

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public meeting

Réunion publique

February 18th, 2010

Le 18 février 2010

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

Mr. Michael Binder
Dr. Moyra McDill
Mr. Alan Graham
Mr. André Harvey
Mr. Dan Tolgyesi
Dr. Ronald Barriault

M. Michael Binder
Mme Moyra McDill
M. Alan Graham
M. André Harvey
M. Dan Tolgyesi
M. Ronald Barriault

Secretary:

Mr. Marc Leblanc

Secrétaire

M. Marc Leblanc

Senior Counsel :

Mr. Jacques Lavoie

Conseiller principal:

M. Jacques Lavoie

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Ottawa, Ontario

--- Upon commencing on Wednesday, February 18, 2010 at
9:00 a.m.

--- L'audience débute le mercredi, 18 février 2010 à 9h00

10-M10

Opening Remarks

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

We have simultaneous translation today. If
you would, we would please ask you to 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 8, and the English version is on channel 7.

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

Les transcriptions seront disponibles sur
le site web de la Commission dès la semaine prochaine.

I would also like to note that this
proceeding is being video webcasted and that archives of
these proceedings will be available on our website for a

1 three-month period after the closure of the proceedings.

2 Please silence your cell phones and other
3 electronic devices.

4 Monsieur Binder va présider la réunion
5 publique d'aujourd'hui.

6 Mr. President.

7 **THE CHAIRMAN:** Thank you Marc. Good
8 morning and welcome to the meeting of the Canadian Nuclear
9 Safety Commission.

10 Mon nom est Michael Binder, je suis le
11 président de la Commission canadienne de sûreté nucléaire
12 et je vous souhaite la bienvenue.

13 And welcome to all of you who are joining
14 us via webcast or video conferencing.

15 I would like to begin by introducing the
16 members of the Commission that are here with us today.

17 On my right are Dr. Moyra McDill and
18 Monsieur Dan Tolgyesi. And on my left, Monsieur Alan
19 Graham and Monsieur André Harvey and Dr. Ronald Barriault.

20 We've just heard from our secretary, Marc
21 Leblanc, and we also have Monsieur Jacques Lavoie, senior
22 general counsel of the Commission.

23 **MR. LEBLANC:** The Act authorizes the
24 Commission to hold meetings for the conduct of its
25 affairs. Today's agenda includes:

- 1 - two Early Notification Reports;
- 2 - the Status Report on Power Reactors;
- 3 - two decision items pertaining to the Packaging and
- 4 Transport of Nuclear Substances Regulations;
- 5 - one information item pertaining to CNSC staff pre-
- 6 project new reactor vendor design review; and finally,
- 7 - a technical briefing on the licensing process used by
- 8 the Directorate of Nuclear Substance Regulation.

9 In addition to the written documents

10 reviewed by the Commission for today's meeting, CNSC staff

11 and licensees will have an opportunity to make

12 presentations and Commission Members will be afforded an

13 opportunity to ask questions on each of the items before

14 us.

15

16 **10-M11 / 10-M11.A**

17 **Adoption of Agenda**

18

19 **THE CHAIRMAN:** Okay. With this

20 information, I would like to start by calling for the

21 adoption of the agenda by the Commission Members as

22 outlined in CMD M11.A.

23 Comments? Any? Everybody agrees?

24 For the record, the agenda is adopted.

25

1

2

10-M12

3

Approval of Minutes of

4

Commission Meeting held

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January 13, 2010

6

THE CHAIRMAN: Next I would like to get

7

approval for the minutes of the Commission meeting held on

8

January 13, 2010. The minutes are outlined in Member

9

Document CMD M12.

10

Any comments, observations, additions,

11

deletions?

12

Okay. Again for the record, the minutes

13

are approved.

14

15

4. Status Report

16

17

4.1 Early Notification Reports

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19

4.1.1 - 10-M13

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Bruce Power:

21

Alpha Contamination Event in

22

Bruce A unit 1

23

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THE CHAIRMAN: The next items on the agenda

25

are the Early Notification Reports as outlined in CMD

1 M.13. And the first one is pertaining to the alpha
2 contamination event at Bruce A. And I understand that
3 Bruce Power has a presentation.

4 Mr. Saunders, the floor is yours.

5 **MR. SAUNDERS:** Mr. President, Members of
6 the Commission, good morning. As you said, for the
7 record, Frank Saunders, Vice-President, Nuclear Oversight
8 for Bruce Power.

9 I would like to start by introducing my two
10 companions, Maureen McQueen on my right is the newly
11 appointed manager for Radiation Protection at the Unit 1-2
12 Refurbishment Project. And on my left, Norm Sawyer, also
13 relatively newly appointed at Bruce Power, although
14 familiar to the Commission in his previous role, as
15 Executive Vice-President and Chief Nuclear Officer for
16 Bruce A.

17 And we would like to start with the
18 presentation and Mr. Sawyer will start up.

19 **THE CHAIRMAN:** I'm having difficulty in
20 hearing you. Can you get closer or ---

21 **MR. SAUNDERS:** Sure.

22 **THE CHAIRMAN:** --- somebody raise the
23 volume please?

24 **MR. SAUNDERS:** And so as you said, we have
25 a short presentation, so Mr. Sawyer will start with that

1 if it's okay.

2 **MR. SAWYER:** Good morning Mr. President and
3 Commission Members. My name is Norm Sawyer, and as
4 indicated by my colleague, Mr. Saunders, I've recently
5 been appointed as Executive vice-President and Chief
6 Nuclear Officer Bruce A.

7 We appreciate the opportunity that you have
8 given to Bruce Power to come and discuss with you our work
9 regarding the feeder preparation at Bruce Unit 1 and the
10 related challenges in the area of radiation protection.

11 Let me start by saying that Bruce Power, in
12 all its activities, puts in place and practices strong
13 nuclear principles. Our organization recognizes that
14 reactor safety, industrial safety, environmental safety
15 and radiation safety are essential to our long-term
16 success.

17 At no time do we compromise any of these
18 fundamental safety values. For example, our current
19 safety performance is achieving excellence levels with 18
20 million hours without a lost time injury at our site.

21 Let me assure everyone that we apply the
22 same standard to radiation protection. The work to
23 prepare Unit 1 feeders for eventual welding to the lower
24 segment began in late November. The work plan was based
25 on the work successfully being completed on Unit 2 a month

1 earlier.

2 On slide 2, the centre and right pictures
3 were taken in a shop setting but shows a typical
4 preparation of the feeder tube. If we first look at the
5 picture on the right of slide 2, we can see a special tool
6 with a vacuum attachment. Note the grinder is located
7 inside the Plexiglass cylinder. This device utilizes air
8 suction and special filtered discharged process to control
9 debris and dust to prepare the pipe for welding.

10 This particular technique was successfully
11 used on Unit 2 feeder work without incident. Further, the
12 workers directly involved in the work wore air supplied
13 plastic suits as shown on the picture on the left side of
14 the slide.

15 However, unlike Unit 2 work, during the
16 work on Unit 1, beta activity was discovered during air
17 samples, early in the work, which indicated airborne
18 particulate material.

19 If we now move to slide 3, once the
20 indication of airborne material was discovered, a
21 partition was installed to separate the work area from the
22 general vault area.

23 The picture on slide 3 shows a worker in a
24 protective air supply plastic suit and anti-contamination
25 clothing working inside this tented area. This sealed

1 area was placed under negative ventilation control to
2 contain any airborne hazard to the immediate work area.

3 Workers inside the enclosed area are
4 required to wear appropriate protective clothing. As work
5 resumed, further analysis of air samples indicated alpha
6 activity.

7 It should be noted that in normal operating
8 plants in Canada, the beta to alpha ratio is approximately
9 10,000 to one. As such, the accepted industry practice is
10 to assume that, with such a high ratio of beta/alpha,
11 protecting against beta, which is relatively easy to
12 measure, is sufficient to protect against alpha.

13 However, the ration of beta to alpha in
14 this case was eventually found to be seven to one. This
15 was due to decay of beta activity over several years.

16 When we were planning to work on Unit 1, it
17 was believed that the same conditions would exist on Unit
18 2. With hindsight, it would have been prudent to revisit
19 these underlined assumptions as a difference did exist in
20 the lay up of Unit 1, wet versus Unit 2, which was dry.

21 While still under investigation, it appears
22 that a wet lay up resulted in more loose particulate in
23 the system than a dry lay up. By using a questioning
24 attitude, it would have been discovered that the
25 conditions that existed within the pipes was indeed

1 different from a radiation protection perspective.

2 Once identified that the conditions were
3 different and the sampling results were not as expected,
4 actions were taken to limit work entry and to estimate
5 potential dose to workers.

6 Moving to slide 4, we were able to
7 determine the number of individuals potentially involved,
8 who they were, and the time spent in the work area due to
9 the fact that tight access controls exist for entry and
10 exit from the working area, the vault.

11 Based on this information, our
12 investigation began with detailed analysis of potential
13 alpha exposure. However, please note that currently in
14 Canada, there is a limited capacity to analyze large
15 numbers of alpha bioassay samples. We are experiencing
16 delays in providing final results. Further, the process
17 for completing alpha bioassays is a lengthy process due to
18 the time taken to collect the samples, perform analysis
19 and calculate the results. We're talking about four weeks
20 in general.

21 The diagram on this slide indicates how
22 bioassay work was prioritized. In general, the
23 individuals in the centre ring and the individuals in the
24 outer ring do not require bioassays, based on our
25 assessment of the likelihood of uptake. The individuals

1 in the centre rings require bioassays to measure the
2 uptake.

3 To date, as expected, no regulatory limits
4 have been exceeded. Since the dose received was
5 unplanned, the incident was reported to the CNSC under S99
6 requirements.

7 Moving on to Slide 5, I must say there have
8 been several significant challenges related to this
9 situation. For example, Bruce Power, in common with the
10 rest of the generating stations in Canada, does not have
11 an accredited lab to test workers for alpha. As such,
12 with assistance from the CNSC, we were able to get the
13 approval to use an AECL facility. However, logistics
14 needed to be put in place to get this facility to complete
15 10 samples per week versus the usual 10 samples per month.

16 As might be expected, individuals involved
17 are left with a level of uncertainty until the results are
18 known. We appreciate that. This situation did not allow
19 us to communicate results in a timely manner, as is our
20 common practice. This is further complicated by the fact
21 that alpha is not normally an issue in operating plants,
22 so individuals' knowledge is limited.

23 As Slide 6 indicates, communication with
24 employees continues. Several interactive sessions have
25 been held and more are planned to keep employees aware of

1 the status of the situation.

2 Potential and final dose results will be
3 discussed with each individual as they are calculated and
4 confirmed. In addition to communicating with employees
5 and union leaders, Bruce Power posted on its website the
6 S99 report which provides preliminary description of the
7 event. We also briefed our community jointly -- as our
8 committee, our impact advisory council and our county
9 council.

10 As indicated on Slide 7, to date 14 results
11 have been received from the initial 19. With the limited
12 data available from the event, the results are in line
13 with the predicted dose estimates. It should be noted
14 that these are lifetime doses, 50 years, although the
15 total dose is recorded for administrative purposes in the
16 year of the intake.

17 Based on the current results and our
18 analysis, no employee is expected to exceed the one or
19 five-year regulatory limit. This includes dose
20 accumulated prior to the event.

21 Based on our ALARA principles and
22 dosimetric program, some employees have been reassigned to
23 non-radioactive work until the bioassay samples are
24 finalized. As is our current practice, CNSC staff will be
25 kept fully informed of the results as they are received.

1 Moving to Slide 8, obviously this is a
2 significant opportunity for Bruce Power and the Canadian
3 industry in general. Currently, we're in the process of
4 redesigning our radiation protection program, which
5 includes a new infrastructure to enhance our alpha
6 measurement capacity to meet world-class standards. For
7 example, we have begun by installing alpha-sensitive
8 personnel monitors, such as the one in the picture on
9 Slide 8.

10 We have increased our complement of alpha-
11 sensitive contamination monitors and counters.
12 Additionally, state-of-the-art contamination and air
13 sampling monitors are being procured. Initial information
14 has already been provided to the industry of our lessons
15 learned and will ensure the industry is fully briefed on
16 the results of our investigation and corrective actions
17 taken.

18 In closing, let me assure the Commission
19 members Bruce Power is taking the situation very seriously
20 and controls are being put in place to ensure this
21 condition is never repeated.

22 Despite media comments to the contrary, I
23 want to be clear that we are taking a responsible and a
24 very conservative approach. As you know, this is normal
25 for the nuclear industry.

1 Our approach to bioassay sampling has been
2 to ensure that all personnel who require it are included
3 rather than trying to reduce the number impacted. As
4 such, a large number of individuals have been assessed
5 that will require a bioassay and we expect all doses to be
6 below the regulatory limit.

7 Any assistance we can receive from the CNSC
8 staff in certifying other alpha-assessment facilities
9 would be greatly appreciated. Thank you.

10 **THE CHAIRMAN:** Thank you.

11 Before opening the floor for questioning, I
12 understand that CNSC staff has a presentation to make.
13 Mr. Jammal, the floor is yours.

14 **M. JAMMAL:** Merci, monsieur le président.

15 Je suis Ramzi Jammal. Avec moi, monsieur
16 Ken Lafrenière, directeur général en intérim et Dr. Patsy
17 Thompson, directeur général.

18 We don't have a presentation to make.
19 However, I would like to provide the Commission with the
20 following update that CNSC performed on January 22nd,
21 2010, an inspection in order to confirm that all
22 regulations, licence conditions, standard and licensee
23 procedures have been followed, and to verify that the
24 ALARA principle has been enforced, which would ensure that
25 the health and safety of the workers on the project were

1 adequately being protected.

2 CNSC concluded that there are no immediate
3 health concerns for the workers that were most likely to
4 be exposed to the contamination, and all regulatory
5 requirements were made.

6 There is no indication that the
7 contamination in question spread outside of the Unit 1
8 vault and, therefore, no indication of any risk to the
9 public or the environment.

10 CNSC staff will continue to monitor the
11 situation and await the final bioassay results from Bruce
12 Power.

13 We're available to answer any questions you
14 might have.

15 **THE CHAIRMAN:** Thank you.

16 So let's open up the floor for questioning
17 and I'd like to start with Dr. McDill.

18 **MEMBER MCDILL:** Thank you.

19 In view of the public interest, I'd like to
20 go back a little bit and I'd like to ask, starting with a
21 very general question, for Bruce.

22 What is the role of the feeder pipes in the
23 CANDU? And then as part of your refurbishment, just to
24 clarify that you were cutting old feeder pipes and were
25 making preparations for welding new feeders.

1 **MR. SAUNDERS:** Frank Saunders, for the
2 record.

3 Yes, in fact, the old feeder pipes had been
4 removed and what we were doing was preparing the weld
5 point where we would attach the new lower part of the
6 feeder pipe to the old, so that the prep is in preparation
7 for a weld that will occur later. The feeder pipes
8 actually carry the heat transport fluid from the primary
9 cistern through the fuel channels and over the fuel,
10 essentially, and out the other side and around.

11 So that's a circulatory loop that gets
12 heated up to produce the steam that eventually drives the
13 turbines. It's a closed loop system, not the heat
14 transport system.

15 **MEMBER McDILL:** Thank you.

16 And precisely -- or maybe at this point you
17 don't know precisely -- what is the source of the loose
18 particulate that has generated the alpha radiation?

19 **MR. SAUNDERS:** The radioisotopes involved
20 here are generally radioisotopes that are related to the
21 fuel, so these would accumulate over years in the reactor
22 from small leaks from the fuel cladding and other things.
23 So they would be present at some level in the heat
24 transport system.

25 **MEMBER McDILL:** So to your knowledge,

1 there's no incident in the past that's the cause of this?
2 This is just age and time and uranium being exposed to
3 neutrons?

4 **MR. SAUNDERS:** This is an accumulation over
5 time, that's correct.

6 **MEMBER MCDILL:** Have there been other
7 incidents in Canada in any of the other refurbishments --
8 this would be to staff -- where alpha radiation has been
9 detected?

10 **MR. LAFRENIÈRE:** Ken Lafrenière, for the
11 record, Acting Director General.

12 There have been similar incidents involving
13 alpha radiation at other plants, however, not the -- what
14 was new about this in terms of this incident was the ratio
15 of alpha to beta.

16 **THE CHAIRMAN:** Sorry, I didn't understand
17 what you just said. Could you explain what does it mean
18 and which plant?

19 **MR. LAFRENIERE:** For instance, there have
20 been alpha events at the Point Lepreau generation station.

21 **THE CHAIRMAN:** You mean refurbishment?

22 **MR. LAFRENIERE:** During the early part of
23 the refurbishment, however, because of the decay of the
24 beta in the reactor the protection was assured at all
25 times.

1 I'd like to pass it on to Caroline Purvis
2 who will give some more details.

3 **MS. PURVIS:** Thank you. For the record,
4 Caroline Purvis.

5 Just following on Mr. Lafrenière, yes,
6 certainly Point Lepreau was prepared to identify the
7 presence of alpha, and I do have some information about
8 that.

9 They checked for alpha prior to the outage
10 starting at Point Lepreau and deployed continuous air
11 samplers that have alpha capability. They also had
12 instruments on site to do alpha spectrometry and they had
13 purchased monitoring devices for monitoring staff to
14 ensure that they were not contaminated.

15 Thank you.

16 **THE CHAIRMAN:** So if I may -- sorry, if I
17 may, just to pursue it further, given that it happened in
18 Point Lepreau, and that's not too long ago, I'm asking
19 Bruce and staff why wouldn't it be reasonable to at least
20 -- not anticipate -- but at least take measures, you know,
21 to take some sort of pre-emptive measure to try to see if
22 it's going to happen in your facility? And I understand
23 there's a difference between the wet and the dry. But
24 still, why wouldn't it be expected for you guys ---

25

1 (Technical difficulty)

2

3

MR. SAUNDERS: Frank Saunders, for the
4 record.

5

In the operating stations -- and this is a
6 little bit of the ratio discussion that Mr. Lafrenière was
7 just experiencing -- we measure beta and the ratios of
8 beta to alpha are very large, so the protection principle
9 is if you protect for beta you'll protect for the alpha
10 radiation as well because the protections are the same,
11 regardless.

12

The difference here is with these reactors
13 having been out of service for over 10 years, the beta has
14 a shorter half-life and therefore decays away faster than
15 the alpha. So you now are looking at the beta to tell you
16 that you might have a problem but the beta is at a much
17 lower level than in fact it would normally have been.

18

And that has been our common practice and
19 that was confirmed on Unit 2 that, you know, we had no
20 issue on Unit 2. So there's a bit of a mine site issue
21 here in that we're looking for the beta and directly for
22 the alpha.

23

THE CHAIRMAN: Staff, is that normal
24 practice that if you protect for beta then you
25 automatically protect for alpha, but I understand only if

1 the ratio is high enough, right? So it's not automatic.
2 Am I missing something here?

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

5 Yes. No, that's a correct assumption and
6 that's an industry assumption. However, as Mr. Saunders
7 mentioned, there are lessons to be learned here and that's
8 what we're going through. There could have been better
9 protection, better capability to pick up alpha and that's
10 probably going to part of the corrective actions that will
11 be put in place going forward.

12 I'd like to point out that as per normal
13 radiation practice, you protect against beta. All the
14 workers were wearing proper protective clothing at the
15 time of the work. They had radioactive work permits and
16 it was done in a controlled environment.

17 **THE CHAIRMAN:** Thank you.

18 Dr. McDill?

19 **MEMBER McDILL:** Thank you. Excuse me, I'll
20 pass it on to my colleagues in a moment.

21 Would Bruce please give us a list or rough
22 numbers of the number of employees involved here initially
23 doing the work and also entering the vented area?

24 **MS. McQUEEN:** There was approximately 80
25 workers who were doing the work.

1 **MEMBER McDILL:** Eighteen (18) or 80?

2 **MS. McQUEEN:** Eighty (80), eight zero, and
3 it's Maureen McQueen, for the record.

4 And the number of workers that entered the
5 vault during the entire period that this work was going on
6 was 550 -- 563; my apologies.

7 **MEMBER McDILL:** And my last question before
8 I pass it on. How did you assess which workers for whom
9 to perform a bioassay?

10 **MS. McQUEEN:** We actually looked initially
11 at the population of workers who worked very close to the
12 work who were not wearing respiratory protection, and then
13 we broadened the scope.

14 We went through every one of our vault
15 entry records for the 563 people, looked at exactly which
16 days they were working and noted the air sample
17 concentrations which by that time we had back from the
18 laboratory, and we calculated their exposure, added it up
19 and, based on the dose estimates that came out, in
20 accordance with our radiation protection program we
21 selected for bioassay those who could have received an
22 exposure of more than 1 millisievert.

23 **MEMBER McDILL:** And why the choice of 1
24 millisievert?

25 **MS. McQUEEN:** The 1 millisievert was a

1 level in our program that we're required to do bioassay
2 sampling if workplace sampling indicates that we could
3 have an exposure above that level. It's to confirm the
4 actual exposure.

5 **MEMBER McDILL:** Thank you, Mr. Chair.

6 **THE CHAIRMAN:** Again, sorry to interrupt
7 you, there's thousands of questions here.

8 So at the preliminary analysis, you already
9 suspected alpha because presumably you decided right there
10 and then to have the bioassay. I mean, why did you decide
11 to do the bioassay tests?

12 **MS. McQUEEN:** In the first instance, the
13 high beta activity on the sample made us look for alpha.
14 The alpha was confirmed back from our off-site laboratory
15 and when that alpha was confirmed at the level that it was
16 confirmed, we started to look for people who may have been
17 exposed. So that's where we started to do the detailed
18 assessments.

19 **MR. SAUNDERS:** Just for clarification --
20 Frank Saunders -- that sample itself came back on the 21st
21 of December, so that was the date that we started to look
22 at the assessment.

23 **THE CHAIRMAN:** Thank you.

24 Mr. Graham?

25 **MEMBER GRAHAM:** That was my first question,

1 the first date of confirming alpha was December 21st. Is
2 that correct?

3 **MR. SAUNDERS:** Yes, that's correct,
4 although I should qualify it a little bit.

5 There's some low levels of alpha in the
6 station at all times and we know that, right, but the
7 first sample we got back from the external lab that told
8 us what the alpha levels were and that we understood this
9 ratio had changed, that was the 21st of December.

10 **MEMBER GRAHAM:** Could you give us a little
11 chronological order then of what precautionary measures
12 were taken? Did you cease then all work in that area at
13 that time?

14 **MR. SAUNDERS:** Yes. In fact that work --
15 in fact, it was ceasing at that point anyway because
16 coincidentally it happened to be the Christmas break, so
17 the work was ceasing then, and when the workers returned
18 in January we did not resume the work and have not
19 actually resumed any of the open heat transfer work yet.

20 **MEMBER GRAHAM:** The thing that's not clear
21 to me is that a certain amount of workers were suited up,
22 wearing all the necessary protection equipment. Others
23 were not, that went in and out. The ones that were suited
24 up and wore the protection equipment, were any of those
25 affected?

1 **MS. McQUEEN:** Yes, they were, because they
2 actually had to traverse to the work site not wearing
3 respiratory protection, so we assumed a traversing time of
4 30 minutes for workers to get to their work site and to
5 come out of the work site, and we used that in our
6 calculations.

7 **MEMBER GRAHAM:** So then on December 21st
8 you ceased operation and you came back in January. Did
9 you have any results then of the tests? When was the
10 first results back? My understanding is the testing
11 results had to be done at Chalk River. Is that correct?

12 **MS. McQUEEN:** That's correct. The first
13 results came back approximately early -- about the 5th or
14 6th of February; I don't have the exact date here but it
15 was early February. It was about a month later after the
16 samples were given, which is about the normal time.

17 **MEMBER GRAHAM:** And that was done on the 6
18 plus the 13, on all 19?

19 **MS. McQUEEN:** That is correct. We have not
20 had all the results back yet. We've had 14 results back
21 out of 19.

22 **MEMBER GRAHAM:** My question, though, is
23 those were the ones that were working the longest and were
24 exposed the longest and so on; is that why you
25 distinguished that down to 19? You also have up to many

1 hundreds. How did you distinguish then that the rest
2 didn't need tested as quickly and so on?

3 **MS. McQUEEN:** We did this in priority
4 order, so our first priority were the people who we
5 believed to be most exposed at that time, and that was the
6 -- it was actually 13 workers who were involved close to
7 the work, and then there was another 6 workers who had
8 preliminarily been screened to have whole-body counts and
9 we therefore, as a precaution, had sent those also for
10 analysis.

11 And then we worked through the detailed
12 calculations, and I don't know if you can imagine the
13 volume of data that we had to go through to actually
14 calculate exposure times to the rest of the workers. As
15 we systematically worked through those calculations and we
16 determined the highest exposed people in that population,
17 those were the next population set to be sent for a
18 bioassay.

19 **MEMBER GRAHAM:** And you're quite
20 comfortable that the sequence of the scale of testing on
21 people and so on, the categories, that you're not missing
22 someone that may have been exposed and may need a test
23 very early and it's not because of the fact they fall into
24 one of those other rings on Number 4 slide?

25 **MS. McQUEEN:** I mean, these estimates are

1 estimates, so it's difficult to say exactly if the first
2 19 workers were the worst, and some of the doses when you
3 added them up on the rest of the workers were higher than
4 some of these first doses. However, we have continued --
5 as we know in the data, we have sent the highest-exposed
6 workers we have known at that time for bioassay and we're
7 working down sequentially through all of these workers.

8 **MEMBER GRAHAM:** How long will it take to
9 ensure that the levels for all workers that may have been
10 exposed at the facility is below the norm that is set by
11 CNSC and is set by ALARA and so on?

12 **MS. McQUEEN:** Sorry, I'm not saying my name
13 for the record so I should say Maureen McQueen, for the
14 record.

15 We have done 50 samples to date. We have
16 sent 50 samples to date. We have 142 samples yet to send.
17 The sample rate is 10 samples per week, so it will be
18 another 14 weeks before we can -- if we continue at the
19 same pace it will be another 14 weeks until we send all
20 the samples in, and it's 4 weeks after that that we get
21 the results, so 18 weeks more.

22 **MEMBER GRAHAM:** And there's only one
23 facility in Canada ---

24 **MS. McQUEEN:** There's only one accredited
25 facility in Canada to do alpha dosimetry on personnel,

1 yes.

2 **MEMBER GRAHAM:** Have you looked at other
3 facilities outside of Canada ---

4 **MS. McQUEEN:** Yes.

5 **MEMBER GRAHAM:** --- that have this work
6 done, and are there other accredited facilities outside of
7 Canada?

