Thank you very much, Mr. President.

This event was reported because the tritium levels exceeded the provincial water quality objectives.

Specifically, on April 26^{th}, 2012 samples were collected from the emergency water system outflow and tested for levels of hydrazine as committed to Environment Canada.

Since the hydrazine releases were higher than expected, yet not exceeding the certificate of approval, several additional analyses were completed, one of which was tritium.

The tritium result indicated that the samples contained tritium levels higher than the limit set in the provincial water quality objectives of 7,000 becquerels per litre.

A follow-up sample showed that the release was not ongoing and that tritium was below the minimum detection limit.

Bruce Power provided a detailed event report to CNSC on June 15th which concluded about the root cause analysis and actions taken by the licensee.

Thank you very much. This summarizes the event.

THE CHAIRMAN: Dr. Barriault?

MEMBER BARRIAULT: I guess my first question really is the rise in hydrazine and tritium is it variable or is it a rise that's associated with something specific? We have the impression that this can rise and lower at will. Is this what happens?

MR. RZENTKOWSKI: I would ask Mr. Bob Lojk, who is the acting director of the Bruce regulatory program division to respond to this question.

MR. LOJK: Bob Lojk, for the record. Thank you for that question.

Tritium should not be found in this particular system and the reason for the notification is basically because it was an unreported release pathway, and additional studies are going on to find out exactly how it got to do the test.

There are potential pathways, of course, for getting tritium in that particular system since it does work with the safety system within the reactor itself. But for your question of hydrazine, the hydrazine is used as an oxygen scavenger which is used within the piping system to reduce corrosion. This is one of the drainage systems so therefore the level of hydrazine, as well as the level of chlorine, can change depending which system it is, at which level it is obtaining an injection pathway or an inopportune leak.

The tritium shouldn’t be there and the level of tritium should not increase and, in this particular case, the tritium level itself was above drinking quality standards, not above any limits that are established for such leakage.

But in any case, it should not be there and the limit should not be changing. The hydrazine limit will change depending on circumstances.

MEMBER BARRIAULT: So what I'm hearing, and correct me if I'm wrong, is that it's based on the fact that you've got a valve that's leaking, or has leaks somewhere, a line of contamination in the system. Is that correct?

THE CHAIRMAN: Can I stop you for a second.

I understand -- because I don't understand where all this comes from and I understand there's a little presentation to explain this thing.

So why don't we allow Bruce Power to actually explain what's going on here and then maybe getting to the questions.

MR. SAUNDERS: I anticipated this one might be a little bit hard to follow because it's a little bit more about the where than it is about the what.

The quantities released here are very small. We're talking .31 curies of tritium that were released and the normal monthly release for tritium is more like a 1,000 curies and that's the .1 percent of our actual regulatory limits. So we're talking very small quantities but the issue here is where it was released more than that.

So I brought a couple of pictures which

will, I think, help to understand. The actual system that we're talking about is right here. So this is the emergency water system. The release point we're talking about is right here. The outfall for the emergency water system, which is normally dry, it only has water in it when you're testing the system. And this outfall is not considered a normal release point and that was the issue here. It was here rather than over here.

The actual outfall from the plant is here and this side here is actually the intake to the plant. Now there's a deep water intake about a kilometre in the lake at the bottom. It comes up into this path. Around the back here are the pump houses.

The pump houses take this water. The primary use of this water is the condenser cooling water by a large amount. The condenser cooling water, after it's gone through the condenser -- excuse me, all condential systems -- drops into what we call a condenser cooling water duct which runs the whole length of this plant and comes out right here. And I'll show you that in a little more detail and then that then becomes the outfall from the plant.

This EWS system take its suction right here from the EW, from this outfall. This is all at lake level, as you can see, so this water level doesn't disappear. So as an emergency water system, it’s there.

So let me just show you a couple more bits. So this is a little more closer look. The emergency water system and the emergency power system are in this building, so this is basically our fourth line of defence on emergency power. After the external power from the grid, power from our own generators, power from the four standby generators, we have two five-megawatt diesel generators right here -- you can see the two stacks -- which provide electrical power to the plant.

One of the places they supply electrical power to is three emergency water pumps which sit right in here. And these three emergency water pumps were what was being tested. So these are a safety system so they are tested fairly frequently. There is something in the order of 14 SSTS’s on this.

We have detected in the past some hydrazine in the system which is not really supposed to be there and we were actually doing a project to validate what’s happening here and we’ve been testing. Every time we do these tests, we’ve been taking samples and, in this case, we found some tritium among others. So this was a test related (inaudible).

So it’s not an increasing thing but there is some that can’t rise and I’ll show you why. So this is what we call the CCW duct. When we get talking about machinery, you may find that interesting because that's where we're drawing our emergency water supplies for Fukushima from as well; right there.

So just to give you a picture, here's the discharge. This is the vacuum building that's in the background here. This is the actual discharge for the emergency water system. Like I say, normally there is no water flowing to these systems because it's meant for emergency situations so it's on standby. Only when we do the tests does it actually flow water.

This is a simplified drawing for you just to give you a sense of what happens here. This is the EWS pumps. Like I say, there's actually three of them that we may be testing any of those three. This is the outfall that I just showed you, the picture of the lake.

So these pumps take water from the lake, put water back to the lake, and they do it only when they're being tested. This is why this thing is not actually a pathway because it's not anticipated that there will be anything in there.

What you will see though is there's a couple of parts of that system. Along with pumps, this system also has a large gravity fed tank up on the roof which will supply emergency water to the steam generators.

This system sits static a lot of the time so it has hydrazine in it in order to prevent corrosion. And you will note there are a couple of valves here which connect to the EWS system.

Down at the bottom here, it supplies three systems to the big ones. It's the standby generator -- sorry, the steam generator cooling and the ECI system, the emergency cool and injector system, another safety system. This system is also attached.

