

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public meeting

Réunion publique

March 28th, 2012

Le 28 mars 2012

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

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

Commission Members present

Commissaires présents

Dr. Michael Binder
Dr. Moyra McDill
Mr. Dan Tolgyesi
Ms. Rumina Velshi
Mr. André Harvey

M. Michael Binder
Mme Moyra McDill
M. Dan Tolgyesi
Mme Rumina Velshi
M. André Harvey

Secretary:

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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 2:39 p.m. /

L'audience débute à 14h39

Opening Remarks

MR. LEBLANC: We apologize for the inconvenience. Nous sommes désolés pour ce contretemps.

Donc, bonjour mesdames et messieurs, bienvenue à cette réunion publique 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 of keeping 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 as possible.

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

I'd also like to note that this proceeding is being video webcast live and that archives of these proceedings will be available on our website for a three-month period following 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: Thank you Marc. And first of all, let me thank all the technical people for make this happen. We didn't expect it and we didn't have an emergency plan to go with it. We were reverting to manual transcript but I'm glad that we actually fixed it.

So again, thank you for your patience and good afternoon 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. Et je vous souhaite la bienvenue.

And welcome to all of you joining us via the webcast or videoconferencing.

So I would like to begin by introducing the members of the Commission that are with us here today. On my right is Dr. Moyra McDill and Mr. Dan Tolgyesi; on my left, Ms. Rumina Velshi and Monsieur André Harvey. We've heard from Marc Leblanc, our secretary and we also have Ms. Lisa Thiele, General Counsel to the Commission, with us here today on the podium.

Marc?

MR. LEBLANC: Thank you. The *Nuclear Safety and Control Act* authorizes the Commission to hold meetings for the conduct of its business. Please refer to the revised agenda published on March 22nd for the complete lists of items to be presented today and tomorrow.

In light of our little delay, we will accommodate some of the participants and we will go earlier on with the items on the alert system in the Durham Region. And then we will do the status report on power reactors, a bit later.

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

12-M12.A

Adoption of Agenda

Before adopting the agenda, I would like to note that five supplementary Commission member documents or CMDs were added to the agenda after its publication on March 15th, 2012.

Mr. President?

THE CHAIRMAN: Okay. I'd like to call for the adoption of the agenda by the Commission members. Do I have concurrence?

For the record the agenda is adopted.

12-M.13

**Approval of Minutes
Of Commission Meeting
Held February 16, 2012**

THE CHAIRMAN: And I would like now to move to the adoption of the minutes of the Commission as described in CMD 12-M13.

Any comments, addition, deletion?

I hear none, so for the record, the minutes are approved.

**5. Update on items from previous
Commission proceedings**

**5.1 Ontario Power Generation:
Pickering A and B Nuclear
Generating Station - Update on the**

**Public Alerting System for
Pickering City and the Durham
Region**

THE CHAIRMAN: So we will move now to the Emergency Management Ontario presentation on public alerting system for the city of Pickering and Durham Region.

And I understand that we have the Emergency Management of Ontario and the Durham Regional Emergency Office here. Both here to make a presentation and I understand that Ms. Stuart will start. So, welcome, and please proceed.

12-M17-1

**Oral presentation by
Emergency Management Ontario**

MS. STUART: Thank you very much. Allison Stuart, I am the Assistant Deputy Minister in chief of Emergency Management Ontario, for the record.

I'm here to speak on behalf of the Province of Ontario on this matter today. We, as you know, we are governed under the *Emergency Management Civil Protection Act*, as well as our responsibilities for nuclear emergency

response plans require -- fulfill the requirement that we have to have a plan in place for nuclear facility emergencies.

In addition to that, the communities that are surrounding the facilities must also have plans to respond to off-site consequences of a nuclear event. The communities are either within the primary zone and that's where protective actions may be required if there is an emergency or the communities are acting as a host municipality and are designed to receive evacuees from the primary zone.

Since the events that occurred in Fukushima, Emergency Management Ontario undertook a significant review of municipal nuclear emergency management programs to assess the compliance with both the Provincial Nuclear Emergency Response Plans and the associated requirements that go along with that.

The review was completed in February of this year. And the results have been communicated to the Chief administrative officer or City manager of each of the designated communities.

The methodology that was used to undertake this review was to develop a conformity chart. We did that with the assistance and input of key stakeholders. And we then worked with each of the relevant municipalities to

assist them and support them in populating the conformity charts.

So what we will be talking about today will be based on that work. There was a detailed review of the overall chart plus the existing plans and other documentation. And each of the primary zones had 15 criteria to meet and host municipalities had nine criteria to meet.

So the results of the review were very positive in terms of the communities that are designated under the plan, generally, have strong nuclear emergency management programs.

However, there was no designated primary zone municipality that was fully compliant with all of the requirements of the Provincial Nuclear Emergency Response Plan.

THE CHAIRMAN: Sorry to interrupt. I find your deck really instructive and interesting. My question is; are you posting it?

MS. STUART: It's certainly available.

THE CHAIRMAN: Okay. I'm just curious to know why it's not being shown as you speak.

There we are.

(LAUGHTER/RIRES)

MS. STUART: Now it is.

THE CHAIRMAN: Magic.

(LAUGHTER/RIRES)

THE CHAIRMAN: Okay. No. Thank you because I thought there was some very interesting data here that you may want to share with our audience outside this room.

MS. STUART: Thank you.

Of the designated primary zone municipalities surrounding three of the five facilities, the greatest vulnerability appears to be around the public alerting requirements.

And in terms of the host communities, there is high compliance or conformity with the variables that were identified. But there were also some that have lower compliance with those same variables.

I am not going to go through the listing of the requirements for each.

They're available to you in your materials and now up on the screen. So people will be able to read those should they wish to do so.

I would like to then proceed with -- we'll move beyond the legend -- I think the legend is pretty self-evident and start to talk about the -- each of the primary zone results, and first up is Durham region.

And I want to start by saying that Durham region has a very strong program. And I'm not sure that

we emphasize the strength of their program enough because collectively we spend a lot of time focusing on the public alerting, because that is an area of vulnerability for Durham region. But overall, the program is extremely strong and Durham has excellent relationships with all its stakeholders on this file.

The issue is, of course, around the alerting, the public alerting, both for the -- both Darlington and the Pickering sites, and it's less of an issue when talking about our -- sorry, I'm having difficulty reading my own screen now.

The three-kilometre requirement is in reasonable shape but -- for Darlington. However for Pickering, there is still work to be, done and I believe that Durham region will provide a status update on where they're at with that initiative going forward.

The 10k alerting is something that both the Darlington and Pickering sites -- there needs to be further work on this piece of it. And I will come back and speak about the 10k alerting in a couple of slides just to provide a bit broader update on that.

The City of Toronto, again, another strong performer and working to do more work around their thyroid blocking plan as well as working with the Durham region, because parts of Scarborough in Toronto are within the 10k

area of the primary zone. So there's currently a working group to address that. And there is significant training being planned by the City of Toronto on their plans.

Laurentian Hills, Deep River, primary zone and the municipal plan is to be updated and we understand that that is to be completed shortly, and that will be a significant progress for them and really assist them with their compliance with the 2011 Nuclear Emergency Response Plan for Chalk River.

They're vulnerable in terms of the public alerting, however, there is work underway to address that and good support from the leadership within the community to make that happen.

There are some other areas where some further work needs to be done in terms of care of evacuees and animals should there be an event and requiring evacuation. So that is part of what we continue to discuss with Laurentian Hills and Deep River. Understanding that there are aspects of the site being used as both a host community and as being in the primary zone that really give us some pause, and we'll continue to have those dialogues with the community.

Kincardine has a good nuclear program but the plan does need updating. However, there -- as you know, there is a significant exercise being held this fall

with Bruce Power. And in preparation for that exercise significant activity is underway to ensure that everybody is ready to be a full participant in the exercise itself. So we're expecting to see updates in terms of the municipal response organizations, their planning information, their emergency information arrangements and how those are being developed, and we're anticipating significant activity the coming months.

For Amherstburg, there needs to be an updating of the municipal plan there. This is to reflect the update that's happened to the FERMI II plan. So just to make sure that there's an alliance between the work that's being done in Amherstburg and making sure that it reflects the changes of the 2011 FERMI plan.

While -- once they have those in place then there would be a need to put some emphasis on training and exercises to ensure that their new plan and FERMI's new plan are providing the kinds of supports that are required.

Saugeen Shores, which is a host community for Bruce Power, and -- Saugeen Shores is not new to the Commission. Port Elgin was consolidated into the new Saugeen Shores. And right now Saugeen Shores is working again towards the development of a strong plan in anticipation of the exercise that's coming up this fall

and working closely with many partners to make that happen.

Toronto is also a host community for Pickering and Darlington. And they do have a strong program both as a host community and otherwise and -- as one would expect. And as they do some of the work they have planned for this year in terms of training, I think we'll see that the impact of that will be reflective in both of their roles.

Deep River as a host community, there are -- there's work underway, as we talked about. And we're certainly available to work with Deep River to help support their development and ensure that they are able to provide the kinds of supports that are required, and nothing really different than comments made previously there.

Essex County, overall, acts as a host for FERMI II and here again, need for some attention to be paid on actually doing some training and exercises on the plan, and those will strengthen the community's readiness should it be required.

The City of Peterborough is a host community for Pickering and Darlington, has a very strong program and it would -- simply needs to do some tweaking of its program to reflect some changes in the Provincial

Nuclear Emergency Response Plan and they will continue to have a strong program.

Windsor as a host community is in full compliance for FERMI II and is quite active on that front.

So all of the impacted communities understand where they have their strengths, where they have areas that they need to do some more work on consistent with the expectations of the Provincial Nuclear Emergency Response Plan.

Emergency management Ontario has offered these communities, assistance and support recognizing their responsibility lies with the community, but we're there to be of any assistance that we can be.

I mentioned earlier that I would come back and talk for a moment about the ten kilometres' issue or perspective I suppose. And there is an interest on the part of many of the communities to have further discussions about what the expectations are and how they be played out for the ten kilometres' piece.

And EMO is willing to act against as part of the glue that pulls things together for those discussions, recognizing that the responsibility will lie with each of those communities to be in compliance.

But if there's assistance that we can provide we are willing to do that, and in fact have been

active in setting up some of those meetings, and I think there will be increased attention paid to those meetings over the coming months.

In terms of the way forward, our goal is to have all designated municipalities be fully compliant with the Provincial Nuclear Emergency Response Plan in 2012. And we believe that that's more than simply idle words, that we believe that each of the communities is able to get to a point of being in compliance.

The challenge for many of them is around the public alerting and it will require some very focused attention to get that in place within a year's time. But we have confidence that each of the communities is focused on trying to make that happen.

We would be pleased to be invited back to the Commission, to be able to provide you with updates on how the communities that are affected in Ontario are moving towards full compliance, or even better have achieved full compliance, so would be delighted to have the opportunity to come back in six months' time and a year's time to show the progress being made in Ontario.

Thank you.

THE CHAIRMAN: Thank you very much. I think you generate a lot of questions. But before we get into that I think I would like to hear from the Durham

Region Emergency Management office for their presentation's outlined CMD 12- M17.2, and I understand a Mr. Cubitt will make the presentation. Please proceed, sir.

12-M17.2

Oral Presentation

MR. CUBITT: Well, good afternoon. My name is Gary Cubitt, and I am the Chief Administrative Officer for Durham Region and as such I'm responsible for approximately 5,000 staff and the overall management of the organization.

With me today is Ivan Ciuciura who is our Director Of Emergency Management, and he will provide some details on our progress on public alerting when I conclude some introductory comments.

First I would like to say to the Commission that Durham Region takes its responsibilities with regard to nuclear emergency preparedness very seriously.

As you saw in the Province of Ontario presentation Durham Region is compliant with all of the requirements of the Provincial Nuclear Emergency Response Plan with the exception of public alerting.

And I'd like to thank the Province of

Ontario for its positive comments with regards to our regional program. We are very proud of it and we work very hard to try and deliver a very good public safety and emergency program.

It is robust, it's in place with the full cooperation of organizations such as Ontario Power Generation who work with us on our plans, and our procedures, on our training, our exercises, our public education.

And as you can appreciate nuclear emergency management involves coordination with a number of players, including in our instance the province, five local area municipalities along the Lakeshore, eight regional departments, three departments of emergency responders being police, fire and EMS. School boards, volunteer agencies and other volunteer and organizational response groups within our community.

We acknowledge that we've made we think some good progress in public alerting, however we respectfully acknowledge also that we have work to do.

There are approximately 22,000 people in the Pickering three-kilometre zone and this combined with a requirement for indoor and outdoor alerting in the 15 minute timeframe presents us with a very difficult challenge.

Nevertheless, I want to assure you that the three kilometre project has not been in any way parked or sidelined by the Region of Durham, it is in fact a very high priority, as some of your staff reports I believe have confirmed, and we are committed to moving that file to a positive conclusion as quickly as possible.

And with your permission I would now like to invite Ivan to provide you some updates and details on our activities.

MR. CIUCIURA: My name is Ivan Ciuciura, I'm the Director of Emergency Management for Durham Region. This is an update to your meeting of September when I called in to provide some information.