8 **MS. McQUEEN:** There are. Facilities are
9 accredited in the U.S. by U.S. standards but they are not
10 accredited in Canada. So what we are asking the
11 Commission to do -- we're working very closely with them
12 to identify if we can have acceptance for the U.S.
13 facilities to do this testing.

14 **MEMBER GRAHAM:** My question then is to CNSC
15 staff, what is the procedure to have a facility outside of
16 Canada accredited to do this work?

17 **MR. JAMMAL:** For the record, Ramzi Jammal.

18 In case of an emergency, with respect to
19 ascertaining the dose, the licensee can use an accredited
20 facility to do so. The issue becomes of a legal nature
21 when the dose will be going on the record of the employee.

22 However, CNSC is working closely, depending
23 on a request of Bruce Power, if they select and they find
24 an accredited bioassay sampler that is capable to detect
25 the minimum detectable levels we're looking at, then it

1 will be a very quick turnaround for the approval process.
2 Through our regulatory procedures we can do so.

3 The key point here is the availability of
4 an accredited facility capable of detecting the minimum
5 levels we're looking at.

6 **MEMBER GRAHAM:** And in the U.S., how many
7 would there be -- I mean, how quickly can that be done and
8 how many could be done so that there isn't this 18 weeks
9 of anticipation from some workers?

10 **MS. THOMPSON:** Patsy Thompson, for the
11 record.

12 To date, there's been discussions between
13 Bruce Power and CNSC staff. We've identified the
14 technical requirements and some of the quality assurance
15 requirements that would need to be met to have some
16 assurance that the results -- the measurements are
17 actually what they are.

18 Bruce Power has that information and has
19 been providing information on the laboratory that they've
20 identified. So this process is going on and there
21 shouldn't be any delay once we have all the information.
22 It's in everybody's best interest to get those numbers
23 quickly.

24 **THE CHAIRMAN:** But can I -- just for the
25 public, I'm not sure how many people know what a bioassay

1 test is and why is it so complicated and why does it take
2 so long. So can you give us a little bit of -- a 10-
3 second clip on this?

4 **MS. McQUEEN:** Yes. It's Maureen McQueen,
5 for the record.

6 The bioassay is our urine sample -- large
7 volume urine sample. It has to be provided after you've
8 been away from work for several days. So there's about a
9 week process between when we notify a person that they
10 have to do this bioassay to collect the samples.

11 They do the samples. They get them back to
12 us in the laboratory. There's then a screening process.
13 We then send it to AECL. AECL have a chemical preparation
14 process to get the alpha activity out of the urine at
15 very, very low levels. That takes about two weeks.

16 They then have to count the sample. They
17 give the result back to us in micro-becquerel's per litre,
18 which is a unit, which we then have to do modelling on to
19 convert into a dose. That takes another week
20 approximately to do a finalization of the dose.

21 So it's about a four week process in total.

22 **THE CHAIRMAN:** Thank you.

23 Monsieur Harvey?

24 **MEMBER HARVEY:** Merci monsieur le
25 président.

1 First question is when -- what date was
2 detected the contamination?

3 **MR. SAUNDERS:** Sorry, can you just clarify?

4 **MEMBER HARVEY:** I just want to know when
5 did that happen? I suppose you were monitoring the air in
6 the area. Was it monitored inside the protected area or
7 in the vault in general?

8 **MR. SAUNDERS:** Perhaps I can just broaden
9 the question a little because I think we didn't quite
10 answer one of the other questions as to how we know what
11 the population is.

12 So two issues. The vault area is a
13 controlled work area so we do control access in and out of
14 the vault so we know who's in there. And we have, in
15 fact, looked at everybody then in the vault over this
16 period of time and that's part of the reason why the
17 number's big and why it took a while to go through all
18 that because we basically looked at every individual.

19 Likewise, that area in the vault is
20 routinely monitored as per our RP program. Air samples
21 are taken and we do monitor them routinely.

22 So the initial phase when we erected the
23 tent, you know, as we showed you a while ago, we've seen
24 two samples where we've seen some particularities so we
25 put the tent up. The whole purpose of that enclosure is

1 to keep any materials contained to the area and so people
2 in the rest of the vault actually don't see any of that.

3 But we continue to monitor the vault. We
4 were seeing some low levels and that's when we sent the
5 samples off to get better characterized off site.

6 Can you help me -- what was the date we
7 sent the first sample in?

8 **MS. McQUEEN:** Maureen McQueen, for the
9 record.

10 The first samples were sent out for
11 analysis on the 10th of December. So there was an
12 indication in the field that there was alpha activity and
13 the samples were sent for analysis at that point.

14 And there were samples taken inside the
15 tent from that point onward, as well as outside the tent.
16 There was an increased sampling frequency.

17 **MEMBER HARVEY:** The sample immediately when
18 you detect it or it took ---

19 **MS. McQUEEN:** There was some time to allow
20 radon to decay to confirm that it was long-lived alpha
21 emitters and not radon. So there was a slight delay but
22 as soon as it was understood that there was a problem, it
23 was sent.

24 **MEMBER HARVEY:** Was the staff advised at
25 that time or before or after?

1 **MR. SAUNDERS:** The staff was advised on the
2 21st when we got that sample result back. So that sample
3 we sent off site we got the result back on the 21st.

4 We understood then that we had
5 underestimated the amount of alpha that was present based
6 on the ratios that we talked about a while ago. As soon
7 as we understood that we had, you know, underestimated it
8 we called staff and said "We haven't done the calculations
9 yet but we're concerned we may have an issue here". So
10 that was the first formal notification to staff.

11 **THE CHAIRMAN:** How did you inform staff? I
12 mean, did you inform all staff, some staff, the 19?

13 **MR. SAUNDERS:** Yeah, sorry, I just should
14 clarify. When I said "staff" in my last statement I was
15 talking CNSC staff. I assume the question you're asking
16 is about the workers at the Bruce site. And we've had
17 held a series of meetings with staff to inform them.

18 I'll ask Maureen to confirm the numbers.

19 **MS. McQUEEN:** We've informed 1,500 workers
20 through roll-out sessions of the event and what happened
21 and the dissymmetry requirements and so on.

22 **THE CHAIRMAN:** What was the date on which
23 you informed all the staff, you own staff, Bruce Power
24 staff?

25 **MS. McQUEEN:** Bruce Power staff were

1 informed as of the 5th of January, at the restart. That
2 was the first notification to our staff that there was an
3 event. Clearly the staff had come back after the
4 Christmas break and were not going back to work, so they
5 were notified as to why that was.

6 **MEMBER HARVEY:** What was the date? I
7 missed something.

8 **THE CHAIRMAN:** January the 5th.

9 **MEMBER HARVEY:** January the 5th. Okay.

10 **MS. McQUEEN:** That was January 5th we
11 notified our staff, yes.

12 **THE CHAIRMAN:** So when did it become known
13 publicly? I mean, when was it, you know, released
14 publicly in terms of -- because I understand that you
15 informed some of your stakeholders, community, et cetera.
16 So when was it that it became known?

17 **MR. SAUNDERS:** Frank Saunders, for the
18 record.

19 It was placed on our external website on
20 the 20th of January. And we have regular meetings with
21 our county councils and our Kincardine council as well as
22 the -- we call it the impact advisory committee, which is
23 four of the local municipalities plus a number of
24 government agencies such as the medical officer of health
25 and others.

1 Those meetings occurred generally in the
2 period of the 20th and the 21st of January. I can give you
3 the exact dates if you want me to look them up.

4 So we went and made those presentations and
5 some of those presentations were actually in a public open
6 session of the county council, so the information was
7 provided to them at that time.

8 **MEMBER HARVEY:** And to the staff, can you
9 just elaborate on what you received as a notice and what
10 the advice around that? I mean, what have you done with
11 this advice, et cetera?

12 **MR. LAFRENIERE:** Ken Lafrenière for the
13 record.

14 To give a bit of a history of it, we have
15 site inspectors located permanently at Bruce Power at all
16 times. The site inspector responsible for the oversight
17 of the refurbishment activity became aware of the issue
18 essentially the first day that the unusual sample showed
19 up. So that was November 28th.

20 I had verbal discussions with Bruce Power
21 on the 21st of December when the result came back from the
22 laboratory confirming that there was an unusual
23 contamination of alpha. They notified us as per
24 regulatory requirement on January 5th and they submitted a
25 preliminary written report, again as per our regulatory

1 requirements, on January 7th.

2 **MEMBER HARVEY:** So I'm just returning to
3 Bruce between the November 28th and December 21st. Not too
4 many things happened then; well, for the workers.
5 Everything was continuing as usual?

6 **MR. SAUNDERS:** We were continuing to sample
7 at that time. The actual sample results were low. We
8 were seeing low levels of activity that we expected to
9 see. We were seeing some long-lived on the sample which
10 we didn't quite understand and that's why we sent the
11 samples offsite for further analysis that we couldn't do
12 locally. But following our principle of protecting and
13 using beta and the alpha, you know, at that time we were
14 following that principle and protecting people in
15 accordance to the sample results we have.

16 It was on the 21st that we discovered that,
17 in fact, the samples weren't what they thought they were
18 exactly and so we took a different action.

19 **MEMBER HARVEY:** What made the contamination
20 expand like this and why wasn't it controlled under the
21 negative pressure area?

22 **MS. McQUEEN:** It's Maureen McQueen, for the
23 record.

24 And the contamination was very, very fine
25 dust and basically the tool and the containment tent did

1 not contain the activity the way that we would have
2 anticipated that it did.

3 **THE CHAIRMAN:** So just so I understand, I
4 thought that negative pressure was supposed to suck up any
5 dust and all that. Are you saying that these dust
6 particles were too heavy for that? What's ---

7 **MS. McQUEEN:** I'm saying the amount that
8 you need to have half exposure is extremely small and
9 therefore a very small amount escaped from that structure
10 -- from those structures.

11 **MEMBER HARVEY:** So inside that protected
12 area, the contamination must have been much higher than it
13 was as far in the vault?

14 **MS. McQUEEN:** Sorry, Maureen McQueen, for
15 the record.

16 That is correct. The contamination inside
17 the enclosed area was higher than the contamination in the
18 rest of the vault by several times, yes.

19 **MEMBER HARVEY:** Do you have an idea of what
20 was the contamination inside the protected area?

21 **MS. McQUEEN:** And what kind of result would
22 you be looking for?

23 **MEMBER HARVEY:** Well, I don't know. I
24 don't have any results. Just, well, how many times?

25 **MS. McQUEEN:** It was about a five-fold

1 difference -- I'm trying to remember the results -- no,
2 sorry, about a 20-fold difference between the amount that
3 was inside the tent and the amount that was outside the
4 tent.

5 **MEMBER HARVEY:** But all the workers inside
6 were protected?

7 **MS. McQUEEN:** All the workers inside the
8 tent were wearing plastic suits, yes.

9 And there was -- I should clarify for the
10 record -- on the 10th when we had the preliminary
11 indication of alpha, we did actually start to take
12 additional control measures inside the tent and the
13 workers were swabbed down, they were checked for alpha
14 contamination at that stage, and there was additional air
15 sampling run inside the tent and outside the tent.

16 So there was a change in what we did. It's
17 just with hindsight and with the results coming back, it
18 obviously was not sufficient -- the change that we had
19 done was not sufficient. We believed it was, but it was
20 not.

21 **MEMBER HARVEY:** And what happens with the -
22 - I suppose you've got filters in that protected area and
23 the dust is stuck by those filters and then you've got
24 some sort of contamination there. What do you do with the
25 filters and that?

1 **MS. McQUEEN:** The filter would be disposed
2 of as radioactive waste and all of that waste is still
3 with us and needs to be characterized for alpha as well as
4 betachem.

5 **MEMBER HARVEY:** Or do something, okay.

6 **MR. SAWYER:** Norm Sawyer, for the record.
7 Just if you remember one of the slides, and
8 I forget which number it was, it did show the people
9 working all in a protected plastic suit. That was the set
10 up; that's how they were working.

11 **THE CHAIRMAN:** Thank you.

12 Dr. Barriault?

13 **MEMBER BARRIAULT:** Merci, monsieur
14 président.

15 I was wondering really if you could walk me
16 through your industrial hygiene program? Obviously,
17 before starting a job like this you do work planning, you
18 analyse what's there, test for it. And then go on from
19 there if you don't mind.

20 **MS. McQUEEN:** That is correct.

21 Before we would conduct work, we would make
22 what's known as an ALARA plan and that ALARA plan would
23 look at all the risks associated with the work, the
24 hazards associated with the work, and the ALARA plan would
25 be approved.

1 And following on from that ALARA plan,
2 there would be a radiation exposure permit which would be
3 written for the work and that would give the workers the
4 very specific controls they had to use on the job,
5 including the personal protective equipment, the
6 monitoring that they would be required to do and so on.

7 And then the work would be conducted and we
8 would continue to monitor in accordance with our routine
9 program, which had monitoring anyway, and then additional
10 monitoring that was required in accordance with the ALARA
11 plan in the permit.

12 **MEMBER BARRIAULT:** So in that plan, do you
13 have the capabilities to test for alpha particles along
14 with the gamma and betas?

15 **MS. McQUEEN:** We had limited capability to
16 test for alphas. We had some monitoring equipment that
17 did test for alpha. That was what we used to indicate --
18 that indicated the information in the first place when we
19 saw it. But the major protection was done -- or the major
20 monitoring was done for beta, which is an indicator for
21 alpha.

22 **MEMBER BARRIAULT:** But I understand that's
23 where it fell off the rails, really, because your actual
24 level of alpha to beta was not normal.

25 Maybe I'm wrong, but I would assume that at

1 least in the future, hindsight being 20/20, that you will
2 be testing for alpha right from the get go?

3 **MS. McQUEEN:** In the future, there will be
4 full characterization for both alpha and beta of any
5 affected system before we're working on it, yes.

6 **MEMBER BARRIAULT:** And, obviously, you
7 protected the individuals working there with the full
8 supplied air body suits, but having said that, really, it
9 appears that one point a decision was made that, well,
10 this is not really a problem, let's move on. And then
11 you've got people who are no longer protected going to the
12 work area. Am I correct in assuming this?

13 **MS. McQUEEN:** I don't think that assumption
14 is correct. We had individuals who were working around
15 the affected area, and it was considered that they were
16 being adequately protected by the fact that we had
17 contained the work inside the tent. That was later found
18 to not be correct.

19 **MEMBER BARRIAULT:** So from there on in, you
20 had a worksite ready that was spreading -- if you want to
21 in terms of these alpha particles being distributed
22 throughout the vault area -- I guess I understand that,
23 and even beyond the vault area at this point I would
24 assume because the air is not staying there, is it?

25 **MS. McQUEEN:** I think the easiest way to

1 describe it is that there was radioactive material in the
2 air. It wasn't all over the surfaces. It was in the air,
3 so there was a release of the radioactivity in the air
4 from this enclosure. It wasn't like everything was
5 spreading all over the place. There was a small amount in
6 air which resulted in potential exposures.

7 **MEMBER BARRIAULT:** And the air is being
8 filtered, I would assume, really, as it goes ---

9 **MS. McQUEEN:** That's correct.

10 **MEMBER BARRIAULT:** So, in reality, you've
11 got the first group which were protected until they took
12 off their supplied air entry suits, and when they removed
13 the suits then obviously they became contaminated also.

14 I guess at this point what you're dealing
15 with, at least from what I understand because the levels
16 are not excessively high, but I think you're just probably
17 dealing with some perceived radiation illness at this
18 point. And have you put anything in position to deal with
19 this perceived radiation illness?

20 **MR. SAUNDERS:** Yeah, I think a couple of
21 things I just wanted to clarify a bit on terms of the
22 containment itself before I answer your other question, if
23 that's okay.

24 Frank Saunders, for the record.

25 The containment area is actually, you know,

1 as the word might describe, self-contained with a self-
2 contained ventilation and that, so we have checked outside
3 and confirmed that the particulate was contained within
4 the vault area and did not get out into the general plant,
5 right, it wasn't spread out there.

6 So I think that's important for people to
7 understand, and the reason that we know who was
8 potentially exposed and that is we do control access to
9 that area, so we know who went in and when and what they
10 were wearing and those sorts of things.

11 In terms of the health effects, I mean
12 nothing here is above the regulatory limits which are, in
13 fact, set to ensure --they're quite conservatively set,
14 actually -- to ensure that people do not suffer health
15 effects.

16 So without trying to, you know, get into a
17 detailed discussion about health effects and radiation,
18 you know, I think the simple answer is that we're well
19 below those limits where anybody would expect alpha
20 affects.

21 **MEMBER BARRIAULT:** But I guess what I'm
22 getting at, if I may add, it's more by good fortune than
23 by "good industrial hygiene management" at this point that
24 you don't have a serious problem in a sense of radiation
25 sickness?

1 **MR. SAWYER:** Norm Sawyer, for the record.

2 I think there's more than good fortune
3 here. Obviously, we can get better. We did have some
4 instrumentation that picked it up.

5 Could we have gotten going a little
6 quicker? Yes. But I think it's more than good fortune.
7 Not that I want to disagree with you, but that's a subtle
8 word that I probably would not use.

9 **MEMBER BARRIAULT:** I'll withdraw that, if I
10 may.

11 **MR. SAWYER:** No, no, wait a minute ---

12 **THE CHAIRMAN:** Wait a second -- I always
13 like to know what the doomsday scenario is.

14 So was there a possibility for doomsday
15 scenario in these circumstances? In other words, no
16 matter whatever it is and now with hindsight, could there
17 have been a huge dosage, for example, in there? That's
18 why I'm trying to figure out whether you think that you
19 were set up to control the doomsday scenario.

20 **MR. SAUNDERS:** I think it's important to
21 remember that we were monitoring continuously and when
22 you're monitoring at very low levels it's possible that
23 you don't see things as easily or as clearly. As those
24 levels increase to the kind of levels where they would
25 affect peoples' health, those things become much easier to

1 see.

2 So the monitoring would have picked up high
3 levels of these things. So it's not -- you shouldn't
4 extend simply from a low level and say that would happen
5 at high levels because that's not necessarily so.

6 **MEMBER BARRIAULT:** But were you monitoring
7 for alpha particles at this point or strictly for betas?

8 **MS. McQUEEN:** It's Maureen McQueen, for the
9 record.

10 I think it's important to note that the
11 event was detected because we had elevated beta levels.
12 That was how we actually then subsequently went on to
13 measure the alpha and to detect it. So we did detect the
14 event, the event itself, on beta.

15 I'm not saying that that's the fool in the
16 story, but that was how it was detected in the first
17 place.

18 **MEMBER BARRIAULT:** Thank you. If I may go
19 on to CNSC.

20 Before any work is being done, for example
21 on the vault, is there a required protocol that's in place
22 from an industrial hygiene point of view of what has to be
23 done? In other words, one, you analyze what's there, see
24 what the contaminants are. Move on from there to isolate
25 from those contaminants. Do you have such a protocol in

1 place?

2 **MR. LAFRENIÈRE:** Ken Lafrenière.

3 Yes, the protocol is in place and Bruce
4 Power did follow that protocol.

5 **MEMBER BARRIAULT:** It did or did not follow
6 the protocol?

7 **MR. LAFRENIÈRE:** They did follow protocol
8 and our staff independently verified that they did follow
9 protocol.

10 **MEMBER BARRIAULT:** Are you satisfied that
11 the protocol is adequate?

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

14 There are lessons to be learned and going
15 forward we're going to review the root cause analysis and
16 determine that those lessons are shared both within Bruce
17 Power and across the industry. They did follow the
18 protocol, as I mentioned, but I can characterize this as a
19 learning opportunity.

20 **THE CHAIRMAN:** So will the formal report be
21 produced sort of describing the lesson learned and the way
22 ahead, because refurbishment looks like it's going to be
23 an ongoing business? So when such a report is likely to
24 be produced?

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

1 record.

2 The answer is yes, there will be a formal
3 report with a corrective action plan and a formal review
4 of that. The report by regulation, reporting regulation,
5 is due 45 days after the preliminary report which was
6 submitted January 7th, so it's due sometime in late
7 February.

8 The staff will be reviewing that report to
9 determine adequacies and the follow-up of the corrective
10 actions.

11 **THE CHAIRMAN:** Thank you.

12 Dr. Barriault?

13 **MEMBER BARRIAULT:** That's all for this
14 round, Mr. President. Merci.

15 **THE CHAIRMAN:** Thank you.

16 Mr. Tolgyesi.

17 **MEMBER TOLGYESI:** Merci, monsieur le
18 président.

19 So if I understand well, the work consisted
20 in grinding of feeder tubes -- hand grinding.

21 **MR. SAWYER:** Norm sawyer, for the record.

22 If you remember, again, the slide where the
23 tool had the vacuum on it -- that was the grinding tool,
24 okay?

25 **MEMBER TOLGYESI:** Yes, so you were grinding

1 these feeder tubes.

2 **MR. SAWYER:** At the end.

3 **MEMBER TOLGYESI:** Yes. And they were
4 overhead, so the man or the worker was holding the
5 grinding and pushing back to the tube which was over his
6 head and he was grinding that and it was under negative
7 pressure -- the grinder.

8 **MR. SAUNDERS:** Yes, that is correct,
9 although the feeders can be in some slightly different
10 positions. Many of them are overhead, as you've seen
11 there, and depending on how you set up the platform the
12 individual's working on and so forth. We typically
13 wouldn't have him working with his hands extended above
14 his head because it's just an uncomfortable physical
15 position. So there would likely be a platform there that
16 would put that at approximately chest to waist level.

17 But this tool is designed so that the
18 Plexiglas tube fits over the grinding and then the cutter
19 is on the inside and there's a suction, you know, much
20 like your vacuum being pulled in there to make sure that
21 the dust actually gets contained.

22 In this case there was some small dust
23 which got out, and very small compared to what was
24 actually produced in the job, but some of it did get free.
25 And these are what we've referred to as engineered

1 controls, right, so we do -- this is, I guess, not that
2 unusual in the kind of work we do.

3 Any time we're creating dust, where there's
4 radioactive material potentially present, we provide some
5 means of gathering that material up, right, at source and
6 trying to prevent it to be spread around.

7 The same idea with the tent. What you want
8 to do is contain all this material to as small an area as
9 you possibly can, so you -- in this case we now have the
10 cutter with this and then another layer, which was the
11 tent, which was also ventilated to reduce the -- keep the
12 contamination into that one area essentially.

13 **MEMBER TOLGYESI:** So you said that there's
14 a grinder and there's a plastic cover which is making sure
15 that the suction is going. Now, does it mean that you
16 will revise probably this plastic cover to increase the
17 height because, depending on the height of this plastic,
18 when it's grinding the dust particles come out in spite of
19 negative pressure. Therefore, if the negative pressure
20 was large enough to suck all the air and all the particles
21 ---

22 **MR. SAUNDERS:** We will certainly make
23 changes to the arrangements, whether it will be in that
24 suction or in the tent or both. I'm not exactly sure yet.
25 When we go to resume that work we will look at all those

1 things.

2 And the other thing of course is we will
3 change our monitoring outside the tent to be very
4 sensitive to alpha so that we can detect it. No structure
5 you build will be perfect, so we rely on our monitoring
6 capability to prove that in fact we have contained the
7 material and so the most important thing, I think, going
8 forward is that the monitoring equipment outside this area
9 will now be much more sensitive to the alpha so that we
10 can see it.

11 **MR. SAWYER:** Norm Sawyer, for the record.

12 Just to add on, we have some groups of
13 people, teams -- a look-back team and a look-ahead team
14 and they're looking at different areas where we can
15 improve. Obviously the look-ahead team is looking at the
16 tooling, much as the look-back team is looking how the
17 tooling impacted on the event.

18 So those things are occurring right now.
19 Obviously we're still working on it but we are moving
20 forward in those areas.

21 **MEMBER TOLGYESI:** At the same time you were
22 grinding and it was under negative pressure of the tool,
23 there was also a kind of tent which was closed and it was
24 also under negative pressure.

25 **MR. SAUNDERS:** That's correct, all of which

1 is inside containment which itself is under negative
2 pressure.

3 **MEMBER TOLGYESI:** And in spite of that you
4 saw the accumulation of dust?

5 **MR. SAUNDERS:** Outside of ---

6 **MEMBER TOLGYESI:** Inside.

7 **MR. SAUNDERS:** --- the tent; that's
8 correct.

9 **MEMBER TOLGYESI:** Inside of the tent.

10 **MR. SAUNDERS:** Inside of containment but
11 outside of the tent. And in the tent you would expect to
12 see some dust because no negative pressure system when
13 you're using it -- you can imagine as you're grinding you
14 produce a fair amount of dust. No system you set up there
15 will capture absolutely everything. That's why we do the
16 particulate samples and so forth.

17 So we expect it to be higher in the tent
18 than outside the tent. However, even -- the levels are
19 higher but they're still -- they're much different than
20 they would be if you just used an open grinder and grinded
21 on this thing. So it's all a matter of degrees.

22 **MEMBER TOLGYESI:** On page 2 of your
23 presentation, that same work completed in Unit 2 in
24 September and October, which means same grinding and same
25 work. And did you experience a kind of dust --

1 accumulation of dust in this Unit Number 2?

2 **MS. McQUEEN:** It's Maureen McQueen, for the
3 record.

4 No, we did not experience the same kind of
5 dust. We did not experience the same kind of
6 contamination levels on Unit 2. That was why it was
7 anticipated that Unit 1 would be similar conditions.

8 **THE CHAIRMAN:** Sorry, again.

9 How do you explain that? I mean, grinding
10 is grinding, right? Mr. Saunders here told us that you
11 always expect to have some dust as a result. So how come
12 there's no dust in Unit 2?

13 **MS. McQUEEN:** The difference that we
14 understand is the way that the units were laid up.
15 Contamination comes from a layer of material that is
16 coated on the feeder tube. That was what was being
17 ground. In Unit 2 the layer appears to have adhered much
18 more to the surface of the feeder tube than in Unit 1.

19 The reason we believe for that is Unit 1
20 was laid up wet, which allowed that layer to somewhat
21 corrode and dissolve within the feeder pipes. Then when
22 the water was removed there was literally left more loose
23 radioactive contamination on the surface than in Unit 1,
24 which was laid up dry. Unit 2, I'm sorry, was laid up
25 dry.

1 **THE CHAIRMAN:** Mr. Tolgyesi?

2 **MEMBER TOLGYESI:** So this means probably
3 you will do the next time also wet grinding instead of ---

4 **MS. McQUEEN:** Yes, we are looking at many
5 options for how to deal with this situation because
6 clearly the engineered tool was not adequate.