This system has some hydrazine in it and can have some tritium because it's in a poised state so there's no closed valves between that system and the reactor. So if the reactor should depressurize, the ECI system fires. The only thing is there's not a return valve here and so if it leaks a little bit, you get some tritium through. These are quite large valves so small levels of leakage can occur. And, of course, these values can only be maintained properly during a four-unit shutdown because of the nature of the way that system is set. So they do get maintained but it's on a five-year cycle.

So in this particular case, we are doing two tests. This particular test here was looking at this side. You can see there are two sides to this loop. So we have given a loop to the steam generators here, and on this one we can see a little bit of hydrazine on this one but not in great quantities.

What we do is we test right there. Where that pipe comes out through the cement block that I showed you, that's where we do the samples to do the testing.

And on this one, when we went to the ECI side, we seen some tritium. So like I say, fairly small levels of tritium. This is a 30-minute run, puts about a 1,000 litres of water so out through in that length of time.

So when we did this measure we did find a little bit of tritium. Because this pathway is not one that we had as an improved pathway, that's what caused us to make the notification to you because if it was going back into the main outfall, there would have been no report here because it's a trivial amount compared to what we would normally expect.

Because anything that's unapproved, we report it and of course, like I say, we were doing a test to determine if any of these things had any problems, and we did find that this one had a problem; none of the others.

So the question ---

THE CHAIRMAN: Sorry, just so that I understand.

So on the original map you mentioned that it should have come through the emergency SB down below and it came on top.

MR. SAUNDERS: Well, that’s the -- the emergency water system has a different discharge from the normal plant, it’s a separate discharge over here, and that’s a redundancy thing based on earthquake analysis, seismic analysis. So there was an assumption that maybe something could happen to this discharge path and you want the water to be able to flow. So it’s part of that seismic -- a separate path was created.

So under emergency circumstances we wouldn’t be able to pump it there and this pathway is all seismic qualified. So that was the reasoning for why it has a different path that anything else would use, it’s that safety concern, otherwise you could have just put it back into there.

And what you’re getting, what gets discharged if you’re in an emergency situation would only be the stuff from the containment fluid. Everything going to the SGs wouldn’t discharge, it would simply be used up in the SGs, and the stuff going to the ECI also doesn’t get discharged but one of the loads on the system (inaudible) they would get discharged (inaudible)

But during a test, it all goes out there because all we're testing is that the pipe is unplugged and the pump works, right? So we take lake water, we pump it through the system and we watch it come out there and make sure there's no blockages.

So the tests are relatively simple, once the flow happened, you get the right amount of flow (inaudible) and the pumps (inaudible) properly, right, so it's a very simple test. You get a large amount of flow because of the nature of the test.

THE CHAIRMAN: I'm not worried about the test, what I'm wanting to understand is why were you surprised that it came through -- out through another loop.

MR. SAUNDERS: No, we weren't surprised the water came out there. We were surprised that tritium was in the water because the valves are there to keep the tritium separate from this loop, but obviously one of those valves was (inaudible).

The root cause is just wrapping up on this, we'll have some more reports. But one of the things that appears fairly obvious here is we should be monitoring this in-fall on a routine basis rather than on a testing basis as we were.

We have added it to the CMA for hydrazine (inaudible) and I think our eventual course here will be to (inaudible) discharge path that will monitor peaks so that (inaudible)

THE CHAIRMAN: So was this reported to Environment Canada and Ontario ---

MR. SAUNDERS: MOE? Yes.

THE CHAIRMAN: Yeah.

Dr. Barriault?

MEMBER BARRIAULT: Just a follow-up. What I'm understanding is that one of these valves was leaking. Is there a fail-safe system whereby the valves won't stay jammed in a shut position as opposed to a leaking position?

I guess what I'm trying to understand; do you routinely check these valves to make sure they're working both ways, open or closed?

MR. SAUNDERS: Yeah, yeah. Part of the testing actually is to operate these valves and typically if you noticed in that poised state these valves are all open, right, and the non-return valves were doing it and that's because of the safety nature of it, you don't want to -- if it's an emergency water system you don't want to have a ton of valves you have to open before you can -- before you can use it.

MEMBER BARRIAULT: Get the water.

MR. SAUNDERS: The down side of that, of course, is it makes it easier for some things, like tritium or hydrazine, because now you're down to a single valve between you and the material.

Now, there's not a lot of tritium in these systems but inevitably there's a little bit and a little bit is quite easy for us to detect, as you see, it's relatively small, but we can detect it so we see it.

So in a normal -- if we were to reroute this thing over to the W.S. it would be way, way within our limits, it wouldn't be an issue; it's simply because we are putting it out (inaudible).

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

THE CHAIRMAN: Monsieur Harvey?

MEMBER HARVEY: You mentioned that the root cause was not completed yet, but following the notification report you were supposed to submit a report within 45 days, if I read it correctly, is that the case?

MR. LOJK: Robert Lojk, for the record.

There's several components here; the licensee is compelled to provide us with a report, a detailed report in 45 days. But the root cause analysis may take months and months to do and that's not part of the detailed report.

So detailed report establishes the safety issues, what they've done to mitigate the particular problem but they will do a much more in-depth study of their own in order to realize what they need to do for regulatory and from an engineering point of view to prevent further occurrences.

MEMBER HARVEY: Thank you.

THE CHAIRMAN: So was the detailed report filed?

MR. LOJK: The detailed report was filed -- filed within 44 days, right within the requirement.

THE CHAIRMAN: Okay, thank you.

Ms. Velshi?

MEMBER VELSHI: A couple of short questions; one is on the timeliness of getting the tritium analysis results. The testing was done on April 26th, then the report says the results weren't available until May 2nd, is that generally typical that it takes over a week to get the results?