So first of all for Darlington we are compliant. There are 14 sirens for outdoor alerting and the automatic telephone dialling system can meet the 15 minute requirement, and it's showing it takes about five minutes.

So we are compliant with the standard and it has been confirmed by Emergency Management Ontario in the recent review. And I just want to note there, though, we have been compliant in Darlington since October 2008.

So for Pickering I put arrows which indicate progress, but were not checkmarks obviously. You will recall that in 2011 five additional sirens were

installed in the Pickering three kilometre zone for a total of nine.

The siren coverage was tested in the fall and the report was issued in October 2011, that indicated that again we did not have enough sirens to meet the requirements.

The company doing a test did an extensive survey so they took readings from 22 different locations. They found that that area is extremely complex in terms of high ambient background noise levels, especially along Highway 401 to the north and even in the eastern section which is commercial, but there's a lot of truck traffic on the roads there, so it's high ambient noise there also. The good news perhaps is that the primary residential area to the west had pretty decent coverage.

Last September we also conducted another telephone dialling test but we didn't meet that 15 minute requirement.

So what have we been doing? We purchased updated telephone numbers late in 2011 and then January that data was integrated into our geographic information systems and sorted by response sectors so we could call it by sectors.

And early February we conducted another dialling test and unfortunately that test didn't make the

15 minutes again, and it took us 20 minutes, so we need to be 15, so we're close but not quite there.

So we quickly went out for quotes for a second dialling company to do half of the calls. We're in the process of evaluating those bids and confirming the capability of the companies.

So the target for getting that second company and achieving that 15 minute alerting for the telephone alerting for indoors is April.

For sirens we again we move quickly, on February the 7th we were able to conclude a sole source contract with the company that did the coverage testing in 2011 to build on their findings, and they were asked to produce a definitive report on the number and locations of additional sirens.

Phase I has been completed so they've done a review of all of the past reports, they've obtained mapping data and land parcel overlays from the region. They've received the road traffic data from the 401 and all the local roads so they can look at that ambient noise sound levels.

They have built a 3-D model that includes a depiction of over 2500 homes and industrial buildings, and they calibrated the model using some of the data that they've already done.

The target for their final report on the number of additional sirens that we need is April. So the target for the acquisition and the installation of any additional sirens is October of this year.

And finally, we are moving quickly, and while we work to compliance if a severe accident occurred today, the existing system would be utilized. So that means the sirens that are installed, they're in service, so they would be utilized, yes. There isn't enough in Pickering, but they would still be sounded.

A telephone auto-dialer, again, it didn't quite meet the 15 minutes, but we would utilize that one. And just a note that that auto-dialer would, if it needed to, it can go right out to the 10-kilometre. Again, it won't be 15 minutes, but that -- all the phone numbers we have in that updated data have been entered, and that would -- it would first dial the three-kilometre zone, and then move on to the remainder of the 10-kilometre zone.

And, finally, the province would issue emergency bulletins to all the media outlets to get out what has happened and what action should be taken.

So that concludes my update and I'd be pleased to take any questions.

THE CHAIRMAN: Thank you.

Before getting to some -- from our staff

presentation on this, I wonder if OPG wants to add some comments to this?

MS. SWAMI: My name is Laurie Swami. I'm the Vice-President of Nuclear Regulatory Programs for Ontario Power Generation. I have a few comments.

I'm pleased to see the progress that Durham Region has been making in installing the sirens in and around the Pickering area, and we have been supporting them through this process, as required, through financial support, to ensure that this project is completed as quickly as possible. We are planning to continue that support and will be working with them over the next number of months to ensure compliance by the October timeline that they've specified. And, again, I'm available to answer any questions you may have.

THE CHAIRMAN: Okay, thank you.

Staff, I understand that you are ready to add some comments here as outlined in CMD 12-M17 and I understand it's Mr. Sigouin, you're going to make the presentation?

No?

Sorry. I am ---

12-M17

Oral presentation by

CNSC Staff

MR. RINFRET: François Rinfret, Acting Director for the Directorate of Power Reactor Regulation.

Staff has presented a short CMD on the topic, has indicated its degree of satisfaction, and did not intend on making a presentation, but as you are aware now, and Mr. Santini from the Pickering Regulatory Program Division and Monsieur Sigouin from the Emergency Management Program Division, are available to answer questions.

THE CHAIRMAN: Okay, I just do what I'm told. I'm reading what's in front of me here. So, that's good.

I think we've got lots of questions here. So why don't I start the questioning round. Let me see if I can get my place here -- with Ms. Velshi.

MEMBER VELSHI: Thank you, Mr. President.

Question 4, I guess both the CNSC and the Durham Region Municipality representatives, from the submissions and the presentations, it is evident that since the October 2011 CNSC meeting a lot of progress has been made on the requirements for the three-kilometre zone, and meeting that and a front target date has been established for full compliance.

What is not evident is similar progress for the 10-kilometre zone requirements, and in the CMD, the only reference to that has been that a meeting of the key players has been held, but no mention of what the compliance plan is for that. And, in fact, what we heard from the EMO, is that there seems to be some issues on what the requirements are for the 10-kilometre zone.

So I guess my question is, from the CNSC, do you think that the appropriate level of urgency and priority is being given to this matter, and is this acceptable?

And, you know, you have said that -- the CNSC staff have said that you are satisfied with the current status of things, and I'd just like to hear more on why you do believe that.

MR. RINFRET: François Rinfret.

An initial answer is that staff is satisfied and intended -- after seeing the progress, intended to use the current action plan for post-Fukushima in order to monitor and converge towards a completion of the various actions that are necessary.

As far as the 10-kilometre zone for a federal institution, it is not obvious that a 15-minute is necessary for full activation or for full general notification of residents, so we can work with the

provincial authorities towards completion of this issue as well. So that's basically the reason why staff indicated satisfaction with the various actions taken.

And now, I can turn it over to Monsieur Santini? We look -- no to Monsieur Sigouin for further questions or further precisions.

MR. SIGOUIN: Thank you. Luc Sigouin, for the record.

In reference to the CMD, I guess the clarification is that the text refers to staff's satisfaction with the progress and the plan made for the three-kilometre alerting system, indeed. And albeit that there have been some delays with this, it seems to be moving quickly now. And we expect, as everyone does, to see some progress made towards a fall 2012 completion.

The CMD was relatively quiet in regards to the 10-kilometre alerting and our position on that, primarily because there has been limited amount of action on that. The activity in the Durham Region has been focused on becoming compliant with the three-kilometre alerting requirement.

Our position, staff's position, relative to the 10-kilometre alerting requirement, is that it's a reasonable requirement. There are no technological or financial impediments to meeting the requirement.

We understand that the municipalities would like to clarify that requirement with EMO, and we understand that those discussions have initiated. And we look forward to hearing back on the outcome of those discussions and what progress will be made. Ultimately, what we would like to see in the near future is some implementation plan or strategy for near to medium term.

MEMBER VELSHI: Okay. You know, if I look at the CMD on page 3, CNSC staff's position says, "CNSC staff are satisfied with plan submitted by Durham Region Municipality." It doesn't say that that's just for the three-kilometre zone.

So, again, my question out there is still, for the 10-kilometre zone, we really don't know what the plans are and when full compliance is expected, or whether even -- if the requirements are going to change, or does the full compliance by year-end apply to the 10-kilometre requirements as well?

THE CHAIRMAN: Go ahead, Ms. Stuart?

MS. STUART: Thank you, Allison Stuart.

Just to give you a bit more depth in terms of the work that is underway with regards to the 10-kilometre public alerting zone; there have been meetings and continue to be meetings among EMO Toronto and Durham Region.

There is a work plan that will be finalized in April, a project outline for April, and the expectation is that there'll be a request for submissions to do an analysis of technologies that could be helpful in responding to this requirement.

And it's looking to have the RFS submitted in the summer of 2012 and having a vendor of record by the end of the summer of 2012 with a report anticipated for the fall. And then implementation timelines, et cetera, developed for action in 2013. So those are underway now.

In addition, it's I think useful for everyone to understand what would happen today if in fact there was a requirement for that kind of alerting. In Ontario, there's the Emergency Public Warning System, and we could get a message out on that system within 15 minutes. That's currently available and it is used now for other kinds of emergencies.

This would allow us to do red alerts, which are our highest level, as well as emergency information advisories, not only using broadcasting methods but also using social media for those who have signed up for that kind of messaging, which I acknowledge is not everybody in the province by any means.

In addition we would be able to intervene on broadcasting and then Durham Region of course has their

local telephone alerting system which could be put into play.

So it's -- we're not totally bereft of any supports while we go through this progress -- go through this process with the anticipation of seeing action on the ground in 2013.

Thank you.

MEMBER VELSHI: Thank you, that's very helpful. So I'm glad to see that there are interim measures to make sure that there would be some remedial action.

So then if I look at page 20 of your presentation where the goal is full compliance by 2012 I guess this would still be outstanding, because there would be work happening in 2013, or do you think what's in place right now kind of meets those requirements?

MS. STUART: Allison Stuart for the record. We would have full compliance in terms of meeting the bare bones I think for that ten kilometre, but we do need 2013 to enrich it and make it as robust as the Commission would like to see, and as all the other parties would like to see.

MEMBER VELSHI: Okay. I'm sorry to belabour this, but I want to make sure that I have a good understanding of it. So come December of this year if you

were to present this report it still wouldn't show a tick mark for the ten kilometre --

MS. STUART: No, we would -- Allison Stuart for the record.

We would not say that this was in full compliance for the ten kilometre. We would be able to report the progress that had been made, because by December we should have a full plan of implementation, not simply a plan of what we might do, but actually implementing it on the ground.

MEMBER VELSHI: Thank you. There was mention made that the CNSC has issued a staff action plan on the CNSC Fukushima Task Force recommendations. A question for the EMO, how does this report impact the requirements under the Provincial Nuclear Emergency Response Plan?

MS. STUART: Allison Stuart for the record.

Since Fukushima and while the Commission was developing its findings in its report, the CANDU owners' operator group did not stand waiting for something to be told to them, and in fact has been quite active and has had two workshops looking at areas to further develop both areas within their own organizations as well as more broadly.

We have reviewed the task force

recommendations and we have provided comments on the recommendations. We've certainly had discussions with Commission staff on the way forward.

In addition we are working with New Brunswick and Quebec, and part of the work that we see is important to do, going forward, and reviewing some of our fundamental modeling expectations, to look to see if that is something that we can do in common, so that there's a significant coalition of thinking around the way forward for this part of Canada.

We are also looking and have been working with the -- all of the sites in terms of doing the audit that we spoke to today and the findings of the audits and then now doing that follow-up of working with each of the communities to address this.

We're hopeful that as we go forward there continue to be opportunities for the recommendations that have come forward to be developed and implemented in concert with the province and also with the operators and the communities, because we think that that's the way to do it.

We think the discussions to this point in time are leading in that direction and we're feeling quite positive about the results of a very tragic event that occurred in Fukushima.

MEMBER VELSHI: Thank you.

THE CHAIRMAN: Thank you. Mr. Harvey?

MEMBER HARVEY: Well, what is the source of those requirements? Is it something very special for Ontario, or it's internationally the same requirements? And for example you talked with Quebec and New Brunswick, would will find the same requirements in Quebec and New Brunswick.

MS. STUART: In 2009 was it, there was a -- we in Ontario we retained consultants to do work on our behalf to identify what were the criteria that should be met in terms of the primary zones as well as looking more broadly.

We think that with the experience of Fukushima, and with what we've, you know, other sources of information, that it's time to review that modeling. This will be done using consultants, third party consultants who will be expected to draw on international standards, and international research and study and findings based on events that have occurred across the world.

I think that the reference to working closely with New Brunswick and Quebec is really not because we think that any of us would come up with dramatically different results or expectations, but that the consistency is -- reinforces the strength of the

modeling that's been done, and the strength of the thinking that's gone into the science.

MEMBER HARVEY: Can the staff comment on that, and when you say you accept the plan then you accept all those specific data in the three-kilometre zone and the ten- kilometre zone, can you comment on that?

MR. RINFRET: Francois Rinfret here, Mr. Sigouin will answer that question.

MR. SIGOUIN: Thank you. Luc Sigouin. So in answer to the question on guidance or standards, there are no international guidance documents on public alerting for nuclear facilities. and there's no national Canadian standard or guidance on public alerting for nuclear facilities.

So in Canada it's left to the provincial authorities to make that decision. In Quebec and New Brunswick there is no explicit timing requirement that he been made, whereas in Ontario, Emergency Management Ontario has established an expectation for this. The expectation, the requirement for public alerting timing in Ontario is consistent with what is done in the U.S. In the United States the emergency planning zone is typically ten miles, 16 kilometres and it would typically have 100 percent coverage in those zones with sirens that could be activated within 15 minutes.

So when we say that the plans that we see presented by EMO or Durham as reasonable, certainly the three kilometre is consistent with what we see in other provinces or what we see in the U.S. And the ten kilometre is consistent with that requirement, so we would find that acceptable.

