

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public hearing

Audience publique

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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
Dr. Christopher Barnes
Mr. Alan Graham
Mr. André Harvey
Mr. Dan Tolgyesi
Dr. Ronald Barriault

M. Michael Binder
Mme Moyra McDill
M. Christopher Barnes
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

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M. Jacques Lavoie

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Ottawa, Ontario

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--- Upon commencing at 9:06 a.m./

L'audience débute à 9h06

Opening Remarks

M. LEBLANC: Bonjour mesdames et messieurs. Bienvenu à l'audience publique de la Commission canadienne de sûreté nucléaire. Mon nom est Marc Leblanc. Je suis le secrétaire de la Commission et j'aimerais aborder certains aspects touchant le déroulement de cette audience.

The Canadian Nuclear Safety Commission will hold one public hearing today. The Commission meeting will be held today starting at 1:30. During today's business, we have simultaneous translation.

Des appareils de traduction sont disponibles à la réception. La version française est au poste 8 and the English version is on channel 7.

I would ask that you keep the pace of speech relatively slow so that the translators have a chance of keeping up.

L'audience est enregistrée et transcrite textuellement.

1 I'd also like to note that this proceeding
2 is being video-webcasted across the world and that the
3 proceeding is also archived on our website for a three-
4 month period after the closure of the hearing.

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

7 And to make the transcripts as meaningful
8 as possible, we would ask everyone to identify themselves
9 before speaking.

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

12 Monsieur Binder, président et premier
13 dirigeant de la CCSN, présidera l'audience publique
14 d'aujourd'hui.

15 Mr. President.

16 **LE PRÉSIDENT:** Merci, Marc.

17 Good morning everybody and welcome to the
18 public hearing of the Canadian Nuclear Safety Commission.

19 Mon nom est Michael Binder. Je suis le
20 président de la Commission canadienne de sûreté nucléaire
21 et je vous souhaite la bienvenue.

22 And welcome to all of you who are reaching
23 us through webcast or videoconferencing.

24 I would like to begin by introducing the
25 members of the Commission that are with us here today, and

1 to my right is Dr. Moyra McDill and Dr. Christopher
2 Barnes, and on my left is Mr. Alan Graham, monsieur André
3 Harvey, monsieur Dan Tolgyesi and monsieur Ronald
4 Barriault. You've heard from Marc and we also have Mr.
5 Jacques Lavoie, the senior general counsel to the
6 Commission.

7 Marc?

8
9 **10-H1 / 10-H1.A**

10 **Adoption of Agenda**

11
12 **MR. LEBLANC:** Before adopting the agenda,
13 please note that two supplementary Commission Member
14 Documents were added after publication on December 17,
15 2009 as listed on the updated agenda.

16 So we have on the agenda a Public Hearing
17 on the Environmental Assessment Screening Report for the
18 GE-Hitachi Low-Enriched Uranium Fuel Bundle Production
19 Project and, as well, the application by GE-Hitachi for an
20 amendment to its nuclear fuel facility operating licence
21 for the facility located in Peterborough.

22 As indicated earlier, the meeting is
23 scheduled to start at 1:30 this afternoon.

24 **THE CHAIRMAN:** Okay, with this information
25 I would like to call for the adoption of the agenda. Do

1 we have concurrence? Okay, for the record, the agenda is
2 adopted.

3 So let's jump right into it and begin the
4 hearing regarding the GE-Hitachi EA Screening Report and
5 licence amendment application.

6 Marc, over to you.

7

8 **GE Hitachi Nuclear Energy**

9 **Canada Inc. (GE-Hitachi):**

10 **Environmental Assessment**

11 **Screening Report for the GE-**

12 **Hitachi's Low Enriched Uranium**

13 **Fuel Bundle Production Project**

14

15 **Application by GE-Hitachi for an**

16 **Amendment to its Nuclear Fuel**

17 **Facility Operating Licence for the**

18 **Facility located in Peterborough,**

19 **Ontario**

20

21 **MR. LEBLANC:** This is a one-day public
22 hearing. The Notice of Public Hearing 2010-H01 was
23 published on October 28, 2009. The public was invited to
24 participate by oral presentation or written submission.
25 December 14, 2009 was the deadline set for filing by

1 intervenors. The Commission received no intervention
2 requests from the public.

3 January 6, 2010 was the deadline for filing
4 of supplementary information. I note that supplementary
5 information has been filed by GE-Hitachi and CNSC staff.

6 The EA Screening Report and the licensing
7 matter will be presented as a single presentation. The
8 Commission will first need to take a decision in closed
9 session on the EA Screening Report and, if the decision is
10 positive, the Commission will take a decision on the
11 request for licence amendment. This will be done in the
12 back room after the closure of this meeting and will take
13 the time necessary to deliberate and reflect on this.

14 Thank you.

15 **THE CHAIRMAN:** Thank you.

16 So we'd like to start the hearing by
17 calling on the presentation from GE-Hitachi as outlined in
18 Commission Member Document H3.1 and H3.1A. And I
19 understand that Mr. Ward will make the presentation. The
20 floor is yours.

21
22 **10-H3.1 / 10-H3.1A**

23 **Oral presentation by**

24 **GE Hitachi Nuclear Energy**

25 **Canada Inc.**

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MR. WARD: Mark Ward, for the record.

Thank you, Mr. Chair, members of the Commission, for this opportunity to make this presentation today.

Our presentation content today will cover a company and site overview and we'll talk a little bit about the organization, give some detail on fuel bundle manufacturing, environmental and safety performance, at which point I will turn the presentation over to my colleague, Mr. Paul Desiri, and he will speak to the low-enriched uranium project outline, which will cover the project overview, the environmental assessment. Criticality safety, security and transportation and nuclear liability are considerations and will conclude the presentation.

Currently, GE, the businesses consist of five main businesses, those being consumer and industrial, technology and infrastructure, GE Capital, NBC Universal and Energy. We fall under the energy organization and within that we're part of the power and water group and we are GE Hitachi Nuclear Energy. GE has over 300,000 employees worldwide and approximately 10,000 employees here in Canada.

The next slide, I want to point out a

1 little bit about GE's recognition over the past few years
2 and we've been recognized in a number of different areas
3 for our performance, and some examples of those are most-
4 admired company, also most sustainable, innovation. We've
5 also been recognized as being an Energy Star partner and
6 also one of the most-respected companies.

7 The point I want to make here is it's our
8 day-to-day focus on integrity, safety and quality which we
9 receive these recognitions for, and every day we work to
10 maintain our reputation.

11 To highlight a little more on GE integrity,
12 we take this extremely -- it's a very important matter to
13 us. We have a document called "The Spirit in the Letter"
14 and it outlines all the policies for integrity for our
15 company, and it's a personal commitment by every GE
16 employee to follow the code of conduct and they sign this
17 on an annual basis and there's an annual renewal. And
18 this really sets the foundation for an integrity culture
19 within our organization.

20 The next slide, I'll talk a little more
21 about control and ownership of the company and how it fits
22 into the bigger GE.

23 The yellow box at the bottom is our
24 business here in Canada, GE Hitachi Nuclear Canada,
25 president and CEO being Peter Mason. He reports in

1 legally, in through the board of directors, who have the
2 legal responsibilities and provide governance to the
3 organization. The chair of the board of directors is
4 Elyse Allan, who's the president and CEO of GE Canada, and
5 there are two directors which are GE Canada employees and
6 two that are from Hitachi.

7 On a day-to-day operational basis, Mr.
8 Mason reports in through to Kevin Walsh and up through to
9 Jack Fuller, who are both located at Wilmington, North
10 Carolina. And both Jack and Kevin are competent leaders
11 that provide the operational guidance for the company.

12 Moving down through the organization,
13 underneath Peter Mason here in Canada there's basically
14 two parts to the nuclear business, that being the fuel
15 manufacturing portion, which you see on the far left, and
16 in the middle there's also a nuclear services component
17 which is basically a custom design engineering group. So
18 today we'll focus on the fuel operations side.

19 I'd like to point out that the rest of the
20 group here are functional support and we are adequately
21 resourced with competent people to support the entire
22 organization. In particular, I'd like to point out the HS
23 manager, Mr. Paul Desiri, who's with me here today and to
24 my right, Mr. David Snopek.