7 Therefore, we are looking at how to do this
8 job differently.

9 We're actually looking at how to do many
10 jobs differently as a result of this event, but clearly
11 that one is going to be one of the most significant.

12 **MEMBER TOLGYESI:** You were saying that in
13 Unit 2 in September and October, you didn't experience the
14 dust.

15 Did you proceed with the same kind of
16 sampling and what were the results, alpha and beta, in
17 relation with that?

18 **MS. McQUEEN:** A routine monitoring program
19 would require beta sampling and that was done. That's
20 done continuously or it's done -- sorry, I shouldn't say
21 continuously -- it's done routinely and several times over
22 the course of a day, and that sampling in Unit 2 did not
23 identify any beta airborne activity, unlike in Unit 1.
24 When we went to Unit 1, we identified beta airborne
25 activity. We did not experience that in Unit 2.

1 **MEMBER TOLGYESI:** And my last question is
2 around this. You said that alpha is not an issue,
3 relatively speaking?

4 **MR. SAUNDERS:** I don't think we said alpha
5 is not an issue; all forms of radiation are an issue. We
6 said that the protections you take for alpha are exactly
7 the same protections you would take for beta.

8 In a normal operating environment, alpha is
9 much lower proportion than beta. So when you take the
10 protections against the beta, you're automatically
11 protecting yourself against the alpha. I mean, basically
12 it's in such low proportions that you wouldn't see it on
13 its own.

14 The difference here is, of course, that
15 ratio has changed over several years of shutdown and so
16 it's no longer certain that protecting against beta would
17 be sufficient for alpha, and that's the change we have to
18 accommodate.

19 **MEMBER TOLGYESI:** So could you explain to
20 us, maybe staff, what's the relation and effects of alpha
21 and beta?

22 **MS. THOMPSON:** Patsy Thompson, for the
23 record.

24 The ionizing radiation will come in
25 different forms, either gamma radiation, beta radiation or

1 alpha radiation.

2 In this case, the alpha radiation is more
3 effective in causing health effects and so when we assess
4 the health consequences of the different forms of ionizing
5 radiation, we have to take that into consideration.

6 But these differences are well understood
7 and when the dose is calculated in terms of millisievert,
8 it takes that information into consideration.

9 So when we see doses reported as a
10 millisievert, we can essentially compare all doses and add
11 them together to get a total dose, and it's the total dose
12 against which we assess for health effects.

13 **MEMBER TOLGYESI:** When you say I think the
14 protection against alpha radiation it's -- I don't say
15 it's less important but alpha effects are -- to some
16 extent, could you protect yourself against alpha and how?

17 **MS. THOMPSON:** Patsy Thompson.

18 I'll try to answer your question better.
19 Essentially, the alpha radiation is a type of radiation
20 that does not penetrate the skin layer and so to be
21 exposed to alpha radiation and have a likelihood of health
22 effects, it has to be taken into the body.

23 And so in this case when we're looking at
24 grinding scenarios and workers and dust particles in the
25 air, it's through the inhalation of dust particles, with

1 the alpha radiation -- or the alpha particles going into
2 the lungs and then, to some extent, dissolving into the
3 blood and making its way to organs and bone surfaces, for
4 example. And it's the alpha radiation within the body
5 that will cause health effects.

6 So to protect against alpha particles, you
7 have to minimize the amount of particles that are breathed
8 in, and that's why in the tented area workers are in suits
9 and respirators so that the air they breathe in is
10 controlled.

11 But in this situation, my understanding is
12 that there was dust outside the tent and with people not
13 wearing respiratory protection.

14 **THE CHAIRMAN:** So all those that were
15 wearing the suit and the respiratory equipment inside the
16 tent were not inhaling the dust. Any of those that still
17 could have inhaled it is on the way into the tent. Is
18 that the understanding?

19 **MR. SAUNDERS:** Yeah, that's correct.
20 Inside the tent, people wearing -- the workers doing the
21 grinding were wearing what we call air-supplied plastic
22 suits and so that air supply is coming from an air
23 compressor. Essentially, that's clean air that they are
24 breathing. So the people doing the work were not directly
25 exposed in that sense.

1 the number could be 192, it could be 195. What we're
2 saying, we could go higher because we just want to make
3 sure. We're taking a very conservative approach to this
4 and, in fact, if there's any doubt whatsoever, somebody
5 will be tested.

6 **THE CHAIRMAN:** So I'm trying to understand
7 in terms of the timing. If I understand correctly, you
8 went public, okay, with this story January 20th. That's
9 when it really became -- you put it on your website, let
10 me use that -- and the CNSC also put it on our website on
11 January 21st. Did I get this right?

12 So why, in the last two days, all of a
13 sudden the press got excited about all of this? What
14 happened between January and now? Is it the numbers? I'm
15 trying to understand whether there is something new that
16 occurred between January and the last couple of days.

17 **MR. SAUNDERS:** Frank Saunders, for the
18 record.

19 I guess I wish I really knew the answer to
20 that because I could probably get a job as a predictor of
21 these things, but the information was out there. People
22 did know it and, in fact, our employees knew it which,
23 keep in mind, are part of the public as well, long before
24 that.

25 So there was absolutely no desire or effort

1 to contain this on our part and, like you, I think the
2 first story I've seen was based on somebody reading the
3 ENR that you posted for the meeting, and then it seemed to
4 start from there.

5 Why it snowballed, I really couldn't answer
6 the question.

7 **THE CHAIRMAN:** So I guess they're reading -
8 - maybe it's because they are reading the CNSC
9 information. Staff?

10 **MR. JAMMAL:** Merci, monsieur le président.

11 A couple of things I would like point out,
12 Mr. President. It's Ramzi Jammal, for the record.

13 You are correct. January 20th, Bruce Power
14 posted the incident on their website. January 21st, CNSC
15 staff -- sorry, CNSC posted and linked to the Bruce
16 website, but I would like to highlight to the Commission
17 that on January 23rd, first media articles appeared in the
18 London Free Press and the Toronto Sun that addressed this
19 issue and made reference to the posting of the websites.

20 **THE CHAIRMAN:** Thank you.

21 Mr. Graham?

22 **MEMBER GRAHAM:** A couple of questions.

23 First of all, how many of these 192 to 195
24 are employees of Bruce Power? I guess how many were
25 contractors, how many were Bruce Power employees and how

1 many were CN -- not CNSC -- but AECL employees?

2 **MS. McQUEEN:** I can give you the exact
3 breakdown. We can get that for you but I would say
4 approximately a quarter were Bruce Power employees, but
5 most were contractors from various companies.

6 **MEMBER GRAHAM:** My next question then is
7 the results. Have they been posted as such, the results
8 with the most -- the worker with the most highest
9 concentration of contamination or out of the group that
10 you've already tested and got results, have those results
11 been made public? Without names; you can't give out names
12 with that, but have those been made public?

13 **MR. SAUNDERS:** We are still finalizing some
14 of them so that part is not -- we haven't released
15 anything that we don't finalize. We've released the
16 ranges publicly but we haven't sort of gone down to
17 saying, you know. this individual or that ---

18 **MEMBER GRAHAM:** No.

19 **MR. SAUNDERS:** Certainly, we've provided
20 them to CNSC and eventually we'll do the follow-up, S99
21 report, which will contain the same information again, as
22 you say, without names and reference to people's personal
23 information.

24 **MEMBER GRAHAM:** To CNSC staff; has any of
25 the results indicated a dose over the limits that would

1 raise alarm bells?

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

4 No, there are no doses -- projected doses
5 above the regulatory limits that would raise alarm bells.
6 We are talking about administrative limits, which indicate
7 an issue that the licensee has to control and so far they
8 are taking control measures.

9 For your previous question, Mr. Graham,
10 these dose information are all posted in the National Dose
11 Registry, and that's protected personal information.

12 **MEMBER GRAHAM:** Yes, I realize that.

13 **MR. LAFRENIÈRE:** Okay.

14 **MEMBER GRAHAM:** You can't give a name and
15 this, but have the workers been informed yet of the
16 results?

17 **MS. McQUEEN:** Maureen McQueen, for the
18 record.

19 As the results are finalized, which is
20 approximately one week after the result comes from the
21 laboratory, we do the calculations and come up with a dose
22 estimate. The worker is personally interviewed and given
23 his dose result. We have done approximately five to date,
24 I believe. They're an ongoing process. As we finalize
25 the results, we talk to the worker.

1 **MEMBER GRAHAM:** You're not finished all the
2 grinding of all the pipes, I don't believe, yet. Can you
3 be assured or can we be assured that a certain pipe
4 number, whatever it is, may contain more alpha particles
5 than the ones next to it and so on, that we could -- that
6 there could be a major exposure now after the fact rather
7 than -- even though you are looking at that. Can some of
8 those pipes contain more alpha particles than others?

9 **MR. SAUNDERS:** Yeah, I think. I mean one
10 lesson learned here is that some of this will be
11 unpredictable. The best thing we can do for that is we
12 protect people first-off for what we believe is going to
13 be the worst situation they'll be in. So that's the kind
14 of protection we assign.

15 The second thing is to have much faster
16 turnaround on our samples so that we can in fact confirm
17 that the protections we took are adequate. So one of the
18 major changes we're making here, as you've seen in our
19 last slide, that showed you a personal monitor that you
20 would check on, leaving the exit, but we have also air
21 particulate monitors and hand-held monitors and other
22 things, so that we can actually take these samples and
23 turn a sample around within a day or so. So we actually
24 can verify that the assumptions we have made are correct
25 and that people are properly protected.

1 first I will say briefly there is no need for a regulatory
2 document. Definitely, there will be a need for the review
3 of radiation protection revision, as in respect to what
4 the licensee submits to us based on the work. Because to
5 date the pathway protection that is protecting for the
6 beta is very much adequate for alpha and, as we mentioned,
7 with respect to the air sampling, the delay that Bruce has
8 taken to identify there has been alpha contamination based
9 on beta spikes during the air sampling, that will be
10 looked at very closely.

11 And we immediately have -- we did start to
12 review our radiation protection revision in order to
13 ensure that the licensees are protecting and making
14 adequate measures for the protection and our enforcement
15 activity. Let it be that the desktop revision with
16 respect to programs in place and compliance on site, we'll
17 be looking at this immediately.

18 **MR. LAFRENIÈRE:** Ken Lafrenière.

19 I would like to also add that, based upon
20 the OPEX -- the Lepreau event, Bruce Power were indeed
21 beefing up for alpha dosimetry prior to this event
22 occurring. So they were putting in place measures
23 already. Unfortunately, this event occurred and caught
24 them a bit by surprise.

25 **MEMBER GRAHAM:** Thank you. My only other

1 question is to Bruce Power. How far along were you in
2 doing the work on Unit -- this is on Unit 1 -- how far
3 along were you on Unit 1 when this occurred and has all
4 work stopped in that immediate area at the present time?

5 **MR. SAUNDERS:** Work has stopped on any open
6 heat transport type of work where these kinds of
7 conditions might be -- they might be exposed. In fact,
8 all work stopped for a period of time until we went in and
9 actually cleaned the vault area, swiped it, tested it and
10 made sure that we had cleaned out any particulate that
11 might be present.

12 We have now, you know, in conjunction with
13 discussions with CNSC staff, restarted other work. We are
14 still preparing our radiation protection procedure changes
15 to support the return to work on the open heat transport
16 system type of work such as this grinding. And
17 unfortunately, I don't remember the schedule off the top
18 of my head in terms of this grinding work, but we were
19 reasonably close to the end within a week or two of
20 finishing this work.

21 So the grinding has not got a lot of time
22 left on it, but there is other work that needs to go on on
23 the open heat transport system. So before we resume any
24 of that work we will change our procedures and have all
25 this equipment in place so that we can do that quick

1 turnaround on the samples.

2 **THE CHAIRMAN:** Okay. Any other question?
3 Dr. McDill.

4 **MEMBER McDILL:** Thank you. If you were
5 well into the work, why these feeders? What's special
6 about these particular ones that you would have more of
7 this particulate here? Are they lower, are they placed
8 where gravity would have them pooling or completely -- and
9 maybe another part of the question would be, will this be
10 part of the eventual S99 report that comes in?

11 **MR. SAUNDERS:** Yes, our summation of the
12 causes will be part of the final S99 report. That ties it
13 all together.

14 The only thing in particular about these
15 feeders is they're all on Unit 1, right, so it's not an
16 elevation issue or an orientation issue or any of those
17 sorts of things. Typically, I think probably where that -
18 -- we do what we call conditioning on the inside of the
19 heat transport system when we first commission these
20 plants. It provides a protective layer inside of the
21 carbon steel piping that forms most of the heat transport
22 system. And it's our belief, and we are still waiting for
23 engineering and chemical analysis to confirm that this is
24 true, that that layer where most of these particles would
25 normally be adhered, you know, inside a pipe much like

1 your pipe at home, you'll see the corrosion layer sits on
2 the inside -- during the wet lay-up that that layer
3 deteriorated. Instead of being stuck to the pipe, it was
4 really sitting in there as a kind of a loose particulate.

5 So it really wasn't that they were
6 particularly different. It's just that now that stuff was
7 available to be stirred up by the grinding activity and so
8 more of it was released.

9 And like I say, I want to be a little bit
10 careful and say that we still have people with that kind
11 of knowledge looking at this and understanding whether
12 that was in fact the case, but that's what we understand
13 the case to be.

14 **MEMBER McDILL:** But how many feeders had
15 you -- at this point, how many feeders had you ground and
16 not had this problem, that you're aware of?

17 **MR. SAUNDERS:** Well, there's 480 feeders by
18 2 on Unit 2, so there's -- what's the math there, 960? I
19 don't know off the top of my head the count on Unit 1, I'd
20 have to go check that for you, but we were most of the way
21 through the job so it's the biggest percentage of them.

22 **MEMBER McDILL:** Right, so something is
23 different in this last group or do you think that this has
24 been going on through all as a grinding?

25 **MR. SAUNDERS:** We believe in Unit 1 that

1 this was probably going on through all of them, although
2 we haven't actually tried to verify whether there's a
3 difference between one feeder and another. The
4 investigation team will be looking at that sort of thing.

5 **MEMBER McDILL:** And when did the grinding
6 start, roughly, on what?

7 **MR. SAUNDERS:** On the 24th of November.

8 **MEMBER McDILL:** It was pretty quick then,
9 November 24th to November 28th. We're not talking a large
10 number of days here.

11 **MS. McQUEEN:** First indication was November
12 26th.

13 **MEMBER McDILL:** Two days?

14 **MS. McQUEEN:** That's correct.

15 **MEMBER McDILL:** Thank you.

16 **MR. SAUNDERS:** Just to clarify that.

17 Again, our normal routine for our sample processing has us
18 do those samples.

19 On the 26th, we saw an indication of beta;
20 we went to check it. Two days later we saw another
21 indication out of several samples. That's when we stopped
22 the work and erected the tent, so that was the key for us
23 that we should close off this area just in case the
24 particulates were there.

25 So those two samples were the - and, again,

1 that's the way our program works. You set up the
2 conditions you think are going to work, you measure in the
3 field, you see something that you don't expect, you go
4 look at it. If there's any concern you do something, some
5 kind of an engineered control and the tent is that
6 engineered control.

7 **MEMBER MCDILL:** Does staff want to comment
8 on the -- so we have both ---

9 **MR. JAMMAL:** Ramzi Jammal, for the record.
10 The work started November 24th. On
11 November 26th, the routine sampling had shown increased
12 beta. This is the information we received from the
13 licensee. On November 27th the samples identified no
14 abnormal beta levels and on November 28th they saw the
15 spikes again.

16 **MEMBER MCDILL:** Thank you, Mr. Chair.

17 **THE CHAIRMAN:** Mr. Tolgyesi?

18 **MEMBER TOLGYESI:** Merci, monsieur
19 président.

20 You were saying that those only who were
21 grinding were in the tent, okay. There were several
22 people simultaneously who were grinding or it was one?

23 **MR. SAUNDERS:** There would be more than one
24 person grinding because this is a -- you know, the face
25 across the reactor is about 30 feet, so it's a work group

1 of people that are in there doing this work, not just an
2 individual, and these people were, as we said, always in
3 air-supplied plastic suits -- the people directly involved
4 in the work.

5 Initially, when we started the work we
6 believed that the engineering controls -- you know, the
7 vacuum on the tool that we showed you -- would actually
8 contain the particulate and we didn't need a tented area.

9 When we got some indication that that
10 wasn't true, we then partitioned off this area and put
11 some ventilation controls on it so that the rest of the
12 area wouldn't be exposed. You know, so that was the
13 progression of how it worked.

14 **MEMBER TOLGYESI:** That means you were
15 saying that the tent as such, it was a kind of big tent?

16 **MR. SAUNDERS:** I don't know if we can bring
17 it up for you but -- can we bring up that second slide
18 again? Third slide, there you go.

19 So if you look at this slide you see the
20 white behind the individual? That's what we're referring
21 to as a tent. A tent is kind of a terminology we use to
22 say that we've partitioned it off, and typically they're
23 soft walls like canvas or plastic with ventilation on the
24 inside which is why we call it a tent, because it's not a
25 hard wall.

1 So you can see it's not that big an area
2 but, of course, across the face of the reactor is about 30
3 feet, so I'm guessing that's 30 feet by about 10 feet,
4 that tented area, and roughly 20 or 30 feet high.

5 **MEMBER TOLGYESI:** And how far outside this
6 dust was found, you know, in the distance?

7 **MS. McQUEEN:** Maureen McQueen, for the
8 record.

9 Just to clarify, it's not physical visible
10 dust. When we use the term "dust" we mean airborne
11 radioactivity that we can only see when we actually check
12 it -- so just to be clear.

13 But the airborne radioactivity was detected
14 all through the vault. It went to the edges of the
15 containment building.

16 **MEMBER TOLGYESI:** That means the
17 effectiveness of this negative pressure in the tent should
18 be revised and probably redesigned?

19 **MS. McQUEEN:** Yes. The thing that will be
20 redesigned is the way that we engineer the job. So we'll
21 be looking at, for example, removing the source material
22 prior, trying to do the job wet, trying to re-engineer the
23 tooling, looking at whether indeed we need to do this
24 particular task. There's a lot of issues associated with
25 containing the material at the source before looking at

1 just the ventilation and so on, but we would include all
2 of those controls.

3 **MEMBER TOLGYESI:** According to this slide,
4 there's not a big room as such. You were showing us Slide
5 Number 8. This is new alpha-sensitive monitoring
6 equipment. What is this equipment supposed to do, monitor
7 samples or you bring a sample in and you test it in, or
8 what?

9 **MS. McQUEEN:** No. This monitoring
10 equipment is actually for personal contamination, so this
11 is on exit from vault and individuals can monitor their
12 bodies for the presence of surface alpha contamination,
13 and we did not have indication that anybody would have had
14 alpha surface contamination, but it's an additional
15 measure to reassure us that there is not.

16 **MEMBER TOLGYESI:** So what kind of ---

17 **MR. SAUNDERS:** Can I just point out that
18 this is just an example of a piece of equipment. What we
19 have in addition to this is we basically have devices that
20 suck air through a filter and we take that filter away and
21 count it, and that's typically how we do -- how we measure
22 what's in the air. And the important thing there is both
23 to have a filter medium that will effectively trap the
24 particulate size that has the alpha associated with it and
25 that your counting device will be able to alpha.

1 So there's that, and then we've increased
2 the number of hand-held devices that can detect the alpha
3 directly.

4 So that picture was just meant to be
5 illustrative of one of the types of equipment that is
6 being installed.

7 **MEMBER TOLGYESI:** Because I find it will be
8 a little difficult to move around, to measure the alpha
9 (inaudible).

10 Okay, thank you.

11 **THE CHAIRMAN:** I'm conscious of the time,
12 so a quick question, please.

13 **MEMBER HARVEY:** Just a quick question --
14 small answer. The questions are always quick, the answers
15 are longer.

16 If my understanding is correct, you sent
17 the sample on the 28th of November but you didn't stop to
18 work and you continued to work -- continued until the 21st
19 of December. I'm correct?

20 **MS. McQUEEN:** It's Maureen McQueen.

21 The sample after the 28th resulted in
22 containment then of the work. So we took additional
23 measures on the 28th actually to contain the work area
24 further. Then on the 10th, when we had indication of
25 alpha, we took additional further measures to start

1 monitoring alpha within the tent.

2 The sample was sent off at that time for
3 analysis and that sample that first came back from
4 analysis was the one from the 28th.

5 So it wasn't that we just continued on.
6 There was a series of progressive measures. With
7 hindsight, those progressive measures were not enough but
8 we did not have that understanding at the time.

9 **MEMBER HARVEY:** But the work inside hasn't
10 been stopped until the 21st of December?

11 **MS. McQUEEN:** It was stopped on the 21st,
12 that's correct. Other than briefly on the 28th, it was
13 stopped in order to build the tent.

14 **MEMBER GRAHAM:** There was no tent?

15 **MEMBER HARVEY:** There was a tent, yeah.

16 **MEMBER GRAHAM:** Pardon me, was there a tent
17 before the 28th?

18 **MS. McQUEEN:** No, there was not.

19 **MEMBER GRAHAM:** I didn't think so.

20 **MS. McQUEEN:** The tent was put in on the
21 28th. The work was started initially without a tent.

22 **MEMBER GRAHAM:** Without a tent. Then you
23 built a tent?

24 **MS. McQUEEN:** That's correct.

25 **MEMBER GRAHAM:** And they worked within the

1 tent until the -- but the heavy exposure of those people
2 that you're testing right now was exposure prior to using
3 the tent?

4 **MS. McQUEEN:** That was what we initially
5 understood, was most of the exposure would have been from
6 the period of the 24th to the 28th of November. When
7 actually we -- and there were a group of workers in there
8 who were in our highest-dose group. However, as we
9 continued to look at the vault entries, because it was
10 such a long period from the 29th of November to the 21st of
11 December, there were some higher doses also in that group.

12 It was our postulation at first that the
13 doses would be in that 24th to 28th, but that wasn't
14 strictly correct.

15 **MEMBER HARVEY:** Were the employees in Point
16 Lepreau working with the tent or not?

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

19 Tenting of potential contaminated areas is
20 a normal routine radioactive practice in any nuclear
21 facility, so this not unusual. I don't have specific
22 details of the work that was carried on at Lepreau.

23 **MEMBER HARVEY:** Okay, just one last
24 question.

25 What is the employees' perception of the

1 event?

2 **MR. SAUNDERS:** I think it would be fair to
3 say that, as with anybody else when you tell them, you may
4 have got an uptake but we can't tell you exactly how much
5 yet, to say that they were concerned would be appropriate
6 and, of course, we were concerned too because that's not
7 the way we like to treat out employees. We like to be
8 very quick and very direct on what we have.

9 So we spent a fair amount of time
10 explaining and giving them information and, as we've said,
11 we will sit down with them individually as those results
12 come back, which we would have done anyway, but we'll make
13 sure we sit down individually, explain the level of dose,
14 what it was, and how it was calculated and assigned.

15 One other thing we're doing just to provide
16 some level of comfort there, we are seeking some
17 independent review of the way that we've actually
18 calculated and assigned the dose, so that employees can
19 feel comfortable that indeed that was done properly.

20 So we haven't got that quite arranged yet
21 but, in fact, we have meetings on Friday to organize that.
22 So after we're done, we'll have an independent assessment
23 to say yes. And that's aimed at making sure that we've
24 done it right and that employees can feel some level of --
25 which is, you know, very important to us as an employer

1 know, we've just started to get these samples back and
2 there's a few days of calculation and validation we need
3 to go through, so as soon as that's finished we will
4 actually start to publish the information.

5 **THE CHAIRMAN:** Dr. Barriault?

6 **MEMBER BARRIAULT:** Just -- merci, monsieur
7 le président -- just a brief comment, I guess.

8 I'm certainly happy that you're dealing
9 with what I call the "perceived radiation injury" because
10 it's more anxiety and fear of the unknown than anything
11 else, and it's very important to deal with that right up
12 front before, you know, it gets out of hand and it can
13 lead to some physical problems.

14 So I think that's wonderful that you're
15 doing that, but the second issue that I'm a little nervous
16 about, of course, is the issue of medical confidentiality,
17 and I certainly wouldn't want to see published names with
18 results on any website, you know. In generality, you
19 certainly can publish that but not individually I think is
20 what I'm saying.

21 That's all, Mr. President, thank you.

22 **MR. SAWYER:** Norm Sawyer, for the record.

23 This is a very -- as I mentioned in my
24 presentation, this has been a significant challenge for
25 us. The samples take a long time to get; we're trying to

1 communicate with people; emotions are involved. So going
2 through all this -- and you're quite right, we do not want
3 to publish names. That is not our goal and we will not do
4 that.

5 So, therefore, it's been a challenge from a
6 communication point of view. It's certainly been a
7 challenge and, as you mentioned, Dr. Binder, public
8 disclosure sometimes is difficult. It is difficult in
9 this case but, rest assured, Bruce Power is doing
10 everything in its power to make sure that we get these
11 doses out as quickly as possible and we're ensuring that
12 people are well protected.

13 **THE CHAIRMAN:** Well, I guess my view is I
14 didn't suggest that we publish -- that you publish the
15 names. I suggested just the general results and to put
16 some confidence that we haven't come across something, you
17 know, really health significant at this particular time.

18 **MS. McQUEEN:** We have communicated as the
19 results were coming in and we were continuing the roll out
20 sessions. We were giving indications as to the magnitude
21 of the dose so that was, that was ---

22 **THE CHAIRMAN:** I know, but I think we owe
23 it to -- I mean, everybody now knows this -- an event
24 here, and in fact that's my kind of my last observation --
25 with hindsight. Right now.

1 And given that we've taken a public
2 commitment for proactive disclosure of events, thinking
3 back to November 24th to now, is there anything that you
4 would have done differently in public disclosure?

5 Let me start with Bruce Power and then
6 staff.

7 **MR. SAWYER:** Norm Sawyer, for the record.
8 We believe we've notified people
9 appropriately in an appropriate timeframe based on what
10 the situation that we have in hand. Would we change
11 anything? We'd have to go back and think about it, but I
12 believe that we are disclosing publicly as we all agreed
13 we would do.

14 It was put on our website. As you
15 mentioned, what happened in the last two weeks -- Frank,
16 if we could read a crystal ball or understand what it was,
17 it would be interesting to get that answer. We don't
18 know.

19 **THE CHAIRMAN:** Staff?

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

21 A couple of points I would like to make.
22 As part of the proactive disclosure, we were having
23 communication with Bruce and they confirmed to us that on
24 January 5th they did post on the intranet to all employees
25 the result of the potential contamination.