MEMBER HARVEY: So this is something that will not change in five years, ten years, so it's as reasonable as it could be and it should stay like this for a certain number of years.

Because my point is that it's not so easy to come to that point to get all those municipalities and host municipalities to get in compliance with that, so my hope is it's not going to change right after that.

So once you are in compliance with the plan, what does it take to stay there? Because we know that people change. And, okay, there is a part of equipment that is there and will stay there. But people changing, you've got to have training and things like that.

So is it very difficult to stay in compliance when you're there, when you get to that point? Maybe the staff or MOE could answer that? EMO?

THE CHAIRMAN: If I may just add to this particular question, I think what we're looking for is how

you do a test of the system, to make sure that it is robust and compliant on an on-going basis. There must be some sort of a test, annual test, exercises, to make sure that the thing is maintained, in case of an emergency.

MS. STUART: Allison Stuart, EMO, for the record.

The reason I was hesitating to respond was that I needed to get some dates put into my ears so that I could make it sound as if I had them at my fingertips.

In 2002, we did a review and updated our provincial nuclear emergency response plan, so it seems appropriate to us to be doing a review of the fundamentals a decade later.

In 2009 and through to 2011, we updated our nuclear emergency response plan at the provincial level, and then specific to each of the sites, so that's in place.

We do do regular exercising, either formally at the provincial level, as we're doing this fall in partnership with Bruce Nuclear, and the communities surrounding it. There are also other exercises that occur each year that EMO, the community, the various centres put into play to test some aspect of their activities.

So it's a combination of making sure that our fundamental expectations are well-grounded and reflect

the current thinking. This requires a significant amount of work, so it's not something that would be done with great frequency but enough to make sure you're capturing all of that. Those are the fundamentals.

Then we do the updating of the plans so that we're able to make sure that there's a consistency between the best information that's coming to our attention. And then, of course, we have to do our exercising and testing of plans.

In addition, we meet on a regular basis with the representatives of the communities and the organizations that are involved so that we're getting status updates and sharing of information on an ongoing basis throughout the year. I think that happens quarterly?

UNIDENTIFIED SPEAKER: Quarterly.

MS. STUART: Quarterly, with all of the stakeholders. So it's an iterative process.

Thank you.

MEMBER HARVEY: If you consider -- my question is going to the staff.

If you consider that the 15 minutes alert, for example, it's something very important and you mentioned earlier that you don't have such requirement in Quebec.

Do you have any means by which you could -- I wouldn't say push but help people in Quebec to think that way, if it's so important? Because you mentioned that there is no limit in Quebec. So if there is no limit, it's -- for me, of course I'm -- it's not very funny to say, "Well, they can do what they want."

MR. RINFRET: Monsieur Sigouin will answer.

MR. SIGOUIN: Luc Sigouin.

I think it's important to make the distinction, Mr. Harvey, between there is no limit as you say, or guidance, and what system is in place. So both New Brunswick and Quebec have in place adequate public alerting systems for the technology that they have, the population density that they have. Particularly in New Brunswick, around Point Lepreau, they have a system that is very functional and adequate for their situation.

At Gentilly, if you remember at the latest licensing -- the last licensing hearing, the mayor talked about upgrading their system. So they have a system of sirens in the industrial park nearby, and they were counting on a system of using first responders with loud hailers to alert the rest of the public, and that is documented in their plans, but they have gone forward and are progressing with implementing a more automated system.

So there are systems in place and they're

meeting the requirements. The distinction with Ontario is that Ontario has explicitly stated what the standard should be for the province, whereas that has not been done in the others, but there are systems in place.

MEMBER HARVEY: But my only problem is you were saying that they are meeting their requirements, but it seems that there's no requirements, so ---

THE CHAIRMAN: Okay, I really would not like to get into general emergency planning for the whole country. We will revisit this issue May the 2nd when we consider the post-Fukushima action plan.

There's one lesson that Fukushima taught us, is that emergency planning is important, really important. And therefore the whole world is looking at emergency planning with a brand new set of eyes. And there may be what -- the kind of plan you're presenting now is the minimum plan. There may be an enhancement once the world, in every country, has done their test about what the future will look like. But this is not the time to discuss this. We are here on a very narrow question.

Somebody asked about whether our view about the urgency is not reflected. Well, you would remember, some of us would remember, still on this Commission -- there is a new one in front of us because we were very frustrated with the slow pace of being compliant, and we

now want to see the end of the tunnel, about being compliant with the minimum set of standards, really.

And from my perspective, I'm really happy to see a very clear, in fact measurable, plan for implementation. And, while I've still got the floor here, I may as well ask, one question is, is it enforceable?

And that's really the only question, to me -- what power do you have to make sure that all those well-intentioned municipalities and stakeholders actually implement your plan?

MS. STUART: Allison Stuart, for the record.

The *Emergency Management Civil Protection Act* requires there to be an emergency plan with regards to nuclear events and that we comply with by simply having the plan, and within the plan identifying the expectations of our communities that are impacted.

There is nothing in the legislation, as it is written now, that has any consequences for a community that is not compliant with the plan.

THE CHAIRMAN: Well, that's not the answer I wanted to hear.

So this is where, moving forward, we may have some interesting, continuing dialogue, because from our perspective we must ensure that there is a plan. So

I'm very happy to hear that the Municipality of Durham is going to be compliant by October, and we may invite you again to actually celebrate compliance. But we will have to go through every facility and every plant and every community to make sure that something is in place.

So we may be able to help you in -- I don't know in making it enforceable, but at least there is some sort of requirement that we will be looking for implementation.

So I stopped Monsieur Harvey, but I'd like to move on to Monsieur Tolgyesi.

MEMBRE TOLGYESI: Merci, monsieur le président.

This is to Emergency -- EMO. When you're talking these requirements, are they of same value, same importance, or they are a kind of graduation between that few of -- are priority or main priority, and other ones, you know, we could postpone, delay, or whatnot?

MS. STUART: We did not weight one of the criterion over another at this point in time. We were, to be frank, thrilled that we had done this piece and we, I'm sure, will, in conjunction with others, refine the process going forward. But at this point, no, there was no attempt to weight the criteria.

MEMBER TOLGYESI: When you were saying that

2013, you were talking about full compliance, is it the kind of recommended, generally accepted, or regulated timeframe? Which means that if somebody is not there at 2013 but only at 2016, it's okay?

MS. STUART: Allison Stewart, for the record.

We never see not being in compliance as okay. We understand there are circumstances that make it challenging for a community to be in compliance, and in those situations Emergency Management Ontario becomes that community's new best friend.

We spend a lot of time working with the community to try and support them in getting to a point of compliance. We do that using moral suasion, other kinds of supports, because as has been identified we have no stick, per se, but have found that being as helpful as we can be to help the community get where it wants to go as well has worked reasonably well.

But we would not say that if somebody said, "Well, 2016 is the best we can do," one, we would not see that as being fully compliant, and two, we would not be passive around that, we would be dealing with that on an ongoing basis.

MEMBER TOLGYESI: So what you are saying is that you don't have a stick, do you hope they will listen.

And my last -- yes.

THE CHAIRMAN: Is coming in front of us considered to be a stick?

MS. STUART: Allison Stuart, for the record.

For EMO, coming in front of you is an opportunity. I would leave it to the communities to decide whether coming in front of you is seen as an opportunity or otherwise.

THE CHAIRMAN: Durham, would you like to comment on this?

MR. CUBITT: Gary Cubitt, for the record.

We welcome the opportunity to work with CNSC, as we welcome the opportunity to work with OPG and our colleagues in the Province of Ontario.

The safety of our community is clearly a top priority to us. We want our residents to be safe, we want our communities to be safe, we want our industrial commercial partners in our communities to be safe. And we work very hard on putting together emergency plans that we think will respond to all kinds of eventualities that may befall the folk that live and work in the region or Durham.

So, no, we don't consider it a negative process at all, Mr. President, we consider it very much a

positive opportunity. We've enjoyed meeting with your staff that have come down to Durham Region and we have invited them to continue to meet with us, and find their comments most helpful.

THE CHAIRMAN: But the reason I'm asking is because sometimes you get a population pushback on placement of sirens, you get maybe Council not exactly understanding of some of the emergency issues here. So my question is we're talking about nuclear, and after Fukushima I thought that there would be a lot more interest in making sure that you have all those infrastructure in place, particularly in Darlington and in Pickering, which are nuclear facilities.

So what would it take to get kind of a unanimous swell of public acceptability that needs to be done?

MR. CUBITT: Gary Cubitt, for the record.

I don't know that I'd ever presume to know what would -- what it would take to get unanimous public support for anything. But what I can say is that in Durham Region the support for a nuclear emergency planning has been very strong. And we can witness areas like Darlington as an example; there was complete and total community support to the plan, to the sirens, to the installation, to the testing, and to the eventual signoff

in that municipality.

You are correct in your observation that in Pickering there were some political issues associated with the placement of sirens, what the sirens may mean to some of the residents, some concerns that some of the politicians felt the residents may have with regards to properties and so on that may have sirens located upon them.

But that all said, we've made excellent progress and continue to make excellent progress, and Pickering has declared itself to be a completely supportive partner. The new CAO in Pickering, Mr. Tony Prevedel, I know has sent in a letter advising of their willingness to continue to work fully and cooperatively with the region and with the province to do whatever is necessary to meet the standard and to ensure that compliance is in place. So I'm hoping that whatever may have been in the background, if anything, is lasting.

I might make one final comment. It shows up in some of the reports and I think it's worth noting, that in all of our testing and in all of our, you know, running sirens and all of that to see what happens, the only public feedback we've had are folk who were concerned that they didn't hear it, or didn't hear it loudly enough. So if there was a sense that the public are all out there

not wanting sirens and not wanting alerting, our experience had not found that at all. We have found the public with the excellent effort of Ontario, and OPG and our staff, to educate and keep them fully informed, we have found them very supportive, Mr. President, and we're very pleased with the community support behind the entire effort.

THE CHAIRMAN: That will mean if you can extend this to the 10-kilometre zone it should be no kind of showstoppers in doing that.

MR. CUBITT: Gary Cubitt, for the record.

We obviously have to know exactly what the standards and the requirements of Ontario will be as we move forward into the 10-kilometre zone. At this stage we have staff working with Toronto, Ontario OPG and others to implement the kind of planning and structure that might be required to roll out to the full extent of the 10 kilometres. And we're very hopeful that that can be done positively and cooperatively, and if there are issues that arise, we are optimistic that we can address those issues in a professional way and move forward to get the compliance that we're all looking for.

THE CHAIRMAN: Mr. Tolgyesi?

MEMBER TOLGYESI: I have a last question, that you were saying that there is no weighting of these

requirements. That's what I understand. So why when you are talking about Durham you are talking about three and 10 kilometre requirements, when you are talking about Deep River and Laurentian you are talking indoor and outdoor? You are talking that Toronto is a public alerting requirement is full and complete. So why you don't have standardized all these requirements and reporting them?

MS. STUART: Allison Stuart, for the record.

The requirement for Chalk River, in terms of the kilometres, is different than it is for the Durham Region, and so it's not one size fits all. And that's based on the work of consultants who identified the different requirements.

So I'm not sure if that answers your question but the requirements don't alter in terms of the expectation for each community. But they may be different between communities depending on the -- on what their -- what the zones are. And so for Chalk River they don't have a three-kilometre zone, so that's why the language is a little bit different.

THE CHAIRMAN: Dr. McDill?

MEMBER MCDILL: Thank you. I'm glad that communities designated generally have a strong emergency management programs. I'm a little concerned that no

municipality is fully compliant. That's very troubling from a regulators' point-of-view.

That was my first comment, people are moving forward which is good. With respect to Durham, at the 15 minute mark how far along were you? And you completed at 20 minutes, but how far -- what percent had been satisfied at 15 minutes?

MR. CIUCIURA: We were able to dial all of the numbers in the three-kilometre zone but it took 20 minutes and it was 96 percent, I believe.

MEMBER McDILL: At 15 minutes it was 96 percent?

MR. CIUCIURA: Yes.

MEMBER McDILL: Okay. And it's the completion is the dialling of, not the reaching of the people at the other end?

MR. CIUCIURA: It can tell if it's leaving a message if nobody's home. It can tell if there's a person, I mean, somebody answers, it can tell if there's a busy signal and it will go back and redial.

MEMBER McDILL: So you don't know -- does EMO know what percent at 15 minutes, how far along? I mean, you would know what you were at 20.

MR. CIUCIURA: Sorry, I'm not sure I understand the question then?

MEMBER MCDILL: At the 15 minute mark --

MR. CIUCIURA: Oh, no.

MEMBER MCDILL: -- what data do you have?

No date? Any data?

MR. CIUCIURA: I'd have to go back and look.

MEMBER MCDILL: Okay.

MR. CIUCIURA: You might be able to tell how many was done in 15 minutes, I can pull that out of the data if there's --

MEMBER MCDILL: I guess what I'm looking for, is the response linear, or are we coming up a curve and getting, into the flat zone at that point?

MR. CIUCIURA: No, I don't think -- no, I don't think -- it's just a number, it's not linear or exponential, or anything like, so it would just be a straight line.