25 The next picture is an aerial view of the

1 GE Peterborough campus. It's really the centre part of
2 the buildings and we say it's campus because there's also
3 GE Motors there and we have facilities at this location.
4 We've been in Peterborough for over a hundred years. We
5 are a significant employer in the area and we have been a
6 very good neighbour.

7 The building that's outlined with the
8 yellow oval is Building 21 which is currently where we
9 have our fuel fabrication manufacturing site and the
10 second oval represents Building 24 on site where we have
11 the nuclear finish bundle fuel storage facility.

12 Next we'll talk a little bit about the
13 history of GEH in Peterborough. We were involved with the
14 first Canadian commercial reactor built in Ralston back in
15 1955 and we've manufactured CANDU fuel for over 50 years.

16 On our nuclear services side we've designed
17 fuel handling machines; also supplied steam generators;
18 and we do extensive work also with CANDU engineering
19 support and software support for utilities.

20 In 2006 we became a member of Team CANDU to
21 support CANDU technology and our current status is that we
22 formed an alliance in 2007 with Hitachi to form what is
23 known today as GE-Hitachi Nuclear Energy Canada. And in
24 2007 we started on establishing a light isotope technology
25 centre of excellence.

1 Next we'll move into a little more detail
2 on the fuel itself, and here we'll just talk about the
3 fuel bundle components. The components of a fuel bundle
4 include zirconium tubing in which uranium dioxide pellets
5 are inserted. Those tubes are then capped with zirconium
6 end caps. There's also a beryllium coated substrate which
7 is used to form appendages which are adhered to the bundle
8 itself and then there's a zirconium end support which is
9 put on to complete the bundle. And on my next slide I'll
10 walk through the individual processes that incorporate
11 those components.

12 Figure 1 is to demonstrate basically a
13 vapour deposition chamber where we put beryllium in and we
14 coat a substrate which is basically a zirconium sheet with
15 beryllium. That's what you see in Figure 2.

16 Figure 3 is showing an example, almost to
17 scale, of an appendage-bearing pad or spacer and those are
18 attached to the tubes themselves which help with the
19 positioning of the bundle when we go for final assembly.

20 Figure 4 shows a tack and braise operation
21 where the appendages are tacked onto the tubes. The tubes
22 are then transferred over to Figure 5 and the tubes go
23 into a braising operation where at elevated temperature
24 there's a eutectic bond that's formed to insure that the
25 appendages adhere appropriately to the tube itself.

1 The tubes are transferred into a machine at
2 Figure 6 where they receive a slurry of a graphite coat on
3 the inside diameter of the tube. Those tubes are then
4 transferred to graphite bake ovens, and at this point here
5 the slurry is cured and the graphite adheres to the inside
6 diameter of the tubing.

7 Next, the tubes move on to a final brushing
8 operation and a final trim cut which gives the exact
9 length of the tube in preparation for the welding
10 operation.

11 Between steps 8 and 9 is where we have the
12 UO_2 pellets which we have received in a centred form are
13 now inserted into the tubes. And they're inserted into
14 the tubes, they move down a walking beam and an end cap is
15 presented to the end of the tube and one end is welded.
16 Then the tube continues down the walking beam to another
17 welding station. The second end cap is presented and the
18 tube is welded.

19 At this point we have a hermetically sealed
20 -- what we call a fuel element with the UO_2 encased inside
21 the tubing. Those elements then in turn move on to
22 Station 10 where they are put into a vertical location in
23 a jig and configuration. The end plate is put on top and
24 welded in place to produce a finished fuel bundle. At
25 that point the bundle would go on to final inspection.

1 Next we'll talk a little bit about our
2 current environmental performance. We'll talk about
3 beryllium air emissions at first. We're well below the
4 MOE limit, consistent for numerous years. We've got three
5 shown here. One thing we wanted to point out was that the
6 beryllium emissions are measured in the stack so there's
7 no credit for any dispersion or any release, and they're
8 basically negligible.

9 In terms of the uranium dioxide, it's
10 pretty much the same case. The limits were .001 percent
11 of the limit and the quantity is considered negligible.
12 And the main reason for this, we feel, is the pellets come
13 in in a sintered form so we're not dealing with a powder
14 and it's contained in a sintered form so there's very
15 little opportunity for any airborne release.

16 Next we'll talk a little bit about
17 Peterborough's safety performance and we'll focus on the
18 annual effective dose first. We are well below the 50
19 millisieverts limit which is set out by the Commission and
20 we also have ALARA committees in place that focus on
21 reducing the numbers. On average we're about 1.8 to 2
22 millisieverts for the average dose and our maximum dose is
23 roughly in about the 8 range -- 8 millisieverts.

24 In terms of health and safety, you can
25 notice that around 2003, 2004 we put a lot of emphasis on

1 reducing our reportable rate and in fact in the last three
2 years we've had a zero injury and illness rate, which is
3 typically world class. We've done this through focusing
4 on near misses and coming up with preventable actions to
5 reduce the number of reportable cases.

6 Next we'll talk about the LEU project. The
7 purpose of the project is to build fuel bundles using low-
8 enriched uranium and the fuel pellets will contain less
9 than or equal to five percent of U-235. And these pellets
10 will come from Wilmington or from another approved
11 supplier.

12 The application includes new and current
13 CANDU reactors. With an LEU potential exists for
14 inadvertent criticality which must be controlled. We've
15 asked for no change in the production limit to the
16 existing licence. The LEU line will be planned in
17 parallel and separate from the existing natural uranium
18 operations. So it will have its own designated area, both
19 for the absorber section and for the LEU components.

20 The LEU operations will be currently within
21 the licensed area, and we have to construct and commission
22 the LEU line.

23 At this point I'm going to turn the
24 presentation over to Mr. Paul Desiri and he'll talk to you
25 about the project regulatory components.

1 **MR. DESIRI:** For the record, Paul Desiri.
2 Good morning, Mr. Chair, members of the Commission.

3 Mr. Ward has walked you through the
4 organization, our business, how we make a fuel bundle, and
5 also our performance. I'm going to take you through the
6 regulatory aspects of the project including our request
7 for a licence amendment, our submission of a project
8 description, the public consultation aspects of the
9 project, the environmental assessment itself, and some of
10 the changes we are required to make to our facility.

11 This has been a four-year process beginning
12 with the initial discussions with the Commission back in
13 2006. And on the upcoming slides I have details of each
14 of these components.

15 These are the main changes required to our
16 operation. There's many smaller changes as well, but
17 these are the primary changes. The first and foremost
18 thing that is new with manufacturing enriched fuel is the
19 requirement to have a Criticality Safety Program. We have
20 developed our program in accordance with all applicable
21 requirements including the ANSI standards, and I've got
22 some more details coming up on future slides on this.

23 We are also required to review our security
24 programs and our transportation programs throughout the
25 supply chain which includes receipt of pellets,

1 manufacture of pellets, storage and shipment to the
2 customer. As well, because we will be manufacturing
3 enriched fuel, this will make us change our category to a
4 nuclear installation. We will still be a Class 1B
5 facility but that means we will require extra insurance
6 coverage, and I'll talk about that in an upcoming slide.

7 Mr. Ward has already walked you through
8 some of the changes in terms of the project. Obviously we
9 will need to design our facility to meet all applicable
10 regulations to ensure safe operation; and finally, the
11 operating procedures to support a safe operation using
12 enriched fuel, including training and oversight.

13 The environmental assessment -- in May 2007
14 we submitted our request for determination. At that point
15 it was ruled that it was an environmental assessment
16 screening report required. We then began our studies and
17 prepared our environmental impact statement. This
18 environmental impact statement has been submitted to the
19 CNSC in January 2009.

20 It includes a description of the project
21 which outlines the pertinent details about the project,
22 the changes required. It includes a description of the
23 existing environment, the assessment and mitigation of any
24 environmental effects due to the change in the operation
25 as well as a follow-up program, and also details the steps

1 taken to consult the public and to communicate with the
2 public and stakeholders.

3 Following the submission of our report,
4 CNSC staff prepared their own EA Screening Report.

5 The conclusions from our environmental
6 assessment are that the project is unlikely to cause
7 significant adverse environmental effects taking into
8 account all mitigation and control measures.

9 Criticality safety is not a requirement
10 when handling natural uranium which is our current
11 operation. However, once an operation goes above natural,
12 there is a requirement to have a criticality safety
13 program.