MR. SAUNDERS: Yeah, and it depends on how much priority we put on them. Obviously if we want to do a particular result quite quickly we can, we have the ability to analyze tritium ourselves.

Because this test only lasts 30 minutes, you know, it's over at that point in time and we're testing to prove a fact rather than to control a parameter. If you were controlling based on the test then -- then you would obviously have different time on it.

So one of the things we're looking at are some of those sorts of things, right? As part of the root cause we've gone and sampled all these systems internally, on the other side of those check valves essentially and said so how much is there anyway and sorted that through.

So coming out of the root cause will be recommendations about how to go forward.

MEMBER VELSHI: And I think you did suggest that you've been able to quantify what the potential -- or what the amount of emission was, so you were able to determine how long the leak lasted. It wasn't clear in this notification report.

MR. SAUNDERS: Yes, the test only runs for 30 minutes so what we did was took a sample during that test and we assumed that -- and you take the sample, you know, sort of during the middle of the test, so you have to make an assumption then about the release. So you usually make the worst assumption as if that was there the whole time and that's how we do the calculation.

MEMBER VELSHI: And my last question is that you ceased all safety system testing until you completed your report or particularly of this -- this particular system.

Are there any safety implications of having stopped that system safety testing?

MR. SAUNDERS: No, not in this case. There is, like I said, I think it's 12 safety system tests on this and we had been going through a series of checks on them. So this last one is the only one that has any potential to put tritium into the lake. So this particular test, we have suspended it, we wouldn't be doing it for a while anyway on this unit.

So at this point it doesn't have any impact on safety, we have lots of reliability numbers there and we'll have a resolution before it gets to the point of being an issue.

And of course, you know, we talked about the reporting, after we've plotted our course forward we will add a supplemental report to provide CNSC staff with that direction.

THE CHAIRMAN: Anything else?

Okay, so again, it's the way the language reads here. You are looking at this discharge and you mentioned that -- this is to staff, that it's above drinking water guidelines, objectives. But these are not the regulatory limit for that particular discharge, is it?

MR. LOJK: Bob Lojk, for the record.

No it isn't. As a matter of fact we -- in accordance with regulatory limits, they are several orders of magnitude lower than any regulatory limit.

THE CHAIRMAN: Yes, so why are we using drinking water objective as parameters in reporting of this?

MR. LOJK: The reason that we put the drinking water parameters in here is because the reason for notification to the Ministry of Environment of Ontario was the drinking water objectives of Ontario. So it's got no regulatory impact on us, it's just that even with our proposed reporting requirement anything that's reportable to the Province would be reportable the same way to us, so the data would come back to us in those terms.

I agree with you, Dr. Binder, that a drinking water -- drinking water objective for a location which is not subject to anybody drinking it and probably has additional mitigating measures as it was spread out.

For instance, in Quebec it's a reduction of 10, would -- this would not trigger anything.

THE CHAIRMAN: But what I'm wondering is, in the Certificate of Approval from Ontario Ministry of Environment, did they have a limit -- you know, I'm trying to make sure that between Ministry of Environment, our regulatory limit and our own Environment Canada limit, there's no confusion about what is the actual allowable effluent or discharge from that particular facility. And if it's not the drinking water objective then we should put in what the actual is.

Do you follow what I'm trying to say here?

MR. LOJK: Bob Lojk, for the record.

Yes, perfectly clear. Thank you.

THE CHAIRMAN: But the Ministry of Environment of Ontario will not judge the discharge against drinking water in -- when they give them a Certificate of Approval, do they have a limit in there in the certificate about what is allowable?

MR. SAUNDERS: Yes, they do, although they don't typically regulate tritium.

And you're right, the drinking water limit is a sample at source, like where you're taking your drinking water from.

THE CHAIRMAN: Right.

MR. SAUNDERS: So it's not a limit per se, it's an advisory, right?

THE CHAIRMAN: And it's not going to be measured at that particular site.

MR. SAUNDERS: It'd be measured wherever any intake -- water intake exists.

So it does get used a bit as a guide. In fact, the reportability here to the MOE and others was really because we were running these tests, and in particular Environment Canada because we'd committed to run a bunch of tests in relation to this to understand how it works.

So the reportability, you know -- a bit fuzzy, it was really more about this was not a path that's normally approved to discharge effluents, it may be anything essentially other than lake water.

So the reportability really was because of that because for both your requirements and MOE’s requirements says if it's not an approved pathway, the limits don't apply. You shouldn't discharge anything through an unapproved pathway, therefore, you need to report it.

So it's more about understanding that people aren't putting stuff out to a different pathway that's not monitored than it is to a -- you know, to a level issue here.

THE CHAIRMAN: Okay. Thank you.

The next item on the agenda is an early notification report regarding NB Power Nuclear on a spill of heavy water during a heat transport system pressure test at Point Lepreau Nuclear Generating Station, as outlined in CMD 12-M36.

Mr. Rzentkowski, you still have the floor.

4.2.2 - 12-M36

NB Power Nuclear:

Heavy Water Spill during Heat

Transport System Pressure Test at

Point Lepreau

DR. RZENTKOWSKI: Thank you very much, Mr. Chairman.

With your permission, before I describe this early notification report, I would like to provide a more complete answer to the question on the tube leak.

THE CHAIRMAN: Sorry, on the what?

DR. RZENTKOWSKI: To the previous question on a tube leak that refers to the steam generator tube.

THE CHAIRMAN: Okay.

DR. RZENTKOWSKI: I would like to provide a more complete answer before I describe this ---

THE CHAIRMAN: Go ahead.

DR. RZENTKOWSKI: Thank you.

So the analysis of the leaks from the steam generator tubes assume a guillotine break of 10 tubes at the same time. So this is considered in the analysis -- in the design basis as a postulated initiating event. And the consequences for the environment are of course below the regulatory limits.