MEMBER MCDILL: Does EMO want to comment on my first comment?

MS. STUART: Allison Stuart for the record.

In 2011 the Province of Ontario approved the last pieces of the Updated Provincial Emergency Nuclear Response Plan specific to the sites.

So this year is a catch-up year, as they refresh their plans to make sure they're in full

compliance. So in several of the communities we're talking about tweaking not a major overhaul, but just to make sure that they're in full alliance with any changes that occurred in the 2011 legislation that they haven't got to as yet.

And remembering that we did the review, we started the discussion in December 2011 and over into, you know, completed it by February of 2012.

So I think that in six months' time when we're hoping for an invitation back we'll be able to speak to people having done that review and there being a comfort level with the level of compliance.

MEMBER MCDILL: Staff, did you want to add anything?

Thank you, Mr. Chair.

THE CHAIRMAN: Any other kind of question? Here's where I'd like to take you up on the promise to come back, and the question is when would be a good time to do another check?

In the meantime we're not, you know, just so you know our plan we're not going to ignore you guys until it's a done deal, and that means that we're going to invite you over and over to show us a progress, and particularly in the nuclear facilities three -- the three kilometres and the ten kilometres we're going to insist

that that be done as a minimum, and any way we can help we will.

So when would be a good time for you to -- obviously October is when Durham is planning to do the final touches, so maybe after October, maybe November, maybe early next year; I don't know, what's your advice?

MS. STUART: Allison Stuart for the record.

Any time after Labour Day we would be pleased to come back and provide a status update. And if in fact October seems to be the witching month in terms of Durham's ability to have that piece complete then I would suggest that late October would be a good time given your commitment to keep your attention on us, collectively, until this is done. So I think that would work well from our perspective.

THE CHAIRMAN: Durham, do you agree?

MR. CUBITT: Mr. President, Gary Cubitt for the record. That would be fine.

THE CHAIRMAN: Okay. Thank you. Mr. Tolgyesi?

MEMBER TOLGYESI: It's for the staff, we were seeing that some jurisdictions they don't have specific requirements. Do we have any approach as a Commission that we recommend something which it's not necessarily regulated, but you know what we want to have,

what we want to see?

THE CHAIRMAN: May the 2nd when we consider the post-Fukushima lesson learned it will be a big ticket item on our agenda. So stay tuned to that.

Thank you very much. Thank you. I'd like to bear with everybody for one more item before a short break. So I would like to get back to the status report. Let me find my spot here.

Okay. We are now dealing with CMD 12M-15 which is the status report on power reactors and Mr. Rinfret, I understand you are going to make the presentation. Please proceed.

4. Status Report

4.1 - 12M-15

Status Report on Power Reactors

MR. RINFRET: Francois Rinfret, Acting Director General, Director of Power Reactor Regulation.

THE CHAIRMAN: Let me check some technology, I understand that NB Power may be on line. NB Power are you online?

MR. THOMPSON: Yes, can you hear us?

THE CHAIRMAN: Yes we can. Thank you.

Welcome.

UNIDENTIFIED SPEAKER: Thank you. Go

ahead.

MR. RINFRET: So Francois Rinfret again.

So you have the status report before you.

What I would like to do with my colleagues here is to update the Commission on changes that have happened since the publication of the status report that was on March 22nd. So what happened since that time we're to reporting to you.

So I'll go by station and 1.1 for Bruce A., Unit 2 is definitely critical. On March 23rd Bruce Power removed the reactor shutdown guarantees to start what we call the approach to critical.

On March 24th Unit 2 achieved its criticality, and on March 25th it was under reactor regulatory system control, which is normal control at that level.

Poison was started to be pulled after that one. Bruce Power and under these conditions is continuing to perform low power physics test for Unit 2.

This brings us to section 1.3 at Darlington. I think the Commission would be interested to hear that Darlington A has received an excellent safety

and performance evaluation from the World Association of Nuclear Operators otherwise known as WANO, from its team.

So the international team recognized Darlington as one of the best performing nuclear stations in the world.

Perhaps OPG will talk about this later on. This is a rating of 1, it doesn't get any better than this. This is not something that staff uses and typically the discussions and the reports around this are confidential, but I thought it was worth mentioning to you, you've shown interest in what peer reviews lead to.

Pickering A in section 1.5, Unit 1 was shut down on March 19th. Its main activities included work on the feed water lines to the boilers. Their return to service was planned for April 6th, 2012.

There was not much to add on this written report except that there was a needed replacement of some pumps.

Unit 8, the expected return to service would be around the beginning of May, 2012.

There are two updates as well from Pickering A and B, I'd like to allow Mr. Miguel Santini our Director of Pickering Regulatory Program Division to tell you about it.

MR. SANTINI: Miguel Santini, for the

record.

And actually it's not much, it's just to inform the Commission and that Unit 4 we sent one of our inspectors on the subject matter (inaudible) emergency response, interview the emergency response team on this event on the pressurizing pump, and we are satisfied that the OPG emergency response teams acted correctly, basically had to protect their own staff.

From the safety perspective this is very low significance and the unit didn't go into transitory mode. Well, nonetheless, we are following up very closely on this event.

With respect to Unit 7 we met with OPG as stated in the update and we also observed the operation decision making the decision to go ahead and restart the reactor and we are satisfied with the investigation that so far OPG has conducted. However, we will be following up on OPG's finalization of that investigation to determine the cause.

Specifically we will be following up to ensure that our assumption that there is no detriment on the response of the system is correct. We have high confidence on that, but we really would like to have 100 percent confidence.

MR. RINFRET: Francois Rinfret again. Two

more updates, if you will. Point Lepreau, the status of its refurbishment activities, we're writing that a fuel load is on the way, and actually this morning and I guess with the exact number Point Lepreau will be able to enter their exact number.

But its staff had reached about 30 percent completion of the fuel loading in the reactor starting from the top and going down. So it's an achievement from their perspective.

And finally, a last update, a few months ago Commission showed interest during November, to learn about follow-up to the hydrazine leak which had occurred in Point Lepreau, there in the month of November, end of November.

And the request was made to update the Commission on the actions taken, and we can -- now are certain that all actions related to the follow-up of this leak of hydrazine and (inaudible) have been completed, or were being completed while we're talking. And it catches everything that needed to be done in order to close that event, from our perspective.

And that's it for the status report.

THE CHAIRMAN: Thank you. Let's start the questioning. Dr. McDill?

MEMBER MCDILL: Thank you. Two questions,

with respect to Darlington was it both right lower arm bones each in two places, or one break in each bone? Do you know? Is it four breaks or is it two breaks?

MR. RINFRET: Our understanding is it's two breaks in one arm, and we'll be able to -- I think OPG is in the room and could be ascertaining that, we've requested that as well.

MEMBER MCDILL: It's just the English I was trying to figure out whether it was two or four, but I'll accept that there are two breaks in one arm, that's sufficient. Because four breaks is rather more substantial than two.

MR. RINFRET: Unfortunate.

MEMBER MCDILL: Yes. And respect to Point LePreau, what is the status of the seismic study that's going on?

MR. RINFRET: The seismic study is not a short-term study, and the Point Lepreau staff could give you specific feedback. I think we're talking about a study that has been unlinked from the reloading and the restart, which would take at least a couple of years. And the station staff could ascertain this with the current expectations.

MEMBER MCDILL: I'll redirect that to LePreau then, please.

MR. THOMPSON: For the record it's Paul Thompson Manager of Nuclear Safety and Regulatory Affairs at Point LePreau.

We have been in discussions, we've developed the scope. We've been in discussions with the vendors. We've issued requests for proposals and are putting some contracts in place right at the moment; that is the current status.

MEMBER MCDILL: That's the current status. Is there an estimated results timeframe?

MR. THOMPSON: Yes, this is going to take a couple years, but we're breaking the overall project down into a number of phases so that we're looking to see if we can expedite the results of the first phase earlier than what our original project schedule was that we sent the CNSC staff.

So we're still waiting, before I can provide you any further information on that, we're waiting to have the proposals and contracts in place because that is what then we'll hold the contractors to.

MEMBER MCDILL: Thank you.

THE CHAIRMAN: Mr. Jammal?

MR. JAMMAL: Thank you, Mr. President.
Ramzi Jammal for the record.

I'd just like to confirm that, to Dr.

McDill, I personally contacted NB Power and to confirm what Mr. Thompson has mentioned. My discussion with Mr. Gaëtan Thomas in order to expedite the proposed plan as fast as humanly possible without compromise to safety.

So we are awaiting now for an update in order to expedite this project, and the commitment from NB Power is that will put the resources and the finances in order to expedite the project.

So the two years is the worst case scenario. Of course we're not happy with it, but we're going to do it as fast as humanly possible.

THE CHAIRMAN: Okay. Let me try again to understand what caused this. You remember there was a big discussion about the seismic robustness of the structure. There was a debate about a 2006, if memory serves right, study, seismic study was done.

And I thought what was required, what we wanted to see is a quick update. When we deal with seismic we're talking about structure that was there for millions of years if not thousands of years.

So why has it all of a sudden become so complicated; it will take two years to do what? I thought you can do a quick update of the original study that was done in 2006, what am I missing? Mr. Thompson?

MR. THOMPSON: Yes. For the record it's

Paul Thompson.

It is more involved, it's not a quick study. There are a number of elements that would need to be done, including ground surveys doing paleoseismic assessments. So it is to get that extra degree of confidence, it is going to take a fair amount of time.

As Mr. Jammal said we're looking to see what we can do to expedite that, to simplify it so that we can get our results much earlier.

We are absolutely confident in the work that we've done, done to international standards, this was a confirmatory check. We've had discussions with Mr. Jammal to see if we can fast-track and cut down the scope, because I think what our initial versions were was to probably do this with more extensive study than perhaps was needed.

So we're in the process of discussing this with the vendors to cut down the scope, but this is not a insignificant piece of work that has been asked for.

MR. JAMMAL: Ramzi Jammal for the record.

I do confirm that we are reviewing the scope in order to provide the proper information, but I do not want to leave the Commission or the public with the opinion that the seismic robustness has not been evaluated.

As we heard during the Commission's discussions hearing for Point Lepreau renewal, the seismic robustness has been demonstrated. The qualification of the safety systems meet or exceed the requirements, and that's what we're doing currently here is just local seismic evaluation.

As you mentioned, Mr. President, this is an update, but currently we're reviewing the scope in order to determine the local seismic evaluation in accordance to what is required to do it safely and get the proper information.

THE CHAIRMAN: Thank you. Dr. McGill? Mr. Tolgyesi?

MEMBER TOLGYESI: Merci Monsieur Président.

Going back to this Bruce A. Could you give us an update on the potential causes of the leak?

MR. RINFRET: Well, I'll allow Mr. Bob Lojk to answer, Director of the Bruce Regulatory Program Division to answer the question.

MR. LOJK: Good afternoon, for the record, Bob Lojk.

The leak occurred at a strainer. Apparently the type of gasket that was used on the type of installation was made, there was no actual failure in the original mechanical device itself, it appears that it was

a gasket issue that was -- either there was a failure of the gasket itself, or a failure of the installation methods used for the gasket.

And that gasket was replaced to the specifications to the specified type, and the gasket is currently as I understand is being looked at in case there was some other issue that could have future consideration.

Right now what appears to be as simple as it could be in a nuclear plant, it was a simple gasket failure that perhaps was not installed properly which caused the leak.

MEMBER TOLGYESI: It was no mix-up with the gasket, it was just the installation?

MR. LOJK: Right now I don't have the information where the other -- perhaps Bruce Power can add, but as I understand the gasket itself is being investigated. This area was looked at with a camera so there's not quite -- the gasket itself would have to be put in the laboratory and looked at to see whether the gasket failed, or whether it wasn't installed in the right configuration.

THE CHAIRMAN: Well Bruce? I see a familiar face from Bruce Power, do you want to shed some light on this?

MR. SAUNDERS: Frank Saunders for the

record.

I can't shed a lot of light, the failure was a gasket failure as Mr. Lojk has suggested. It looks to be a pure mechanical failure of the gasket, we've taken the old gasket out, the material appears to be appropriate.

These gaskets are a little different style than your normal gasket. Most gaskets you put in and you torque your bolts down to a particular torque value. So if that gasket fails it's relatively easy to check to see if the bolts were torqued properly at least within a reasonable level.

These gaskets you actually do differently, you squeeze the gasket to a certain thickness. So once the gasket fails you really can't tell for sure whether there was an installation error.

But from what we see we expect that's the case, we're certainly looking at it in a little more detail just to make sure there was no, you know, issues with the material.

We did verify that the other gasket that is like that on the other strainer is in fact installed correctly and it's the right material as part of that review.

And the system has been operating now for

all this week at least without issue. We continue to monitor it just to be sure.

THE CHAIRMAN: You know, when I think about gasket I think about me playing with a car and fixing up oil and tightening up the gasket. How many gaskets are in the Bruce Power -- in one of those units, what are we talking about? That's what I'm trying to understand.

One of the concerns that we had was that this leak occurred a day or two after you were given the green light to proceed, which was a bit kind of strange because I thought you may have checked all your gaskets and all your possible situations.