14 Our company is very fortunate that we have
15 a parent company in Wilmington that has been manufacturing
16 enriched ore for over 40 years safely. They have robust
17 and mature programs and that these are considered world
18 class. We are able to leverage them since we are part of
19 the same organization and we report operationally to them,
20 so it's actually a perfect fit from the safety point of
21 view.

22 Very early on in the project, we
23 established our own criticality safety program with staff
24 being trained in Wilmington to their standards and the
25 qualification of the staff is pending. Our nuclear

1 criticality safety program meets CNSC requirements,
2 including all applicable ANSI series of standards which
3 are the international standard.

4 We have prepared a program manual. It has
5 two parts to it which align well with what our plans are
6 in terms of operation.

7 The first part supports a safe operation of
8 small quantities below a critical mass and the second part
9 is for full production. We have the draft completed.
10 It's currently undergoing internal review within our
11 company and our plans are to submit it to the CNSC this
12 quarter.

13 Just if you are able to go back -- I just
14 want to highlight the picture there; it's output of a
15 criticality safety modelling software that we have. We
16 have a half-dozen established codes that have been
17 validated and this is a typical output showing the ability
18 to model a complex geometry of source material and
19 containers and shielding and, in this particular case,
20 it's the vacuum cleaner that we worked with Wilmington
21 staff to complete the criticality safety analysis.

22 Under "Security and Transportation", any
23 amounts greater than 10 kilograms put us into Category 3
24 security. Our facility security has been assessed
25 internally and externally and found to meet Category 3.

1 However, as is customary in the company we, as an
2 objective, aim to go beyond any regulatory standards or
3 requirements and adopt wherever possible best practices,
4 and we will be doing this for security using our
5 Wilmington parent company for example.

6 For "Transportation", we will need to apply
7 for import licences depending on where the material is
8 coming from and we will also require transport licences,
9 and we will do that in advance of the actual
10 transportation. We will need to upgrade our
11 transportation security plan to include scenarios for
12 enriched fuel. Currently, we have a plan that's been
13 filed with Transport Canada which includes scenarios only
14 for natural uranium and those will need to be updated.

15 There is a certified transport package
16 which has been approved for use in Canada and U.S. called
17 the NPC and this is our preliminary choice of a container
18 because it has been qualified.

19 Any quantity above critical mass requires
20 us to become designated as a nuclear installation and, for
21 this reason, there are considerations in terms of
22 additional coverage.

23 We have begun discussions with the National
24 Insurance Board of Canada to secure the required insurance
25 or to determine the policies and requirements and process.

1 The timing for this really depends on the market need for
2 enriched fuel and this is not estimated to occur anytime
3 before 2016.

4 We propose to advise the CNSC at least six
5 months prior to the anticipated need for full production
6 in order to establish the required insurance. The
7 monetary amount has already been determined in
8 consideration of site-specific risks and applicable
9 standards.

10 At this point, I will return the
11 presentation back to Mr. Ward.

12 **MR. WARD:** Mark Ward, for the record.

13 In summary, our current programs are
14 effective and robust, resulting in a history of safe and
15 compliant operation at GHC. Environmental impacts have
16 been evaluated and no significant adverse environmental
17 effects are anticipated as a result of this project.
18 Criticality safety capability is in place and we have
19 programs in development.

20 Thank you, and that concludes our
21 presentation.

22 **THE CHAIRMAN:** Thank you very much.

23 I'd like to move now to a presentation by
24 CNSC staff and I understand that Mr. Elder will make this
25 presentation. The floor is yours.

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10-H2 / 10-H3 / 10-H3.A

Oral presentation by

CNSC staff

MR. ELDER: Thank you. Good morning, Mr. President, members of the Commission. My name is Peter Elder. I'm the Director General of the Directorate of Nuclear Cycle and Facilities Regulation. With me today are Mr. B.R. Ravishankar, Director of the Processing and Research Facilities Division; Mr. Gerald Crawford, Project Officer for GE-Hitachi's Peterborough facility. Behind me that will be part of the presentation I have Mr. Brian Torrie, Director of our Environmental Assessment Division and Dr. Caroline Ducros, Environmental Assessment Specialist and, in addition, we have members of our licensing compliance team who are also present to answer any questions.

This licence amendment, as GE has already mentioned, is to allow them to assemble enriched uranium bundles -- fuel bundles -- at their Peterborough facility.

CNSC staff has prepared three CMDs associated with this one. This request, CMD 10-H2, will address the requirement for the environmental assessment.

CMD 10-H3 talks about the licensing

1 requirements for the amendment and there is also a
2 supplemental CMD, H3.A, to address the specific issue of
3 the application of the *Nuclear Liability Act*. This
4 presentation today covers all three CMDs.

5 I will now turn the next -- turn to Mr.
6 Ravishankar for the next part of the presentation.

7 **MR. RAVISHANKAR:** Good morning, Mr.
8 President and members of the Commission.

9 The two CMDs being presented today provide
10 CNSC staff's analysis and review of the licence amendment
11 application and recommends to the Commission the approval
12 of the licence amendment application. GE-Hitachi
13 requested a licence amendment in May 2007 to assemble low-
14 enriched fuel bundles at their Peterborough facility.

15 Following this, CNSC staff determined that
16 an Environmental Assessment Screening Report would be
17 required under the *Canadian Environmental Assessment Act*.

18 Licensing requirements and the
19 Environmental Impact Statement were developed in 2008.
20 Following this, GE-Hitachi sent an updated licence
21 amendment request presenting more detailed production
22 information in July 2009.

23 CNSC staff has reviewed the licence
24 amendment request and the associated documentation. The
25 EA Screening Report concludes that the requirements of the

1 *Canadian Environmental Assessment Act* have been
2 effectively carried out and that no significant adverse
3 environmental effects are anticipated as a result of
4 implementing this project.

5 The licensing CMD concludes that a nuclear
6 criticality safety program is required and proposes
7 licence conditions in the amended licence. It also
8 concludes that the existing safety programs are acceptable
9 or will be acceptable with minor additions.

10 The facility will also need to be
11 designated as a nuclear installation under the *Nuclear*
12 *Liability Act*. This is discussed in more detail in the
13 supplementary CMD.

14 Dr. Ducros will now continue with the
15 environmental assessment part of this presentation.

16 **DR. DUCROS:** Good morning, Mr. President
17 and members of the Commission. My name is Caroline
18 Ducros; I am the EA Specialist assigned to this project.

19 Since an environmental assessment has never
20 been done on this facility as it preceded the *Canadian*
21 *Environmental Assessment Act* legislation, the EA for this
22 licence amendment considered all aspects of the uranium
23 fuel bundle assembly.

24 It should be noted that this is not a
25 uranium processing facility.

1 The proposed project involves the addition
2 of new equipment to support an enriched uranium fuel
3 bundle assembly line, including a pellet receipt area, a
4 fuel bundle production area and a fuel bundle storage
5 area. The new bundle production area proposes to be
6 concurrent but physically separate from the existing
7 production line.

8 No new structures or new licensed
9 facilities are proposed. No expansion to the licensed
10 area is proposed and no change in production limit is
11 requested.

12 All chemicals used in the assembly of the
13 fuel bundles were assessed in the EA and meet standards
14 considered acceptable by the CNSC staff. Details of this
15 assessment can be found in the Screening Report attached
16 to CMD 10-H2. The environmental assessment used the most
17 up-to-date data at the time which was for 2008.

18 Historically, the uranium releases to the
19 environment from this facility have been extremely low.
20 The combined releases of uranium in any one year have not
21 exceeded 1 gram. GE-Hitachi calculated in their
22 environmental impact statement report the uranium in air
23 concentrations at the fence line around the facility.
24 This is a million times less than Health Canada and the
25 Ontario Ministry of Environment guidelines.

1 The CNSC licence limit for the maximum
2 concentration of uranium to the sewer is six parts per
3 million in each batch. At this level, there are no health
4 effects. The concentration of uranium in the final
5 effluence to the municipal sewer is very small and below
6 the Health Canada drinking water objective of 20
7 micrograms per litre.

8 The bounding case for the environmental
9 assessment considered the production of five percent
10 enriched uranium fuel bundles at the maximum licence
11 capacity of 1,800 tonnes per year. In this case, the
12 uranium in air concentration would represent 0.001 percent
13 of the public dose limit and would be within the natural
14 variability of uranium in a local environment and have no
15 health effects.