Now, from the operation standpoint, in the OP&Ps, it is assumed that a leak up to 10 kilograms per hour is acceptable. However, if the leak becomes larger than that, the station -- the unit has to be shut down in the timeframe of 12 hours. And if the leak exceeds 100 kilograms per hour, the unit has to be shut down immediately following this observation.

Thank you very much. I hope this clarifies the issue a little bit better.

Now, this event ---

THE CHAIRMAN: Right.

DR. RZENTKOWSKI: --- at Point Lepreau.

THE CHAIRMAN: Okay, thank you.

DR. RZENTKOWSKI: This event at Point Lepreau was reported because of the heavy water spill during the heat transport system pressure test, specifically on May 21st, 2012. The primary heat transport system pressure test was conducted to 100 percent -- to 110 percent of the design pressure using temporary pressurizing test equipment.

As the system was approaching the test pressure, the operator adjusted the pressure regulating valve to increase the pressurization rate, which in turn led to an unexpected pressure leak in the test equipment and opening of the pressure relief valve.

This resulted in approximately 300 litres of heavy water overflowing from the collection system set up for the pressure test. The hydrostatic pressure test was terminated and the heavy water was completely contained, cleaned up, and recovered for the use.

The spill occurred in the reactor building that was designed -- in a room in the reactor building that was designed to contain and control heavy water and water vapour.

New Brunswick Power staff involved in this test had the appropriate radiation protection training and was wearing the required protective equipment.

A preliminary assessment conducted by New Brunswick Power staff identified two main causes underlying this event.

Firstly, the procedure did not clearly specify that the pressurization rate of 1 megapascal per 10 minutes was the maximum rate to be used. As a result, the operator believed that 1 megapascal per 10 minutes to be the expected rate of the increase.

Secondly, supervisors were not trained in the operation of the test equipment. Supervisors could not provide active oversight and guidance during the test.

New Brunswick Power is conducting a further evaluation to fully understand any underlying causes and to ensure maximum organizational learning.

It is also worth noting that a CNSC Type 2 inspection of the overall heat transport pressure test was being conducted when this spill occurred. This event and subsequent licensee actions will form part of the inspection. The inspection results, including any actions placed upon the licensee, will be sent to New Brunswick Power when completed.

Thank you. This concludes my summary of the event.

THE CHAIRMAN: Okay. Thank you.

Before opening up to any questions, I understand that -- well, we know that Mr. Thompson is here. Would you like to say -- add some comments to that presentation?

MR. THOMPSON: Thank you. For the record, it's Paul Thompson, Manager of Regulatory Affairs for New Brunswick Power Point Lepreau Generating Station.

I think Mr. Rzentkowski gave an excellent summary. I guess from our perspective in general, after reviewing the operating experience associated with the first attempt at the hydrostatic pressure test, we did identify some areas of improvement as Mr. Rzentkowski identified. These were implemented prior to reinstating the test, which led to a successful test, demonstrating the integrity of the heat transport system and that it was leak-tight reflecting the overall quality of the work done during the refurbishment project.

Thank you.

THE CHAIRMAN: Thank you. Questions? Dr. Barriault.

MEMBER BARRIAULT: Thank you, Mr. Chairman. I guess my first question is to CNSC staff really.

What I'm hearing is that the issue behind all of this was improper training in procedures for this particular process here. But are there any other processes that we don't know about that could lead to incidents?

DR. RZENTKOWSKI: That's a very interesting question because, as you know, this was a non-routine activity, and I think the procedure was specifically written for this non-routine activity. And we have to ask ourselves the question to what level of scrutiny this procedure underwent. How this was implemented in terms of the staff training, et cetera, et cetera.

There's many questions which we have to follow up.

MEMBER BARRIAULT: Mr. Thompson, would you care to comment on this?

MR. THOMPSON: For the record, Paul Thompson.

We did send the operators who were going to operate the pressurizing test equipment to the manufacturers for hands-on training as well as the technical people who are going to connect the test rig to the heat transport system. So that on-hands training at manufacturer's location did occur.

However, as we mentioned before, where we had an opportunity for improvement was the actual procedures in utilizing that test apparatus as it was hooked up to the heat transport system, was -- could have had -- could have been improved. And that really is the lesson learned, and in answer to your question, what we've then done is we then have looked across at other tests that we are doing that could have a similar nature and to ensure that both the procedures are robust as well as to ensure that the supervision also have that kind of hands-on training.

So after that initial event, we brought the equipment manufacturer to site and did another demonstration with not only the operators but also the field supervision of the use of that test equipment as it applied and was attached to heat transport systems. So it was in situ.

We also used him when we developed the detailed operating procedure to ensure that it had all the necessary steps, so that if any unexpected results are there, they are clearly identified.

MEMBER BARRIAULT: Thank you.

The next question really, the actual leak was 300 litres. How big is the containment area and how much heavy water would it take to over flood that area?

MR. THOMPSON: For the record, Paul Thompson.

It is a -- it went into a room and this room has a dedicated ventilation system which is used to, in fact, segregate that room from the rest of the reactor building. So it is quite a large room.

It is worthwhile to notice that we did have a collection system set up in the event that relief valves did operate.

What we found, and is found later in the subsequent assessment of the test rig, is that one of the relief valves had an internal issue and, in fact, didn’t recede at the pressure that it should have been. That is a significant contributing factor to the amount of water that actually was spilled, otherwise it -- my understanding is it would have been contained within the collection system.

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

LE PRÉSIDENT: Monsieur Harvey?

MEMBER HARVEY: You present that as a very specific procedure. But I suppose that similar procedures have already been done by other operators because those hydrostatic pressure tests must have been done.

So what was very special in that event?

DR. RZENTKOWSKI: Those hydrostatic pressure tests are conducted very infrequently, typically during commissioned activities, because this is only to assess the leak rate for the heat transport system under normal operating pressure, which is 12 megapascals.