1 What we could have done differently on the
2 date of the S99 should have been posted on January 7th,
3 but again we're talking about a ten-day period. You ask
4 about lessons learned; that will be quicker turnaround.

5 With respect to proactive disclosure, we'll
6 have to be very careful on balancing the alertness versus
7 the accuracy of the data, and that will be the challenge
8 to do so, but we'll be facing the fact that, yes, we will
9 be transparent. We'll be as transparent as we can. We'll
10 be with proper information to the public and to everyone
11 else.

12 **THE CHAIRMAN:** Thank you.

13 Unless there's any kind of a question, I'd
14 like to thank everybody. We're looking forward to reading
15 the lesson learned report which presumably will be
16 available somewhere; I hear February-March.

17 So thank you for the information and I
18 think we're going to take now a 10-minute break and
19 reconvene at 5 to 11.

20 Thank you.

21
22 --- Upon recessing at 10:43 a.m./

23 L'audience est suspendue à 10h43.

24 --- Upon resuming at 10:59 a.m./

25 L'audience est reprise à 10h59.

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THE CHAIRMAN: We're back. The audience is gone, but we're back.

**4.1.2 Bruce Power:
Bruce A Unit 4 Unanticipated
SDS2 Trip**

Okay, the second early notification report is pertaining to an unanticipated shutdown system Number 2 at Bruce A, Unit 4. And I understand that Mr. Lafrenière, you have some -- you want an additional comment to our tabled ENR?

MR. LAFRENIÈRE: Ken Lafrenière, for the record.

We have no additional information to add, except that it's a routine operational event and the safety systems acted as per design. The operating crew took appropriate actions and we're following up on the event.

THE CHAIRMAN: Bruce Power?

MR. SAUNDERS: Yes, these are what we call safety system tests and literally we do hundreds of these every month. The way these systems are designed is with

1 either three or four channels, in this particular case,
2 three channels.

3 When we're going to do a test, we take the
4 channel that we're going to test and we put it into the
5 safe mode, which basically means we fail it closed as if
6 it had received a trip sense.

7 So now we have two channels that are
8 monitoring the reactor and if either one of those channels
9 should trip, we've got part of the trip already completed
10 because we're testing it and that occurs. That's the safe
11 thing to do and that's a normal protocol in industry.
12 It's the way it works.

13 Occasionally when you're doing that you'll
14 get some noise or something on another channel, it will
15 make the connection and you will in fact complete a trip
16 rather than just doing the test that you had set out to
17 do.

18 There was no actual physical change in the
19 reactor that caused the second channel to change. It was,
20 you know, a trip. Engineering is investigating this to
21 try and understand where the noise came from because it's
22 of course in our interest to eliminate that noise in the
23 future. So that work is underway.

24 But all systems behaved exactly as we
25 expected them to when the trip occurred. The reactor came

1 down as it should. The systems did what they should do.

2 **THE CHAIRMAN:** Thank you. Questions?

3 Dr. Barriault.

4 **MEMBER BARRIAULT:** Just one brief question.

5 I think what I'm reading is that for whatever reason this
6 was an extremely sensitive sensor that tripped this
7 reactor.

8 **MR. SAUNDERS:** Yes, and this particular
9 test was on pressurizer level and the pressurizer is a
10 tank essentially that maintains a pressure in our primary
11 heat transport system. And it is one of those conditions
12 which, if it goes out of spec, would cause the reactor to
13 shut down because it would indicate some kind of problem
14 with the heat transport system.

15 And to make these things reliable, we
16 actually have three measuring devices on this thing which
17 we refer to as three channels, so three measuring devices
18 and three separate channels which come in to the reactor.

19 In a normal operation, two of these -- two
20 out of the three tripping would actually trip the reactor.
21 One out of three would not. And that also allows us to
22 test the channels, right, to make sure that those
23 detectors are in fact doing the job they're supposed to.

24 In order to do the test we take one of
25 those channels and one we're testing. We actually fail it

1 in the safe mode so we put it in a position that it would
2 be in if it received a signal that was inappropriate.
3 We've still got two channels working so the reactor is
4 still fine. And then I test to see that that actual
5 temperature probe or switch or whatever I'm testing
6 actually is functioning the way it should. Once I've done
7 my test, I put that channel back in service.

8 However, when you got that one channel out,
9 you're now in a situation where anything on the other two
10 channels will in fact complete the two out of three,
11 right? And that's what happened in this case. There was
12 a bit of noise on one channel; it reacted to the noise and
13 closed the trip circuit. We already had one out for
14 testing so two out of three is made and the reactor trips
15 as you would expect it to.

16 So the question here is what was the noise
17 on the other channel? We didn't expect it. There was no
18 actual change in pressurizer level or pressure that would
19 have caused that to happen in real life so it was some
20 kind of a signal noise. And of course since we really
21 don't like to take the reactors off power if we can help
22 it, we have lots of engineering people looking at where
23 that noise came from and why it happened.

24 **MEMBER BARRIAULT:** So what I'm hearing
25 really is it's a failsafe system; if you click off all of

1 the sensors, the system shuts down.

2 **MR. SAUNDERS:** That's right. We refer to
3 that as putting the channel in the safe mode and what that
4 basically means is we act like the trip is already there
5 so we close the circuit which eliminates -- and now you
6 have only one channel that's required to actually trip
7 you. It's a safe approach.

8 **MEMBER BARRIAULT:** Thank you.

9 **THE CHAIRMAN:** Just so I understand -- but
10 the channel is supposed to be independent of each other?

11 **MR. SAUNDERS:** Yes. Each channel is
12 independent. There's three channels. With some systems,
13 there's four channels but in this particular system
14 there's three channels. In normal operation any two of
15 those coming in will actually complete the trip circuit
16 and shut the reactor down.

17 So it's called a two out of three system.
18 The extra channel, the third one, is there so that you can
19 do this testing, in fact. They're all independent
20 channels. They have independent detectors, independent
21 wiring, independent reactions back at the trip circuit.
22 So they are totally independent.

23 **THE CHAIRMAN:** Thank you. Questions?

24 **MR. LAFRENIÈRE:** Ken Lafrenière. I just
25 want to point out this is one of two special shutdown

1 systems so we're dealing with one of the two. Both are
2 channelized systems; three channels per system. So these
3 tests are done. They're routine tests. Several thousand
4 tests are done per year.

5 There's nothing abnormal unless they take a
6 channel out of service to do a test to confirm its
7 operability. And unfortunately, during the period that it
8 was out service, they received a spurious signal.

9 **THE CHAIRMAN:** The unusual thing here is by
10 doing that it triggered a trip somewhere else that it's
11 not supposed to do.

12 **MR. LAFRENIÈRE:** Correct. Those shut down
13 systems monitor several dozen parameters. Another
14 parameter somewhere else came in on another channel and it
15 completed the trip.

16 **THE CHAIRMAN:** Mr. Harvey?

17 **MEMBER HARVEY:** Merci, Monsieur le
18 président.

19 When such event happen -- how long, when
20 you encounter such a shut down on the reactor, do you have
21 to advise the staff? And I see that in that case the
22 reactor wasn't started right away. You take the
23 opportunity to do something else, but normally what are
24 the procedures to restart the reactor?

25 **MR. SAUNDERS:** Any action of a special

1 safety system whether in anger or out of a situation like
2 this unusual requires us to report it to CNSC staff and as
3 you would expect because it's a safety system and
4 operated, so we did that report.

5 In many cases, you know, we may have some
6 maintenance pending on some cases and we are always
7 prepared -- what we call forced outage plans. So in some
8 cases if we have an outage like this it will take us
9 approximately three days to restart anyway because of the
10 build-up of xenon in the core. So sometimes we will take
11 advantage of that to do some maintenance while we're there
12 and then start back up.

13 But, at any rate, at Bruce A it would have
14 taken us roughly three days to restart the reactor anyway.

15 **MEMBER HARVEY:** And do you need the
16 authorization of the staff to restart the reactor or just
17 advise the staff and that's all?

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

20 No, they report as per the reporting
21 requirements of S-99 which is basically any transient from
22 power and this is what we consider a transient; a trip of
23 a shutdown system.

24 To restart, they need our authority after
25 what's called a serious process failure which -- if there

1 is an indication that you required the shutdown systems to
2 react. This is not the same event. There is no serious
3 process failure.

4 **MEMBER HARVEY:** Merci.

5 **THE CHAIRMAN:** Do you disclose at again
6 publicly that a shutdown has occurred? Just curious.

7 **MR. SAUNDERS:** Yes. Our policy is to post
8 all of the S99 reports on our website and it is actually
9 normal for us. We talked earlier about the Impact
10 Advisory Committee and those things. We have routine
11 meetings with these committees and when we have those
12 meetings we discuss with them all events that have
13 occurred between our last meeting and this one so they're
14 always advised of what's -- actually even beyond that,
15 anything that might be of interest to them on site, we
16 actually talk about.

17 But specifically we talk about events like
18 this and tell people what happened and why and how.

19 **THE CHAIRMAN:** Those advisory committees
20 can occur three months later. I'm just trying to relate
21 event to public notification.

22 **MR. SAUNDERS:** Yes, we do file the S99 on
23 our website. As you've seen this morning, there is a bit
24 of a delay in terms of just going through the effort of
25 adding it to the web and getting it up, but it's not a

1 significant delay.

2 **THE CHAIRMAN:** Right.

3 **MR. LAFRENIÈRE:** Ken Lafrenière. Sorry,
4 Mr. President. This is an event where they lose
5 essentially 750 megawatts of generation. It becomes
6 immediately known publicly. There's no -- the Ontario
7 Power Authority would be aware of this instantaneously and
8 they would take appropriate measures.

9 **THE CHAIRMAN:** Thank you. Questions?

10 Okay, thank you very much. Oh, one last
11 thing. So when is the -- you're doing the root cause.
12 When do you normally file the root cause report?

13 **MR. LAFRENIÈRE:** As per regulation again,
14 the root cause analysis is due 45 days after the initial
15 report. We'll get that and review it as per our normal
16 procedures.

17 **THE CHAIRMAN:** Thank you. Thank you very
18 much.

19 Are there any other Early Notification?

20 Mr. Graham?

21 **MEMBER GRAHAM:** Maybe before Mr. Saunders
22 leaves -- not on this, but I just had a question on Status
23 Report on Power Reactors, just a clarification. So when
24 you get to that next item.

25 **THE CHAIRMAN:** We are in fact on that item.

1 So we are -- the item is described at CMD 10-M15 and Mr.
2 Lafrenière you are going to take us through this, this
3 update.

4
5 **4.2 - 10-M15**

6 **Status Report on Power Reactors**

7
8 **MR. LAFRENIÈRE:** Thank you, Mr. President.
9 Ken Lafrenière, for the record.

10 The CMD was filed as of February 10th.
11 There is one small change to the information you have in
12 front of you. Under 1.3 at the Darlington Nuclear Power
13 Station, Unit 1 is currently returning to power after a
14 small outage they took over the weekend to repair a little
15 problem they had in their stater cooling system.

16 **THE CHAIRMAN:** Open for questions.

17 **MEMBER GRAHAM:** The question I had to Mr.
18 Saunders was Bruce B, Unit 8. You're only running at 90
19 percent due to a large loss coolant accident. Are you up
20 to full power yet or how long are you going to have to run
21 it at 90 percent, or 93 percent?

22 **MR. SAUNDERS:** Unit 8 is the last unit
23 we're going to the core reorders on.

24 So I'm afraid I don't have the date right
25 off the top of my head for you but we will actually, you

1 know, make petition to CNSC staff when we've completed the
2 fuel reorder to move that reactor to 93 percent.

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

5 I'll add to that each unit on Bruce B side
6 has gone through what's called a fuel reorder. In other
7 words, they're changing the orientation of the fuel.

8 Unit 8 is the last unit to do that. It's
9 quite a lengthy process and they should -- the last
10 information I had is that should be finished essentially
11 in a few months time.

12 **MEMBER BARNES:** So the reason it's not
13 running at full power is not because of the large loss of
14 coolant accident. Now, it's because of the refuelling?

15 **MR. LAFRENIÈRE:** That is correct.
16 Limitation is placed on it because the core has not been
17 reordered yet as per the other three units.

18 **MR. SAUNDERS:** Yeah, I think maybe I just
19 should clarify that. Yeah, there was no large loss of
20 coolant accident or anything of that sort. This is -- the
21 desire to make some of these changes is based on some
22 analysis work which happens to be related to a large loss
23 of coolant accident.

24 **THE CHAIRMAN:** Mr. Barriault?

25 **MEMBRE BARRIAULT:** Monsieur le président,

1 sur la question de Point Lepreau, l'installation des
2 "Calandria tubes", qu'est-ce qui est la raison pour le
3 délai?

4 **M. LAFRENIÈRE:** Pardon? Est-ce que vous
5 pouvez répéter la question? J'ai -- où est-ce qu'on est
6 rendu ou s'il y a un délai?

7 **MEMBRE BARRIAULT:** "Calandria tubes" de
8 Point Lepreau, y étaient supposés de les installer je m'en
9 souviens pas exactement, trois, quatre par jour.

10 **M. LAFRENIÈRE:** Oui.

11 **MEMBRE BARRIAULT:** Puis y sont rendus
12 qu'ils en installent, quoi, sept tubes -- cinq tubes dans
13 je sais pas combien longtemps. Qu'est-ce qui est la
14 raison pour le délai de l'installation?

15 **M. LAFRENIÈRE:** Bien y a pas de délai sur
16 l'installation. Couramment, ils sont rendus aujourd'hui -
17 - c'est une démarche qui se déroule présentement. Ils
18 sont rendus à 103 tubes calandres qui sont installés. De
19 ce 103, il y a environ une cinquantaine qui ne sont pas
20 complètement installés. Donc, la jointure n'est pas faite
21 encore.

22 **MEMBRE BARRIAULT:** O.k. C'est parce que
23 dans le rapport, ça disait 11 tubes sur le côté est et 5
24 tubes sur le côté ouest.

25 **M. LAFRENIÈRE:** Oui.

1 **MEMBRE BARRIAULT:** Alors, je me demandais
2 qu'est-ce qui se passait. Alors, c'est plus que ça.

3 **M. LAFRENIÈRE:** O.k. Merci, pour la
4 clarification.

5 Qu'est-ce qui arrive là c'est si vous
6 pouvez imaginer, y installent un tube. Chaque côté est et
7 ouest, y faut qu'ils justement mettent le joint pour que
8 ça soit étanche. Donc, c'est la différence entre les deux
9 chiffres.

10 **MEMBRE BARRIAULT:** Les deux chiffres, o.k.
11 Alors, ils sont rendus à 103 tubes à l'actualité?

12 **M. LAFRENIÈRE:** Justement, ils sont rendus
13 à 103 installés mais l'installation n'est pas complète sur
14 ces 103 parce qu'ils ont besoin de vérifier les jointures.

15 **MEMBRE BARRIAULT:** O.k. Merci.

16 **MEMBRE HARVEY:** Est-ce que le délai de 18
17 mois tient toujours ou si y a des modifications?

18 **M. LAFRENIÈRE:** Ken Lafrenière, pour
19 l'enregistrement.

20 Oui, justement, y a un délai effectivement
21 de 18 mois et ça tient toujours. On a mis je pense une
22 date préliminaire pour le redémarrage. C'est encore tôt
23 en 2011. Donc, toujours ---

24 **MEMBRE HARVEY:** Ça veut dire que les
25 audiences devant la Commission auraient lieu à l'automne

1 qui vient.

2 **M. LAFRENIÈRE:** Justement, ça c'est notre
3 planification en cours, oui.

4 **THE CHAIRMAN:** Anything else? Dr.
5 Barriault?

6 **MEMBRE BARRIAULT:** L'autre chose, le NRU
7 réacteur ne fait pas partie des données. Sais-tu où est-
8 ce qu'on est rendu au point de vue des réparations?

9 **M. LAFRENIÈRE:** J'ai pas les détails sur le
10 réacteur NRU, sauf que je peux dire dans le site web
11 public de AECL, ils publient où est-ce qu'ils sont avec
12 toute l'information à jour.

13 Donc, elle fait une mise à jour je pense à
14 la semaine qui donne un compte-rendu où ils sont rendus
15 avec les réparations.

16 **MEMBRE BARRIAULT:** Merci, monsieur le
17 président.

18 **LE PRÉSIDENT:** Merci beaucoup.

19 Thank you. No other question on this?

20 Okay.

21 Let's move on to item number 5 and I think
22 this is proposed regulations amending the packaging and
23 transport of nuclear substances regulations.

24 Okay. Welcome. I understand there is no
25 presentation but I am sure that you will introduce the

1 subject and say a few words about it.

2 Who is going to do that; is it Ms. Ecroyd?

3 **MS. ECROYD:** That's correct.

4 **THE CHAIRMAN:** Go ahead. The floor is
5 yours.

6

7 **5. Decision Items**

8 **Regulatory Documents**

9

10 **5.1 Proposed Regulations Amending**

11 **the Packaging and Transport of**

12 **Nuclear Substances Regulations**

13

14 **10-M16**

15 **Oral presentation by**

16 **CNSC staff**

17

18 **MS. ECROYD:** Thank you, Mr. President.

19 For the record, my name is Beverly Ecroyd.

20 I am the Director of the Regulatory Framework Division.

21 With me today are Sylvain Faille, Director of the

22 Transport Licensing ---

23 **THE CHAIRMAN:** We have trouble hearing you.

24 So please increase the volume or get closer to the mic, or

25 both.

1 **MS. ECROYD:** Okay. With me today are
2 Sylvain Faille, Director of Transport Licensing and
3 Strategic Support Division; Wayne Gratton, Senior
4 Regulatory Framework Officer in my group; and Karine
5 Glenn, Transport Specialist, Transport Licensing and
6 Strategic Support Division.

7 There is no presentation today. This is a
8 project that staff would like to proceed with. In large
9 part, the goal is to update the regulatory requirements
10 from the existing reference to a 1996 edition of an
11 international standard to its recently published 2009
12 edition.

13 We anticipate minimal impact to
14 stakeholders with these changes.

15 If approved, the next steps will include a
16 brief pre-consult with stakeholders and then drafting of
17 the amendments, working with Treasury Board and Department
18 of Justice staff. We anticipate being able to publish in
19 Gazette 1 for public consultation later this year.

20 These conclude my remarks and staff is
21 available to answer any questions.

22 **THE CHAIRMAN:** Okay. Let's jump into it.

23 Mr. Graham?

24 **MEMBER GRAHAM:** Thank you, Mr. Chair. I am
25 just going to observe that maybe Ms. Ecroyd had spent too

1 many -- too long in New Brunswick. She came in with a
2 glass in each hand. So ---

3 (LAUGHTER/RIRES)

4 **MEMBER GRAHAM:** Anyway, no, I have no
5 problem with going ahead with this and support the efforts
6 of the regulatory body.

7 The only question or only concern that I
8 have is, in reading the document, the first or the last
9 revisions were 1996 and they never got published until
10 2000, which is a four-year span.

11 And I don't think any of these should be
12 made work projects to last that length of time and I would
13 suggest that in 3.2, your steps of development, the
14 regulatory process that you started in 2009 on this and
15 it's going to be 2011 that we should really expedite to
16 make sure that we get this done in 2010.

17 And that's my feeling that they are not
18 major amendments and to streamline this so it doesn't
19 cause major paper trails of anything that the pre-
20 consultation, the collecting of feedback, the drafting and
21 so on that it be sped up.

22 The objective should be to eliminate the
23 year two thousand -- even though it is January, to
24 eliminate that out and get it done in 2010.

25 That's my only observation, Mr. Chair.

1 **THE CHAIRMAN:** Comments?

2 **MS. ECROYD:** Understood and thank you very
3 much. Staff is looking at ways of expediting the process.

4 **THE CHAIRMAN:** Go ahead.

5 **MR. FAILLE:** Thank you, Mr. President.

6 Just a comment on the comment for the
7 regulations themselves; they were published in 2009 but
8 the coming into force in general into the international
9 regulations, the international model regulations, is
10 scheduled for January 1st, 2011.

11 So that's where even though they were
12 published in 2009, they are not technically in application
13 until 2011, January 1st, 2011 on the international level.
14 So that's why we have the time to work also on that.

15 I recognize that we don't want to spend too
16 much time in reviewing the regulations.

17 **MEMBER GRAHAM:** I wouldn't wait for the
18 international one. I would be ahead of them and try and
19 have it in 2010 and I just want to reiterate what I said.
20 Even though they are not ready, we should be to set an
21 example.

22 **THE CHAIRMAN:** And just to echo this, and
23 there's nothing wrong with going for a further amendment
24 if you need to.

25 I mean we are now so worried about our

1 regulatory process, we are getting into paralysis by
2 analysis here.

3 Dr. Barriault?

4 **MEMBER BARRIAULT:** I just want to reiterate
5 -- that's exactly what I was going to comment on. The
6 sooner the better.

7 **THE CHAIRMAN:** Any other question?

8 **MEMBER HARVEY:** Short question.

9 In 4.4, about the cost, you say that you --
10 at the end of the paragraph, you say the issue of cost
11 would be further explored with stakeholders, as the
12 regulatory initiative is developed.

13 So you are confident that there won't be
14 any problem and the cost will be very little. Is that
15 right?

16 **MR. FAILLE:** From the preliminary
17 information we have based on the changes, it shouldn't
18 have a major impact on the licensee. There might be a
19 small impact, mostly on training requirements because you
20 have to be trained on the regulation, but that's the only
21 major one that we can foresee at the moment, it's
22 training.

23 **MEMBER HARVEY:** Nothing to stop the project
24 or comments from the stakeholders that would lengthen the
25 period?

1 **MR. FAILLE:** I believe that that might be a
2 little bit hard at this point because we haven't started
3 the consultation. We haven't drafted the regulations
4 themselves. We've looked at the changes in general,
5 looking at how the current regulations under the -- with
6 the new revised regulations or the IAEA, the TSR-1
7 Regulations. We also want to provide additional
8 modification to the regulations themselves for use within
9 Canada, but we don't foresee an impact on -- a cost impact
10 to the users.

11 But we'll have to see exactly when we are
12 commenting on some of those ones with the stakeholders to
13 confirm those assumptions.

14 **MEMBER HARVEY:** Thank you.

15 **THE CHAIRMAN:** Again, just so everybody
16 understands the process, we are talking -- in front of us
17 here is a policy, seeking a policy approval from us to
18 proceed to the next step. There will be consultation, a
19 quick consultation, and coming back for final approval as
20 regulation.

21 That's the process. We are masters of our
22 own destiny here, and I think we can do this with
23 lightning speed. I think that's the message that's coming
24 across here.

25 Anybody else has a question on this?

1 Let me ask you something about the
2 exemption of the next item. I just want to make sure I
3 understand the relationship between the next item and
4 this. How do they relate? Is the exemption going to be
5 something against here or what?

6 **MR. FAILLE:** Thank you for the
7 clarification.

8 That's part of the review items that we've
9 been looking at for the last couple of years. Now, as
10 proposed regulations, we want to include those exemptions
11 in the upcoming changed regulations, but we want to also
12 have current exemptions to bridge -- a kind of a gap
13 between now and when these new regulations are going to
14 come into force and they're also linked to change to other
15 regulations that were made back in 2008.

16 It was the -- looking at and trying to --
17 looking at what we want to exempt additional requirements
18 or additional items from the current regulations until
19 they are revised, and those exemptions are going to be
20 included in the revised regulations that ---

21 **THE CHAIRMAN:** I don't follow you.

22 Est-ce que quelqu'un pourrait expliquer?

23 **M. RÉGIMBALD:** Bonjour, ici André
24 Régimbald, for the record.

25 There is a link between the proposed

1 amendments to the regulations, which will be coming forth
2 to you in the next couple of months. There is a specific
3 item that we want -- and part of those amendments will
4 include the exemption that we are going to propose today.

5 But until the regulations are adopted, we
6 want to bridge the gap from now until then by proposing
7 the temporary exemptions that you will see in the next
8 presentation.

9 **THE CHAIRMAN:** And that exemption is going
10 to be fast-tracked?

11 **MR. RÉGIMBALD:** Yes.

12 **THE CHAIRMAN:** Because I understood they
13 are asking for a four-year exemption.

14 **MR. RÉGIMBALD:** Yes, the four year is a
15 proposed period. It will be "annulé" when the new
16 regulations come into force. That's going to give us ---

17 **THE CHAIRMAN:** We are now dealing with the
18 next item. I think we now put the two of them together I
19 think, but that's a point here because, André, you were
20 missing when Mr. Graham was making the point that we need
21 to do so faster.

22 So people are not comfortable in saying,
23 giving you four years to do something that we believe
24 should be done ASAP. So Mr. Graham?

25 **MEMBER GRAHAM:** The item before us, the one

1 that we've just dealt with is probably going to be tidied
2 up this year. These amendments are going to be
3 incorporated in that. You started in 2008, and I don't
4 know whether the request for four years starts in 2008 or
5 whether it starts now. I'm not sure about that four
6 years.

7 But what I guess is the message that I, as
8 a Commissioner, would like to see is that you don't have
9 four years. You have it all done in 2010, both the
10 exemptions and the other amendments.

11 So I'm not prepared as a Commissioner to go
12 with that last paragraph on page 3 that you would have a
13 period -- be granted a period of four years. If the clock
14 started in 2008, you need two years. If it starts right
15 now, you need one year. So that's what we'd like to have
16 clarified.

17 **THE CHAIRMAN:** Can I suggest that you
18 propose, you put a nice deck here for the next item; can I
19 propose parking that thought here for a moment and do the
20 next item, which is the deck. Take us through it and then
21 maybe we'll talk about the two items as a package. Okay?

22 Alors qui va parler? Qui va présenter?
23 André, vas-y.

24 **M. RÉGIMBALD:** Bonjour, monsieur le
25 président, membres de la commission.

1 Je m'appelle André Régimbald, pour fins du
2 registre. Je suis le directeur général de la direction de
3 la réglementation des substances nucléaires. Je suis en
4 compagnie de monsieur Sylvain Faille, directeur de la
5 Division des autorisations de transport et de madame
6 Karine Glenn, spécialiste en transport.

7 Le présent CMD a pour but de présenter deux
8 exemptions intérimaires au Règlement sur l'emballage et le
9 transport des substances nucléaires pour l'approbation des
10 membres de la Commission.

11 Je cède maintenant la parole à madame
12 Karine Glenn.

13
14 **5.2 Proposed exemptions to the**
15 ***Packaging and Transport of***
16 ***Nuclear Substances Regulations***

17
18 **09-M100**
19 **Oral presentation by**
20 **CNSC staff**

21
22 **MS. GLENN:** Merci, André.