16 In terms of public engagement, the draft EA
17 guidelines were sent to stakeholders for comment and a
18 notice and copy was sent to the Peterborough Public
19 Library and the CNSC Library. The following First Nations
20 also received a copy of the draft EA guidelines for
21 review; Hiawatha First Nation, Curve Lake First Nation and
22 Alderville First Nation.

23 For the draft Screening Report, copies of
24 the report went to Curve Lake First Nation, Alderville
25 Ojibways First Nation, the Ojibways of Hiawatha First

1 Nation, Kawartha Nishnawbe First Nation and the Métis
2 Nation of Ontario. Copies were also sent to the
3 Peterborough Public Library and the CNSC Library and four
4 members of the public who made themselves known to us.
5 Eight members of the public also requested and were sent
6 copies during the review period.

7 None of the First Nations provided comments
8 on the Screening Report. Comments were received from
9 Environment Canada, from the Ontario Ministry of the
10 Environment and from the City of Peterborough. These
11 concerns -- their concerns included the desire that the
12 report include an identification of waste disposal sites,
13 a description of the remediation efforts in the event of a
14 criticality safety accident, and the engineering and
15 administrative controls.

16 A more detailed description of these
17 comments can be found in the disposition table appended to
18 the Screening Report attached to the CMD 10-H2.

19 Eight members of the public provided
20 comments on the Screening Report. Many comments were
21 general in that they did not relate specifically to this
22 project, but expressed concerns regarding the life cycle
23 of uranium in general. All comments received were
24 recorded and considered.

25 Where appropriate, some of the text of the

1 Screening Report was amended to clarify where there were
2 ambiguities. The disposition table indicating how all the
3 comments were considered can be found in Attachment B of
4 the Screening Report attached to the EA CMD.

5 The EA CMD 10-H2 concludes that the
6 requirements of the *Canadian Environmental Assessment Act*
7 were followed and that no likely significant environmental
8 effects were identified. A CEAA follow-up program was
9 considered appropriate for this project and the conditions
10 of the follow-up program will be incorporated into the
11 CNSC licensing and compliance program. Therefore, the
12 follow-up program focuses on confirming the anticipated
13 low releases of uranium to the air and water and on the
14 adequacy of the nuclear criticality safety program.

15 The annual compliance report will be used
16 to demonstrate that the anticipated low releases have been
17 achieved and that the nuclear criticality safety program
18 is effective.

19 To publicly demonstrate the environmental
20 effects of the project were as predicated in the
21 licensee's environmental impact statement and that the
22 mitigation measures were effective, the annual compliance
23 report for the full three years following the licence
24 amendment, if granted, will be made available on the CEAA
25 registry.

1 I will now hand over the remaining part of
2 the presentation to Mr. Crawford.

3 **MR. CRAWFORD:** Good morning, Mr. President
4 and members of the Commission.

5 CMD 10-H3 presents the results of the CNSC
6 staff's review of the proposed amendment.

7 The existing licence conditions do not need
8 to be changed as a result of this amendment, however, a
9 new program for nuclear criticality safety is required and
10 will have to be implemented before enriched uranium is
11 allowed into the facility. To ensure this is done,
12 assessive(sic) new licence conditions are proposed in the
13 amended licence.

14 The existing IAEA safeguards document will
15 need to be updated and the facility may be subjected to
16 additional inspections by the IAEA.

17 The current security arrangements at the
18 facility are appropriate for Category 3 nuclear material.
19 Additional security requirements are required for the
20 transportation of enriched uranium and these are discussed
21 separately in a security CMD, 10-H3.B

22 Minor changes that are required in the area
23 of fire protection and emergency preparedness will be
24 identified in the review process for the new nuclear
25 criticality manual.

1 Nuclear criticality safety is the
2 prevention of inadvertent fission-chain reaction accidents
3 outside of reactors. CNSC has used national and
4 international safeguards for regulating facilities in
5 Canada that possess enriched uranium. These comprise
6 Canadian standards, American standards and IAEA standards.

7 This is an example of some of the standards
8 that we have requested or insisted that GE-Hitachi meet
9 and an example of one of the standard documents which are
10 well used in the nuclear industry; in fact, around the
11 world.

12 Before the introduction of enriched
13 uranium, the licensee will have to implement a nuclear
14 criticality safety program which is compliant with these
15 standards.

16 As a holding point towards full-scope
17 operation with enriched uranium, a possession limit of 80
18 percent of the theoretical smallest critical mass may be
19 established on the site. Such a limit is considered
20 adequate by both Canadian and these international
21 standards.

22 The Commission has, through a number of
23 previous notice of proceedings and reasons for decision
24 statements, endorsed this concept that the limit of 80
25 percent of the theoretical smallest critical mass is

1 adequate, since it is theoretically not possible to have a
2 nuclear criticality event during operations with 80
3 percent of the smallest critical mass on site.

4 CNSC staff will review the licensee's
5 nuclear criticality safety manual when it is submitted, to
6 ensure that the requirements of all these applicable
7 standards are being implemented.

8 As mentioned on the previous slide, the new
9 licence conditions will require an acceptable nuclear
10 criticality safety program is implemented before the
11 introduction of enriched uranium into the facility.

12 The implementation and maintenance of this
13 program will be verified by the compliant -- by compliance
14 inspections by CNSC staff. Annual security inspections
15 will continue to be made and additional IAEA safeguard
16 inspections may also be required.

17 The current licence for this facility
18 expires on the 31st of December this year. A licence
19 renewal application is required in early summer and
20 Commission hearings will be scheduled for the fall. This
21 will give the Commission the opportunity to be updated on
22 the progress made in the assembly of enriched uranium fuel
23 at the facility.

24 The *Nuclear Liability Act*. The *Nuclear*
25 *Liability Act* requires that the onus of nuclear

1 installations have basic insurance cover for the public
2 liability in the event of a nuclear accident.

3 The supplementary CMD, 10-H3.A, explains
4 that the presence of a critical mass of enriched uranium
5 is a trigger for the designation of a facility as a
6 nuclear installation.

7 Thus, this GE-Hitachi facility will have to
8 be designated as a nuclear installation as described in
9 the licensing CMD. This would be the second fuel
10 fabrication facility to be designated as a nuclear
11 installation in Canada.

12 In the supplementary CMD, CNSC staff have
13 recommended that the Commission agree to designate GE-
14 Hitachi Peterborough facility as a nuclear installation
15 and set the basic level of -- the basic insurance at \$8
16 million.

17 The level of insurance has been assessed
18 using a calculation detailed in Appendix 1 of the
19 licensing CMD. This methodology has been used over the
20 preceding 30 years to calculate the level of basic
21 insurance, the results of which have been previously
22 endorsed by the Commission and, lastly, in CMD 05-H35.

23 It should be noted that the final
24 designation as a nuclear installation will only be
25 required when GE-Hitachi has established a full production

1 facility or has accumulated a critical mass of nuclear
2 material at the facility.

3 In conclusion, CNSC staff concludes that
4 the EA process has been appropriately carried out for this
5 amendment and recommends that the Commission accept the
6 conclusions of the Screening Report as proposed in the CMD
7 10-H2.

8 Staff also recommends to the Commission
9 that they amend the licence as proposed in CMD 10-H3.

10 Finally, staff request the Commission
11 agrees with the staff's assessment of the requirements
12 under the *Nuclear Liability Act*, agrees to designate the
13 GE-Hitachi Peterborough facility as a nuclear installation
14 with basic insurance of 8 million, and instructs the staff
15 to initiate the process to implement the designation
16 through the Treasury Board.

17 This concludes my presentation. I will now
18 return the floor to Mr. Elder.

19 **MR. ELDER:** Thank you.

20 This also concludes the overall
21 presentation. CNSC staff is now available to answer any
22 questions.

23 **THE CHAIRMAN:** Thank you.

24 Let's now open the floor for questions from
25 Commission members and let me start with Dr. McDill.

1 **MEMBER MCDILL:** Thank you.

2 My first question is with respect to
3 timelines and it's to GE-Hitachi. I know that 2016 is
4 sort of the end and six months before 2016 sometime you
5 expect to go into production, but other than a date for
6 renewal of a licence in 2010 it's pretty empty between now
7 and then.

8 So can you, without -- I realize there's
9 probably commercial sensitivity -- but can you give us at
10 least some indication of when you expect to have the
11 parallel line assembled, when you might begin to test,
12 perhaps when you expect to reach one critical mass?