So really it’s a non-routine activity and it has been conducted but many years ago so -- and also the test equipment used probably was different than that in the past.

So from that standpoint, the operating procedure for this particular test had to be different from that what has been done in the past.

MEMBER HARVEY: Okay, thank you.

THE CHAIRMAN: Can I -- maybe this is a good time to maybe generalize.

Once you do a refurbishment, okay, you are -- when you go back to commission, to return to power, that is not a usual routine first.

So what I'm trying to understand is, it's not surprising to me, in my mind, the machine is in guarantee safe mode, it's shutdown, and now is the time to test all your bloody system that you are now doing. So it's not surprising that Bruce finds out there's leaks in valves, et cetera. Am I missing something here?

In fact, you want to test all your system and all your procedures that you -- in Point Lepreau, for example, they haven't been in operation for three years so it's obviously a good time to refresh and update and all that stuff.

So this is not something that is routine. This is -- in fact, everything about this is non-routine and therefore we should not be surprised that we find all kinds of areas that require improvement.

Did I get it right or not?

DR. RZENTKOWSKI: Absolutely. I couldn't say it any better. It's a non-routine activity which is probably repeated every 25 or 30 years at one station, and because of that a situation like that may happen.

But what we have to be concerned about is only the safety of the workers. In this particular case, there was no reason for concern and it was confirmed by our inspectors.

THE CHAIRMAN: But because by definition the machine is shutdown, right, it’s in guaranteed safety shutdown mode, and during -- because they just finished refurbishment.

Mr. Jammal, I see you dying to say something.

MR. JAMMAL: Thank you. For the record, Ramzi Jammal.

I’d just like to add to the fact that this unit at Point Lepreau is in guaranteed safe shutdown. So it has been on-going refurbishment for years.

So we’re having a discussion here on training and procedures, but we should not forget the fact that as part of testing the -- from a regulatory perspective, we will not allow them to even test unless they have measures in place to deal with leakage.

Because as normal occurrence, in restart and after refurbishment after a lay-up of so many years, they’re going to be conducting tests one of a kind every 25 years, they’re going to be conducting a non-routine tests.

From a regulatory perspective, our job is the protection of the worker and the environment, that’s why NB Power has in place the capacity to contain, the capacity to have radiation protection, protective equipment for the workers, radiation protection program, to handle those expected leaks if they occur during a normal restart.

So as Dr. Rzentkowski mentioned, and as Mr. Thompson from NB Power mentioned, this is one of testing. The fact that those are expected -- I won’t call them routine, but as you take a normal -- I’m not trying to banalize or degrade the complexity here, but if you are testing plumbing in a house, okay, you are testing to ensure there are no leaks in that house and you go back and fix where the leaks are or prevent the leaks from occurring. So you need to know where the leak is taking place or is the test required to determine everything else is adequate.

In a power plant you’ve got thousands of kilometres or metres of piping. You’ve got hundreds of valves. So all this testing is being done while the reactor is shutdown, is in a safe state mode. There is no criticality and it’s better off to have these leaks now; it’s better off to find the testing and the results of the testing now before the reactor is in operation. And that’s the whole intent of the testing.

Now we go back to the safety perspective, they have measures in place, every licensee, let it be normal operations or restart post-refurbishment, to handle these situations.

THE CHAIRMAN: Okay, thank you.

Ms. Velshi?

MEMBER VELSHI: So what’s the worst case scenario in this, those 300 litres that leaked into a contained area, but could it have been orders of magnitude more and could those have been handled?

MR. THOMPSON: For the record, Paul Thompson.

No, the operator responded immediately, as was expected, shut down the pressurization unit so that would terminate, then it was just a matter of the relief valves closing.

MEMBER VELSHI: My question was could the leak have been a lot worse than 300 litres?

MR. THOMPSON: For the record, Paul Thompson.

Again, we were surprised with the leak being 300 years (sic) because of another internal failure, which was undetectable internal to the test valve. So we think that was an anomaly and we wouldn’t expect that that leak would have been any larger.

It’s a very small -- you know, in terms of the fraction of the inventory of the heat transport system, it’s extremely small. The reactor is in a guaranteed shutdown state. So, again, from an overall point of view it's really -- it's not a safety issue.

From the radiation protection, people were wearing the appropriate personal protection equipment. A potential for a leak was known and identified as a potential whenever you're doing this kind of test and people responded as expected.

Again, the location of the leak was in a situation where it didn't affect other workers and there was no impact in terms of external releases to the environment. So it was a very contained specific event.

LE PRÉSIDENT: Monsieur Harvey?

MEMBRE HARVEY: Merci monsieur le president.

Well, I'm concerned with the fact that the problem has been caused by maybe lack of procedure or ability to operate the equipment.

Does the staff have something to do with that? Before -- to let the people do such tests -- any other tests, do you have something to do? Are you monitoring that?

DR. RZENTKOWSKI: We assess -- of course, in general terms we assess the training programs implemented at the facility.

We also witness many of the tests, but we cannot witness everything and we cannot assess everything. Our resources are limited. We would like to do it but it’s physically impossible.

MEMBER HARVEY: But who is responsible to establish the procedure?

DR. RZENTKOWSKI: Primarily responsibility for safety resides with the licensee.

MR. THOMPSON: For the record, Paul Thompson.

So, again, one of the very important lessons that we took from this event was to go through and look at the rest of the major evolutions, tests, that we had to do, and challenged ourselves about the level of detail of the procedures to ensure that those procedures worked to the appropriate level of detail, reviewed and approved, and also looked and challenged from the degree of training to ensure that all the staff that have to not only perform the task, but are doing oversight, have that level of training. So we have gone through and scrutinized ourselves to ensure that future activities that we're going to have to do between now and the end of the outage, that we won't have a repeat event of this nature.