So how many gaskets I guess for the layman?

MR. SAUNDERS: I couldn't hazard a guess, but it's big. I wouldn't even know where to start, I guess I'd be into the many, many thousands of gaskets likely in a whole.

THE CHAIRMAN: So it's in the thousands?

MR. SAUNDERS: It would have to be, yeah. I just don't know. I guess by our supply chain people could probably give me an idea of how many they keep in inventory.

Yeah, the timing on this was peculiar, but it was coincidental. This system had been running actually prior to us removing the guarantee, so it wasn't

sort of just turned on after we started it up.

So the timing with the lifting of the guarantees was coincidental, there was nothing in the guarantees that had any impact on the gasket itself. But, you know, there's a lot of equipment that we're turning off for the first time and starting up, so we do expect to see over the next month or so that there will be a few issues in there.

We're monitoring very closely of course and making sure that failures aren't unsafe, but we do expect that we'll have to adjust and repair the odd thing as we get the unit back up to service.

The (inaudible) testing is actually going quite well and there's another few days of that to go before we start to progress much further.

THE CHAIRMAN: Look, I don't have a fetish on gaskets. The only thing is if you have thousands of gaskets surely you're going to have a leaking kind of a leak every what? I don't know how often does a leak occur when there's so many gasket.

Again, I'm coming back to my only terms of reference is how many times I leave a little oil spot on my driveway. I don't know if that's a good analogy, but is -- are we talking about the same kind of leakage?

MR. SAUNDERS: No, not really. Surprising

as it may seem these units are actually very tight, I mean they're designed that way. So even though our day-to-day experience would suggest that all those gaskets and just all those joints of any sort would leak a lot.

The units themselves are generally pretty tight, but of course there are collection systems so the DTO was gathered in the collection systems and there are dryers inside containment.

The areas where leaks are more prominent, small leaks is actually on the closure plugs and so forth, and the end fittings where you do get some small leaks, and there's systems in there to take that moisture out of the air and collect it up.

For a couple of reasons we don't want the tritium in the air and the other thing is the D2O is not easy to come by so we like to collect it up and we have upgraders at both Bruce A and B that we then take that collected material and upgrade it back up for use.

So if you compared it to what you might see in kind of standard water plant or something like that you would find it very, very different. You can walk around these units and you wouldn't see a drip anywhere, and it's really just because of the much higher specifications and the much tighter tolerances on nuclear units.

THE CHAIRMAN: Mr. Tolgyesi? Mr. Harvey?

Velshi?

MEMBER VELSHI: A couple of questions on the Pickering units for Pickering 4, on the -- for the heat transport pressurising pump, and the report here says at the next outage it will get fixed or replaced.

I guess the question is when -- do we know when there's likely to be a next outage, and not having that redundancy are there any safety implications or concerns with that?

MR. SANTINI: Miguel Santini for the record.

I don't remember exactly when is the next outage it's probably in a year from now. So there is effectively a reduction in redundancy, so if the second pump trips they will have to shut down the plant. They do have two other pumps in the fuelling machines to maintain the pressure where the unit is already shut down.

So there is quite a bit of redundancy there, but as I said before if the other pump tripped then they will have to shut down the plant and go and repair.

MEMBER VELSHI: So just to confirm, it's shutting down the plant, there's no safety significance to running with just the one pump then?

MR. SANTINI: No, it's not. There is no safety significance, it's just a production issue for OPG.

MEMBER VELSHI: And last question on Pickering Unit 7 with the shutdown system 2 spurious trip. If there was a recurrence of this event and they still don't know what the cause is of that, how comfortable would you feel at that point if OPG still decided to restart the unit?

MR. SANTINI: This is a very low probability, when it's not that usual that three channels tripped at the same time, so obviously there is a common cause behind it.

Our concern is not that the system trips, because it trips in the same direction, obviously the reactor is shut down, it's that whether this common cause may not have an adverse effect on the tripping system. We couldn't find any reason why these adverse effects could occur. But, nonetheless, we are following up very closely with OPG to ensure that that is the case.

MEMBER VELSHI: Thank you Mr. President.

THE CHAIRMAN: Thank you.

I've just two quick questions: First of all, on Darlington, the WANO 1 grade. How many grades are there, in the WANO? Anybody knows?

Well, first, let me congratulate OPG, presumably, for getting this much coveted rating, but I'm trying to get the context. Is it 1 out of what, 10, 3,

what?

MR. JAMMAL: Ramzi Jammal, for the record, sir.

I will take the responsibility of asking staff to make this announcement, because WANO's findings are very confidential, and I don't think OPG will be at liberty now to disclose this information.

However, I will stick to WANO being 1, the number 1, is the highest award that's been given by the WANO audit. It is an audit with respect to safety and the operational management, and if you look at it from another perspective, it's the excellence award. There are multiple levels. I know of three, 1 being the highest, and then it goes down lower from that perspective.

So all I can tell you is, it's WANO 1, and there is an issue for me even saying this publicly, with respect to, one, confidentiality, but again it's something ---

THE CHAIRMAN: You're not disclosing anything, you're just saying "an award." I'm just trying to understand. I'm trying to understand -- I should have known this by now -- what is the lowest rating, and the WANO, in their annual report, do they claim how many -- how many get number 1, how many get number 2, how many get number 3?

MR. JAMMAL: I do not know. I don't have that information.

THE CHAIRMAN: It would be useful to find out.

MR. JAMMAL: Well, please don't ask me to do it; OPG will have to do it.

THE CHAIRMAN: Okay, we'll talk about that. I have one more question for Gentilly-2. You know, there was a lot of press and discussion about the so-called "budget item" for 280 million. I know it's a bit off-topic here, but is there anything new that -- I don't know if there's anybody here from Gentilly-2, or listening, but anything new on the way ahead?

MR. RINFRET: François Rinfret, Director for Gentilly Regulatory Program Division. I'll answer in English, and I'll switch if our colleagues from Gentilly are there.

LE PRÉSIDENT: Je m'excuse, vous pouvez parler ---

M. RINFRET: On y va en français?

LE PRÉSIDENT: Oui, oui, oui.

M. RINFRET: Alors, allons-y.

Il n'y a rien de nouveau sur le statut des activités que Hydro Québec pourrait entreprendre dans les prochains mois ou les prochaines années. Quant au budget

alloué de cette année, c'est un peu surprenant, le montant est surprenant. Il faudrait demander à Hydro Québec d'expliquer.

Normalement, nous pourrions croire que cet argent provienne directement d'Hydro Québec dans ses propres coffres mais cela vient du gouvernement et nous n'avons pas cherché à savoir plus loin là ce qui se passait.

Ce montant-là ne correspond pas évidemment à la facture totale d'une réfection mais c'est peut-être une partie de l'argent requis pour faire certaines réparations.

LE PRÉSIDENT: Le trois milliards qu'on a lu dans les journaux -- le trois milliards, c'est un nouveau chiffre?

M. RINFRET: Hydro Québec vous dira que c'est un chiffre qu'ils ont souvent gardé en lieu sûr dans leurs données. Donc je vais leur laisser, chez eux, ce chiffre-là.

LE PRÉSIDENT: Merci beaucoup.

Anything else?

Thank you. Thank you very much.

We'll take a 10-minute break and come here at -- on my watch it's 4:35.

MR. LEBLANC: Four thirty-five (4:35), yes.

--- Upon recessing at 4:24 p.m./

L'audience est suspendue à 4h24

--- Upon resuming at 4:38 p.m./

L'audience est reprise à 4h38

**5.2 - Bruce Power: Alpha
Contamination Event at Bruce
Nuclear Generating Station A -
Event Closure**

THE CHAIRMAN: Okay. The next item is an update on the alpha contamination event at Bruce nuclear generating station, as outlined in CMD-12 M 16. This was first presented in February 2010. So I guess it's long overdue in terms of update. And I understand we're going to hear from Bruce Power and CNSC staff.

So let's start with CNSC staff, and I guess Mr. Rinfret? The floor is yours.

12-M16

**Oral presentation by
CNSC Staff**

MR. RINFRET: Good afternoon; François

Rinfret, Acting Director General, Directorate of Power Reactor Regulation; Mr. President, and members of the Commission.

I am joined at the front table today by Mr. Robert Lojk, Acting Director of the Bruce Regulatory Program Division, and Ms. Agnes Robert, the Senior Regulatory Program Officer of that division.

In the rows behind me, and other places in this room, are management and specialists from the CNSC Radiation Protection and Radiation & Health Sciences Divisions, and Director General, Directors and staff, to support and to respond to any questions that you might have.

Representatives from Bruce Power are also in attendance and will have their own short presentation to you.

The information being presented to you today is a follow-up action on the CNSC staff to update the Commission on the alpha contamination event of Bruce A once all final those results for the Bruce A Unit 1 personnel affected by this event were complete.

No action or new decisions are required by the Commission. This CMD is presented for information only with the main objective to close the alpha event and to update you on the implementation of plant enhancements

to the Radiation Protection Program at all nuclear power plants in Canada in response to the alpha event.

Monsieur Lojk?

MR. LOJK: Good afternoon, Mr. President, and members of the Commission. I'm Bob Lojk, Acting Director of the Bruce Regulatory Program Division.

My presentation today, I will provide background information on the alpha radiation event and actions taken by CNSC staff in response to the event. I will then present the final results of doses assigned to Bruce Power workers tested for alpha contamination as a result of the event.

I will also provide you with the status of corrective actions and measures implemented by all nuclear power plant licensees, not just Bruce A. Finally, I will provide overall conclusions. Additional information is provided to you in CMD 12-M16.

This is a brief recap on the chronology of events that led to the issuance of the CNSC request under Subsection 12(2) of the General Nuclear Safety and Control Regulations.

As previously reported in November 2009, long-lived particular activity was identified in routine air sampling during refurbishment work activities at Bruce A Unit 1. In December '09, test results of the air sample

confirmed the presence of alpha contamination and work was halted in the vault area.

In January 2010, bioassay sampling was initiated.

Bruce Power also filed an S99 report, and CNSC staff issued an early notification report for the February 18th, 2010 Public Commission meeting.

In June 2010 Bruce Power informed CNSC that historical alpha radiation uptakes may have occurred in fuel handling workers. Subsequently, CNSC reported -- responded by issuing a 12-2 request to all licensees regarding implementation of immediate and long-term work controls on alpha radiation.

CNSC staff requested that Bruce Power and all of the other power -- nuclear power plant operators complete the following actions: Perform a risk identification and characterization survey with respect to the presence of alpha hazards in their facility; implement work controls to mitigate potential alpha exposures of fuel handling workers in their facilities; and enhance their radiation protection program related to alpha monitoring and control.

Additional actions were requested of Bruce Power. These included submitting preliminary dose estimates of the potential alpha exposures for the

affected workgroup, and submitting methods, models, and modelling assumptions used to ascertain worker doses from alpha exposures related to fuel handling and maintenance activities.

The final dose results at Bruce Power are as follows: 557 potentially affected Bruce Power workers were tested for alpha contamination, 410 workers were assigned doses less than 1 millisievert, 104 workers were assigned a dose between 1 and 2 millisieverts, 40 workers were assigned a dose between 2 and 5 millisieverts, 3 workers were assigned a dose between 5 and 10 millisieverts, and no workers were assigned a dose greater than 10 millisieverts.

The doses assigned to the workers did not surpass regulatory limits and are substantially below the annual dose limit of 50 millisieverts prescribed by the Radiation Protection Regulations.

With respect to the alpha event at Bruce A, CNSC staff emphasizes that no regulatory dose limits were exceeded as a result of the alpha contamination event, and there are no postulated long-term effects. Consequently, CNSC staff recommends closure of this issue with regards to alpha at Bruce A.

I will now do a quick summary of the issues at that -- that follow at the rest of the plants. Thank

you.

Subsequent to the CNSC staff's 12-2 request, CNSC staff communicated their expectations to all nuclear power plant licensees regarding radiation protection program improvements related to alpha monitoring and control. These long-term actions were meant to affect changes in 17 specific program areas, including existing documentation, work planning, instrumentation, workplace characterization, dosimetry and its -- and others. And all these actions would enhance licensees' radiation protection programs to account for alpha hazards; in all instances, provide assurance that licensees radiation protection programs met or exceeded industry best practices, and also incorporate operating experience.

All nuclear power plant licensees have satisfactorily implemented immediate measures to protect workers in response to the alpha exposure event at Bruce A. The activities completed to date and plan demonstrate the licensees' commitment to implementing long-term radiation protection program enhancements for alpha radiation monitoring and control.

The majority of improvements to the facilities' improvements have been implemented. Licensees will complete any remain items by December 2012. CNSC

staff is satisfied that the enhanced measures currently in place in each nuclear power plant are adequate to protect workers from alpha hazards.

I would like to conclude by confirming that overall, for all Canadian power plants -- Canadian nuclear power plants, no regulatory limits were exceeded. Industry responded by implementing short- and long-term corrective measures. Adequate radiation protection program enhancements for alpha monitoring and control have been implemented. CNSC staff is ensuring that there is a consistent approach across industry. CNSC staff will follow up using normal compliance verification activities. Additional information is provided in CMD-12 M126.