13 **MR. WARD:** Okay, Mark Ward, for the record.

14 To talk about the timeline, currently we're
15 involved with a program with AECL for the ACR, the
16 advanced CANDU reactor, and we've been making out-of-
17 reactor bundles, i.e. bundles that do not have LEU in them
18 and some with natural components at this point.

19 I think the first phase as Mr. Desiri
20 mentioned is we would like to be able to make, pending the
21 licence, make some bundles in the next probably two years
22 for AECL for testing.

23 But to answer your question in terms of
24 when the parallel line would come in place, it will really
25 be dependant on the success of AECL and actually selling

1 an advanced CANDU reactor and moving forward with that
2 program.

3 We anticipate that around 2016 is when they
4 may have the requirement for fuel delivery and then we can
5 just back that up maybe two years for the implementation
6 of a line, maybe around 2014. But at this point, pending
7 the need for the advanced CANDU reactor and the sale of
8 fuel for a reactor, those are our best times.

9 **MEMBER McDILL:** So there are no other
10 anticipated customers that would require such a line?

11 **MR. WARD:** That's correct. There's no
12 other customers for the CANDU technology for this. It
13 will prepare us potentially for the future to process
14 maybe other fuel, non-CANDU fuel in the future, but we
15 don't have line-of-sight to that at this time.

16 **MEMBER McDILL:** Thank you.

17 Does staff have a comment on that?

18 **MR. ELDER:** Only that when we talked to GE-
19 Hitachi about this project, especially when it was going
20 to require an environmental assessment, we wanted it to be
21 as broad as possible in terms of not just looking at, you
22 know, the first step, which would be less than a critical
23 mass, to do the test bundles and then come back and do
24 another one for production line. We wanted to make sure
25 that the environmental assessment covered the whole scope

1 of the project to -- into construction, assembly of the
2 bundles on a production basis. And only also then that
3 the requirements for -- in terms of the nuclear
4 criticality program, the standards are the same whether
5 you have -- once you have any is the question of within
6 those standards there's some requirements that are
7 applicable less in the critical mass and there are other
8 requirements applicable above one critical mass.

9 So that in terms of the licence, the
10 important thing was to put in the requirements to have and
11 maintain a nuclear criticality safety program. Once
12 that's there, they -- those standards govern how you
13 behave below one critical mass and below a critical mass
14 or 80 percent of a critical mass and then above,
15 regardless of the timeline.

16 **MEMBER McDILL:** Thank you.

17 My next question is with respect to the
18 transportation packaging. Is there any expectation than
19 anything other than the NPC would be needed? You say
20 "preferred", but does that mean there's a potential that
21 you might need something else and, if so, where does that
22 fit into the testing, design testing and use?

23 **MR. WARD:** Okay, Mark Ward, for the record.

24 It's not that there would be a different
25 container that would be needed but there may be a

1 different container selected. The NPC right now is
2 already approved and it's in use with our Wilmington
3 facility, approved both in the U.S. and here in Canada, so
4 it's readily available to transport both the sintered
5 pellets and also finished fuel bundles.

6 However, the typical commercial contract we
7 have with the utilities is that they manage their own
8 packaging. So we could see in the future that when we get
9 into a production phase that they would probably develop
10 their own approved transport container, own it, and we
11 would simply ship their product in that container.

12 **MEMBER MCDILL:** And I guess I'll ask staff
13 to just confirm.

14 **MR. ELDER:** The basic confirmation is that
15 all transportation of this material has to be in a
16 certified package. So they can either use one that's
17 currently certified; if they want to make a change then
18 they would have to go through the certification process
19 for a different package that is not certified.

20 So the basic -- as I say, the transport
21 regulations are quite clear on what has to be done to get
22 certification for a package and all transport of LEU must
23 be in a certified package.

24 **MEMBER MCDILL:** Thank you.

25 My last question for the moment is with

1 respect to consultation with First Nations and the Métis
2 communities. I can read that information was sent to
3 them. Was there any follow-up to see that it was
4 received?

5 And there is at least one concerned citizen
6 who appears to be identifying as from either First Nations
7 or Métis community, it's not clear of course.

8 So it's one thing altogether to mail
9 something to somebody, it's another thing to follow-up to
10 see if it was received and if there are any comments?

11 **DR. DUCROS:** Yes, we did have
12 correspondence directly with Alderville and Curve Lake
13 First Nations and we did phone to follow-up on the sending
14 out of the screening report for public comment.

15 **MEMBER McDILL:** Thank you.

16 Does GE have anything to add to that?

17 **MR. DESIRI:** For the record, Paul Desiri.

18 We also contacted all three First Nations
19 and invited them to come to our plant for a tour and it
20 was declined.

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

22 **THE CHAIRMAN:** Thank you.

23 Dr. Barnes?

24 **MEMBER BARNES:** Thank you.

25 To G-H, you made a point on your PowerPoint

1 Number 4 of emphasising the recognition factor for the
2 company, but is this for GE-Hitachi or was it for GE U.S.,
3 GE International, it wasn't at all clear?

4 **MR. WARD:** The recognition points that were
5 brought out were generally for the larger GE company.

6 **MEMBER BARNES:** And the same with the
7 integrity one on Power Point 5?

8 **MR. WARD:** Yes, well the integrity of the
9 spirit in the letter is company-wide so that comes down
10 through to our company to the GE-Hitachi and we adhere to
11 those policies.

12 **MEMBER BARNES:** The next two Power Points
13 you made, 6 and 7, particularly 7, was the organizational
14 chart where you give the President and CEO, Peter Mason,
15 under -- in there are two layers of six. And it would
16 appear from the organizational chart that all 12 VPs and
17 managers report to the CEO. Is that true?

18 **MR. WARD:** Yes, that is true. On Chart 7,
19 all of the direct reports under -- report directly to
20 Peter Mason.

21 **MEMBER BARNES:** The staff have any concern
22 of that large number reporting to one person, who I
23 imagine is perhaps on the road quite a bit to U.S.
24 partners?

25 **MR. ELDER:** We generally do look at their

1 quality assurance and their management and their structure
2 on this one. We haven't seen any problems in terms of the
3 implementation of this one in terms of the licensee is
4 very responsive to correcting problems and identifying --
5 you know, when they are identified. So we don't see any
6 problem in terms of application of such a structure in
7 that from our point of view we want to make sure if we
8 raise a problem then it gets with quickly and
9 appropriately.

10 They seem to have the roles and
11 responsibilities structured that that is happening. So
12 the number of people reporting to the President has not
13 had any operational issues for us.

14 **MEMEBER BARNES:** So just my other question
15 on that and you just raised it, but it's not clear again
16 on this diagram where the -- don't think so anyway --
17 where the QAQC lies. Who is responsible for that?

18 **MR. WARD:** Mark Ward, for the record. Down
19 on the bottom there's a bucket for the quality manager so
20 all of the quality falls under Henry Hann.

21 **MEMBER BARNES:** Okay.

22 **MR. WARD:** If I can make one other comment
23 in terms of the organization. We meet every four weeks;
24 we have an operations review. It's a one-hour meeting
25 with the U.S. on known metrics, and we also meet for the

1 entire day, all of Peter's direct reports. And on top of
2 that, in my organization of fuel operations, we meet four
3 months, basically two days prior to that. So there is a
4 lot of communication, a lot of dialogue within the company
5 and a lot of face to face.

6 **MEMBER BARNES:** One of the issues with
7 criticality is the presence of water and so forth, and so
8 I just come back to the flood risk that's reported
9 basically or covered on pages 18-19 of the staff CMD.

10 I think those with long memories recall
11 downtown Peterborough being seriously affected by flooding
12 and I can't remember now -- I don't think it's reported in
13 the documents we're considering today how close that
14 flooding reached your particular plant site. Could you
15 remind us of that, or the differential height between that
16 high flood level and the altitude, elevation of your
17 facility?

18 **MR. WARD:** Okay. Mark Ward, for the
19 record.

20 When the flood took place there was water
21 that did enter into our building but it was more of a skim
22 coat just along the surface and it was typically flowing
23 in a direction.

24 When we look at the LEU in the line, what
25 we will do is we will put in a diked area and we currently

1 have this in our R2 area now where we have a diked area
2 and a lot of it is for containment in case the sprinkler
3 system went off that we can contain it as well.