MEMBER HARVEY: Who established -- for example, that specific case, who established that the rate would be such and such and pressurization rate of 1 Mba per 10 minutes was the maximum rate, who established that, the vendor of the equipment?

MR. THOMPSON: For the record, Paul Thompson.

It's my understanding that that was determined by our technical group. My understanding of what the test equipment was based on the specifications of the test equipment.

MEMBER HARVEY: And once you have established that, does that have to be presented and submitted to the staff for approval or no?

MR. THOMPSON: To my understanding, that does not need to be approved, but the staff do look at and have conducted quite a number of inspections on the various testing that is going on throughout the return to service.

MEMBER HARVEY: Another comment?

DR. RZENTKOWSKI: At the same time, as I indicated in my summary, we conducted a Type 2 inspection on the heat transport system. Present in the room is Mr. Burton Valpy who is our site supervisor at Point Lepreau. He will specifically describe the focus of this Type 2 inspection and what activities were conducted by CNSC staff.

MR. VALPY: Burton Valpy, inspector.

Our determination of what to inspect depends upon the risks involved in the exercise, the nature of the work, how unusual it is. So going into this, we knew we'd be forming some oversight of the transport pressure test.

Bear in mind a pressure test is a fairly common thing. Under normal circumstances, it's in a much smaller test rig, a smaller, more discreet system and fairly routine.

Because of the size of the transport system and the fact that you're going to get leakage through the transport pump seals, you're going to need a larger test rig. You're going to have to provide more water. We're observing the whole -- the test as a whole. We did not see any major issues coming into this.

As a result of the spill in this case, we immediately went in and had a look at what the station had done in terms of immediate remedial actions to clean up the mess, deal with these matters.

And we also had to look at their longer term corrective action plan. We've reviewed their parent cause analysis that was done before they were allowed to -- before they allowed themselves to resume the pressure test. And what we saw there indicated that, yes, they had learned the correct lessons and they were applying them to this evolution.

As a result of this entire series of pressure tests -- bear in mind this was a two-week long effort on the part of the licensee -- we did not see any major issues that warranted any intervention on our part.

And, as a matter of fact, coming into this exercise, my primary concern was NB Power’s ability to manage any releases in heavy water as they had not been experienced in using heavy water in the last three or four years.

But looking at the results of this nuclear incident and the one in December, where doses in terms of cleaning up heavy water were less than 120 microsieverts, that indicated to me that the station hadn't lost that ability to manage these types of events and safely return to station to a state where it could be put back in service.

MEMBER HARVEY: Thank you.

THE CHAIRMAN: Okay. Anything else? Do you want to say something?

Okay. Thank you. Thank you very much.

Any other early notification reports, anything else to report? Okay. Thank you.

The next item on the agenda is regarding an application -- the application of the 2009 Edition of the International Atomic Energy Agency *Regulations for the Safe Transport of Radioactive MaterialI* (TS-R-1), as outlined in CMD 12-M35.

5. Decision Item

5.1 - 12-M35
Application of the 2009 Edition
of the International Atomic
Energy Agency *Regulations for*
the Safe Transport of Radioactive
***Material* (TS-R-1)**

THE CHAIRMAN: And I understand M. Sylvain Faille will make this presentation. Alors, M. Faille, vous avez la parole.

12-M35
Oral presentation by
CNSC Staff

M. FAILLE: Bonjour, Monsieur le Président. Mon nom est Sylvain Faille et je suis le directeur de la division des autorisations d'emballage et de soutien stratégique.

Aujourd'hui, je suis accompagné par Mme Isabelle Tremblay, agente de programme de la division des autorisations de transport et du soutien stratégique et M. Colin Moses, Director of the Regulatory Framework Division, and Mrs. Beverley Ecroyd, senior advisor from the Regulatory Policy Directorate.

We are here today to request that the Commission provides a policy direction to staff to use the 2009 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material, TS-R-1. The presentation will provide background information related to the request, the evaluation and action taken by staff with regards to the request, as well as other ongoing activities related to this request.

In the fall of 2011, Canada hosted an Integrated Regulatory Review Service, IRRS, mission conducted by the International Atomic Energy Agency, IAEA.

The objective of the mission was to review Canada's progress on the recommendations from the previous IAEA mission of 2009.

In addition to the planned review of progress activities, the CNSC also asked the IAEA to assess Canada's response to the Fukushima event as well as Canada's review of Canadian regulatory practices regarding the packaging and transport of nuclear substances.

As a result of this review, the IAEA recommended that the CNSC Packaging and Transport of Nuclear Substances Regulations refer to the latest edition of the IAEA Transport Regulations. The present Packaging and Transport of Nuclear Substances Regulations, or the PTNS Regulations, already refers to the IAEA Regulations, but it is to the 1996, revised in 2000. The current latest IAEA Regulations are the 2009 Edition.

CNSC staff believes this recommendation can be best addressed in the short term with the issuance of a policy direction by the Commission, and in the long term with a formal amendment to the PTNS Regulations.

The PTNS Regulations sets out the requirements for the packaging and transport of nuclear substances such as the classification of the material and the type of package to be used along with the performance requirements for those packages.

As mentioned before, the PTNS Regulations refers to the 1996 Edition of the IAEA Regulations revised in 2000. In consideration of the IAEA recommendations, CNSC staff compared the PTNS with the 2009 Edition of TS-R-1 to see what changes have been made.

CNSC staff found that a number of changes were introduced in the newer 2009 Edition of TS-R-1 as compared to the 1996 Edition revised that is currently referred to in the PTNS Regulations.

However, these changes are only administrative in nature and do not affect the technical requirements of change that have already been taken into consideration during previous amendments of the Regulations.

Hence, the technical requirements in the newer edition of TS-R-1 remains the same as those in the 1996 revised edition.

I will walk you through some examples to illustrate that the newer TS-R-1 Regulations edition can be applied without creating any impact to the transport-regulated community.