Thank you for your attention, and I believe representatives from Bruce Power have a short presentation the same issue.

Thank you.

THE CHAIRMAN: Thank you.

I will now turn the floor to Bruce Power for their presentation as outlined in CMD-12 M16.1. Mr. Saunders, the floor is yours.

12-M16.1

Oral Presentation

by Bruce Power

MR. SAUNDERS: Frank Saunders for the record.

Mr. David Miller, who is our manager for Radiation Protection Programs will provide the short presentation in a minute, but I just wanted to outline a couple of key points.

Our initial response to this, obviously, was to deal with the workers who were exposed to make sure we understood the dose that they received and whether it was significant, and you see the results from that. We then proceeded to make sure we had good alpha controls in place and that no further exposures would happen.

But, in reality, as we worked through this program, we decided to review not only the alpha program but our Radiation Protection Program in general. It's a program that's been well-established and in place a long time but we felt, you know, we found a hole here so we should do a general review. And so we've actually implemented significant changes on the general program as well as the alpha program, and David will talk to you in more detail about the alpha.

MR. MILLER: Good afternoon, Mr. President, Members of the Commission. As introduced by Mr. Saunders, my name is David Miller and I'm the Radiation Protection

Programs Manager at Bruce Power.

The purpose of my presentation this afternoon, as alluded to by the CNSC staff, is to brief the Commission on the significant progress that Bruce Power has made on developing and implementing the Alpha Radiation Protection Program, and I would also touch very briefly on the subject Mr. Saunders just said, that we're actually reviewing our entire program at the same time with a detailed plan.

Okay. I'll start with a summary. I won't go into too much detail there for the sake of brevity for the meeting this afternoon and risk of repetition from the presentation from CNSC. But as you know, we had the incident in December 2009 and we reported it in 2010, of the exposure at Unit 1 during the refurbishment program.

We immediately stopped work until we could determine what the cause was and what additional controls we needed to put in place in order to prevent any further exposure and to allow work to progress safely.

We identified gaps in our current program, as it was at the time, and we initiated a radiation protection improvement project as well, which was led by the then-programs manager, and they were more than ably supported by a number of experts from industry, both at the peer level and senior level as well in order to help

us develop those corrective actions.

In parallel to that, the dosimetry program then took the lead and the charge to assess the alpha dose take-up during that event as well, and to help identify the extent of condition.

Eventually, after two months of hard work and due diligence, work was allowed to start again in the Unit 1 refurbishment and the controls that had been identified were put into place.

Since then those assignments as have been briefed have been completed for the event and the extent of the conditional dose assignments are still being worked on, due to be presented later this year. We have also conducted, or had conducted on us at our request, an independent assessment of our program, and we've also transitioned from an improvement project to the Radiation Protection Program to manage this process now as part of that normal Radiation Protection Program day-to-day business.

Specifically, improvements that we've made to the radiation program over the last two years are, obviously, our initial focus was on the restart event itself and putting everything in place there to allow that work to progress and to protect our workforce. But we've now extended those principles and that protection

philosophy across the entire site and all operating units and fuel handling now work to a Radiation Protection Alpha Program.

We defined and implemented new standards for alpha control which are pretty much based upon the EPRI Standard, and also we viewed what went on in the United States and in some parts of Europe as well to make sure that what we were doing was meeting what we -- could best be described at the time as industry standards, because we were breaking new ground and we wanted to make sure that our ideas were the right ideas and going in the right direction.

We introduced new radiation protection personal equipment and the most notable one to those is the one that you can see in the picture there which is the air particulate breathing filter, if you like, or respiratory protection equipment. The advantage on that is that it also has a good protection factor for all particulate activity, so not just alpha, but the big advantage from it as well is the fact that, as you can see from the person that's wearing it, it allows the wearer to be extremely mobile, carry on his work, and is not very intrusive when you compare it to our plastic suits and things that we've been using in the past.

So we used it for a significant progress in

other areas.

We clearly identified new procedures that require to be written and implemented, controls in our already established procedures that were relevant to alpha radiation.

New alpha instrumentation has been identified and procured and deployed across site. We now use, in areas that have been identified, whole body monitors with an alpha capability. And we're experiencing -- or we're not experiencing, we have a very good detection capability on those down to .15 becquerels per square centimetre.

We've also purchased, implemented, additional air particulate of alpha radiation equipment, which has increased and announced our air sampling program. And we've also implemented and also purchased and implemented new counting facilities for alpha radiation smears and also for air samples as well.

We've also developed a direct survey capability for alpha radiation using a contamination control meter. And again we get good limit detection on that down to .3 becquerels per square -- sorry, over the area of the probe.

So from an instrumentation perspective, going from no instrumentation, we're now deploying some of

the state-of-the-art equipment that's available commercially out there within our program.

We've obviously got new alpha dosimetry processes which we've been working on, and which I'll cover in a bit more detail in a moment.

We've revised and re-issued all of our radiation exposure permits, which controlled our work in radiation areas for controls with alpha radiation. Those that have been identified where there may be controls required have been updated, and we've also put into practice -- put into place, sorry, new alpha controls or new reps with alpha controls in.

And we've engaged a number of external experts during this process as well comprised mainly of two bodies.

The first body is pretty much peer experts with us, those who have got experience in alpha radiation protection in plants where they worked elsewhere in implementing these programs, and we relied upon them very heavily for our choice of instrumentation that we introduced into our program as well. And that process worked very well for us.

And obviously the other external that we engaged in was the Radiation Safety Institute of Canada when we invited them in to do an assessment of our

capability and the improvements that we had made on site.

And there's a comment in the Radiation Safety Institute of Canada's report that we received in 2011 that I think is very well worth sharing with you, is that they acknowledge that Bruce Power has made a number of significant improvements for worker safety in alpha radiation protection. Most notably, the implementation of an alpha radiation monitoring program. And that gave us a good deal of comfort that we're going and have gone in the right direction.

Okay, with regard to alpha dosimetry, quite clearly when this event first started in 2009, we reported in 2010, we did not have an alpha dosimetry program in Bruce Power. And in fact, very quickly it came to our attention that we were going to overload the capability within Canada for alpha dosimetry with the number of people that we had potentially exposed and that we required to do our analysis of and take the samples from.

So we engaged with AECL and we used them for urinalysis. And then we worked very closely with the CNSC staff in order to get permission to use the Gerard Laboratories in order so they could do a fecal analysis for us as well. And that's the process that we still have at the moment.

Going forward in the future, we intend to

use Kinectrics for both urine and fecal. We've worked -- not worked very closely, but we've liaised very closely with Kinectrics. We were hoping that they would actually be online by the end of last year, beginning of 2012.

But they've had some vendor issues, we understand, by talking with them. And the earliest they're looking at coming online is right about June 2012, we understand. But they still remain our prime choice. It's Canadian capability; it will be licensed by CNSC in the near future, as I say.

And the MDAs that they can get down to us for analysis is similar to the MDAs that we've enjoyed at AECL and Gerard Laboratories.

In the going future, we feel that -- going forward in the future, we feel that we have a good capability for dosimetry within Canada. We're not likely to experience the -- we assess we're not going to get the high volume as we experienced back in January 2010.

And Kinectrics, with our meetings with them reviewing their processes, we are more than satisfied that they will be able to cope with the demands that we put upon them for a future program.

So going forward, I said as we were reviewing our Alpha Radiation Protection Program, we took the initiative ourselves as a company to review the whole

Radiation Protection Program.

As Mr. Saunders said, it's served us well over the last few years, but it is a model that hadn't really gone through a complete overhaul or a review. We accepted it as a process that was working and we decided to review it. And as a result of that, we've come up with an extremely comprehensive five-year radiation protection plan which is going to modernize radiation protection across the entire site, not only from a technical aspect by identifying new equipment that we can bring into service -- and we can enjoy support from that area -- but also it's going to increase training opportunities for our staff.

And one example that we're particularly excited about and looking at is, as we know, we're a two-site operation, we're also looking at centralizing some very specialist services there as well there in order to provide services out to the stations, which will be on their normal day-to-day business as well. And that initially is the primary focus of the group that's been established to look into that.

And we have a number of deliverables pinned upon them this year as well. And each year, they need to come back and they would be given future deliverables over this five-year plan.

Going back to the alpha program, further enhancements that we started progress for that, we'll reintroduce personal air samplers this time -- sorry, this year. And the purpose behind those is that we will be issuing those out to people on a risk base when we're assessing work for when they're working in alpha contamination areas where the initial requirement is not for the work that they're doing or the amount of alpha radiation contamination that is present doesn't warrant breathing protection. But as confirmation, we will be using those as a confirmatory monitoring process to ensure that the controls that we have in place are actually sufficient and are working.

We'll be doing a revision to our dosimetry methodology in completion of the extent of condition study. And the reason that we'll be doing a future revision on that is because the methodology we've worked out so far was based upon the restart event which is on a dry unit, has been laid up for a number of years. The extent of condition, obviously when we're talking about our live plants, our operational plants and fuel hand-in, we're looking at wet units.

So the short term, it's going to be slightly different and the nuclide ratio is going to be different as well. So there will be some adjustments

there to take into account, those ratio differences when we do the final dose assessment.

And that will be submitted to CNSC for their approval and assessment prior to us finalizing the doses.

(Inaudible) Source term characterization is an ongoing process. We've completed it for all of our normally accessible areas, and for those that we do not have readily access to or are normally inaccessible areas, as when those areas come down for (inaudible) maintenance, we have plans in place and teams ready, we go in and conduct those source term surveys and then they're sent off.

And this is our intention, to have this as an ongoing project for the future because as plants age, the source term does change and also as we start looking at and implementing potential future source term reductions initiatives in the plants as well, then we're going to change the source term (inaudible) as well.

So we need to do an analysis for two points on that one. One, to measure the effectiveness of any source term reduction capability that we're developing. And two, to make sure that our assumptions and our dosimetry calculations and analysis are still placed on sound evidence.

We had a Type 2 inspection in 2011 from CNSC where there were four action notices raised against us. And since then, we've sent in a corrective action plan to the CNSC. And that is with the staff for their assessment and comment back to us.

The Radiation Safety Institute of Canada report, they made 10 recommendations against -- sorry, 19 recommendations in total against us. We've completed 10 of those recommendations to date and the other nine are work in progress. But it's worth pointing out to you that the recommendations that they made are not directly related to implementation in the field; i.e. not what workers are doing or the controls we have placed in the field. They're more of a programmatic type recommendation based very much around organization, training, sharing of the information with the rest of the industry so people learn from our mistakes and our initiatives that we've put in place since then.

And also there's some dosimetry recommendations in there, pretty much into centred around the recording of information, presentation of data, and the format and the content of some of the final reports.

So in conclusion, our first assignments are complete. We've taken a broad review of the whole Radiation Protection Program, not just one from an alpha

perspective, although that we have implemented the alpha controls, but we're looking at the entire program itself and improving and modernizing the way that we do our business.

The protection program has been significantly enhanced. And that is supported by an independent survey from the Safety Institute of Canada and CNSC recommendation in their previous presentation. And quite obvious, we have a continuous improvement program at Bruce Power and we're driving forward to make sure that we're going to be good, and maintain it.

Thank you. Any questions?

THE CHAIRMAN: Thank you. I'm sure there are lots of questions.

Let's start with Mr. Tolgyesi.

MEMBER TOLGYESI: Merci, Monsieur le Président.

When you're looking at the alpha event final results, how do they compare to -- how do they correlate to the original estimates, the first-time estimates that you were doing a year and a half ago?

MR. MILLER: For the record, David Miller.

The overall dose estimate with regards to -- or sorry, the overall contribution of dose from the alpha event to the overall collective radiation exposure

for the Unit 1 and 2 refurb is very low. Percentage-wise, it's round about 3 to 5 percent of the collective dose.

As an example, in 2009, the alpha -- the highest alpha intake that was reported for an individual was 6.9 millisieverts. The highest individual dose for that year for work on the refurbishment was around about 8 millisieverts.

So over the lifetime of the project, the contribution has not been as great and as drastic as what we originally thought it may be.

MEMBER TOLGYESI: And the spread, when you are talking about a less than 1 millisievert, it's 410. At the first time, how was that? You know, what was the proportion of higher and lower doses?

MR. MILLER: Do you mean when we first started doing this analysis, what was the spread before we found out ---

MEMBER TOLGYESI: When the event happened, you know, right after, you were measuring ---

MR. MILLER: When the event first happened, we weren't too sure what that spread of dose would actually look like because we initially had no methodology of determining what the spread would be. That's why we had to embark on this rather ambitious and aggressive program to develop a dosimetry methodology for it, why we

worked very closely with CNSC to get access to areas of the laboratory community, if you like, that had not been licensed by the CNSC previously.

As when we first started collecting the information, we knew there was going to be a lot of people involved in this. We knew that it was going to be a far reaching -- not so much a far-reaching event, but a high population that we'd have to sample to come up with this. So initially we thought the results may be high, but we thought they may be high in order to formulate and frame our plan for moving forward, and as and when we moved forward and developed it, we could refine those numbers.