4 So we will put all of that into
5 consideration -- the possibility of raising the floor as
6 well. So based on that history and the 200-year floods
7 that happened in Peterborough, we will put that into
8 consideration into our design.

9 **MEMBER BARNES:** What about the height of
10 those dikes?

11 **MR. WARD:** The height of those dikes
12 typically are between four -- roughly four and a half, six
13 inches.

14 **MEMBER BARNES:** Yeah. So again there was
15 nothing in the EA, I think. Normally in the EAs that we
16 get there's some consideration to changing aspects of
17 climate change. And I'm not sure if anything was done to,
18 in a sense, do engineering to prevent another kind of
19 major flood in Peterborough, but clearly there are likely
20 to be much more significant storms affecting southern
21 Ontario than we've seen to this point. So I wasn't
22 necessarily convinced that there'd been enough attention
23 paid in the EA to this extreme risk that might occur on
24 occasion, particularly its pertinence to the criticality
25 issue.

1 Maybe licensee first and then staff.

2 **MR. WARD:** Yeah, I think just when we look
3 at the design that we would have to look at the impact of
4 that going forward with the design and knowing that the
5 flood is possible and may reoccur and make sure that we
6 have adequate containment to block the water and keep it
7 away from the LEU.

8 **MEMBER BARNES:** I was surprised it wasn't
9 considered though at this stage.

10 **MR. WARD:** I'll defer to Dave Snopek.

11 **MR. SNOPEK:** Dave Snopek, for the record.

12 The two floods of 2002 and 2004 were
13 included under the accidents and malfunctions in the EA
14 Environmental Impact Statement as a potential initiating
15 event for criticality, so it was looked at in the EIS.

16 **MEMBER BARNES:** And staff, any comment?

17 **MR. ELDER:** Comment in terms of when they
18 do their -- GE-Hitachi showed some of the criticality
19 modelling and some of that modelling you do is you assume
20 the initial protection on the fuel is to make sure that
21 you don't put it into a geometry. You know, you control
22 the geometry so that it won't go critical even if it is
23 flooded.

24 So the analysis assumes complete flooding
25 of the whole building and demonstrate that you can't go

1 critical even with complete flooding. So then the
2 flooding prevention or -- and also looking at when we're
3 talking about the general changes to the fire protection
4 system is that's again make sure that you can't flood
5 because of your sprinkler system is a secondary line of
6 defence. The first line of defence is to control the
7 geometry of the LEU so that it can't go critical even if
8 it is flooded.

9 So while this is -- so we look at this one
10 in terms of the frequency of the flood is a factor but we
11 would never assume that there's no flood. You assume that
12 you get a massive flood of the whole building and your
13 safety case is built. It doesn't rely on lack of
14 flooding. It assumes flooding, essentially.

15 **MEMBER BARNES:** Okay. I just have one
16 which I probably should know, but -- so beryllium and
17 potassium hydroxide and uranium are identified as the main
18 hazardous air emissions. Over time is there any potential
19 for those to precipitate in any manner in the lining of
20 the stack, or does it all go up as a gaseous emission?

21 **MR. WARD:** I'll defer that question to Paul
22 Desiri.

23 **MR. DESIRI:** For the record, Paul Desiri.
24 The releases in terms of concentration of
25 all three parameters are so low that the potential for

1 accumulation is not credible.

2 **MEMBER BARNES:** And the staff would agree?

3 **MR ELDER:** Yes, in terms of -- and I just
4 want to point out in terms of the beryllium is -- the
5 licence amendment and what they're proposing to go to LEU
6 does not change the beryllium part because as GE explained
7 in the beginning, that's coated on the tubes and it's
8 independent of what you put inside the tubes is where the
9 measurement is.

10 This risk is -- not only do we look at it,
11 Ontario Ministry of Environment keeps very close tabs on
12 the beryllium because it is a highly toxic element so that
13 it is closely regulated and they look carefully for any
14 deposits. So there is a lot sampling around it. The
15 evidence to date has been they have extremely low releases
16 and no evidence of concentration.

17 **MEMBER BARNES:** No, I understand there's
18 very low releases, but over years I wondered whether
19 there's any capacity to have any kind of build-up on the
20 inside of the stack which would have some concern in the
21 decommissioning phase.

22 **MR. CRAWFORD:** Just to kind of put the
23 picture, I think there may -- there's always a chance
24 there may be some material deposited in the stack, but the
25 overall emissions are low in the environment.

1 The MOE did a survey in 2005 where they
2 looked at heavy metal deposits in the area around. They
3 took a lot of samples from grass, trees, leaves and they
4 were looking for beryllium, uranium, zinc, copper; just
5 general industrial metals that you'd expect to see around
6 a long-established industrial facility. All the levels of
7 these metals were well below any levels of interest or
8 concern to the MOE. I'm not aware they're planning to do
9 another one as the results of this were very low.

10 So the environment is fairly -- it has been
11 looked at and is clean. As regard to what's deposited in
12 the stack, it's difficult to say that there won't be
13 anything but it will be addressed in decommissioning. It
14 will have to be addressed in the decommissioning plan.

15 **THE CHAIRMAN:** But just so I understand, if
16 there were cumulative effects, by the fact that we measure
17 it now annually you would detect this, wouldn't you?

18 **MR. DESIRI:** For the record, Paul Desiri.
19 That is correct.

20 **THE CHAIRMAN:** Thank you.

21 Okay, let's move on to Mr. Graham.

22 **MEMBER GRAHAM:** Mr. Chair, just to follow
23 up on Dr. Barnes' questioning with regard to the flooding,
24 you were saying that you have taken in all aspects of
25 dyking and so on.

1 Will all of these plans and so on be
2 submitted before you go into the manufacturing as to
3 dyking and as to dealing with criticality, the exposure of
4 water either through sprinklers or through flooding and so
5 on?

6 I'm not really clear on the procedure.
7 You're going to have some LEU between now and licensing in
8 the end of this year. I believe that's right; you'll have
9 small amounts. So as an interim measure, what are you
10 doing to deal with exposure of water or the possibility of
11 flooding in the interim?

12 **MR. WARD:** Mark Ward, for the record.

13 In the interim, we would have masses below
14 the critical mass, so probably only the equivalent of two
15 bundles worth of LEU on site, so it should not be a
16 concern at that point.

17 To answer your question, yes, all of the
18 documentation would be submitted and reviewed for our
19 plans and our design for the LEU area, including our water
20 containment.

21 **MEMBER GRAHAM:** The LEU production that
22 you're looking at is strictly for the ACR-1000. Is that
23 correct?

24 **MR. WARD:** Mark Ward, for the record.

25 Yes, that is correct.

1 **MEMBER GRAHAM:** But in a business plan
2 going -- that's for the remainder of this licensing
3 period, but in the business plan going forward you may be
4 producing fuel for another type of reactor?

5 **MR. WARD:** Yes. Mark Ward, for the record.
6 That is a possibility. What we feel is
7 that the utilities are looking at improving the efficiency
8 output of their units and that using LEU fuel in their
9 units can achieve it, so we want to be ready because with
10 time there may be other requests or other types of fuel,
11 and you may be familiar with the LVRF fuel that was
12 prototyped as well. So we just want to be ready and at
13 the forefront to support the CANDU industry.

14 **MEMBER GRAHAM:** Back about a year or two
15 years ago, Bruce Power received some bundles, some rods
16 that were defective. Were those manufactured at your
17 plant or at another different facility?

18 **MR. WARD:** Mark Ward, for the record.
19 Those bundles were not manufactured at GE-
20 Hitachi. They were from another facility.

21 **MEMBER GRAHAM:** Thank you.

22 The other question I have, Mr. Chair, is
23 with regard to safety and the general public aware of the
24 potential of criticality and so on.

25 What type of additional training will there

1 be, for example the fire departments, the emergency
2 preparedness, municipal staff and so on along this -- now,
3 I note you say you're not going to have enough material to
4 cause criticality in this licensing period but going
5 forward, what is your plan there? Training of the
6 municipality and so on and the various staff that you
7 depend from outside to assist you in a disaster.

8 **MR. WARD:** Mark Ward, for the record.

9 We have quarterly review meetings and an
10 annual review with the emergency services of Peterborough.
11 I'll defer the question over to Paul Desiri, who works
12 directly with those service groups in Peterborough.

13 **MR. DESIRI:** For the record, Paul Desiri.