In summary, staff has determined that the changes do not affect technical requirements and that therefore will have no impact on the transport community.

The following slide illustrates some of the changes made to the IAEA Regulations. As the slides refer to the information presented in Appendix A of the CMD and present some of the technical requirements applicable to the packages and demonstrate that the requirements remain unchanged, note that the only change made is in the numbering going from 655 in the 1996 edition revised, to 656 in the 2009 edition. This is outlined in red on the overhead. There's no change in the technical requirements themselves. And this paragraph numbering change resulted from adding a clarification to existing requirements. So all the paragraphs following these ones are all changed, but the actual text remains the same.

This slide refers to the Appendix B of the CMD, which outlines the differences in the sequence of information required on a shipping document.

As shown on the slide, the information required on a shipping document has remained the same, the only difference being the order in which the information is displayed on the document.

From what we can see on the slide is under the 1996 edition revised, the text would have appeared on the shipping document as radioactive material, low specific activity, LSA-1, Class 7, UN-2912, and under the 2009 edition it would have been UN-2912, radioactive material, low specific activity, LSA-1, Class 7.

In looking at Annex B of the CMD, it can be seen that the subparagraph (a) under the 1996 edition has been -- is now paragraph (b) under the 2009, and subparagraph (b) in 1996 is now subparagraph (c), and subparagraph (c) from 1996 is subparagraph (a) in 2009.

The other changes that are not represented on the slide but are included in Appendix B of the CMD includes clarification of information to be displayed in addition of name of addressee of the consignor and consignee on the shipping document.

Note that the additional information related to the consignor is already required under the Transport Canada's Regulations which apply to all classes of dangerous goods. Therefore, this is not a change in the regulatory requirement.

The next two slides refer to Appendix C of the CMD, and outline -- an example of a change made to harmonize the IAEA Regulations with the United Nations recommendation on the transport of dangerous goods, also known as the UN Orange Book.

The definition given in paragraph 241 of the IAEA edition of -- the 1996 edition of the IAEA regulations have been split into two distinct paragraphs in the 2009 edition. However, the text remains the same.

This change was made to differentiate between the definition and the classification of the material for SCO Group 1 and Group 2.

The next slide outlines that and as parties are aware, the only change was the definition where it was split in two, but again the definition remains exactly the same. There is no change in the wording.

To this effect, the CNSC staff recommends that the Commission issue the following instruction. The Canadian Nuclear Safety Commission shall apply, as a matter of principle, the IAEA document TS-R-1 Regulations for the Safe Transport of Radioactive Material 2009 Edition, to the extent that doing so does not create conflicts with the current packaging and transport of nuclear substances regulations.

CNSC staff recommends that this instruction takes effect immediately until such a time as the PTNS regulations are amended.

Again, I wish to emphasize that this application of the 2009 Edition of TS-R-1 will not result in any impact on the transportation community.

Upon a favourable decision by the Commission, the CNSC will immediately apply the 2009 Edition of TS-R-1 to the extent that it does not create conflicts with the PTNS regulations.

Also, the ongoing project to amend the PTNS regulations to reflect the latest edition of the IAEA regulations will continue.

CNSC staff will also develop, by September 2012, an internal administrative process to ensure that any new revision of the IAEA Regulations are implemented in Canada as soon as they become available.

This concludes my presentation.

CNSC staff are available to answer any questions you may have.

THE CHAIRMAN: Thank you.

Okay. Monsieur Harvey?

MEMBER HARVEY: The staff recommend that the Commission issue the following instruction. At the end of that paragraph you say:

> "...to the extent that doing so does not create conflicts with the current packaging."

Is there any possibility that -- because I don't see many problems there -- is there any possibility that such a conflict could occur?

MR. FAILLE: Sylvain Faille, for the record.

Monsieur Harvey, toutes les exigences techniques sont les mêmes. C'est au niveau des exigences administratives qu'il pourrait y avoir certains petits conflits entre utiliser la version 2009 et la version du Règlement de transport actuel. Donc c'est plutôt au niveau administratif qu'il pourrait y avoir des petites différences.

MEMBRE HARVEY: Mais la nature de ces conflits-là, est-ce que le problème serait plutôt interne à la Commission ou avec les usagers?

M. FAILLE: Ce serait plutôt avec les usagers dans certains petits -- c'est plus au niveau international, pour le transport international qu'il pourrait y avoir des petites différences.

MEMBRE HARVEY: Prévoyez-vous une réponse négative des usagers?

M. FAILLE: Non, pas du tout.

MEMBRE HARVEY: Pas du tout.

Moi, je n'ai pas beaucoup d'autres questions parce que tout me semble -- les exemples que vous nous avez donnés sont très clairs et si vous avez choisi les exemples les plus démonstratifs, bien, le reste va être encore moins important, j'imagine.

THE CHAIRMAN: Dr. Barriault?

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

These changes seem to be only on an editorial basis rather than actual action changes or technical changes.

Are there any changes that aren't technical or is it just administrative, or editorial, I should say?

MR. FAILLE: The vast majorities are editorial or typographical where mentioned. The 2009 edition was clearly an effort from the IAEA to harmonize the format of the Regulations with the one from the United

Nations, the Orange Book, which is applicable to all.

But there was no real technical requirement change in this edition, that’s correct.

MEMBER BARRIAULT: So I guess it begs the question, really, if this was in 2009 and here we are in 2012 and it’s been three years, I guess, that this change has not been implemented, is there a technical reason for this?

MR. FAILLE: For this question I will ask Mr. Colin Moses to answer the question.

MR. MOSES: Colin Moses, Director of the Regulatory Framework Division.

The changes -- as Mr. Faille mentioned, the changes are really administrative in nature. So at the time we were looking at amendments to the regulations to update and reference the newest edition.