When we first got our samples in, again, the methodology was in its infancy and the spread was slightly different to the way that it's been presented today or submitted to CNSC last year. We had a lot of people higher up in that range than there were initially, but as I said, the methodology got developed, the science improved over the time. We managed to actually focus much greater and get much more detail in those answers, with a good level of confidence as well.

MR. RINFRET: If I may, François Rinfret, acting director.

We have the actual data. I think you were relating to the exact data on the differences, and we have

that breakdown if you're interested, Mr. Tolgyesi.

I would like to present to you Ms. Caroline Purvis of the Radiation Protection Division with the actual data differences.

MS. PURVIS: For the record, Caroline Purvis, Director of the Radiation Protection Division.

So I believe your question relates to the estimated doses that we -- when we came before you previously.

When you look at the dose ranges, in CMD 10-M72, which was presented, I believe, in December 2010, there were 407 workers that were estimated to receive a dose of less than 1 millisievert and, of course, as you can see from the histogram that was presented earlier, there's 410 workers now in that category.

In the category between 1 and 2 millisieverts originally estimated to be 99 workers, there's now 104 in that category.

In the 2 to 5 millisieverts range, 36 originally estimated to be in that range. There are 40 now in that category.

And the last category was nine workers between 5 and 10. There's now three.

Zero workers were estimated to be above 10 millisieverts previously, and that still remains to be the

case.

THE CHAIRMAN: Just for my information, does this include all the employees that wanted to be tested? This is the whole universe, remember, that at one time, if I recall correctly, you went after the high-risk employees, but then you opened it up to anybody who wanted to be tested.

So does that represent the whole population?

MR. SAUNDERS: That represents everybody we chose, plus anybody who asked to be tested. There were more people on that working on restart at the time, but they were not, you know, in this work or in that area. And that offer still stands. To any employee who wishes to be tested, we will still run the test.

THE CHAIRMAN: Thank you.

Mr. Tolgyesi.

MEMBER TOLGYESI: It includes also contractors or outside workers?

MR. SAUNDERS: Yes, in fact, many of these employees were contractors.

MEMBER TOLGYESI: Tell me, what was the effect of the employees' reaction at the beginning, you know, after when it happened and when you started to test and now, after these final results?

MR. SAUNDERS: Frank Saunders.

Yeah, certainly, I think there were a number of employees who were concerned initially because we really couldn't give them much information on dose and so forth because we just didn't have the data, and we certainly heard that through their unions and other places.

I haven't actually talked to employees myself since then, but my understanding is that people are pretty content. We certainly don't have anybody asking us at this time to do further testing. Although, like I say, the offer still stands for anybody that was working on the restart. So I think in general it's pretty content.

Bringing in the Radiation Safety Institute I think helped because it gave a third-party view on what we had done, which tends to satisfy people that they had good data.

MEMBER TOLGYESI: Did you have to apply any work restrictions for any other reasons, but which are a consequence of this, for fatigue or illness or whatever consequence which followed this event?

MR. SAUNDERS: There was no direct restrictions. We did, of course, apply restrictions initially because we had people who we knew were exposed, but we didn't know what their doses were. So a number of

people that were on that list that we thought were reasonably likely to have been exposed, we didn't actually allow them to go back to this kind of work until we actually had dose results for them.

So we did apply those restrictions, but there were no other health restrictions that were related to the alpha event. There was nothing in these dose levels that would have affected health or harmed people directly.

MEMBER TOLGYESI: On page 5 of the staff's submission there is objectives of the long-term pragmatic enhancement.

Can you summarize what's included?

MR. RINFRET: I'll turn it over to Ms. Purvis again.

MS. PURVIS: Caroline Purvis, for the record.

So based on the results of the event, and then subsequent to that, Bruce Power's concern that there may have been historical uptakes in the operational units, the CNSC staff issued certain immediate requests, but we also felt it necessary to identify areas within the Radiation Protection Program that would require improvement over the long term to ensure that their programs were meeting industry best practice.

So certainly within the presentation, Mr. Lojk identified a selection of those elements, and at the back of our CMD you can certainly see all 17 of the elements that we wanted each licensee to address and to propose a change, if necessary, to their programs to ensure a comprehensive program that takes account of alpha monitoring and control in all their activities.

MEMBER TOLGYESI: On the Bruce presentation on the before-last-page going forward, you were talking about source-term characterization which is completed for normally accessible areas.

Do you have any -- could you elaborate? Do you have any results on what's there?

MR. MILLER: I don't have the specific details of what's in these characterization studies with me, unfortunately, but I can tell you from them that we still have identified Plutonium-239 and Plutonium-240 as being our most restrictive nuclides in that area, and that's pretty much what will drive our -- or that's what's going to drive our dose assessments there.

But what we have noticed is the nuclide mix that's in there as well, there is different ratios between their relationship with Plutonium-239 and -240, with regard to what we had in the restart event. And obviously their contribution towards the overall effective dose will

be slightly different.

For example, we have a higher Curium content in our operating plants, in those accessible areas, than we do in the restart.

MEMBER TOLGYESI: Does it have any potential effects or exposure to employees? Because, you know, accessible areas, so I suppose there's a circulation of employees.

MR. MILLER: When we say "accessible areas," we don't mean publicly accessible areas, where people can go -- necessarily go in and out of those areas. They are closed systems within those areas, but because we've got access to there, we can open the systems up much more readily in order to do these surveys.

So the surveys that we're be doing are pretty much in preparation for when those surveys are actually worked upon in the future, so we can do the proper risk assessment prior to people taking that work.

Also, some of the other accessible areas would -- are very much in the fuel handling area as well, and there's already prior to 2009 very good control within fuel handling, and access to those areas, because they were already controlled contamination areas, or rubber areas, using old terminology.

So we're not talking about inadvertent --

people inadvertently walking into those areas, those controls already exist to stop that from happening.

MEMBER TOLGYESI: And the use of normally inaccessible areas, it's in progress? When do you expect to complete that?

MR. MILLER: That's pretty much going to form part of our role in program now, with regards to that, but our first level of assessments on that -- because we have to wait for the plant outage times so we can manage that. I think the final completion of that is around about 2013, 2014.

MEMBER TOLGYESI: And my last question, Mr. President, is how do these Radiation Safety Institute of Canada report recommendations and the staff conditions in Appendix A correlate?

If there is something which is, you know, something new? Because it's 19 -- at the Radiation Safety Institute; it's 17 on staff. And when do you expect that these recommendations will be totally completed? Because 9 are "in progress."

MR. MILLER: Okay. I don't think you can do a direct correlation, first of all, between the Safety Institute's recommendations and CNSC recommendations. The Safety Institute's recommendations are looking pretty much focus on worker protection, and the progress that we have

made on that, and then we're looking for improvements, how they thought that we could move forward.

The CNSC recommendations are very much based upon legislation and best practice as well, so there's a slight -- there will always be a difference between the two organizations in what they expect from us.

And those 19 recommendations, one of those recommendations was also for CNSC staff and the Ministry of Labour to work together as well on future aspects, and on open discussions I've had with the staff themselves. When we saw those recommendations, I understand that's in hand, and that's normal business, anyway.

Other the recommendations than the 9 that we're working on, some of them are long-term but I expect to have the majority of those closed out by the end of this year, and the remainder of them will be closed out early next year.

One of the recommendations that will definitely go into next year was that they recommend another third party independent review, once we've established a mature program, and recommended 2012 for that. But, I've made a decision to defer that until 2013 because I want to address the issues from the four action notices from the recent CNSC inspection.

And then I want to go through a period of

self-review to make sure that we're actually -- we're going to be where I want us to be with regard to the radiation protection program. And I don't think delaying that type of thing for another year will have too much of an effect.

THE CHAIRMAN: Well, I'd like to jump on that last one.

So the recommendation from staff is to close the file? I guess they don't like things open on some other recommendation. I would have expected that staff would look -- by the way, your Table 17 is really very, very helpful. I would have liked to see one more column dealing with the remainder RSI recommendation, so there's nothing open on the RSI recommendation that still will, you know, will not have you needing to close the files, so to speak?

MR. RINFRET: François Rinfret, for staff.

We'd like to rectify that CNSC staff does not request permission to close the file but rather to follow it under our normal compliance and enforcement tools which should normally be sufficient, giving advancement shown by all licensees, and given the amount of resources that we put in from our specialists, some of which are here, to gracefully be able to bring this to closure but at the end, again, in the appropriate period

which we're aiming for the end of 2012.

THE CHAIRMAN: So some of the RSI recommendations, the 9 outstanding, are still of interest to CNSC?

MR. RINFRET: I'd like to turn this over to Mrs. Purvis to answer this specific RSI correlation.

MS. PURVIS: Caroline Purvis, for the record.

As the first paragraph representative rightly stated, there is no correlation between our 17 areas and the RSI recommendations.

Our objective in identifying our 17 areas for improvement for the radiation protection program is to have a comprehensive program capable of integrating alpha into all areas that we would expect in a robust radiation protection program.

The objective of the RSIC or the Radiation Safety Institute of Canada review was to look at the circumstances of the event and to make recommendations to improve their program.

That being said, we've also received the reports, CNSC staff, and we've done our own review of it, and there are many areas where there are overlap. For example, recommendations with respect to improvements in training, and you'll see in our 17 areas training is one

element.

There are certain areas that are of interest to us and we will integrate those areas in Bruce Power's progress, in implementing corrective actions based on the RSIC recommendations into our own compliance plan.

Further, our staff and our experts have quarterly meetings with Bruce Power representatives and we do discuss the progress on the RSIC recommendations, on a quarterly basis. So this exchange is open and it's ongoing.

THE CHAIRMAN: Thank you.

Dr. McDill?

MEMBER McDILL: So your proposal, basically, is to close this specific alpha incident and then open or follow-up as a generalized alpha monitoring across the industry; is that correct?

MR. RINFRET: François Rinfret, for the record.

Basically, that's it, to close this part of the issue and then continue monitoring and surveillance until there's absolute closure of these many elements in the 17 areas.

MEMBER McDILL: Thank you.

Mr. Miller, you said that during the process the science improved. Can you elaborate on what

improved? Was it laboratory testing that improved, or was there some fundamental change in radiation physics that I missed in that period of time?

MR. MILLER: You didn't miss any radiation physics.

Yes, it's pretty much an interpretation of the results that got better, and the dose modeling as well, and the understanding of the dose modeling, and the solubility, as the solubility got better understood, because it didn't follow the initial solubility that it was thought it would with regard to ICRP solubility data for Transuranic.

So there's some variances in there as well. So it's pretty much the design in the dose model and then refining that process, and then applying that to some strict criteria, and that was independently and peer reviewed for us as well. So it's pretty much the dose calculation process and the modeling that improved.

THE CHAIRMAN: Can I jump in on this?

Well, I'm not sure it's radiation physics. But I thought the lesson here was that the beta dose measure could not be a proxy for alpha. Is that not the biggest lesson we've learned from all of this? Because we were not testing for alpha before or did I miss something?

Help me on this one. I thought that you --

you used to assume that the beta will give you kind of a reading on the alpha.

MR. MILLER: That was an assumption that was made previously. If we had alpha present, then we would have beta present. And then therefore, if we detected beta, there's an assumption that there would be alpha there as well.

Yes, that assumption is not quite right, particularly on the restart units where there are some very low alpha/beta ratios. There's a high number of alpha to a relatively low number of beta. And if we were monitoring for beta alone, we would probably miss it if there was an alpha.

So that's more on a monitoring and detecting capability.

THE CHAIRMAN: I think it sounds to me like radiation physics. Dr. McDill, back to you.

MEMBER McDILL: When staff was involved in all of the dose calculations, are you satisfied at this point that there isn't something else that's been missed?

DR. THOMPSON: Patsy Thompson, for the record.

If I could start. The explanation we were working on a couple of minutes from Bruce Power is when the event happened and the measurements of radionuclides

in urine and feces started to be available, Bruce Power came to the CNSC to have their models for those calculations approved. And it's that review that, with time and with better data, improvement was made.

I'll ask Bertrand Thériault, our internal dosimetry specialist, to go over the work that CNSC did to approve the dose models that Bruce Power eventually used.

MR. THÉRIAULT: Thank you. Bertrand Thériault, for the record.

Yes, we reviewed the dose calculation methods that Bruce Power submitted to us and we do agree with them. So the approach that was taken first was because very few bioassay sampling results were available at first; one per worker.

There was considerably more -- considerably more uncertainty with these results, so conservative assumptions were taken. And when more than one bioassay result was available for a worker, for example, a fecal and a urine sample, then it was possible to get a much better sense of what the solvability parameters were for the material and which allowed for a more accurate estimate of the -- the doses.

MEMBER MCDILL: Thank you Mr. Chair.

THE CHAIRMAN: Thank you. Ms. Velshi?

MEMBER VELSHI: Thank you Mr. President.

Quick question on the assumptions in the dose estimates. In the CMD on page 9, where one of the actions is on the retrospective assessment of exposures and an action that's outstanding, the review by the CNSC staff that's outstanding until the end of the year, does that review likely have an impact on these dose estimates? Or is that -- I'm just going by the title of that action, and I'm not sure if that has any impact on the dose estimates.