14 Yes, as Mr. Ward was saying, we have
15 regular meetings with emergency organizations. We have
16 project-specific meetings. For example, last fall we had
17 all the emergency response organizations into our plant
18 for a tour to discuss the project. On an ongoing basis,
19 we will have regular facility orientations, at least on an
20 annual basis.

21 So, for example, the police and fire
22 department will have a tour. We'll have a presentation on
23 current issues, we'll have a discussion, and our objective
24 is to meet all their own internal objectives for
25 coordination and emergency response effectiveness.

1 **MEMBER GRAHAM:** Question of CNSC staff with
2 regard to going forward.

3 What changes will there be with regard to
4 decommissioning and financial guarantees within the
5 licensing period of what we're dealing with today? Is
6 there going to be any change with decommissioning or
7 financial guarantees up until the end of this year, up
8 until the end of this licensing period?

9 **MR. ELDER:** The licensing period is -- we
10 did look at the effect on the decommissioning and we felt
11 that would be -- it's well within the current contingency
12 in their decommissioning fund, so while they do need to
13 update their decommissioning plan as part of the -- for
14 renewal licence renewal, it wasn't -- this change and this
15 amendment was not going to have a significant impact on
16 the decommissioning costs because it's not -- there are no
17 additional -- you know, there's no real big changes in the
18 amount of waste or the type of waste that they were
19 producing.

20 The new equipment is not, again,
21 significantly changing what they would do. So there is a
22 requirement to update it and do their five-year review.
23 We did look at it again in terms of making sure that there
24 was enough contingency in the current one, and also taking
25 the fact the licence renewal is later on this year.

1 **MEMBER GRAHAM:** I presume then that GE-
2 Hitachi are current and everything is up-to-date with
3 regard to the financial guarantees. Is that correct?

4 **MR. ELDER:** Yes, there is an irrevocable
5 letter of credit, financial guarantee, and it's current
6 and up-to-date.

7 **MEMBER GRAHAM:** Question to CNSC staff.

8 In the licence, 6.2 of the licence, there
9 is a list from A to G of authorized doses that are not --
10 "does not authorize licensee to import more than the
11 following in a calendar year". Can those quantities all
12 be imported at one time?

13 **MR. ELDER:** Yes, these are based on what
14 they would need in terms of -- if they go before this they
15 will need a separate importation licence, so it's just
16 noting what you can import without a licence. Well, under
17 this licence as opposed to a separate importation licence.

18 **MEMBER GRAHAM:** That can be all within one
19 year and not necessarily is in parts1 it can all be done
20 in one year. Is that correct?

21 **MR. ELDER:** Yes. There's no -- it's based
22 on -- yes, they can all be brought in at the same time.

23 This is based on inventory control on the
24 site rather than based on any particular risk of bringing
25 it in on a monthly basis, so it's not based environmental

1 releases. That is talking about making sure that we
2 understand what inventory and what they're allowed to
3 bring into the facility.

4 **MEMBER GRAHAM:** Another question I have
5 with regard to fire protection.

6 I realize that the old licence dealt with
7 Code 1995. I know you'll be coming forward in the new
8 licensing period for different codes, but are all third-
9 party reviews -- are they in compliance with all third-
10 party reviews at this time?

11 **MR. ELDER:** Yes, they have -- all their
12 third party reviews are being done and they are addressing
13 promptly any findings from those reviews.

14 **MEMBER GRAHAM:** My other questions were
15 with regard to training of staff to deal with -- and this
16 is to GE-Hitachi.

17 How much new staff will you have to have
18 that will be specifically dedicated to this production
19 line?

20 **MR. WARD:** For the first phase of the
21 project, we don't foresee any new staff being required for
22 that and we'll use the current staff we have, technicians
23 and engineers, to handle that.

24 When we move forward into full production,
25 we would have to bring in the resources required for the

1 given volume, but there would not be a significant
2 increase at this time.

3 **THE CHAIRMAN:** Thank you.

4 Monsieur Harvey?

5 **MEMBER HARVEY:** Merci, Monsieur Président.

6 I just want to come back to the
7 transportation package.

8 I read in the paper -- in the document that
9 some tests were performed in the -- such package -- some
10 package were certified. But who does that and does the
11 staff of the CNSC in itself have something to do with that
12 or -- and who is responsible if something happens if --
13 and a problem occurs during the transportation?

14 **MR. ELDER:** We can give you some details on
15 how this is done, but it is the CNSC that gives the
16 certification on the transportation packaging. There is
17 harmonization with the packaging internationally and
18 especially with the States to make sure the packages can
19 transfer between countries. So a lot of these
20 requirements are based on the guidance developed by the
21 International Atomic Energy Agency.

22 And when you do the certification, you have
23 to demonstrate that under some quite severe potential
24 accident conditions that there will not be releases from
25 the package. So there is a -- they actually go through a

1 fire test, they go through drop tests, but we can -- if
2 you're interested -- do you want more detail than that
3 about how it's done, or just to say ---

4 **MEMBER HARVEY:** I just wanted to ---

5 **MR. ELDER:** --- there is a very structured
6 process that is followed in terms of transportation
7 packages to qualify or certify ---

8 **MEMBER HARVEY:** --- so you're not doing
9 anything then -- you accept that if it's accepted by
10 international standards, so it's okay?

11 **MR. ELDER:** No, it's necessarily saying --
12 they have to be individually certified in each country.
13 What we do make sure is that, to the extent possible, that
14 those requirements are standardized so that if we certify
15 a package it is likely to be accepted by the Americans as
16 well for transportation across the border. So there is a
17 very, you know -- so we would require exactly the same
18 tests. On some packages a test may be done in the States
19 and they give us the results rather than repeating the
20 test in Canada.

21 **THE CHAIRMAN:** We have an expert right
22 behind your head that is raising their hands. Once we
23 hear -- go ahead.

24 **MS. GLENN:** Karine Glenn, Transportation
25 Specialist, for the record.

1 The transportation of fissile of materials
2 is performed in its certified packages. The testing,
3 which is consistent with international regulations, is
4 performed by the licensee either through actual testing or
5 through demonstration, through calculations which could be
6 done through computer modelling.

7 If they are designing a new package, as a
8 regulatory body, we -- and if it was the licensee within
9 Canada that was doing that -- we would request that we be
10 invited to witness the testing. And so we perform a full
11 safety assessment of the package whether it was approved
12 by another competent authority elsewhere in the world or
13 not.

14 When it comes to fissile material package,
15 we do a full assessment to verify the safety of the
16 package and if we find that the package is satisfactory
17 then we issue certification for a period typically of five
18 years. So every five years, they would need to re-apply.

19 **MEMBER HARVEY:** When you say that the
20 licensee is responsible to do those tests, is the shipping
21 -- the licensee shipping the package and not the one
22 receiving it?

23 **MS. GLENN:** Well, we consider the person
24 who submits -- who performs the testing can be either the
25 person who receives the package or who ships the package.

1 It's irrelevant; the standards are the same regardless of
2 who ships.

3 During the actual transportation of the
4 package, typically the consignor is responsible for the
5 safety of the package as they have prepared the package.
6 So the person sending the package is responsible for the
7 safety during transportation.

8 **MEMBER HARVEY:** Thank you. I have another
9 question.

10 On page 37 of this training report, just at
11 the bottom of the page, the last paragraph. It's
12 mentioned that uranium in your sample results have been
13 consistently below the GE-Hitachi action level and is
14 anticipated that careful dust control will enter similar
15 results in the facility.

16 What do you mean by careful? It's up to
17 the employees to do that or you have some equipment or you
18 have some directive or something like that, because
19 careful is not very defined.

20 **MR. WARD:** Mark Ward. I'll defer that
21 question to Paul Desiri.

22 **MR. DESIRI:** For the record, Paul Desiri.

23 All of our monitoring of airborne
24 contamination is done by dedicated environment health and
25 safety staff according to established procedures. So in

1 the case of the airborne workplace monitoring, they have a
2 prescribed routine, which in this case is weekly, where
3 they take an air sample. It's analysed in-house. It's
4 also verified at an external lab and then the results are
5 communicated to the workplace.

6 In most cases, the concentrations measured
7 are a tiny fraction of the action level.

8 **MEMBER HARVEY:** Either you have to be
9 careful in the measuring the emission, but those also
10 those that are doing the job, so my question was mainly on
11 the one you have to do something when you work on the
12 line, what "careful" means?