23 Good morning, Mr. President, Members of the
24 Commission. For the record, my name is Karine Glenn. I'm
25 a transport specialist with the Transport Licensing and

1 Strategic Support Division.

2 This presentation will provide a brief
3 description of the proposed exemptions, the basis for the
4 exemptions, the proposed implementation strategy and staff
5 recommendation.

6 Two interim exemptions to the Packaging and
7 Transport of Nuclear Substances Regulations are being
8 proposed to address the transport of check sources and
9 radiation devices containing low activity sources. These
10 exemptions are presented in order to apply regulatory
11 consistency, specifically with the Nuclear Substances and
12 Radiation Device Regulations and are commensurate with the
13 level of risk associated with the nuclear substances for
14 which the exemptions are sought.

15 CNSC staff is also proposing amendments to
16 the Packaging and Transport of Nuclear Substance
17 Regulations, as discussed earlier by Ms. Ecroyd. These
18 amendments will include the exemptions proposed in this
19 CMD.

20 The proposed exemptions are to exempt the
21 following material from the PTNS Regulations. Check
22 sources, which are exempt from licensing requirements
23 under the Nuclear Substances and Radiation Devices
24 Regulations and radiation devices containing less than 10
25 times the exemption quantity of a nuclear substance, which

1 are exempt from licensing requirements under the Nuclear
2 Substance and Radiation Devices Regulations following
3 their sale to the end user.

4 The exemptions from licensing requirements
5 under the NSRD Regulations for the above check sources and
6 radiation devices allow the user to possess, transfer,
7 import, export, store, use or abandon them without a
8 licence from the CNSC.

9 Check sources are sealed sources containing
10 a very small quantity of nuclear substances that are
11 mainly used for verifying the functionality of radiation
12 survey equipment. The following slide will show some
13 pictures of some check sources.

14 The proposed exemption from the transport
15 regulations would apply only to check sources meeting the
16 requirements of the NSRD regulations, namely that the dose
17 rate from the check source does not exceed 1 microsievert
18 per hour at 10 centimetres from the check source and that
19 it has a design preventing a person from making direct
20 contact with the nuclear substance contained in the check
21 source under normal conditions of use, and of course only
22 would apply to check sources for which no licence is
23 required.

24 The proposed exemption would only be
25 applicable following the sale to the end user.

1 Manufacturers and distributors would not be exempted from
2 compliance with the transport regulations. The NSRD
3 regulations do not exempt manufacturers and initial
4 distributors from licensing requirements.

5 This slide shows sample check sources
6 commonly used to verify the functionality of radiation
7 measurement equipment. As you can see from the picture,
8 these sources are approximately the size of a \$2 coin.

9 Typical isotopes using check sources would
10 be Caesium-137, Barium-133, Cobalt-60, Americium-241, all
11 with activities below 370 kilo-becquerels.

12 Radiation devices considered under this
13 exemption contain a very small quantity of nuclear
14 substances, such as devices used at airport security
15 checkpoints to detect the presence of explosives and other
16 chemicals. The following slide will present an example of
17 a device that would be exempted under the current
18 proposal.

19 Under the NSRD regulations, these radiation
20 devices are exempted from licensing requirements.
21 However, their design must be certified by the CNSC for
22 safe use in Canada.

23 As with check sources, the proposed
24 exemption would only apply following the sale to the end
25 user. Manufacturers and distributors would not be

1 exempted from compliance with the transport requirements.

2 The NSRD regulations do not exempt
3 manufacturers and initial distributors of these radiation
4 devices from licensing requirements.

5 The radiation device shown on this slide is
6 an ion mobility spectrometer containing 600 mega-
7 becquerels of Nickel-63 which is six times the exemption
8 quantity. This device is a hand-held portable detector
9 used to identify trace residues of particles and vapours
10 emitted from explosives and narcotics. The overall
11 dimensions of this device are 216 millimetres by 483
12 millimetres or, if you prefer, eight and a half inches by
13 19 inches. Under the proposed exemption. this device
14 would be exempted from the PTNS regulations.

15 The quantity of radioactive nuclear
16 substance contained in check sources and the radiation
17 devices in question is very small and poses no danger to
18 the public or the environment.

19 To that effect, no licence is required for
20 the possession, transfer, importation, exportation,
21 storage, use or abandonment of these items. There's also
22 no danger during transport of these items.

23 The implementation of these proposed
24 exemptions would result in a lesser regulatory burden to
25 the user of these radiation devices or check sources by

1 simplifying the requirements for transport.

2 Compliance with the PTNS regulations for
3 manufacturers and distributors will still be required
4 since they may transport large quantities of these items
5 in a single shipment.

6 As part of the implementation strategy for
7 these proposed exemptions, a communication plan has been
8 developed. Communication to the licensee and the public
9 would be achieved by a posting on the CNSC website, a
10 mail-out to licensees and other stakeholders, and an
11 article in the Directorate of Nuclear Substances
12 Regulations Newsletter published on the CNSC website and
13 sent to all DNSR licensees.

14 In addition, staff will be developing a
15 fact sheet to be posted on the CNSC website dealing with
16 the exemptions to the packaging and transport of nuclear
17 substances regulations.

18 Internal communications would be achieved
19 by a posting on the CNSC internal website and a feature in
20 the Synergy Bulletin.

21 Staff recommends that the proposed
22 exemptions be granted for a period of four years to allow
23 sufficient time for the publications of the amended
24 packaging and transport or nuclear substances regulations.

25 Should the Commission grant the proposed

1 exemptions, implementation can be immediate since there is
2 no additional burden to the end users.

3 CNSC staff recommends that pursuant to
4 Section 7 of the NSCA, the Commission temporarily exempt
5 for a period of four years the following material from the
6 PTNS regulations: check sources as defined in Subsection
7 8.1 of the NSRD regulations, and radiation devices
8 containing less than 10 times the exemption quantity of a
9 nuclear substance following their sale to the end users.

10 Thank you.

11 **THE CHAIRMAN:** Okay. It's open. Who wants
12 to start?

13 Mr. Graham?

14 **MEMBER GRAHAM:** I'm still not convinced why
15 you need four years. I just don't understand it.

16 **MS. GLENN:** The four year period was used
17 as a worst-case scenario just to allow sufficient time for
18 public consultation of the amendments to the PTNS
19 regulations and the final publication.

20 **MEMBER GRAHAM:** But it's not so difficult
21 to communicate exemptions as it is to communicate new
22 regulations that include people.

23 So I'm just wondering if you're going with
24 the other part of the packaging legislation or regulation
25 that's going to work to have that done no later than

1 January of 2011, but hopefully in 2010, why you just can't
2 incorporate it all and then if you don't reach that,
3 you've got to come back to us and explain why.

4 **MR. RÉGIMBALD:** André Régimbald here.

5 The proposed strategy is to have the
6 exemption implemented immediately upon a favourable
7 decision by the Commission. So there would be no delay.

8 I understand your point of view. We could
9 change the period of the temporary -- well, I guess you
10 could change the period of the temporary exemption. As
11 Madam Glenn expressed, this was a recommendation based on
12 history of publishing amendments to regulations.

13 **MEMBER GRAHAM:** Yeah, I mean I don't want
14 to debate this forever but I just think it shows that
15 we're trying to streamline things. The Commission is
16 trying to not go with the traditional status quo of taking
17 four years because we're going to do better. So that's
18 all I'm saying, Mr. Chair.

19 **THE CHAIRMAN:** Thank you.

20 Monsieur Harvey?

21 **MEMBRE HARVEY:** Merci, monsieur le
22 président.

23 Peut-être une proposition; je sais pas si
24 les avocats vont accepter une telle chose qu'au lieu de
25 parler de quatre ans, de simplement qu'il y ait une clause

1 fait drôle de voir qu'il n'y a pas de danger puis tout à
2 coup on dit que le danger n'est pas plus grand que --
3 c'est juste un commentaire. Merci.

4 **THE CHAIRMAN:** Dr. Barriault?

5 **MEMBRE BARRIAULT:** Monsieur le président,
6 merci.

7 Un commentaire. Quand je regarde en
8 anglais "radiation devices containing less than 10 times
9 the exemption quantity of a nuclear substance", au point
10 de vue d'éditorial, je me demande comment ça se fait vous
11 avez pas dit 10 pour cent, ou est-ce que c'est 10 fois
12 plus?

13 Je suis un peu confus avec le langage.
14 Peut-être tu pourrais expliquer.

15 **M. RÉGIMBALD:** André Régimbald ici.

16 La raison pour laquelle on a choisi 10 fois
17 moins que la quantité réglementaire c'est que chaque
18 isotope a sa propre quantité réglementaire. Donc, c'est
19 pour ça. Si on avait dit 10 pour cent ou un autre
20 facteur, ça n'aurait peut-être pas concordé avec l'étude
21 des risques.

22 Donc, c'est la raison pour laquelle on a
23 choisi 10 fois moins -- jusqu'à 10 fois la quantité.

24 **MEMBRE BARRIAULT:** Alors, si la quantité
25 est exempte, elle n'a pas de règlement à l'actualité, s'il

1 y en a 10 fois moins, c'est encore moins de règlement qui
2 contrôle ça. C'est ça que vous voulez dire ou bien vous
3 voulez dire que c'est 10 fois plus?

4 **M. FAILLE:** Sylvain Faille.

5 La quantité est 10 fois plus que la
6 quantité d'exemption qui est présentement dans le
7 règlement. Donc, si la substance est -- si c'est
8 seulement la substance toute seule, on appelle ça une
9 quantité d'exemption. C'est la quantité qui est exemptée.
10 Quand c'est incorporé dans un appareil, on
11 peut aller jusqu'à 10 fois cette quantité-là; donc, 10
12 fois plus dans l'appareil.

13 **MEMBRE BARRIAULT:** Alors, peut-être ça
14 serait plus facile de dire 10 fois plus. Peut-être c'est
15 moi qui suis confus avec ça. Merci.

16 **LE PRÉSIDENT:** Autre question? Question?

17 **MEMBER HARVEY:** Oui. Juste une question;
18 ça représente quel volume ou quelle quantité d'appareils
19 ou d'équipement? Est-ce que c'est très important?

20 **M. RÉGIMBALD:** André Régimbald ici.

21 On n'a pas le nombre exact d'appareils mais
22 il y a beaucoup d'appareils qui sont utilisés dans les
23 aéroports, par exemple, pour détecter les produits
24 chimiques et les explosifs.

25 Je dirais que lorsque nous avons fait les

1 exemptions des appareils en 2008, ça représentait à peu
2 près 300 permis qui n'étaient plus nécessaires pour les
3 appareils. Donc, ça donne une indication du volume.

4 **MEMBRE HARVEY:** Donc, ça eu une incidence
5 sur le personnel dans le fond. Ça diminue un peu la
6 charge de travail. Si on exempte ces produits-là, y a un
7 impact sur la charge de travail ici à la Commission.

8 **M. RÉGIMBALD:** André Régimbald ici.

9 Ça n'aura pas d'incidence concernant
10 l'aspect du transport parce qu'il n'y a pas de permis qui
11 est émis par la Commission pour le transport. Ça l'a eu
12 une légère incidence concernant l'autorisation pour les
13 permis pour l'usage.

14 **MEMBRE HARVEY:** O.k. Merci.

15 **LE PRÉSIDENT:** Autre question?

16 Moi, j'ai une question. Pourquoi on ne
17 peut pas utiliser le même critère pour les exemptions qui
18 étaient proposées? Pourquoi on a deux sortes de critères
19 pour "check sources where no licence is required" et
20 "radiation devices containing less than 10"? Est-ce que
21 ce n'est pas la même chose?

22 **M. RÉGIMBALD:** André Régimbald ici.

23 Veux-tu répondre?

24 **M. FAILLE:** Oui. Sylvain Faille.

25 Y a une légère différence dans la quantité

1 qui est permise dans les "check sources" versus les
2 appareils. Les appareils c'est une quantité fixe qui est
3 10 fois plus que la quantité d'exemption.

4 Dans les sources, y peut avoir un peu plus
5 que 10 fois la quantité d'exemption, tout dépendant de
6 l'isotope qui est utilisé pour fabriquer la source elle-
7 même.

8 C'est aussi que dans le règlement sur les
9 substances nucléaires, c'est deux sections différentes
10 dans le règlement qui s'applique pour les sources et les
11 appareils. C'est la seule raison pour laquelle ils sont
12 présentement différenciés. C'était pour aller avec le
13 règlement qui est déjà publié.

14 **LE PRÉSIDENT:** Mais le critère important
15 c'est l'impact sur la santé, les risques ici, n'est-ce
16 pas? Alors, c'est le même risque, 1 microsievert. Moi,
17 je comprends pas pourquoi on ne peut pas faire la
18 traduction entre les deux critères pour arriver à un seul
19 critère.

20 Go ahead.

21 **Mme GLENN:** Pour l'enregistrement, Karine
22 Glenn.

23 Ce qu'il ne faut pas oublier c'est que tous
24 les appareils qui contiennent au moins une quantité
25 d'exemption doivent être homologués par la Commission

1 canadienne de sûreté nucléaire.

2 Donc, les pré requis pour les "check
3 sources" -- je m'excuse, je ne sais pas le terme en
4 français -- sont très clairs au point de vue de
5 rayonnement, la dose et la fabrication des sources, tandis
6 que pour l'appareil, y a pas de standard comme tel qui
7 spécifie exactement quelle est la dose à la surface de
8 l'appareil.

9 Donc, ces appareils-là sont soumis à un
10 processus de certification par la Commission où on fait
11 une analyse de la sûreté de l'appareil et on vérifie la
12 sûreté au point de vue de rayonnement du transport.

13 Donc, ces appareils-là sont évalués et une
14 homologation est émise et cette homologation va continuer
15 à être nécessaire pour l'utilisation de ces appareils au
16 Canada pour les appareils contenant entre une quantité
17 d'exemption et 10 fois la quantité d'exemption.

18 **M. RÉGIMBALD:** André Régimbald ici.

19 Pour rajouter à ce que Madame Glenn a dit,
20 donc c'est une évaluation cas par cas pour les appareils,
21 tandis que pour les sources, c'est une approche générale
22 basée sur des critères déjà établis dans les règlements
23 selon une norme établie, Donc, c'est pour ça les deux ---

24 **LE PRÉSIDENT:** Ma dernière question c'est
25 concernant les -- est-ce que quelqu'un pourrait accuser

1 qu'on pourrait accumuler des "check sources" en quantité
2 élevée pour poser des risques ou pour créer une "dirty
3 bomb" comme toujours? La presse aime le concept des
4 "dirty bombs". Est-ce qu'on pourrait utiliser cette
5 exemption pour accumuler?

6 **M. RÉGIMBALD:** André Régimbald ici.

7 Il n'y a pas de critère pour le volume
8 qu'une personne pourrait accumuler. Seulement -- comme on
9 expliquait avant, seulement les manufacturiers et les
10 distributeurs sont couverts mais il n'y a pas de critère
11 pour si une personne accumulait des sources ou les
12 appareils pour des fins illégales ou illicites.

13 **LE PRÉSIDENT:** Alors, c'est la même
14 réglementation qu'on utilise dans les États-Unis et les
15 autres pays?

16 **M. RÉGIMBALD:** Est-ce qu'on pourrait
17 étudier la question et y revenir avec de l'information
18 pour vous?

19 **LE PRÉSIDENT:** O.k. En même temps, est-ce
20 que les États-Unis utilisent la même approche?

21 **M. RÉGIMBALD:** Oui, c'est ce que nous
22 allons voir.

23 **LE PRÉSIDENT:** Oui.

24 **M. RÉGIMBALD:** Oui. Nous allons voir avec
25 le système américain s'ils ont des dispositions concernant

1 l'accumulation.

2 **LE PRÉSIDENT:** O.k. Merci.

3 Monsieur Harvey?

4 **MEMBRE HARVEY:** La différence entre
5 l'exemption est applicable du vendeur jusqu'à
6 l'utilisateur et la différence c'est parce que, du
7 producteur, il peut y avoir des quantités plus
8 importantes.

9 Mais moi si je me présente puis je veux
10 acheter une source en quelque part et au lieu d'en acheter
11 une j'en achète deux ou trois, je me trouve à partir avec
12 quelque chose qui est plus important que ce que vous
13 concevez.

14 Fait que qu'est-ce qui arrive? Vous
15 pourriez peut-être regarder ça puis en même temps que nous
16 fournir l'autre information de nous fournir qu'est-ce qui
17 arrive ou est-ce qu'on accroît le danger se faisant.

18 **M. RÉGIMBALD:** Oui, on va étudier la
19 question. Merci.

20 **MEMBRE TOLGYESI:** Est-ce qu'il y a une
21 obligation pour le "end user" à être enregistré
22 éventuellement quand il achète le produit et qui est
23 quelque part?

24 **M. RÉGIMBALD:** André Régimbald ici.

25 Non, il n'y a pas de restriction pour les

1 usagers qui sont les membres du public.

2 **MEMBRE TOLGYESI:** Mais c'est là le principe
3 de "dirty bomb" du président.

4 **LE PRÉSIDENT:** Non, mais on cherche des
5 exemptions, pas des recommandations.

6 **MEMBRE TOLGYESI:** Non, mais ce que je veux
7 dire que si quelqu'un n'est pas obligé d'enregistrer, il
8 peut accumuler. Le "end user", il peut acheter deux,
9 trois, 10. S'il était obligé de s'enregistrer
10 éventuellement en quelque part, alors on a une preuve ou -
11 - on a une preuve qu'il possède une ou deux ou trois ---

12 **LE PRÉSIDENT:** Un terrorisme (hors micro).

13 **MEMBRE TOLGYESI:** Non. Non, mais je
14 suppose qu'on veut pas vendre aux terroristes. Nous, on
15 veut vendre ---

16 **MEMBRE HARVEY:** Il pourrait y avoir une
17 obligation comme, je ne sais pas, les permis de pêches qui
18 sont enregistrés ou les -- si c'était enregistré au
19 vendeur, bien le vendeur saurait qu'il a vendu, je ne sais
20 pas, cinq sources à Michael Binder ou quelque chose comme
21 ça.

22 **LE PRÉSIDENT:** Mais, écoute, c'est la même
23 chose, le même problème avec, par exemple, SRBT avec le
24 tritium avec tous les signes, on pourrait demander la même
25 question. Est-ce qu'on pourrait accumuler des isotopes

1 d'une manière sérieuse?

2 Et là c'est vraiment que les États-Unis ont
3 eu le problème avec les Walmarts.

4 C'est une question difficile.

5 **MEMBRE HARVEY:** Mais peut-être qu'on est un
6 peu plus catholique que le Pape dans le sens que les
7 quantités sont tellement petites qu'avant de pouvoir faire
8 quelque chose avec, ça prendrait un certain temps.

9 **LE PRÉSIDENT:** O.k.

10 **M. RÉGIMBALD:** Je voudrais juste ajouter,
11 si vous me le permettez, que les détecteurs de fumée à
12 usage domestique sont aussi exemptés. Donc, c'est la même
13 problématique pour ces appareils-là.

14 **MEMBRE HARVEY:** Mais est-ce que ce sont des
15 quantités comparables à ces détecteurs-là?

16 **M. RÉGIMBALD:** Les quantités sont
17 semblables.

18 **MEMBRE HARVEY:** Alors, ça donne une bonne
19 idée. Merci.

20 **LE PRÉSIDENT:** O.k., merci beaucoup.

21 Maintenant, we are going to come back when?
22 Twelve forty-five (12:45) and we will have the
23 presentation on design reviews; 12:45. Thank you.

24 --- Upon recessing at 11:53 a.m. /

25 L'audience est suspendue à 11h53

1 --- Upon resuming at 12:50 p.m. /

2 L'audience est reprise à 12h50

3 **THE CHAIRMAN:** We are back and we are now
4 proceeding to Item 6.1, as outlined in CMD 10-M14. I
5 understand that there is a presentation that Mr. Frappier
6 will introduce. Go ahead.

7
8 **6. Information Items**

9
10 **6.1 CNSC Staff pre-project vendor**
11 **design reviews**

12
13 **10-M14**

14 **Oral presentation by**
15 **CNSC staff**

16
17 **MR. FRAPPIER:** Thank you. Thank you for
18 this opportunity to come to the Commission and discuss a
19 bit around the presentation that is going to deal on the
20 staff pre-project vendor design reviews. This is an
21 information piece.

22 I should have made it official. My name is
23 Gerry Frappier. I am the Director General of Assessment
24 and Analysis, for the record.

25 Also with me today is Dr. Dave Newland who

1 is the Director of Assessment Integration Division and Mr.
2 Marcel De Vos of the New Major Facilities Licensing
3 Division. These are the two key divisions that have been
4 involved in these vendor design reviews.

5 We have, I think, discussed this in the
6 past but not as a formal presentation of this depth and
7 given that they are becoming more and more popular, we
8 thought it was appropriate to brief the Commission on this
9 review procedure.

10 So with that, I would like to turn this
11 presentation over to Dr. Newland and go from there.

12 **DR. NEWLAND:** Thank you.

13 Good afternoon, Mr. President and Members
14 of the Commission. For the record, my name is David
15 Newland and I am Director of the Assessment Integration
16 Division within the Directorate of Assessment and
17 Analysis.

18 We are here before the Commission today to
19 present some work that staff has undertaken over the past
20 two years on pre-project design reviews.

21 In 2008, vendors of nuclear power plants,
22 namely Atomic Energy of Canada Limited, AREVA Incorporated
23 and Westinghouse Electric Company, were bidding in the
24 infrastructure Ontario Nuclear Procurement Project.

25 You can see here the Darlington site and

1 surrounding area, looking eastward along the shoreline of
2 Lake Ontario. The proposed site for the new-built project
3 is located between the existing Darlington Station and the
4 cement works towards the top of the photo.

5 So during this time, CNSC staff received a
6 request from potential vendors regarding the possibility
7 of regulatory feedback on their designs. As a
8 consequence, CNSC staff decided to introduce a new
9 service, which staff calls "Pre-Project Vendor Design
10 Reviews".

11 Note that this is an optional service. It
12 is not a prerequisite for any application for a licence.
13 It is termed "pre-project" to signify that it is an
14 activity that occurs prior to any formal licensing
15 application and that it is outside of the licensing
16 process.

17 I would stress that the conclusions of such
18 pre-project reviews are not binding on the Commission nor
19 can they influence decisions made by the Commission.

20 Finally, I would note that staff has, in
21 the past, performed similar types of design reviews of
22 some of AECL's previous designs.

23 As we have previously indicated, pre-
24 project design reviews are an optional service. The
25 review is solely intended to provide early feedback on the

1 acceptability of selected aspects of nuclear power plants
2 based on regulatory requirements and expectations. Note
3 that the review is focused on selected aspects, not all
4 aspects.

5 Finally, it is important to note that in
6 the event of an application for a licence to construct,
7 the CNSC would undertake a far more detailed review of the
8 design and safety case for a specific application and a
9 specific site. There are a number of reasons for this.

10 First, the pre-project review is intended
11 only as a very high level assessment. Second, not all of
12 the detailed engineering and analysis would necessarily be
13 available at the time of conducting such pre-project
14 reviews.

15 Finally, there are site-specific
16 considerations that would need to be verified during an
17 application for a licence to construct.

18 These design reviews provide an opportunity
19 for the CNSC staff to assess a design prior to any
20 licensing activities and to identify potential issues for
21 resolution relating to the compliance with regulatory
22 requirements and expectations.

23 They provide an opportunity for staff to
24 become familiar with the key features of the design, and
25 we believe that such reviews will help to increase

1 regulatory certainty and can ultimately contribute to
2 public safety.

3 For each pre-project review, CNSC enters
4 into a service agreement with the vendor and the full cost
5 of the review is fully recovered from that vendor.

6 CNSC staff has developed a standardized
7 review approach to ensure consistency of the reviews and
8 fairness in the following respects.

9 The overall review is divided into three
10 phases which provides systematic feedback on a design of a
11 reactor in a progressive manner that permits at first a
12 very high level review, Phase 1; a subsequent, more
13 detailed review, Phase 2; and then, finally, an
14 opportunity for the vendor to seek further feedback, Phase
15 3, on very specific aspects of the design where a vendor
16 wishes to gain more specific and detailed information.

17 Dividing the review in such a way permits a
18 vendor to select the level of review that it wishes.

19 For Phases 1 and 2, there are standard
20 objectives and criteria which we outline in the upcoming
21 overheads. The scope of the review is basically the same
22 for Phases 1 and 2, with the exception that for the Phase
23 2 we would also examine the research and development
24 program.

25 For a Phase 1 review, the depth is

1 reasonably even across all topics. For a Phase 2 review,
2 the depth can vary considerably from topic to topic
3 depending on what was found during the Phase 1 review.

4 So I will now turn to a description of the
5 three types of design review phases. Phase 1 is an
6 overall assessment of the information submitted in support
7 of the design against CNSC regulatory requirements and
8 regulatory documents for 17 review focus areas. The
9 purpose of the review is to determine whether the design
10 intent for these review focus areas is compliant with the
11 CNSC requirements and meet CNSC's expectations for the
12 design of new nuclear power plants.

13 The approximate level of staff effort for a
14 Phase 1 review is one-and-a-half full-time equivalence and
15 is typically conducted over a six-month period.

16 Following on from a Phase 1 review, a Phase
17 2 goes into further detail in each of the focus areas with
18 the intent of identifying whether there are any potential
19 fundamental barriers to licensing in the design in Canada.
20 For Phase 2, there is an additional focus area in
21 comparison with the Phase 1 review, the topic of research
22 and development. The notion of fundamental barrier to
23 licensing is defined a little later in the presentation.

24 A Phase 3 review provides an opportunity
25 for a vendor to further follow-up on very specific

1 detailed aspects of the design.

2 For a Phase 2 review, the level of effort
3 is approximately five full-time equivalents. For a Phase
4 3 -- and the duration of a Phase 2 review is approximately
5 9 to 12 months.

6 For a Phase 3, the effort is very much
7 dependent on the type of review requested by the vendor.

8 We have described the objectives of the
9 pre-project reviews. We also wish to emphasize what the
10 reviews are not intended to do. They do not provide any
11 assurances with respect to cost or schedule, economics,
12 operability, maintainability, capacity factors, and they
13 do not guarantee that design changes may be required as a
14 result of future findings, for example, during further
15 more detailed reviews or as a result of commissioning
16 activities.

17 So we now turn to a description of the
18 scope of the review, the 17 focus topics. The first
19 review topic is that of defence in depth, classification
20 of systems, structures and components, and those
21 acceptance criteria.