MR. RINFRET: Are you asking staff, Ms. Velshi or Bruce Power?

MEMBER VELSHI: I'll ask the staff first.

MR. RINFRET: Okay.

MEMBER VELSHI: Yes, please.

MR. RINFRET: Ms. Purvis will answer the question. Thank you.

MS. PURVIS: Caroline Purvis, for the record.

What Monsieur Thériault was just describing was the process used to ascertain the dose estimates for the event. Similar types of assessments will need to be done for each of the facilities based on their own source terms.

So it's -- the same dose model may not be applicable from facility to facility, operating units and

refurbished units.

So to answer your question about that particular element, it is taking a fair degree of time and expertise to develop that model and to get the degree of certainty in the dose estimations that we would like to see.

MEMBER VELSHI: So the 557 that these dose assignments that have been finalised, that's just the folks involved in the Bruce refurbishment project. But historically, there could be a whole lot of hundreds of people who could have had an alpha uptake, and we just try to come up with the model to try to come up with the dose estimate? Is that what you just said?

MS. PURVIS: In a nutshell, yes. The 557 workers are the workers that were sampled after the event in Unit 1.

In Bruce Power's case, for example, they extended the sampling of workers in what they call their extended condition project to all workers that were in the restart but also extended that into their operational units.

So in the case of the operational units, the source term may not be the same and that estimation of the dose would have to go through the same kind of rigour in process that was just described.

MEMBER VELSHI: Okay. And then one last question then. I'm sorry; I just had not appreciated that this could go back decades of years back to come up with alpha exposures.

But presumably with -- this is a question to Bruce Power. Presumably, your dose estimates assumed an uptake at a certain period of time in order to determine what the dose was.

So were your assumptions generally conservative or is there some uncertainty -- a high degree of uncertainty on when the exposures may have actually, indeed, taken place?

MR. MILLER: David Miller for Bruce Power.

We used a highly tried and tested methodology from principles of occupational medicine and occupational health when we did this. As well, we entered into questionnaires and interviews with the individuals, so we could determine when it is likely that that exposure took place so we could extrapolate back to that particular time. And we always erred on the side of safety or if there might be some uncertainty in some of the results, the uncertainty is always -- is on the right side.

MEMBER VELSHI: Thank you.

MR. MILLER: But generally, it's from interviews with individuals where we determine the

exposure.

THE CHAIRMAN: I hate to be really naïve about this, but can somebody explain to me what we are talking about really?

So you do a bioassay measurement. Those are actual -- you measure actual doses in the body, correct?

So presumably, you can then calculate backwards as to when it started because you know the decay and all that stuff. So what retrospective thing are you doing here? Somebody please?

MR. SAUNDERS: I think to explain the retrospective, if you look at areas like fuel handling, so when we did some of our surveys and we discovered there are some low-levels of alpha radiation in those workplaces, there is a potential for people to have been exposed in the past since we didn't have a program that would necessarily have detected the alpha.

THE CHAIRMAN: So you correlate the measurement -- you got the actual measurement you got with some of the work patterns, historical work pattern of employees?

MR. SAUNDERS: That's right. And then use bioassays from the individuals. And the question on the timing is really about the exposure. You can measure in

the sample what the -- what an individual may have. But if he's had that for one month or 10 years, you've got a different exposure to the individual.

So part of that work then is to talk with the individual about how that exposure might have occurred. People working in most of these areas would have been in protection at any rate. If you're working in the fuel handling area, you should be wearing plastic suits and other things.

So it's not like people would have been openly exposed, but if you didn't know it was there, you were not looking for it, you might have got some exposure.

So it's a combination of doing bioassays with the individuals that are there and seeing if you detect any alpha. And then if you do, looking backwards to determine when that might have occurred.

The retrospective past is really about the past, it might have happened in the past. As we say, we put controls in place. It won't happen now, but you're trying to determine if there was any dose to individuals in the past.

THE CHAIRMAN: So how does CNSC -- going and verify this. I mean, I'm trying to understand what the CNSC would do in this area.

MS. PURVIS: Caroline Purvis for the

record.

So to date each of our nuclear power plants in Canada have done a sample of their population of workers based on what their potential risks were for exposures. As you said and as was discussed earlier it's based on their work patterns on those areas that are likely to have alpha contaminants in the workplace.

And based on that sampling, which would have been done either with fecal or with urine sampling, then we're getting an idea as the results come in as to the extent of any potential or historical uptakes. That being said there are certain limitations as you go back in time. It may not be appropriate to use fecal sampling after a period of time, you may not see it in the feces. At that time urine may not be appropriate.

So we recognize that at a certain point the degree of accuracy or certainty in those historical doses declines. But we are looking to see what our licensees are doing so that we get a sense of what the historical uptakes may have been in our industry in Canada.

THE CHAIRMAN: Okay, thank you. Monsieur Harvey.

MEMBER HARVEY: Merci Monsieur President. Two questions. General questions. May be a naive question like the President said.

First one is during such announcements, and I appreciate the work, the huge amount of work done since the event. Are we taking the lead among the industry practices, in doing so among the other countries, are we in front of the parade or are we at the tail of the parade and we are just keeping the pace now?

MS. PURVIS: Caroline Purvis for the record.

Certainly we've used guidance and material from the United States in the development of our expectations for alpha monitoring and control programs in Canada. So I think it's fair to say that we're not leading the pack.

On an international scale I can't comment. Certainly we liaised with the U.S. industry through a number of venues, but we have taken certain steps within our own organization to ensure that that benchmarking and our international exchange of operating experience is going to allow us to get to the top of the pack, as it were.

MS. THOMPSON: Perhaps -- Patsy Thompson for the record. If I could add something. You will recall when the CNSC staff first came for -- the two times we came to the commission in 2010 to talk about the event and the measures that we had taken. We indicated that one

of the things that we would be doing is looking at their own practices to make sure that something like this would not go in the same manner to make sure that their regulatory expectations were up to par. And part of that exercise led to the expectations, the 17 expectations that were requested of licensees.

And as Ms. Purvis said, through the ISOE and the NEA work that some of our staff are involved in, we will make sure moving forward that we continue to be on top of our program experience in other countries.

THE CHAIRMAN: You want to comment, Bruce?

MR. MILLER: Yes, please. David Miller for the record.

I would say from a programmatic and an implementation or a worker execution perspective that we are probable on par with practice in the United States. I was in a meeting a short while ago just after Christmas of Radiation Protection Managers, it was a peer type meeting, and there was a number of units there represented at that meeting. But most notably we had a presentation from a couple of senior (inaudible) people, and they gave us the highlights, or the lowlights if you'd like of the previous year in the United States.

And a number of the areas that they have areas of concern in the United States is with their alpha

program in their plants. Pretty much they say that across the piece that they had to generalize it. Alpha programs are generally quite good.

We use a lot of expertise in generating our program, basically, but on a number of occasions those programs are weakly implemented. And there's lots of flaws in that process. Our program we know is not weakly implemented. So we will not give you a direct correlation from a comfort perspective, I would say that we're at least as good as what they are.

MEMBER HARVEY: Another question is the same line. In the event of a similar event, not necessarily at Bruce facility, but anywhere, what would be different regarding the detection measures, getting the data, the report, the inside and outside information? What would be different?

MS. PURVIS: Caroline Purvis for the record.

I'm assuming you mean in the future would there be an event of this magnitude and this type of event? Well, certainly when we looked at enhancements to the radiation protection program, both the immediate ones that we requested in the 12/2 letter and the long-term enhancements to the program, we had, you know, in mind the circumstances of this particular event.

But when we look at the longer term enhancements we have in place now, expectations for workplace surveillance, meaning monitoring in the workplace to alert workers of upset conditions.

Personnel screening so that we can identify contamination on individuals and do immediate sampling to ensure -- to determine whether there's been an uptake. And as you can see there are 17 elements, which will in my opinion and I think based on experience and looking at industry best practices that when fully implemented the probability of another event of this magnitude is extremely low, and these 17 elements will be part of our compliance program moving forward.

So I can report to date we've looked at the implementation of these programmatic elements at Bruce Power, at Darlington, at Pickering. There's two of my staff at Gentilly this week looking at alpha monitoring and control. And the one left to do is Point LePreau when they're implementation is a little farther along.

THE CHAIRMAN: I return it to Bruce. What would be different in your facility?

MR. SAUNDERS: The primary difference is you'll detect the alpha first so you won't get the exposures. So what we were lacking, quite frankly, was the ability to monitor and detect alpha and therefore have

a protection program in place.

Between the dosimetry and the monitoring programs you just want to get the exposures of the individuals because you'll know the alpha's there so they won't go in unprotected; that's the basic difference.

THE CHAIRMAN: Okay, thank you. I hope the answer was it'll never happen again. With all there are, you know, nobody wants to come to a bottom line in all of this. I guess a cautionary principle here, but all the staff and all the 17 things when I read them when they're all implemented together with RSI, I assume that it will - - early detection will prevent this thing done, like (inaudible).

MR. SAUNDERS: Yeah, that's correct. I mean, that's what we're saying. You'll know the alpha's there so there won't be the exposures in the first place. So you just -- you won't have the event essentially.

THE CHAIRMAN: I think somebody raising their hand in the back here trying to challenge that assumption?

UNIDENTIFIED SPEAKER: No. I just want to point out that all the early detection equipment is currently in place. Just we're talking about long-term program improvements, but as of right now all the NPPs do have detection equipment in place.

THE CHAIRMAN: So I noticed that nobody -- everybody was afraid to say so it will not happen again. Anyhow, I think I get what you're trying to say.

I have one question about the laboratories that could do those testing. Presumably we were very, very surprised that there was no such capacity or capability.

You did mention -- we do know that AECL had the capacity. And I never -- until today I only heard about -- I never heard about Kinectrics having the capacity.

Did they always have the capacity or they're just building this capacity now? And why didn't you go with AECL which is a known quantity? And I just thought that now more than ever they were looking for new challenges.

MR. SAUNDERS: Yeah, Kinectrics is just new coming into the program, so it's a relatively new service.

I don't think we meant to exclude AECL; we were just talking about having additional capacity in Canada. So we still do use AECL and probably will continue to do so.

But at the time of the event, their capacity was something like four or five samples a week. And with the numbers that we had, we would have been, you

know, years getting through the sampling process alone. So we needed to get the extra capacity.

At the time, we weren't sure whether we would need to have a much higher capacity in Canada in general going forward and so we were looking at encouraging some people to put in some additional capacity and that's where Kinectrics -- and there were a few other people looked at it, it was Kinectrics that came through with a program in the end; so that we would have more capability should the need ever arise.

Our conclusions after we've done all this work is that you really aren't going to need that large capacity. So ---

THE CHAIRMAN: So now that the program is across the country what -- do we have a view as to what would be the sample requirement? Staff?

DR. THOMPSON: Patsy Thompson, for the record.

I just wanted to point out that despite what Bruce Power has just said, the CNSC has not yet received an application for a dosimetry service licence from Kinectrics.

There have been discussions with staff that a licence application will be submitted at the end of March. But we have not received an application and

certainly the assessment for a licence has not been done.

THE CHAIRMAN: So the only capability right now is still AECL?

DR. THOMPSON: That's correct.

THE CHAIRMAN: Do you know what the sample, the future sample might look like now with all the measures put in place?

DR. THOMPSON: Patsy Thompson, for the record.

Until -- I believe it's the Item 14, until the retrospect of assessments are finalized it would be hard to provide a number in terms of the needs that -- the capacity that will be needed moving forward.

THE CHAIRMAN: Okay.

Anybody? Dr. McDill?

MEMBER McDILL: One last question; under Item 5, dosimetry. Il y a absolument une date pour Hydro Québec?

Why is there only a date for Hydro Quebec, no commentary?

MR. RINFRET: Excuse me, I missed that one.

MEMBER McDILL: In Item 5, dosimetry. Everybody else's program is under review but that's not the case for ---

MR. RINFRET: We have the details in order

to be able to submit what has been done and what is remaining. We decided to be -- rather to summarize and come up with the dates but they have similar capabilities and difficulties.

And actually, we do have the exact answer to that question. If I may ask Madame Purvis.

MS. PURVIS: If I understand correctly your question.

Caroline Purvis.

There's no explanation under Item Number 5 for G2; it's under review again. They have done their retrospect of assessment of a very small sample of workers. And they're in the process of finalizing their proposals of whether licence dosimetry is appropriate or not.

And as I said, some of my staff are there this week to deal with some of the last-minute items that are nearing completion.

MEMBER MCDILL: I heard you say your staff were there but I didn't see anything about the "under review", so ---

MS. PURVIS: It's simply just different people must have filled in the table. It's nothing more than that.

THE CHAIRMAN: Anything else?

Okay, thank you.

Thank you very much.

We are now -- ah, I got to read something for you guys.

Okay. This concludes the meeting for today. The meeting will resume tomorrow at 9 o'clock.

Thank you all for participating and for your patience. We're now going to switch gear and kick all the people who have no business here out of this room and we're going to go in camera on some other subjects.

Thank you very much.

--- Upon adjourning at 5:47 p.m./

L'audience est ajournée à 17h47