You may recall in 2011 as well the Commission just published new regulations to introduce exemptions for specific materials with the PTNSR. So at the time of the 2009 a decision was made to move forward with those exemptions immediately and package the amendments with some broader -- other changes that we’re looking at to the PTNSR.

So we’re moving forward on that project for the regulatory amendment, but in the interim, I think the recommendation is to move for an application of the 2009 Edition until we complete the regulation project.

MEMBER BARRIAULT: And what I'm hearing is that will there be a new edition coming out in the immediate future other than a 2009 Edition?

MR. FAILLE: Sylvain Faille.

Yes, there is one currently that has been approved by the IAEA. It's just not published yet. But we're taking that into consideration as well in the drafting or preparation of the revised PTNS Regulations.

MEMBER BARRIAULT: But we don't know if there's going to be any technical change in the new edition; is that correct, or is it just editorial again?

MR. FAILLE: There is slightly more information than just editorial, but they are not significant.

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

THE CHAIRMAN: Ms. Velshi?

MEMBER VELSHI: So a follow-up to Dr. Barriault's question, I mean, is it likely that this new TS-R-1 could be issued next week, you know, just as we're trying to come in line with the 2001 Edition?

MEMBER VELSHI: Sylvain Faille.

The new version has been adopted at the

IAEA level, but it has not been published and we’re not sure exactly when those are going to be published, but we’re working towards that. And if they are published soon, we may come back and ask to adopt the 2012 Edition if required.

MEMBER VELSHI: My question is -- I know that we’ve stated there wouldn’t be any administrative burden or any additional regulatory burden on the transportation community because they already do this, but even something as simple as changing the order of the documentation means there have to be changes to the internal procedures and roll-out of those procedures and additional monitoring and compliance and all that kind of stuff. So there is some additional administrative burden on the transportation community. And we've already recognized that any benefit of doing this is minimal because it's only administrative changes.

So as you weigh the benefits and the costs and recognizing there could be a new edition coming up, could be even in weeks, we just don't know, what is the driver other than to say, "We're now in compliance with the latest edition"? Has there been any consultation done with the transportation community and are they on board with this?

MR. FAILLE: Actually, many of the

transport community is aware of the changes to this IAEA Regulations as they're also participants in terms of providing comments and feedback to the IAEA on changes that are proposed to the Regulations.

In terms of the change between the 2009 and 2012, those are different from the one that we're looking at today. And they would be on other areas of the Regulations. So what we have today will remain the same in the 2012 with addition of new provisions or new requirements on the Regulations for other types of material that are not covered the same way currently in the Regulations.

But this, for international shipments, they already have to use the -- for example, the shipping document that's already in effect for all international shipments. And Transport Canada also modified their own regulations to allow the same (inaudible) information. So our change in this respect would be minimal. Consequently, it's already happened based on other regulations that are also governing the transport at the moment.

MS. VELSHI: What's the timeline for amending the PTNSR?

MR. FAILLE: I will ask Mr. Colin Moses to answer that question.

MR. MOSES: Colin Moses, for the record.

Currently, the timeline we're looking at, we'll see the PTSNR is amended by the end of next year. So if perhaps it would help, I can go through a quick overview of the process for amending regulations.

The initial step is to draft the regulations in consultation with Justice. And those are then published in Canada Gazette Part I for feedback. Given that these regulations can have some international trade obligations, there would be a requirement for a 75-day publication in Gazette I. Following that, if necessary, we would adjust regulations and then make -- ask the Commission to make those regulations. After which it will be submitted to the Governor in Council to approve the making of the regulations. And then we publish in the Gazette Part II.

In addition to that, in order to seek more stakeholder feedback on these amendments, staff are proceeding in parallel with the development of a discussion paper which would look for feedback from the stakeholders and the users in the transport community. We expect to publish that discussion paper towards the end of this summer to get that feedback. But that activity is really proceeding in parallel with the drafting of the Regulations.

One -- I should note, one of the changes that we're looking at with this edition is to introduce an ambulatory reference to the IAEA TS-R-1, which would allow us to adopt the latest edition as they are amended by the IAEA and provide some additional guidance on the specific application through a regulatory framework through a regulatory document.

THE CHAIRMAN: Anything else? My only observation is that if -- this is really a question. So just by changing (inaudible) IAEA decide to issue a different version or were there other new chapters in there that may not even apply to us between the '09 and -- this is '06? For example, I know that in '12, they're going to deal hopefully with special arrangement, right? Yes? You're smiling. You're not ---

MR. FAILLE: Not for -- it wasn't part of the 2012. It was just going to be in the next edition. But we're addressing that in Canada in our drafting of the revised ---

THE CHAIRMAN: So we're going to be ahead of the -- the special arrangement is to deal with steam generators, for example. So that will allow us, under the new formulation, to be able to adopt it a lot easier, is that ---

MR. FAILLE: That's correct.

THE CHAIRMAN: So in -- so the difference between '09 and '06 as it applies to us is purely administrative. But there are -- are there any other substantive changes between '06 and '09 that may apply to other countries?

MR. FAILLE: Not in the -- not in this regulation. As I mentioned earlier, this one was strictly an alignment with the UN recommendation for the Transport of Dangerous Goods Regulations.

THE CHAIRMAN: Why didn't they call it 206 aligned ---

MR. FAILLE: I ---

THE CHAIRMAN: --- rather than give it a whole thing and then allow some auditors to say, "You're not complying"?

MR. FAILLE: I'm not sure exactly of the policy at the IAEA. I know we've tried that previous edition just to say "as amended" as opposed to "new edition," and it worked for one, but it didn't work for the other one afterward.

THE CHAIRMAN: Okay. Anything else on this? Thank you.

This is the fastest meeting on record, I think, for the Commission. And it's probably a good thing. So thank you all for attending and participating.

And -- all right. So thank you again and see you next time.

--- Upon adjourning at 10:39 a.m./
L'audience est ajournée à 10h39