22 The concept of defence in-depth and the
23 design of nuclear facilities ensures that there is a
24 sequence of overlapping provisions, so that if a failure
25 were to occur it would be detected and either corrected or

1 compensated for. This ensures that the probability and
2 consequences of accidents is minimized.

3 An important and related concept is that of
4 safety classification as applied to system structures and
5 components. The safety classification determines how
6 individual SSEs are designed, constructed and maintained,
7 so that their quality and reliability characteristics are
8 commensurate with the safety functions that they perform.
9 Finally, this review topic also verifies that the design
10 intends to meet the dose acceptance criteria for the full
11 range of possible accidents.

12 The following topics assess the adequacy of
13 specific system structures and components that play a
14 particularly important role in the overall safety of the
15 nuclear power plants and which support the four
16 fundamental safety functions of reactor control, reactor
17 shutdown, cooling of the reactor core, and containment of
18 radioactive material.

19 These are reactor physics aspects of
20 nuclear design, fuel mechanical and thermo-hydraulic
21 design, reactor control system, means of shutdown,
22 emergency core cooling and emergency feed water systems,
23 and the containment systems.

24 In addition to these specific systems,
25 there is a broader review of other considerations that are

1 important to the design and these are listed on this
2 frame.

3 I would point out that the topic of
4 robustness includes the aircraft crash. In addition,
5 there is a very high level review of the safety analysis
6 which comprises two types of analysis, the deterministic
7 safety analysis, which analyzes a full range of
8 anticipated operational occurrences, and design basis
9 accidents; and, secondly, the probabilistic safety
10 assessment that examines the plant in an integrated way to
11 identify accident sequences that could lead to a severe
12 core damage and severe accidents.

13 For Phase 2 reviews, an additional focus
14 topic is research and development. It is important to
15 understand the R&D that has been completed and that has
16 yet to be performed for design features that are new or
17 novel.

18 Finally, there are two topics which are not
19 considered in the pre-project review. The first is
20 environmental protection. This was not included. It is
21 subject to a separate environmental assessment process.

22 The second is decommissioning. This is an
23 important aspect that would be considered during a full
24 review of the design but it was not included in the pre-
25 project reviews.

1 Finally, I would like to re-emphasize the
2 high-level nature of the pre-project reviews. Given the
3 limited resources committed and the broad scope, the depth
4 of review for each topic is necessarily not deep.

5 A fundamental barrier to licensing a new
6 reactor design is a shortcoming in the design or the
7 design process that, if not corrected, could have the
8 potential for significant risk to the public or to
9 workers.

10 The barrier is considered fundamental when
11 there is no clear or adequate path to resolution of a
12 significant safety issue. The barrier would also be
13 considered to be fundamental if there were significant
14 uncertainties associated with the proposed plan or if the
15 timeline was such that it could be unresolved at the time
16 of an application for a licence to construct.

17 Staff has identified the following specific
18 non-compliances that could constitute a fundamental
19 barrier to licensing. A non-compliance with Canadian
20 legal requirements, an unjustified non-conformance with
21 Canadian regulatory expectations, including those in the
22 regulatory documents for the design of new nuclear power
23 plants RD 337 or other applicable regulatory documents and
24 national standards for design and analysis, unjustified
25 non-compliance with design and safety analysis QA

1 standards and procedures, a design that does not address
2 known issues of safety significance, i.e. a design that is
3 not taken into account resolution of safety concerns from
4 past regulatory reviews, a design that does not meet the
5 ALARA principle, unproven engineering practices for new or
6 innovative design features, or a design for which
7 operational compliance introduces unacceptable operational
8 complexity.

9 Many of these relate to non-compliance of
10 the proposed design with a regulatory requirement or
11 expectation, such as those in regulations or regulatory
12 documents.

13 In addition, staff also looks at the design
14 process to gain assurance that it is robust, complies with
15 QA standards and that it is being correctly implemented.

16 Staff uses written criteria for the reviews
17 based on relevant regulations, such as the radiation
18 protection regulations and nuclear security regulations,
19 CNSC regulatory documents and other guidance that is
20 available to the CNSC, such as IAEA standards and guides.

21 In particular, I draw your attention to the
22 regulatory document RD 337, design of new nuclear power
23 plants which contains technology-neutral expectations for
24 all aspects of the design of an NPP, and there are
25 specific criteria within that document for all 17 focus

1 review areas that we identified earlier.

2 CNSC staff communicate publicly the overall
3 findings of these reviews through posting of the executive
4 summaries on our website. A comprehensive report for each
5 phase is provided to the vendor, typically a report of 100
6 to 120 pages providing detailed feedback on each of the
7 topic areas and the overall conclusions with regard to the
8 specific objectives for the particular phase in question.

9 Pre-project reviews provide the CNSC with
10 the opportunity to become more knowledgeable on the
11 details, the design and safety analysis, the underlying
12 experimental support for some of the design features and
13 for the analysis and on the related research and
14 development; provides vendors with the opportunity for
15 regulatory feedback on their designs to gain assurance
16 that they will indeed meet Canadian regulatory
17 requirements and expectations and to obtain detailed
18 interpretation of requirements as to how they would apply
19 specifically to their design.

20 Therefore, potential license applicants can
21 gain confidence that (a) the CNSC staff understands the
22 design (b) the vendor understands the requirements and
23 expectations of the CNSC and (c) that the potential
24 licensing risk is understood and manageable.

25 At this point I would like to briefly

1 present some information on a parallel but related topic
2 that is important to staff's preparations for the
3 licensing of new nuclear power plants.

4 The CNSC participates in a multi-national
5 activity called the Multi-National Design Evaluation
6 Program, commonly referred to as MDEP. MDEP is a
7 collaborative effort of 10 national regulatory authorities
8 to enhance multi-lateral cooperation within existing
9 regulatory frameworks with a longer term view to
10 increasing multi-national convergence of codes, standards
11 and safety goals. The participating countries are those
12 listed in the second bullet. I would highlight in
13 particular China, Finland, and France, who are
14 constructing the two designs currently under joint review
15 by MDEP. Other countries have interest because there is
16 either current construction or there are evaluations being
17 undertaken of those two designs.

18 One of the important aspects of MDEP at
19 this time is the sharing of information and in particular
20 the evaluations of those designs. CNSC is using those
21 regulatory reviews from other countries to inform its own
22 evaluations on those designs.

23 This illustrates the MDEP structure. The
24 policy group and the steering technical committee provide
25 oversight over the overall program. On the left are the

1 working groups to the two specific designs currently under
2 consideration by MDEP, the AREVA EPR and the Westinghouse
3 AP1000.

4 For each of those two reviews -- those two
5 designs, technical working groups have been established to
6 consider specific technical topics. On the right are the
7 issue-specific working groups that seek to understand the
8 current differences in regulatory approaches with a view
9 to determining how these might be harmonized. CNSC has
10 found the MDEP to be an excellent way of keeping abreast
11 of international activities on new build programs. On the
12 right are shown the working groups that are considering
13 some specific, but generic, considerations.

14 We will now provide you with a brief status
15 of the pre-project vendor design reviews. The AECL 1000
16 designed by Atomic Energy of Canada Limited has a gross
17 electrical output of approximately 1,200 megawatts
18 electrical per unit. The AECL 1000 design is largely
19 based on the design concepts and the reactor and process
20 system designs of current CANDU plants, although there are
21 some important differences between the AECL 1000 design
22 and existing CANDU technologies.

23 CNSC staff has completed a phase one review
24 of the design in December 2008 and a phase two review in
25 August 2009. CNSC staff is currently undertaking a phase

1 three review which is due to be complete in June 2010.

2 The AP 1000 pressurized water reactor PWR
3 is designed by Westinghouse Electric Corporation; has a
4 net electrical output of approximately 1,100 megawatts.
5 The AP 1000 design builds on in traditional PWR technology
6 featuring an innovative approach to passive safety and
7 includes a number of plant simplifications in comparison
8 with existing PWRs.

9 CNSC staff completed a phase one review of
10 the design in January 2010. There are no plans to conduct
11 further pre-project reviews at this time.

12 The EPR PWR designed by AREVA has a net
13 electrical output of 1,600 megawatts. The EPR design
14 builds on traditional PWR technology, primarily the N4 and
15 convoy reactors operating in France and Germany
16 respectively. The EPR design includes a number of
17 features that improve safety over the existing fleet of
18 PWRs.

19 CNSC staff began a phase 1 review in 2009
20 but this was put on hold at the request of AREVA in August
21 of that year. There are currently no plans to conduct
22 further pre-project reviews of this design.

23 Finally, we come to the EC-6. AECL is
24 designing a two-unit enhanced CANDU-6 reactor, each unit
25 with a gross electrical output of approximately 700

1 megawatts.

2 The EC-6 design is largely based on the
3 design concepts and the reactor and process systems of the
4 established CANDU-6 fleet. Despite these similarities,
5 there are some significant differences between the EC-6
6 design and previous CANDU-6s.

7 CNSC staff will complete a phase one review
8 of this design in March of this year. AECL has indicated
9 its interest in having staff undertake a phase two review
10 but the timing of which has yet to be determined.

11 So, in conclusion, pre-project reviews
12 offer a practical means by which vendors can gain
13 confidence that a design will meet Canadian requirements
14 and expectations. CNSC staff's increased knowledge would
15 enable more efficient reviews at the time of licensing.

16 Thank you, and this completes staff's
17 formal presentation.

18 **MR. FRAPPIER:** So we're certainly available
19 for any questions you may have on the presentation.

20 **THE CHAIRMAN:** Thank you. Thank you for a
21 very informative presentation, and let me start the
22 question period with Mr. Graham.

23 **MEMBER GRAHAM:** Thank you.

24 Cooling for all these four different types,
25 all four can use cooling towers, I believe, and only the

1 AECL units can be either that or water. Is that correct
2 or not, or can the others be water also?

3 **MR. NEWLAND:** For the record, Dave Newland.
4 Yes, all the cooling options are available
5 for all.

6 **MEMBER GRAHAM:** To all of them?

7 **MR. NEWLAND:** Yes.

8 **MEMBER GRAHAM:** However, though, the
9 environmental -- and I don't want to get into the joint
10 review work and so on, but the environmental aspects of
11 cooling towers versus intake and discharge waters from the
12 lake or whatever it is, which is seen as the most
13 environmentally friendly in your reviews to date?

14 **MR. NEWLAND:** Dave Newland, for the record.
15 We have not looked into that aspect. We
16 just looked at the safety and the engineering aspects, not
17 the environmental protection aspects.

18 **MEMBER GRAHAM:** Not the environment.

19 What about footprint required for cooling
20 towers? How much larger footprint is required when you're
21 using cooling towers, say, for the EPR or, you know, the
22 AP1000 or whichever one you want to use? Is that
23 footprint -- the cooling towers, there are different types
24 of cooling towers, I realize that.

25 My first question should be does every unit

1 have its own type of cooling towers?

2 **MR. FRAPPIER:** Gerry Frappier, for the
3 record.

4 The aspect of cooling towers or once-
5 through systems is not really something we would be
6 looking at at this time in these designs.

7 **MEMBER GRAHAM:** No.

8 **MR. FRAPPIER:** I think that the joint
9 review panel is certainly looking at that and looking at
10 the different footprints.

11 But in principle, all the different options
12 are available and it has to do with amount of heat
13 generated that has to then be discharged to the
14 environment.

15 So in the case of the EC-6, for instance,
16 which is only 700 megawatts electric, you'd expect that to
17 be considerably less heat than the higher electrical
18 output units.

19 **MEMBER GRAHAM:** The only one you've really
20 done two phases and will have the third-phase analysis
21 done is on the CANDU. Is that correct?

22 You've done one phase on the AP1000 but
23 there's been no request yet to do anything further, and on
24 the EPR there's been no request whatsoever. Is that
25 correct?

1 **MR. FRAPPIER:** That is correct.

2 **MEMBER GRAHAM:** Initiated and not done,
3 yes?

4 **MR. FRAPPIER:** Correct. On the EPR we were
5 asked to stop work on it before the review was actually
6 completed. The AP1000 was completed. The EC-6, the phase
7 one will be completed in the next month or so, and on the
8 ACR-1000, we've completed both phase one and phase two and
9 we're now in phase three.

10 **MEMBER GRAHAM:** If I'm correct, I believe
11 that the proposal that OPG called for was for these three
12 different designs. However, that proposal expires
13 tomorrow.

14 Is that correct?

15 **MR. NEWLAND:** Yes, I believe it's tomorrow.

16 **MEMBER GRAHAM:** It's tomorrow. So then
17 they could also then be looking at the 6 -- I mean ---

18 **THE CHAIRMAN:** Excuse me.

19 **MEMBER GRAHAM:** I know, but what I guess
20 I'm asking or should be asking, are you going to do --
21 you've done one review on the 6, one phase, and you're
22 going to -- you've done -- no, the review on the EC-6 is
23 only going to be finished in March, okay. So you still
24 have to do -- and is there indication from AECL that you
25 would go further and do the other phases?

1 **MR. FRAPPIER:** Gerry Frappier, for the
2 record.

3 Yes, that is correct. AECL has given us
4 indication that they would like to be going for phase two.
5 They haven't given us precise timeframe for when they are
6 likely to be doing that.

7 I think the other thing on the broader
8 picture, again it's important to understand, we're just
9 looking at the technology at the request of the vendor.
10 So it's independent of any actual procurement.

11 **MEMBER GRAHAM:** Yes, I realize.

12 If AECL were bidding on, say -- and I think
13 it was in the press that they were looking at Romania and
14 so on -- would that be an EC-6 or would that be the
15 regular CANDU; do you know?

16 **MR. FRAPPIER:** Gerry Frappier, for the
17 record.

18 AECL has indicated that for the Romanian
19 bid they would be continuing the project that has
20 commenced there already several years ago and has been put
21 on hold, and that would be not exactly an EC-6. It would
22 be closer to what we call just a regular CANDU-6.

23 However, AECL has indicated that they are
24 going to be upgrading that design to something very close
25 to an EC-6 as part of their bid into the Romanian

1 contract.

2 **MEMBER GRAHAM:** Sure.

3 **THE CHAIRMAN:** Thank you.

4 You know, we should be all careful here
5 about any comparison or opinions about design here. We're
6 talking about the process.

7 **MEMBER GRAHAM:** Yes, okay.

8 **THE CHAIRMAN:** So Monsieur Harvey?

9 **MEMBRE HARVEY:** Dans les projets que vous
10 évaluez, il y a des technologies qui sont déjà utilisées et
11 d'autres qui ne sont pas utilisées, qui n'ont jamais été
12 implantées.

13 Est-ce que ça a un impact sur votre
14 évaluation et surtout sur l'évaluation finale?

15 **M. FRAPPIER:** Oui, merci. En réalité, nous
16 autres on regarde à tous les quatre concepts comme étant
17 nouveaux. Le EPR puis le AP1000 sont en train d'être
18 construits et dans ce cas-là, comme tu dis, sont un
19 concept qui y a au moins une ou deux nations qui sont
20 convaincues qu'ils vont être acceptables. Alors, ils sont
21 en train de faire la construction.

22 Mais pour nous autres, pour notre
23 évaluation, ce processus est ciblé sur des nouveaux
24 concepts comme ceux-ci. Alors, pour le Canada, tous les
25 quatre seraient des nouveaux concepts.

1 **MEMBRE HARVEY:** On a vu dans la presse que,
2 en Angleterre, ils ont questionné -- la Commission a
3 questionné une commission. Je sais pas si c'est une
4 commission -- a questionné la structure même d'un projet.
5 Je pense que c'est Westinghouse si je me rappelle bien.

6 Est-ce que c'est quelque chose qui aurait -
7 - j'assume pas que c'est bon ou mauvais mais est-ce que
8 c'est quelque chose qui aurait été détecté à la phase un
9 ici ou à la phase deux ou à la phase trois?

10 **M. FRAPPIER:** Oui. Alors, durant la
11 première phase -- c'est Gerry Frappier.

12 Durant la première phase, nous n'aurons pas
13 assez de détails pour regarder à cet aspect-là sur le même
14 plan qu'ils ont fait en Angleterre parce que, pour la
15 première phase, c'est surtout de voir si eux autres
16 comprennent nos demandes si tu veux, les aspects
17 techniques qui sont nécessaires au Canada. Et ils nous
18 indiquent qu'ils comprennent ceux-là et que leur concept
19 répond à ces défis.

20 De notre côté, c'est vraiment en - dans la
21 deuxième phase qu'on regarderait les détails auxquels vous
22 parlez.

23 **MEMBRE HARVEY:** À propos des coûts, je
24 comprends que c'est le promoteur, le vendeur qui soumet un
25 projet mais qui doit payer pour l'étude; pouvez-vous nous

1 donner une idée des coûts et du temps requis, des
2 ressources impliquées pour y parvenir?

3 **M. FRAPPIER:** O.k. Ça serait mieux pour
4 nous autres si, au lieu de parler des fonds eux-mêmes, on
5 peut donner des indications d'efforts, si tu veux, alors
6 quand on a parlé vite dans la présentation de le montant
7 d'efforts. Pour le premier effort, c'est environ une et
8 demie, qu'est-ce qu'on appelle ici des FTE si tu veux,
9 "Full Time Equivalent".

10 Alors c'est comme si on avait une et demie
11 personne à plain temps sur le projet. En réalité, c'est
12 plusieurs individus pour un montant réduit de ça. Et ça
13 prend environ six mois à compléter le premier phase.

14 Pour le deuxième phase, c'est
15 approximativement cinq FTE, alors l'équivalent d'avoir
16 cinq personnes à plein temps pour tout un an. Mais
17 surtout sur la phase 2, y a pas mal de variété --
18 variabilités sur cette chiffre parce que ça dépend
19 beaucoup de qu'est-ce qu'on trouve et de quelle sorte de
20 questions qu'on pose, peut-être, les détails n'étaient pas
21 là, alors il faut faire du va et vient avec la compagnie.

22 **THE CHAIRMAN:** You're not giving any
23 commercial confidence here; are you?

24 **MR. FRAPPIER:** No.

25 **THE CHAIRMAN:** Those are -- the FTE's

1 consumption is known, posted?

2 **MR. FRAPPIER:** It's not proprietary, if you
3 like, as to the amount of ---

4 **THE CHAIRMAN:** Again, let's be careful
5 about not getting into some commercial ---

6 **MR. FRAPPIER:** It's the numbers we give out
7 for planning purposes when people are asking us what would
8 be required here.

9 **THE CHAIRMAN:** Okay.

10 **MR. FRAPPIER:** And so -- je vais répondre
11 en français. Et alors pour la deuxième phase, c'est
12 vraiment, ça prend environ neuf à 12 mois, alors un an.
13 Alors, c'est beaucoup de travail. Pour le phase 3, c'est
14 vraiment, c'est unique pour chacune parce que ça dépend de
15 quel sujet qu'y veulent qu'on regarde.

16 **MEMBRE HARVEY:** Vous parlez qu'il a
17 beaucoup de ressources qui forment -- qui sont appelées à
18 contribuer au projet; est-ce qu'il y a une unité qui a été
19 mis sur pied? Ou vous allez chercher l'expertise dans
20 différents services?

21 **M. FRAPPIER:** Alors, dans -- on a
22 réorganisé un peu il y a deux ans pour créer une division
23 qui a comme responsabilité de faire l'intégration de
24 toutes les différentes aspects techniques et c'est cette
25 division-là que le docteur Newland est en charge.

1 Mais, pour lui, dans sa préparation pour
2 faire les analyses, il va aller chercher des experts
3 n'importe où dans la commission où c'est nécessaire pour
4 le projet.

5 Alors, pour un projet, c'est certain qu'on
6 va avoir probablement au moins huit, dix divisions
7 différents qui vont contribuer.

8 **MEMBRE HARVEY:** Merci.

9 **THE CHAIRMAN:** Dr. Barriault?

10 **MEMBRE BARRIAULT:** Merci monsieur le
11 président.

12 Pour ce qui en est des réacteurs, est-ce
13 que ce sont des réacteurs qui sont en service maintenant
14 que vous faites l'évaluation ou ce sont des nouveaux
15 réacteurs?

16 **M. FRAPPIER:** Toutes les réacteurs sont des
17 nouveaux réacteurs. Y en a deux types EPR qui vient de
18 Areva et le AP1000 qui vient de Westinghouse qui sont en
19 train de -- sont en train d'être construits. Alors --
20 mais y ont jamais opéré encore.

21 Mais dans toutes les cas, toutes les
22 concepts vient d'une -- y ont une histoire, si tu veux,
23 d'un concept qu'y avait avant. Alors c'est un évolution,
24 si tu veux, des concepts de même, et surtout sur le cas
25 pour le AECL EC-6, c'est très, très, très semblable au

1 CANDU 6 qu'on a maintenant.

2 **MEMBRE BARRIAULT:** Alors, ce sont tous des
3 réacteurs qui sont, en réalité -- qui ont fonctionné.
4 Alors il n'y a pas de danger qu'on s'embarque dans un
5 réacteur puis que, finalement, ça marche pas? Est-ce que
6 cette possibilité-là existe?

7 **M. FRAPPIER:** De notre côté, qu'est-ce
8 qu'on -- avec cette processus-ci, on va faire une
9 assurance que, dans toutes les cas, quand ces réacteurs-là
10 sont construits, y vont être sains et saufs. Alors y va
11 avoir -- y vont être sécuritaires, y vont être saufs.

12 La performance elle-même de la concept,
13 c'est pas quelque chose que, nous autres, on regarde dans
14 l'évaluation. Mais dans toutes les cas, évidemment qu'y
15 sont supposés de fonctionner comme le constructeur dit.

16 **LE PRÉSIDENT:** Non, non, non, mais -- je
17 m'excuse. On pourrait garantir que ça -- they will be --
18 if they're constructed, they will be safe ---

19 **MR. FRAPPIER:** Yes.

20 **THE CHAIRMAN:** --- but we're not guaranteed
21 that they ---

22 **MEMBRE BARRIAULT:** They will function.

23 **THE CHAIRMAN:** --- will function. Okay.

24 So everybody should understand that.

25 **MEMBRE BARRIAULT:** And that's the question

1 I was asking really.

2 **THE CHAIRMAN:** Right.

3 **MEMBER BARRIAULT:** You know, I'm thinking
4 of the MAPLE's, for example, you know, you say "Hey" --
5 you know. They're very safe because they don't function.

6 Merci monsieur le Commissionnaire --
7 monsieur le président.

8 **MR. FRAPPIER:** So as Dr. Binder said, our
9 review is centered on the safety aspects of the design and
10 we will ensure that they are safe but we are not looking
11 at their performance.

12 **THE CHAIRMAN:** Monsieur Tolgyesi?

13 **MEMBER TOLGYESI:** So we will have a safe
14 car but we cannot drive it.

15 **THE CHAIRMAN:** Could be.

16 **MEMBER TOLGYESI:** I have a question
17 regarding the timeframe. If we don't have this pre-
18 project evaluation from the moment when the proponent is
19 coming and he's doing the deposition of his project until
20 approval, how long it takes?

21 **MR. FRAPPIER:** If they have not come
22 through a pre-project design review at all -- well, let me
23 say it in a positive way. If they do come through a pre-
24 project design review we are quite confident that the
25 review will be done more efficiently and will be done in a

1 much quicker timeline.

2 If it's a brand new design that we have
3 never seen, it depends an awful lot on what the -- how
4 different the technology is. So if it's technology that
5 we're quite familiar with, we expect that the review would
6 be done in a two to three-year period as far as the
7 technical aspect part goes.

8 The overall approval of the process of
9 course would be much longer because you'd have to have the
10 environmental assessment part done. You know, then you're
11 into a real project just like we are with Darlington, if
12 you like, where you have to have joint review panels for
13 environmental assessments.

14 So there's many, many stages other than the
15 actual, just the technical review, which is what we're
16 sort of looking at here.

17 **MEMBER TOLGYESI:** So my question is, you
18 know, what we will save in the timeframe globally if we
19 know that somebody's coming with -- I don't know -- CANDU
20 6 project?

21 So we know the project in general and we do
22 a pre-project evaluation and all in parallel we don't do.
23 I understand that there is an environmental evaluation of
24 what you've done and then a second phase. Okay. But you
25 have to do that -- you know, even if you do pre-project

1 you have to do that later, and if you don't have a pre-
2 project, you have to do that also.

3 So do we save some time by doing a pre-
4 project or we gain experience and we probably could
5 improve the design or make it safer or whatever the gain
6 is by global time to approve a project do we gain also?

7 Because, you know, if it takes -- we do a
8 pre-project, but it will take the same time. There is no
9 difference. The gain will be just by experience and make
10 it safer probably. You know.

11 **MR. FRAPPIER:** Yeah -- Gerry Frappier.

12 I think it's -- we believe strongly that it
13 will be a more efficient evaluation if we have a pre-
14 project evaluation such as these that are already done.
15 We'll have a much better understanding of the design. The
16 vendor will have a much better understanding of our
17 requirements. And so, just from a communication
18 perspective, it will be much more efficient.

19 Whether we discover or come to find that
20 there's a problem with the design that could take as long
21 as it takes to resolve that problem, whether we find it in
22 a pre-project review or whether we find it during the
23 actual licensing process.

24 I think what's important here is that this
25 does not affect the licensing steps that we have to go

1 through. So we will still be going through the licensing
2 step under your watch, if you like. We will still have to
3 do the technical reviews that have to be done as part of
4 the application for a licence to construct or to prepare a
5 site or to operate.

6 But maybe I'll ask Marcel if he wants to
7 add anything from a licensing perspective.

8 **MR. DE VOS:** I think what's important to
9 understand is that during a pre-project vendor design
10 review, we may encounter novel concepts in the new design,
11 and what this vendor design review allows us to do is
12 develop regulatory opinions outside the licensing process.
13 So that allows us to walk into the licensing process
14 informed, and that's where we get a lot of our
15 efficiencies from.

16 **THE CHAIRMAN:** If I may add, we haven't
17 built in this country or in North America a nuclear plant
18 in how many years now; 30 years or something? Just the
19 whole science of some of those new projects are new, and
20 forget about efficiency but just learning what is going
21 on. We have not seen another design beside the CANDU
22 design, the old CANDU design, and we haven't seen the EPR,
23 we haven't seen the AP1000.

24 Just the learning process is worthwhile
25 just for us, forget about efficiency, and the discipline

1 of forcing our people to actually understand what is
2 proposed. I think it's worthwhile, the whole exercise.

3 **MEMBER TOLGYESI:** Because, you know, my
4 question was that the promoter who is coming -- do we give
5 him after this evaluation of one or two phases and
6 eventually the third one? It's a kind of approval in
7 principle of the project or absolutely no because that's
8 what he will expect. You know, that's what he will expect
9 or could expect.

10 **MR. FRAPPIER:** I think it's really
11 important to understand that in Canada we don't certify a
12 design, so there is no approval whatsoever that they get
13 from this thing here as far as something that would
14 indicate that their project is legal in Canada or could be
15 built in Canada.

16 What we do identify to them is whether we
17 found anything that would indicate we would not be able to
18 license it, so fundamental barriers to licence as we were
19 talking about here.

20 That's the main thing that we're looking
21 for and that's the main conclusion they could draw from
22 this, is that the staff of the CNSC has not found any
23 fundamental barriers to licensing.

24 **THE CHAIRMAN:** Maybe that's a good time for
25 you to give us a little bit of explanation of the

1 certification process, for example, that the U.S. is going
2 -- or the process the U.K. is going through, and how would
3 that be different than -- you know, I think there's a
4 misunderstanding of this pre-design.

5 **MR. FRAPPIER:** Okay. Yeah, I think it's
6 important to understand this is one of the areas where the
7 jurisdictions, just the legal set-up, is different and it
8 does -- Dave mentioned about the MDEP project and having
9 regulators who can actually exchange information, and it's
10 not so easy to just exchange information when the legal
11 systems are different.

12 So in the United States of America, they do
13 have a process by which they certify a design. So they
14 will look at a design, they will evaluate that design, and
15 they will give a certification to the vendor that this
16 design is legal in the United States of America.

17 That vendor will still have to go through a
18 licensing process to determine the site that they're going
19 to be available at and to get permission to actually
20 construct the design, but the intent is that by the time
21 those decisions are being made, they don't need to have
22 such an extensive design review because they will be
23 bringing forward a design that's already been certified by
24 the U.S. Nuclear Regulatory Commission.

25 **THE CHAIRMAN:** And how long does normally

1 such a certification take?

2 **MR. FRAPPIER:** That's a long time.

3 Dave, do you know?

4 **MR. NEWLAND:** Dave Newland, for the record.

5 Well, maybe the thing to look at is the
6 number of full-time equivalence that is required for
7 certifying a portion of the design.

8 Let's be clear that when you go through
9 that certification process in the States, you end up
10 certifying maybe 60 percent of the design, and then
11 there's stuff like the control room and specific site
12 features that are not certified. That process typically
13 takes, I believe, 3 to 4 years and 100 full-time
14 equivalence worth of effort.

15 So it is -- that sort of puts into
16 perspective, I think, the kind of reviews that we're doing
17 during our Phase 1 and Phase 2.

18 In the U.K., they have a slightly different
19 process called the generic design assessment process that
20 is over again, I believe, a three to four-year time period
21 that is again far more extensive than what is being
22 carried out by the staff.

23 **MEMBER TOLGYESI:** My last is what we were
24 saying just a few minutes ago, that this pre-project we
25 guarantee safe but we don't guarantee it will work. Does

1 it mean that if we give a licence we guarantee it will be
2 safe and we will guarantee it will work?

3 **MR. FRAPPIER:** Yeah, I think that the --
4 certainly the -- and I'll switch it over to Marcel in a
5 minute -- but the licensing process that we have in Canada
6 does not guarantee performance of the nuclear power
7 plants.

8 So what we are able to do is license them
9 for the operation they intend to do to -- if they get all
10 the way to operating licence, at that point we are sure
11 that the design they're using is a safe design, they've
12 built it in a way that doesn't compromise the safety
13 aspects of the design, they have an operating capability
14 that includes the staff, the training, you know, all those
15 operational issues are in place. We will then ensure that
16 they go through a commissioning process that guarantees
17 that the safety functions are operable and will be
18 operating.

19 Obviously, from the operator's perspective,
20 they are also looking at this design and this project from
21 the perspective of will it generate the electricity they
22 expect. But during commissioning phase, for instance, if
23 there are things that indicate that power levels have to
24 be reduced -- for safety reasons, for instance -- then it
25 could be that they would not get the electrical output

1 that they had hoped for.

2 The only aspect of operation that we very
3 much look at at this phase of the design review is to
4 ensure that the complexity of the design is not such that
5 it is unsafe to expect the operator to be able to fully --
6 to ensure that all the safety functions are operating with
7 the reactor.

8 But, Marcel, you might want to add
9 something to that.

10 **MR. DE VOS:** The important part, once we
11 get into licensing, is the concept of the applicant as a
12 smart buyer.

13 As part of their demonstration that they're
14 qualified and have made adequate provision for health,
15 safety, security and the environment under Section 24(4)
16 of the Act, staff expect the applicant to demonstrate this
17 smart buyer concept, which means that the applicant has
18 independently assessed the overall safety case of the
19 design proposed by the vendor and its interactions with
20 the environment. And that would include a lot of the
21 issues you were just mentioning about will the plant work.

22 The things that we learn from the pre-
23 project and the design review, the things that we take
24 away from that review, will be applied in the licensing
25 process. It allows us to ask the right questions of the

1 applicant to confirm they understand the design that
2 they're buying.

3 **THE CHAIRMAN:** Again, I don't want to get
4 into a long discussion here but, I mean, we have a classic
5 example.

6 We have approved the design and the
7 construction of the MAPLE and it never worked, okay. So
8 just -- you know the difference between the proponent and
9 our regulatory responsibility. We've got to make sure if
10 you build it, it's safe. They've got to make sure that it
11 actually works.

12 **MEMBER GRAHAM:** (inaudible)

13 **THE CHAIRMAN:** Absolutely, absolutely. So
14 all of those -- these are clear differences between us and
15 the proponent.

16 Dr. McDill?

17 **MEMBER McDILL:** Thank you.

18 With respect to fundamental barriers, what
19 would be, for example, a justified nonconformance and a
20 justified noncompliance? So you say a fundamental barrier
21 is an unjustified nonconformance or an unjustified
22 noncompliance. So I assume at this point you haven't had
23 to deal with those, but what would be a justified
24 nonconformance?

25 **MR. NEWLAND:** Dave Newland, for the record.

1 So, for example, within Regulatory Document
2 337 we set out general criteria and system-specific
3 criteria or design requirements.

4 Recognizing that we don't want to impede
5 innovation, for where we have more detailed requirements
6 we say, "Well, if you can show an equivalent level of
7 safety but you don't meet the letter of the requirement we
8 will consider that." And so there is Section 11 within RD
9 337 that permits an applicant or a vendor to propose an
10 alternative approach to meeting a very specific
11 requirement. That would be acceptable to the staff.

12 **MEMBER MCDILL:** And to this date have you
13 encountered any of those in phase one or is that
14 commercially confidential?

15 **MR. NEWLAND:** Dave Newland for the record.
16 Yes, we have come across one or two
17 examples. For example, the way that the -- something
18 called the single failure criterion is applied for some of
19 the designs, it doesn't meet the strict letter of the way
20 that the single failure criterion is expected to be
21 applied for safety systems and we have taken the vendor's
22 arguments that says an alternative approach is acceptable
23 and shows an equivalent level of safety.

24 **MEMBER MCDILL:** Thank you.

25 My other question is a little more

1 specific. Why does ACR 1000 and the EC6 report gross
2 electrical output and the other two are net?

3 **MR. NEWLAND:** Dave Newland for the record.

4 That's just the way it was presented. It
5 was not intended to be -- anything to be drawn by that
6 particular ---

7 **MEMBER MCDILL:** Okay. Thank you.

8 **THE CHAIRMAN:** Mr. Graham?

9 **MEMBER GRAHAM:** In your opinion, and I
10 don't want to put you on the spot, but just for my
11 information, can a licence to prepare a site be issued
12 before the project evaluations are completed?

13 **MR. FRAPPIER:** I'll give it to Marcel in a
14 minute. It's Gerry Frappier.

15 But the -- when you say licence to prepare
16 the site I think is the one you were ---

17 **MEMBER GRAHAM:** Yes.

18 **MR. FRAPPIER:** --- mentioning.

19 **MEMBER GRAHAM:** M'hm.

20 **MR. FRAPPIER:** So the licence to prepare
21 the site requires the environmental assessment to have
22 been completed. The environmental assessment requires the
23 project to be known, in the sense of what is going to be
24 built there.

25 Within the evaluation of the site

1 preparation there is several technical areas that have to
2 be evaluated, not the complete design like we are talking
3 about here, but certainly all the aspects with respect to
4 the accident scenarios and what the consequences of those
5 accidents would be. Once we have that then that can be
6 part of both understanding the potential environmental
7 impact, which is an important aspect of licence to prepare
8 site, and for the other characteristics around things like
9 seismic issues that might be part of the site.

10 If a person has -- if an applicant has
11 several designs in mind then it would be possible to get a
12 licence that would consider any one of those designs, but
13 the design itself would -- before construction is allowed
14 to happen the design itself would have to go through the
15 formal assessment process.

16 **MEMBER GRAHAM:** So ---

17 **MR. FRAPPIER:** Marcel, do you want to add
18 to that? Just 'cause Marcel's from the licensing group so
19 he might be able to add some precision to that.

20 **MR. de VOS:** Basically if you have enough
21 information to justify the suitability of the site based
22 on the designs that you've proposed then, yes, you could
23 go ahead with it. But you need enough information from
24 the designs to at least show the envelope in which you're
25 going to be working for the EA.

1 **MEMBER GRAHAM:** Because the EA going
2 forward, say, at Darlington, has to evaluate all three
3 because none of them have been picked yet as such so you
4 have to do the EA based on all three designs.

5 **THE CHAIRMAN:** Again I must intervene.
6 This is not the place to discuss this.

7 **MEMBER GRAHAM:** No, but ---

8 **THE CHAIRMAN:** And number two, that's not
9 correct, in my opinion. You do not need to know the
10 precise design. You need, as Marcel said, the envelope of
11 output that may impact on the environment and on the site.
12 You do not need to know whether you're going to have a
13 specific EP -- whichever design. All you have to do is
14 define what is the ultimate bounding envelope to allow you
15 to say, "Yes, this design could withstand a licence." It
16 doesn't guarantee that you're going to give him a
17 construction permit but it says it's okay to construct
18 something like this in this particular site. That's what
19 you guys have to come up with.

20 **MEMBER GRAHAM:** But I guess what I was
21 asking was do we have to have before us -- and this may
22 not be the place to ask -- but the project evaluation of
23 all the different ones first?

24 **THE CHAIRMAN:** Again, in my opinion -- I
25 don't know what you mean by project evaluation. I think

1 that what we always talk about is what would be, let's
2 say, the environmental emission, the water intake, what
3 are they, maximum parameter ---

4 **MEMBER GRAHAM:** Okay.

5 **THE CHAIRMAN:** --- that you will allow.

6 You do not have to know the precise cycling how it goes
7 because you're assessing the impact on a larger
8 environment, on the lake, on the people living around and
9 all that stuff.

10 So somebody jump in if I say something
11 wrong.

12 **MEMBER GRAHAM:** No, you're right on.

13 **THE CHAIRMAN:** Okay. Other questions?

14 **MEMBER HARVEY:** Yes, I do have one
15 question. On page 16 of your presentation you say that a
16 design that does not meet the ALARA principle. How do you
17 deal with that? Because ALARA principle is not something
18 defined. I mean, it's a principle. And you're working
19 with new technology and sometimes it might be difficult to
20 get the comparables. And how do you deal with that?

21 **MR. FRAPPIER:** So ALARA is as low as
22 reasonably achievable with respect to radiation exposure,
23 and in particular with respect to the workers.

24 So certainly we're going to be looking at
25 what are the norms in industry today and we would be

1 looking to see that they are taking -- they have a
2 conscientious program by which they are seeking to improve
3 that so that it would be lower. So the expectation would
4 be that the next generation of nuclear reactors should
5 result in a lower exposure than the current generation.
6 How they exactly do that, you're right, it might be
7 difficult but they might have some very, very good
8 examples.

9 Perhaps I'll ask Dave if he wants to add to
10 that.

11 **MR. NEWLAND:** Dave Newland for the record.

12 I think that you can look at experience
13 around the world in terms of how progress has been made
14 with the ALARA principle. So that would set you as a
15 baseline about how other jurisdictions are doing, how
16 other designs are doing to see whether you can fit in with
17 those sort of expectations.

18 **MEMBER HARVEY:** Thank you very much.

19 But that's where -- that could be
20 interesting some time on a process to have -- to know the
21 technology because there could be some differences between
22 technology and radiation, for example. So if you don't
23 know you won't say, "Okay, we'll take the worst one."
24 That's the way to do it, but ---

25 **THE CHAIRMAN:** This is strictly for the

1 site preparation?

2 **MEMBER HARVEY:** When we are doing that are
3 we following the ALARA principle as a Commission?

4 **THE CHAIRMAN:** The ALARA principle will
5 come into play when you do the construction and the
6 operating, not the selection of the site. The site
7 selection is a completely different concept. We should
8 have ---

9 **MEMBER HARVEY:** I'm not against that.

10 **THE CHAIRMAN:** If you want to have a
11 discussion we can bring all the people around the table
12 and we'll have a discussion about this. But if you look
13 at the regulation that we have it's a completely different
14 concept than the licence to construct and to operate.
15 That's where we put the ALARA ---

16 **MEMBER HARVEY:** But to me I think the
17 Commission has to take care of the ALARA principle. I
18 mean, it's part -- the obligation of conscience ---

19 **THE CHAIRMAN:** Yeah, absolutely.

20 **MEMBER HARVEY:** --- to authorize the best
21 project. I mean, the best ---

22 **THE CHAIRMAN:** But, Monsieur Harvey, we're
23 talking about -- we agree. The question is when you apply
24 it.

25 **MEMBER HARVEY:** Yeah.

1 **THE CHAIRMAN:** It's not in the site
2 selection.

3 And, again, if there's disagreement we
4 should have a discussion. It's good to have a discussion.

5 **MR. FRAPPIER:** It's Gerry Frappier here.

6 Perhaps just to add a little bit, it is
7 definitely something that we are looking at, and as we've
8 indicated here, to the point where it could be considered
9 a fundamental barrier to licensing if they cannot prove
10 that they have an ALARA principle that they use during
11 their design, if they have not indicated that their design
12 is going to improve the exposure levels. That is
13 something that we will be assessing, we assess during this
14 pre-project review. But perhaps more importantly for your
15 question is when and if we ever get an application for
16 construction that will definitely be something we will be
17 reviewing in detail and we will be presenting that to
18 yourself or however the Commission is brought together
19 with respect to looking at the licence for construction to
20 say this design does meet good ALARA principles or this
21 design does not.

22 **THE CHAIRMAN:** Monsieur Jammal?

23 **MR. JAMMAL:** Thank you, Mr. President.
24 Monsieur Harvey, the ALARA principle is, as our President
25 mentioned, at multi-phases from design basis taking into

1 consideration is the design itself is giving the most or
2 as low as reasonably achievable taking multiple factors
3 and then they are -- principle is applied during the
4 control of the operations of the facility and then how
5 they conduct and how they control the programs of that
6 facility and the operations. So the ALARA principle is an
7 ongoing multi-phase application stemming from the design
8 principle, and that is being applied. So you can apply
9 the ALARA principle based at the construction phase and
10 the operation phase and ongoing phase. It starts from the
11 construction all the way to the commissioning so it's
12 depending on the control of the operations and stemming
13 from design basis.

14 **THE CHAIRMAN:** Anything else?

15 **MEMBER HARVEY:** Well, that's a way to say
16 it, but for example, if you take the bounding scenario,
17 normally, it's the worst, I mean, you can't have worse
18 than that. I mean, between different projects you will
19 say it has to be within this envelope. And within this
20 envelope, if there is a project that is much more lower
21 than the bounding scenario, so then you are applying the
22 ALARA principle by choosing the best one. I'm not sure
23 it's okay to say we just push the ALARA principle away and
24 then somebody will take care of it later on in the
25 process.

1 **THE CHAIRMAN:** No, no, excuse me. It's not
2 that way it works. You're coming in with three designs.
3 Let's say the three designs is the boundary on the three
4 designs. Okay, they vendored themselves and the proponent
5 have not decided what they want yet to do, okay? So the
6 question is will this site be appropriate for any one of
7 them? Okay, and you're probably going to find now that
8 they're probably going to be okay for maybe one or two or
9 maybe all three. So that's one of the issues that comes
10 in and they say yes, with this boundary you can actually
11 build. Then a construction comes in and now you start
12 asking all the questions: Where is the ALARA principle;
13 where is the -- how do you confine it even more, et
14 cetera? So we -- I'm a hundred percent with you on the
15 ALARA; it's a question that where you apply it is during
16 the construction and the operating and the ongoing -- not
17 to prepare a site.

18 **MEMBER GRAHAM:** And if they come forward
19 with another design -- because that's what I was
20 questioning -- was the fact that then you have to reassess
21 -- at the present time we're assessing three designs but
22 if they want to come another time you assess it, but it's
23 still licensed from here ---

24 **THE CHAIRMAN:** It has to be within the
25 bounds to what we've agreed and ---

1 **MEMBER GRAHAM:** Yes, that's right. That's
2 right.

3 **THE CHAIRMAN:** --- absolutely. I mean,
4 that's a consideration that then somebody will decide
5 which design they want.

6 **MEMBER GRAHAM:** The one that pays.

7 **THE CHAIRMAN:** Anyhow, you can see you've
8 generated some interest here. Are you guys going to have
9 any final say in this?

10 **MR. de VOS:** If we go back to the vendor
11 design reviews under radiation protection, actually, one
12 of the things we do look for in a vendor is how they apply
13 operating experience from previously licensed type
14 facilities. Are they using this in their design process?

15 So we are actually looking to see that they
16 are improving practices over time.

17 **THE CHAIRMAN:** Okay. Thank you very much.
18 Five-minute stretch break. That's a new break here.
19 Stretch break. Thanks.

20

21 --- Upon recessing at 2:01 p.m./

22 L'audience est suspendue à 14h01

23 --- Upon resuming at 2:15 p.m./

24 L'audience est reprise à 14h15

25

1 **THE CHAIRMAN:** Okay. The last item, I
2 think, on our agenda is Item 6.2, the technical briefing
3 on the licensing process used by the Directorate of
4 Nuclear Substance Regulation as outlined in CMD M17.

5 Alors, Monsieur Régimbald, vous avez fait
6 la présentation?

7
8 **6.2 Technical briefing on the**
9 **Licensing process used by**
10 **Directorate of Nuclear**
11 **Substance Regulation**

12
13 **10-M17**

14 **Oral presentation by**
15 **CNSC staff**

16
17 **M. RÉGIMBALD:** Bonjour, monsieur le
18 président, membres de la Commission. Je suis André
19 Régimbald, directeur général de la Direction de la
20 réglementation des substances nucléaires. Je suis en
21 compagnie de monsieur Peter Fundarek, directeur de la
22 Division des autorisations des substances nucléaires et
23 des appareils à rayonnement; madame Kavita Murthy,
24 directrice de la Division des installations nucléaires et
25 de l'équipement réglementé de la catégorie II; de monsieur

1 Sylvain Faille, directeur de la Division des autorisations
2 de transport; de madame Karen Mayer, agente de projet dans
3 la Division des autorisations de substances nucléaires et
4 des appareils à rayonnement; et de madame Brenda Brûlotte,
5 qui est directrice de la Division de la comptabilité des
6 systèmes et contrôles.

7 Ce CMD présente le processus utilisé par la
8 direction de la réglementation des substances nucléaires
9 concernant les autorisations réglementaires.

10 Je passe maintenant la parole à madame
11 Mayer qui fera la présentation. Merci.

12 **MS. MAYER:** Good afternoon, Mr. President
13 and members of the Commission. My name is Karen Mayer.
14 My presentation today will provide you with information on
15 the Directorate of Nuclear Substance Regulation licensing
16 process.

17 DNSR is the face of the CNSC to the
18 majority of Canadians. We provide a full range of
19 regulatory control. We cover medical, academic,
20 industrial, and transport licensing. We often need to
21 respond to licensing issues in a matter of days or even
22 hours which presents a dynamic situation that is difficult
23 to predict and that is influenced by external factors.

24 There are three licensing divisions within
25 DNSR, Class 2 Nuclear Facilities and Equipment Division,

1 Nuclear Substances and Radiation Devices Licensing
2 Division, and Transport Licensing and Strategic Support
3 Division.

4 This slide shows the allocated resources
5 both financial and human resources in the Directorate of
6 Nuclear Substance Regulation. In total, there are 85
7 staff members in DNSR of which 54 are involved in
8 licensing. In the fiscal year 2009-2010, the total DNSR
9 budget was just over \$7 million in salary and \$1 million
10 in operations. In relation to licensing, the breakdown is
11 roughly \$3 million in salary and approximately a half a
12 million dollars for operations.

13 Our current database records show over
14 2,700 active licences and 238 transport certificates.
15 There are another 233 licences in various stages of
16 assessment. Over the past year, DNSR has issued 54 new
17 licences and 197 transport licences, renewed 342 licences,
18 amended over 700 licences, and revoked almost 300
19 licences.

20 Due to this volume of licensing, DNSR must
21 have an efficient, effective, risk-inform process-based
22 system. Licensing operations user integrated systems,
23 affectionately known as LOUIS, is a proprietary database
24 system which was built in-house. LOUIS manages all the
25 information for the licensing lifetime. It provides

1 timely access to information about a licensee. The
2 information is used in all phases of licensing and
3 compliance verification.

4 LOUIS's integrated with other CNSC systems
5 such as sealed source tracking system and the national
6 sealed source registry, finance, e-access, action tracking
7 tool and the future annual compliance reporting, ACR, on
8 line.

9 I will provide you with a processing system
10 overview. The process starts with an applicant's
11 submission for licensing action. The submission may be
12 for a new licence, an amendment, a renewal or a revocation
13 of a current licence. The submission comes to DNSR for
14 administration, assessment, and finally authorization by a
15 designated officer. This process may happen once during
16 licence term or cycle or may be repeated with amendments.
17 The entire process is repeated at renewal.

18 Please refer to the process map that you
19 have before you, the large one. The process starts with
20 the application, which is Step 1 on that process map. An
21 application form and guide are sent on request to the
22 applicant. The application and guide can be sent as a
23 paper form or as an electronic version, depending on the
24 request by the applicant.

25 The application form is accompanied by the

1 application guide. The application guide outlines the
2 information requirements and expectations required in the
3 General Nuclear Safety and Control Regulations, the
4 Nuclear Substances and Radiation Devices Regulations, the
5 Class II Nuclear Facilities and Prescribed Equipment
6 Regulations, Packaging and Transport of Nuclear Substances
7 Regulations and the Cost Recovery Fees Regulation.

8 Information on corporations and corporate
9 structure is required as applicable, as well as the names
10 of all persons authorized to act on behalf of the
11 licensee, such as the applicant authority, the signing
12 authority and the radiation safety officer.

13 Much of this information is already in a
14 radiation safety manual which the applicant usually
15 submits along with their application. A radiation safety
16 manual is required for medium- and high-risk applications.

17 The application is normally received in the
18 mail room. All documentation must be forwarded to Records
19 for scanning and entering into our internal electronic
20 document system. All documents are assigned a reference
21 number and a profile. The application is then forwarded
22 to our cost recovery group, which is Step 2 on the process
23 map.

24 The application for a new licence must be
25 accompanied by an assessment fee and the first-year annual

1 licence fee. The cost recovery group receives and
2 verifies the payment. A new record is opened and a core
3 number is assigned to a new licensee which is a unique
4 identifier for each licensee. All necessary financial
5 information on the applicant is recorded within LOUIS.
6 The documents are passed along to DNSR to begin the
7 assessment of the licence application.

8 Licensing and certificate administration,
9 which is Step 3 on the process map. The licensing and
10 certification administration, LCA, group within DNSR
11 verifies that the basic information is on the licence
12 application, contacts the applicant authority to verify
13 that they are aware of the application, starts a new paper
14 file or retrieves an existing file, creates a new file in
15 LOUIS and forwards to the appropriate licensing division
16 for technical assessment.

17 We are now at Step 4 on the process map.
18 The licence assessment officer will complete an initial
19 screening review to ensure the application is complete and
20 may contact the applicant if required information has not
21 been submitted. Once the licensing assessment officer is
22 satisfied that the application is complete, the technical
23 assessment will begin.

24 There are many factors that go into an
25 assessment, which is Step 6 on the process map, such as a

1 completed application form, radiation safety manual,
2 training manuals, design proposals, specialist
3 evaluations, inspection reports, annual compliance
4 reports, follow-ups with licensees, action requests and
5 event reports.

6 The licensing assessment officers rely on
7 expert judgment, guidance and peer review to determine if
8 an applicant is qualified. In order to maintain
9 consistency amongst the licensing assessment officers and
10 the large number of licensees, we use worksheets to guide
11 our assessments. The expectations in the worksheets are
12 used to guide staff in their assessments. I will be
13 discussing these worksheets in more detail in the slides
14 to follow.

15 Before I move on to show you the assessment
16 worksheets in more detail, I would like to review the
17 assessment process in more general terms. The licensing
18 assessment process can go back and forth many times with
19 several iterations between the applicant and CNSC staff.
20 It is up to the applicant to demonstrate that they are
21 qualified.

22 The licensing assessment officer will let
23 the applicant know where expectations have not been met
24 and will guide them to where and how they can obtain the
25 required information, but will not go as far as to teach

1 the applicant on the safety requirements. An example of
2 this would be if the ALARA policy does not meet our
3 Regulatory Document 129 on why doses cannot be reduced
4 further.

5 The information requirements are documented
6 in the application form and guide. The licensing
7 assessment officer will help the applicant understand the
8 CNSC expectations.

9 The evaluation by the licensing assessment
10 officer is based on expectations which are based on CNSC
11 regulations. The licensing assessment officer will use a
12 variety of sources of information for assessment and, if
13 required, will request reviews by other specialist
14 divisions.

15 In the next few slides, you will see how
16 the licensing assessment officers use LOUIS for the
17 technical assessment of the submitted information. LOUIS
18 uses electronic worksheets to record information regarding
19 assessments for new licences and renewals. This is Step 7
20 on the process map.

21 As you will see, these worksheets are
22 comprehensive and they capture all of the regulatory
23 requirements for the different types of activities that we
24 regulate. They record all important information;
25 applicant name and pertinent information.

1 In this example, you'll see the licensee's
2 name is Q Test Inspection Ltd. The licensing assessment
3 officer's name, which in this case the arrow points as
4 Kendall McAllister, identify the item to be evaluated,
5 which in this case is the name and address, the regulation
6 on which the requirement is based -- in this case it's
7 Section 3, paragraph 1(a) of the General Regulations.

8 Clear expectations for each item -- this is
9 the paragraph of text which is shown by the large arrow on
10 the process map -- provide space for comments by the
11 licensing assessment officer -- in this case, the comments
12 were that there was no change in the address from what was
13 in the current database -- as well as a rating of the
14 submission. In this case it has a rating of B, meaning
15 that it meets all regulatory requirements. The
16 information is used as a basis for future review and
17 during inspections.

18 This slide shows a different item for
19 evaluation where the applicant has met the regulatory
20 expectations. The expectations are clear and
21 comprehensive.

22 Comments from the licensing assessment
23 officers are recorded as part of the assessment. They are
24 encouraged to include as much detail as possible in their
25 findings. The depth of review is dependent upon the level

1 of risk at the licensed activity. Much of the time
2 required for assessment is driven by the responses
3 provided by the applicants when deficiencies are noted.

4 Here is an example where a follow-up was
5 required due to a shortcoming being identified during an
6 initial assessment. The licensing assessment officer will
7 follow up with the applicant, back and forth, until the
8 deficiency is corrected.

9 The licensing assessment officer has to
10 form an opinion that the applicant is qualified and must
11 document the basis of that opinion in LOUIS. In addition
12 to this, the licensing assessment officer will also
13 identify key licence documents that must be referenced in
14 the licence. These documents specify how the licensee
15 will meet CNSC regulatory expectations and what they will
16 be inspected against.

17 If a decision is made not to issue a
18 licence, there is a specific procedure that the designated
19 officer must follow in accordance with the *Nuclear Safety*
20 *and Control Act* and the CNSC Rules of Procedure. This
21 process includes an opportunity to be heard by an
22 applicant.

23 Upon completion of the technical assessment
24 with a favourable outcome, the file is returned to the LCA
25 group, which is Steps 8 and 9 on the process map, for the

1 preparation of a draft licence. The licence conditions
2 are drawn from standard sets based on the use type. The
3 processing sheet identifies items that need to be on the
4 licence. The licensing assessment officer will assign the
5 licence conditions and also identify key licensee
6 documents to be referenced on the licence.

7 A draft copy of the licence is printed --
8 this is Step 10 on the process map - which will
9 essentially complete and show how the licence will look,
10 verify the layout is correct, check the appendices and
11 finalize any changes or other adjustments that may be
12 required.

13 The draft copy will then be transferred to
14 the licensing assessment officer for review and sign-off
15 where it once again will be checked for accuracy to ensure
16 that the nuclear substances are correct, the amounts are
17 correct, the radiation devices are correct and associated
18 conditions are appropriate.

19 The LCA group will make necessary changes
20 to the licence if required. The licensing assessment
21 officer will sign off when satisfied and will pass it
22 along to another licensing assessment officer for QA
23 review.

24 The next step in the process, which is Step
25 11 on this process map, is an additional QA review by

1 another licensing assessment officer in the same division.
2 This licensing assessment officer will review the
3 assessment but does not repeat it. He will ensure that
4 the assessment is complete, review the quality of the
5 information, focus on the key high risk information.

6 The review may result in further questions
7 to the applicant. Documentation must support the
8 assessment. And following this stage, there is a
9 recommendation to proceed. The licensing assessment
10 officer signs off as the QA reviewer and the license is
11 passed along to the designated officer for final approval.

12 In DNSR, authorization to issue, renew,
13 amend, revoke or replace a licence upon receipt of an
14 application and also to certify and decertify persons and
15 equipment, has been delegated by the Commission to
16 designated officers as defined in CMD 08-M10. The
17 designated officers are the Director General of DNSR and
18 the directors of each of the three licensing divisions
19 that are listed on the screen.

20 The designated officers have specific
21 duties that they must carry out. They must review the
22 recommendation from the licensing assessment officer, the
23 assessment results, to ensure that all follow ups are
24 complete and that there is sufficient information
25 included.

1 The assessment sheet completed by the
2 licensing assessment officer is reviewed to ensure that
3 all follow ups have been completed, that the application
4 has all the necessary information, that the proposed
5 licence has the appropriate conditions and that they are
6 satisfied that the applicant is qualified for the proposed
7 licence activity. The designated officer will sign and
8 date the draft licence and pass along the licence file to
9 the administrative services group for final processing.

10 The administrative services group will
11 verify that all signatures are present, lock the licence
12 which means that no further changes can be made to the
13 licence. They will print the official copies of the
14 licence. There are three copies in total, one which goes
15 to the licensee, one to records and one to DNSR storage.

16 They will print the cover pages that
17 accompany the license, ensure that they are printed in the
18 official languages as requested and prepare all packages
19 for mailing. All packages then will be sent to finance,
20 back to the cost recovery group before mailing.

21 Cost recovery will verify that fees charged
22 are correct. They will verify the mailing address. They
23 will print a statement or invoice to include in the
24 package, as appropriate, and send to the mailroom for
25 mailing.

1 Much of the licensing work is dictated by
2 external stakeholders. The number of renewals is known,
3 however, less so for other works such as amendments and
4 revocations. As such, short term issues can affect
5 scheduling and workload, such as the medical isotope
6 issue.

7 We have very prompt response to high
8 priority licensing actions. Our highest priority is
9 patient care issues which is in line with the Cabinet
10 Directive on the health of Canadians.

11 DNSR is meeting requirements on licensing
12 actions. The majority of licenses are issued within
13 business standards. Most delays are caused by the failure
14 of applicants to respond. We can only complete the
15 assessment when the information that has been submitted.

16 As noted, patient care is our top priority.
17 Most are processed within 24 hours and often on the same
18 day.

19 Applicant submissions may be referenced in
20 the licence which is part of the licensing basis.
21 Compliance is assessed against the licensee's commitments
22 and regulatory requirements using similar worksheets which
23 are also stored in LOUIS. Licensees have access to
24 inspection expectations through the worksheets. The
25 process is open and transparent. Compliance verification

1 information is used by licensing assessment officers and
2 thus provides a continual feedback system which in turn
3 provides effective regulatory control.

4 The licensing process in DNSR is based on
5 risk-informed principles. It is an effective integrated
6 system, information management system, the life cycle
7 retention of information on licensee. The licensing and
8 compliance verification processes complement each other.

9 DNSR responds appropriately to licensing
10 action requests. Regulatory obligations are clear and
11 consistent. It is an open and transparent system. We
12 provide information to the public, licensees and other
13 stakeholders. We are continually involved with licensees
14 through our outreach activities.

15 Thank you for the opportunity for the
16 presentation.

17 **MR. RÉGIMBALD:** This completes our
18 presentation. Nous sommes disposés à répondre aux
19 questions.

20 **THE CHAIRMAN:** Thank you very much.

21 Let me start with Dr. Barriault.

22 **MEMBRE BARRIAULT:** Merci monsieur le
23 président.

24 C'était une très bonne présentation, je
25 précise ça. Sauf qu'il y a des questions que je me

1 demandais que je ne trouve pas. Puis la question que je
2 me demandais, vous enlevez 276 licences pas année?

3 Qu'est qui est la procédure pour enlever
4 une licence? Est-ce que c'est aussi compliqué que l'avoir
5 ou -- comment ça fonctionne pour enlever une licence à une
6 personne?

7 **M. RÉGIMBALD:** André Régimbald ici.

8 La procédure, c'est que lorsqu'un permis
9 doit être révoqué, c'est normalement le demandeur ou le
10 titulaire de permis, lorsqu'il termine l'activité autorisé
11 ou pour quelque raison que ce soit, il faut qu'il nous
12 soumette une demande.

13 Et nous évaluons la demande pour voir s'il
14 y a des items de non-conformité qui n'ont pas été
15 respectés pour voir si le titulaire est en conformité avec
16 le règlement sur le recouvrement des coûts.

17 Nous faisons une évaluation pour voir s'il
18 va transférer les substances nucléaires à quelqu'un qui
19 est autorisé, fermer les installations en bonne et due
20 forme pour se conformer à tous les règlements et ensuite,
21 on va faire -- donc on va procéder à l'émission -- à la
22 révocation du permis.

23 C'est une procédure qui est plus légère que
24 si c'est un nouveau permis ou un renouvellement complet.
25 Sauf que -- donc, dans le cadre où si c'est nous qui

1 procédons à une révocation de permis, la loi ne nous
2 permet pas de le faire sous notre propre initiative, on
3 doit aller devant la Commission et demander à la
4 Commission de faire révoquer le permis. Donc, c'est ---

5 **MEMBRE BARRIAULT:** Puis, la plupart des
6 permis que vous enlevez, quelles sont les raisons
7 normalement pourquoi que c'est que vous les enlevez? Il
8 doit y avoir une raison commune probablement?

9 **M. RÉGIMBALD:** Dans la plupart des cas, ce
10 sont des -- soit des banqueroutes ou des titulaires qui
11 veulent changer des affaires; ils veulent aller dans
12 d'autres affaires ou se départissent de cette partie-là de
13 leur compagnie pour se concentrer sur d'autres aspects de
14 la compagnie qui ne requièrent pas l'usage de substances
15 nucléaires.

16 **MEMBRE BARRIAULT:** Alors, normalement, ce
17 sont des petites entreprises qui ont des problèmes et non
18 les grosses entreprises?

19 **M. RÉGIMBALD:** Normalement, oui.

20 **MEMBRE BARRIAULT:** Bon, l'autre chose sur
21 l'application. Je regardais dans votre préparation "of
22 draft license" puis il y a 14 -- je comprends qu'il y a 14
23 pages à ça. On a une -- la première page, les 13 autres
24 pages, qu'est-ce que c'est? Sais-tu?

25 **M. RÉGIMBALD:** André Régimbald ici.

1 Vous parlez de "license assessment work
2 sheet", les feuilles de travail? Chaque page ou chaque
3 "safety and control area," ce sont des items, des éléments
4 qu'on veut évaluer, par exemple, les programmes de radio
5 protection, les programmes de formation.

6 Donc, pour chaque item, il y a peut-être
7 une page ou deux pages. Alors c'est pour ça qu'il y a
8 plusieurs items, plusieurs "safety and control areas" --
9 excusez-moi, le nom m'échappe en français. Mais pour
10 chacune de ces items-là, il y a une page ou quelques
11 pages. Donc c'est pour ça que vous allez avoir au total
12 28 pages pour ce type d'usage.

13 **MEMBRE BARRIAULT:** Vous venez de répondre à
14 mes prochaines questions parce que je me demandais qu'est-
15 ce que vous faites pour vous assurer que la licence est
16 opérée d'une manière sécuritaire au point de vue de santé,
17 au point de vue de l'environnement, au point de vue du
18 restant. Puis vous avez répondu à ma question.

19 Merci.

20 **LE PRÉSIDENT:** O.k. Merci beaucoup.

21 Monsieur Harvey?

22 **MEMBRE HARVEY:** Première question, 85
23 pourcent des décisions sont complétées à travers d'une
24 période de 80 jours; est-ce que c'est bon, c'est très bon,
25 c'est excellent si on se compare -- c'est difficile pour

1 nous de voir qu'est-ce que ça représente?

2 **M. RÉGIMBALD:** André Régimbald ici.

3 Compléter une évaluation de technique et
4 émettre le permis en dedans de 80 jours est bon pour nous
5 et se compare favorablement avec les autres normes en
6 vigueur.

7 **MEMBRE HARVEY:** Ailleurs dans d'autres
8 pays?

9 **M. RÉGIMBALD:** Oui.

10 **MEMBRE HARVEY:** Oui. Et à l'intérieur de
11 ça, vous dites que ça rentre dans les -- "meets CNSC
12 business standards."

13 C'est quoi ça? Est-ce qu'il y a une liste
14 de --- vous êtes responsable de tout l'ensemble.

15 **(LAUGHTER/RIRES)**

16 **MR. JAMMAL:** Merci, monsieur Harvey. Juste
17 pour donner une réponse concernant le 85 pour cent.
18 Quatre-ving-cinq (85) pour cent nous indique deux choses:
19 que le titulaire de permis ou bien les demandeurs ou le
20 présenteur (sic) de la demande comprenne nos exigences
21 réglementaires parce que le délai est toujours le délai --
22 on ne peut pas dire toujours -- mais la majorité des
23 délais c'est par les détenteurs de permis ou bien les
24 personnes qui présentent leur demande.

25 Ça veut dire que les lacunes présentées

1 dans la demande causent le délai à émettre ce permis-là.
2 Ça c'est une indication qu'on a utilisée, disons, 85 pour
3 cent, ça veut dire que 85 pour cent des présentateurs de
4 demandes comprennent et puis ont une bonne compréhension
5 concernant les exigences réglementaires pour qu'ils
6 puissent avoir un permis.

7 Les normes au niveau -- pourquoi on a
8 établi ce qu'on appelle le "business standard" -- j'ai
9 oublié c'est quoi plutôt les normes disons -- parce qu'à
10 l'époque, c'est au niveau de la catégorisation de risques
11 et au niveau des requis réglementaires pour qu'un permis
12 soit émis.

13 Alors on a établi ces normes pour que le
14 personnel vise ces normes. Ça veut dire qu'on doit
15 évaluer, nous autres, au niveau interne. Alors, si on va
16 comparer notre "business" aux États-Unis ou ailleurs, la
17 plupart, disons, ils ont les mêmes exigences ou bien les
18 mêmes normes qui sont publiées sur le site web.

19 **MEMBRE HARVEY:** Merci. J'avais une
20 dernière question. Je vais passer mon tour, je l'ai
21 perdue.

22 **LE PRÉSIDENT:** Merci beaucoup.

23 Mr. Graham?

24 **MEMBER GRAHAM:** I was going to ask the same
25 question, 80 working days is about three months. Can you

1 do all your work through -- do you accept all licence
2 applications and issue all licence through electronic
3 filings or not or does it all have to be done by paper and
4 mail and back and forth and so on?

5 If a person wants to speed things up, is
6 there a way to electronically file an application and
7 electronically work back and forth and expedite it quicker
8 because ---

9 **THE CHAIRMAN:** And I didn't put him up for
10 it. I really didn't put him up for it.

11 **(LAUGHTER/RIRES)**

12 **MEMBER GRAHAM:** No, I -- I'm just wondering
13 in the business world, three months is a long time; I mean
14 when you are meeting payrolls and so on. Is there a way
15 of speeding -- first of all, do you have -- can you do
16 everything electronically?

17 **MR. RÉGIMBALD:** André Régimbald here.

18 The means available to communicate with
19 applicants, between applicants and our staff is through
20 telephone, regular mail, email, but we do not have the
21 capability right now for online for e-submissions. We
22 have a proposal in place as part of the information
23 management project, which is evaluated within the
24 organization and prioritized but at this time, there is no
25 mechanism for online e-submission.

1 Sorry, Mr. Graham, just to complete my
2 answer, the 80-day period is -- may be completed sooner.
3 It depends on the use type. It depends on the quality of
4 the information provided by the applicant. It depends on
5 the complexity of the usage. So it can be completed
6 sooner if possible.

7 **MEMBER GRAHAM:** Yes, but 85 percent on
8 average or 80 days, which is three months. So that's -- I
9 know you might be able to do one in 10 days, but 85
10 percent is three months.

11 How soon an organization as large as yours
12 in a \$7 million budget, how soon can you have -- be up and
13 going to do electronically filing?

14 **MR. FUNDAREK:** Peter Fundarek for the
15 record.

16 I just want to point out that with respect
17 to the 80-days rule, that's for new licence submissions.
18 For licence amendments, revocations, and renewals, the
19 period of time for that is substantially less. For
20 renewals, it's typically 30 days and for amendments, it
21 can be as little as 24 hours or less for critical
22 amendments or as much as 10 days for less critical
23 amendments.

24 So the range of work that we do has a range
25 of response times available to it. So the 80-days is

1 strictly for the new licence applications when it comes in
2 the door. And most of that work is involved in going back
3 and forth to the licensee to try and get the -- excuse me,
4 the applicant -- to try and get the information from them.

5 Now, with respect to your last question
6 with how long is it going to take us to get electronic
7 applications?

8 That's going to be a bit of a complex
9 process because we require signatures and verifications on
10 the licence application, so that we know that we have a
11 *bone fide* person applying for these licences. Now, we go
12 through the step of checking who the applicant authority
13 is and actually contacting the applicant authority, who
14 has to be senior management, like a vice-president or
15 president of the company, to verify that they are actually
16 a physical person and that they do know that this licence
17 application has been submitted, so that they know that
18 there are responsibilities with respect to this.

19 So we have to put in place -- we have to
20 take the care to put in place a system that will allow us
21 to have the same confidence in the people who are applying
22 for these licences in an electronic format as we currently
23 have now with written submissions.

24 **THE CHAIRMAN:** Don't blame the online
25 universe. We can apply now for passports online; you can

1 apply for your insurance online; you can do everything
2 online. This thing is called public key. You can
3 actually ascertain. Don't blame the technology here.

4 Just so you know, we are working on this as
5 an organization. Don't try to fast-track this because
6 most of our licensees are managed by these people.

7 **MEMBER GRAHAM:** I am not advocating that
8 you get "shoddy". I think the process you've shown us
9 today is excellent and I applaud you for having such a
10 thorough process but if there's any way that in this era
11 of electronic everything, if you could look at speeding it
12 up, I think that it's prudent because business -- three
13 months is an eternity if your competition is out there
14 doing something and you can't get a licence.

15 So that's my point. The only other
16 question I have is out of the \$8.1 million budget you
17 operate with operation and salary, how much is cost
18 recovered?

19 **MR. RÉGIMBALD:** André Régimbald here. It's
20 about half, 50 percent is cost recovered.

21 **MEMBER GRAHAM:** Thank you.

22 **MS. BRÛLOTTE:** Excuse me, my name is Brenda
23 Brûlotte. I am director of the Accounting Systems and
24 Controls Division.

25 Just for the record, the information is

1 available in our annual report in our financial
2 statements. We disclosed that in '09. We have to make a
3 distinction between what is cost recoverable and what is
4 charged to the licensees. There are a large number of
5 exempt licensees in the category that we are talking about
6 and therefore, while it could be recoverable, we do not
7 actually charge them. And approximately two-thirds of the
8 licences that we are talking about are exempt and,
9 therefore, we do not recover the costs. It is paid
10 through our appropriations.

11 **MEMBER GRAHAM:** I wasn't advocating that
12 you cost recover everything. I realize that there are
13 many exemptions and those are necessary, but I just wanted
14 to get an idea of what was cost recovered and what wasn't.

15 **THE CHAIRMAN:** Thank you. Next, Dr.
16 McDill.

17 **MEMBER McDILL:** Thank you. It was an
18 excellent presentation.

19 I guess my question relates to the isotope
20 issue. and Petten is -- they're six hours ahead of us or
21 five so Petten is down tomorrow or today, depending on
22 where you are almost. What kind of preparation have you
23 got in place for the next month? I assume isotope
24 licensing is going to be a big issue in the next month.

25 **MR. FUNDAREK:** Peter Fundarek. Actually

1 the isotope issue for us has been ongoing ever since the
2 NRU first shut down and even before that. Most hospitals
3 have already switched over to other isotopes, primarily
4 thallium 201 and the PET isotopes, fluorine 18. That has
5 already occurred for the vast majority of hospitals so
6 there won't be a lot more licensing for us to be doing at
7 this point in time, but any requests that do come in from
8 hospitals we have in place a process that they are the
9 highest priority. And so they will get processed within
10 24 hours and likely the same day, depending on what time
11 they come in during the day.

12 **MEMBER MCDILL:** Presumably not 80 days,
13 though?

14 **MR. FUNDAREK:** No, definitely not. We have
15 always met at least at the most, 24 hours for an amendment
16 for a hospital.

17 **MEMBER MCDILL:** Thank you. I wanted that
18 on the record.

19 **THE CHAIRMAN:** So just to follow up, we
20 just heard, to my surprise, about a Polish reactor. This
21 was announced yesterday. Did Covian (phonetic) put an
22 application for us to approve that isotope? Do you know?

23 **MR. FUNDAREK:** Peter Fundarek. We do not
24 regulate the source of where the material comes from. The
25 technetium 99M or the Moly 99 that goes into the

1 generators would actually be regulated by Health Canada
2 because it is a medical device, so the source of the
3 material would have to be verified by Health Canada since
4 it's a radiopharmaceutical drug.

5 We license the possession of the technetium
6 99M or the Moly 99, as the case may be, depending on the
7 source material. So we don't regulate the source of the
8 material, we just regulate the material in possession by
9 the licensee.

10 **THE CHAIRMAN:** I thought that it was a
11 double kind of a thing. So you're telling me that it's
12 within the quota allotment for Covidien so therefore it's
13 within their authorization of their licence now.

14 **MR. FUNDAREK:** Peter Fundarek. Yes, that's
15 correct. They can possess a certain amount of materials,
16 nuclear substances and radiation devices, and as long as
17 they stay within those boundaries, that's fine.

18 If they need to increase shipments or
19 change the kinds of nuclear substances that they want to
20 receive, that's where licensing would step in and process
21 an amendment for them. And again, that would receive our
22 highest priority so that would be done within 24 hours at
23 the most.

24 **THE CHAIRMAN:** Okay. Thank you.

25 **MEMBER TOLGYESI:** Merci, monsieur le

1 président.

2 When I was looking -- it's 2,700 active
3 licences and 338 active certificates which is about 3,000
4 and when I add what you handled one way or other one,
5 amend or review or revoke, it's about close to 1,650 which
6 is about 55 percent of licences and certificates which you
7 handle probably per year -- I don't know if it's an hour
8 each year.

9 Does it mean that -- you know, what's the
10 licence period? Because if you should touch 55 percent of
11 licences or certificates every year, that's quite a high
12 amount. I don't know; should we extend the licence period
13 or to do something? I think it's not normal to manipulate
14 55 percent of licences every year.

15 **MR. RÉGIMBALD:** André Régimbald here. The
16 standard licence period is five years for these licences.
17 They may be issued for a lesser period depending, you
18 know, on the type of usage. But most are issued for five
19 years. The many amendments are because over the five-year
20 period there are a lot of changes by the applicant
21 according to their businesses, so that's why you see the
22 high number of amended licences.

23 As I pointed out earlier, licensees may
24 choose to go out of business or go in bankruptcy or
25 whatever, so that explains revocation of the 300 licences.

1 And they're renewed -- the number here, 342, would be --
2 it's sort of a high number for this year because the
3 licences were issued in 2004. In 2004 the licences were
4 issued because we started our risk inform regulatory
5 program and they were issued that year. That is why this
6 year in fiscal year '09-'10 we have a high number of
7 renewals.

8 We are putting measures in place to scatter
9 a little bit more the period so that we don't end up again
10 in five years with this big hump of licences to review.

11 **MEMBER TOLGYESI:** Just one more comment is
12 that 85 days -- I think it's the most, within 80 days, you
13 said?

14 I should say that it's much better than
15 environment, so I think you don't do so bad.

16 **THE CHAIRMAN:** That's cool. What happened
17 -- who are the 15 percent? I understand that 85 percent
18 within 80. What about the 15 percent? Who are they and
19 what's their distribution?

20 **MR. FUNDAREK:** Peter Fundarek. The 15
21 percent that don't fall in that 80 days are typically
22 licensees who for one reason or another don't pursue their
23 licence application process with the same vigour as the
24 other 85 percent. They will receive their comments back
25 and be asked to provide additional information and they

1 may take a year to respond to us, for whatever reason,
2 their business reasons.

3 The important thing to remember for most of
4 these licensees is that this material that they're using
5 is an adjunct to their business. It's not necessarily the
6 primary focus of their business and it's something that
7 they'd like to have.

8 So we get a lot of applications, for
9 example, for scrap metal dealers to have x-ray
10 fluorescence devices so that they can assess the types of
11 metals that they are receiving in the yard. They don't
12 need to have those units in the yard if they don't -- you
13 know, as a function of their business but it's nice to
14 have.

15 So if we have licence questions for them
16 and they decide no, it's not worth our bother to answer
17 right now or our business is too busy, then they get back
18 to us when they get back to us. But that's the function
19 -- that's the most of the time when the 15 percent don't
20 fall within that 80 days.

21 **THE CHAIRMAN:** But that's a large number;
22 15 percent of 3,000 is quite a large number. Is that kind
23 of on an annual number?

24 **MR. RÉGIMBALD:** André Régimbald here. It's
25 actually 15 percent of the renewed, the 342 per year.

1 **THE CHAIRMAN:** Ah, so it's not of all
2 licences?

3 **MR. RÉGIMBALD:** I'm sorry, of the new
4 licences. As Mr. Fundarek indicated earlier the new
5 licences take a little bit more time and there are more
6 back and forth communication with the applicant to get the
7 information.

8 **THE CHAIRMAN:** So it brings me to another
9 question. On Slide 13 you are trying to convey a message
10 and you guys know what I feel about not teaching and
11 directing and helping our stakeholder. So here again I
12 see that you are trying to convey a message that you're
13 not going to teach them. Well, obviously you're not going
14 to take them into a class and teach them but you're going
15 to help them fill out the form, right? And assist them
16 whatever we can, right?

17 **MR. RÉGIMBALD:** André Régimbald. Yes,
18 absolutely, we will help the applicant. We will guide the
19 applicant in respect of the information, explain and
20 clarify if needed all the regulatory expectations. We
21 will guide them with respect to the licence application.
22 Any information they request with respect to the use,
23 type, our regulatory aspect we will provide to them,
24 absolutely.

25 **THE CHAIRMAN:** And the last question for me

1 is that -- I think we've discussed this before. You will
2 survey our stakeholder for what they really think about us
3 and the process and if there's any way to improve. So we
4 can find from them whether they think 80 days is good,
5 bad, or different.

6 **MR. RÉGIMBALD:** André Régimbald here.

7 Yes, we took your suggestion and we began
8 contacting the industry through our radiography working
9 group. We have submitted some questions for them to
10 include because they are going to -- they conduct their
11 own survey. So we've asked them to include a few
12 questions about the CNSC in there.

13 **THE CHAIRMAN:** Okay, thank you. Any ---

14 **MEMBER TOLGYESI:** What I should say, when I
15 was talking about 80 days this includes this back and
16 forth exchange of information.

17 **MR. RÉGIMBALD:** André Régimbald here.

18 Yes, that's correct.

19 **MEMBER TOLGYESI:** Because the industry's
20 complaining because every time the regulator what he's
21 doing is stopping the clock when he's asking something.
22 So that's why I was saying 80 days. And mainly with new
23 licence and renewal is much faster. I think it's common.

24 **THE CHAIRMAN:** Any other?

25 Okay. Merci beaucoup; thank you very much.

1 ...

2 --- upon adjourning at 3:00p.m.

3 L'audience est ajournée à 15h00

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