13 **MR. DESIRI:** For the record, Paul Desiri.
14 For the employee doing the work, "careful"
15 means following established procedures for safe
16 processing.

17 So in that case, it may be if they're
18 moving trays that they do it in accordance with safe
19 procedures for safe lifting and take precautions to
20 prevent the spill of pellets to do the routine job to
21 minimize the generation of dust, and the workers are
22 trained to know what that is -- and that's careful.

23 **MEMBER HARVEY:** Okay. And last, another
24 question.

25 In Appendix A, number 88(b), last column,

1 is this about the both existing naturally in washing
2 process? Are you talking waste water process or batch
3 process? And there is two different batch processes.

4 And what guarantee do we have that there
5 will not be simultaneous releases of those batch and how
6 can the staff monitor that, and do you advise the staff
7 when you've got to discharge a batch or what is the
8 process you're ---

9 **MR. DESIRI:** For the record, Paul Desiri.

10 The process is, the water is collected from
11 floor washing and transferred to a drum. Normally, we
12 discharge one barrel a quarter, so one barrel every three
13 months.

14 Before the barrel is discharged, it is
15 measured, the concentration is determined, it is reviewed
16 by environment health and safety staff, and they give
17 approval to discharge, and it would not be released if
18 it's above the three part per million control level.

19 All results also are reported to the CNSC
20 in compliance reports.

21 **MEMBER HARVEY:** And there is no possibility
22 that the -- because you've got two systems that the --
23 both batch would be ---

24 **MR. DESIRI:** For the record, Paul Desiri.

25 All controls apply equally to both batches.

1 **MEMBER HARVEY:** Okay. Thank you.

2 **THE CHAIRMAN:** Alors, Monsieur Tolgyesi.

3 **MEMBER TOLGYESI:** Merci, monsieur le
4 président.

5 You know when we looked at this
6 environmental assessment study I realized that there is no
7 kind of general or global plan, we are talking about model
8 levels and wind and whatnot locations and we don't have a
9 global plan. There is one plan, the -- block plan where
10 is in the industrial park where is the location of those
11 buildings but there is no other one. There is one picture
12 which is showing where is the First Nations but you are
13 talking about lakes and watershed, et cetera and it's --
14 no information on that.

15 Probably I will appreciate something on
16 that. That's kind of common.

17 It's the same thing for the licensee, there
18 is no plan you are talking about, construction or
19 manufacturing area for stacking, loading, closure welding,
20 there are in some buildings but there is no more
21 information on that and so where they are?

22 And my question was for transportation;
23 these are two comments and transportation, when you are
24 saying that the transportation is the responsibility --
25 the responsibility belongs to the utility or

1 transportation company or provider, when he transports
2 material from one side to other one; am I right, he should
3 have a licence to do the transportation?

4 **MR. ELDER:** Yeah, if your transporting --
5 depends on what you're transporting, you know, the
6 licences for transport yes, are required under certain
7 conditions, yeah.

8 **MEMBER TOLGYESI:** So what kind of licence
9 will need because on GEH presentation there was that they
10 will need a transportation licence.

11 **MR. ELDER:** I'll ask Karine Glenn to give
12 you a description on what sort of transportation licence
13 they will need.

14 **MS. GLENN:** For the record, Karine Glenn.

15 A licence is required to transport Category
16 3 nuclear material. So in this case low-enriched uranium
17 qualifies as a Category 3, so they will need a licence
18 under which they will need to submit a transportation
19 security plan which I believe is addressed in a separate
20 CMD but the responsibility for safety is -- remains on the
21 licensee.

22 Just a point to add is that the basic
23 philosophy behind transport is that the safety is inherent
24 to the transport package so that's why we certify the
25 actual package design as opposed to operational controls

1 which are minimized.

2 **MEMBER TOLGYESI:** So did you develop a kind
3 of criticality safety program or training which you will
4 require with your licence?

5 **MR. WARD:** At this point we have not done
6 that but we will need to review the transportation and
7 update our transportation policies and our emergency
8 response procedures as well.

9 **MEMBER TOLGYESI:** Tell me, when I am
10 looking at these buildings, 21 and 24, where you will add
11 mainly those facilities to process; how many employees you
12 have on these areas, 21 and 24 in the buildings?

13 **MR. WARD:** Mark Ward, for the record.
14 Speaking specifically to employees that
15 work with the fuel, there's about -- between 50, 55
16 employees. In Building 21 the whole main floor is the
17 manufacturing site for the fuel bundle manufacturing and
18 Building 24 is typically just one person and it's
19 basically just storage, it's not an active -- an active
20 work area.

21 **MEMBER TOLGYESI:** So in 21 there's about
22 50?

23 **MR. WARD:** There'd be about 50 for
24 employees that are actively working on the product.
25 There's other staff and other engineers also in the near

1 vicinity in 21.

2 **MEMBER TOLGYESI:** That's my next question;
3 there are about 50 who are directly involved with
4 processing or production or storage, and how many other
5 staff, employees you have in these buildings?

6 **MR. WARD:** There's about 20 -- basically
7 onsite there's about -- say about 200 employees onsite.
8 The whole second floor of Building 21 is Nuclear Services,
9 so it's a number of engineers and it's where all the
10 design -- design work is. So there are a number of
11 employees in Building 21.

12 **MEMBER TOLGYESI:** And this Building 26?

13 **MR. WARD:** Building -- Mark Ward, for the
14 record.

15 Building 26 is used by Nuclear Services,
16 it's a large manufacturing building with large C and C
17 type equipment, welding facilities. I would estimate that
18 there could be 20, 25 people in that at any one time.

19 **MEMBER TOLGYESI:** M'hm. And if there's an
20 incident, manufacturing will take place in Building 21.
21 If it's an incident or accident what's the radius of
22 impact of this accident, depending on seriousness?

23 **MR. WARD:** Mark Ward, for the record.

24 The radius impact would be very close if
25 there was a reaction that took place.

1 But I'll defer that to Paul Desiri for more
2 detail.

3 **MR. DESIRI:** For the record, Paul Desiri.

4 In our environmental assessment we are --
5 we did calculate the dose contours from an accident and
6 that's based on a design-basis accident and we were able
7 to determine the dose at the fence line from neutron gamma
8 and airborne as a result of the accident and it came to
9 about 13 millisieverts. And that's -- the fence line, as
10 you can see in the diagram of the building, it's not very
11 far from the building.

12 But the doses would drop off from that
13 point; they would get lower and lower and lower. So there
14 would be impacts and the primary impact, as Mark Ward
15 said, is on the site, but there would also be impacts
16 beyond that as well.

17 **MEMBER TOLGYESI:** Once there will be
18 impacts what kind -- what severity or importance of
19 impact?

20 **MR. DESIRI:** For the record, Paul Desiri.

21 The facility has to be designed, it's an
22 absolute requirement for the design to ensure that if the
23 accident does occur, doses to the member and public are
24 below 50 millisieverts and we will ensure that.

25 **MEMBER TOLGYESI:** Staff, do you agree with

1 this evaluation?

2 **MR. ELDER:** Yeah, this is -- the
3 evaluations follow all their normal procedures so that
4 most of the impact or any potential impact, the serious
5 impact would be inside the building and that's also
6 consistent with the history of all -- any criticality
7 accidents throughout the world, that is a very localized
8 impact, it's a hazard -- a different hazard and potential
9 hazard certainly much for the workers than outside the
10 building.

11 So it's a very localized impact within the
12 building. There would be some small dose outside the
13 building but our requirements are that they -- for the
14 worst credible situation, which we define as a one in a
15 million year situation, is that the doses to the public
16 remain well below a hazardous level.

17 **MEMBER TOLGYESI:** My last question is a
18 kind of -- directed to the staff because in your
19 environment assessment you are talking about atmospheric
20 environment, you're talking about wind and atmospheric
21 stability, and atmospheric stability you are saying is
22 tied to the vertical temperature structure and it's an
23 amount of vertical motion in the atmosphere and it's the
24 ability to mix pollutants.

25 What's the impact of the stability? It's a

1 good or bad thing if it's stability there? Or you prefer
2 if it's more stability or less, and how it ties to the
3 winds?

4 **MR. RAVISHANKAR:** Ravi Ravishankar, for the
5 record.

6 What they mean by stability -- this is a
7 meteorological terminology -- is that, depending on the
8 wind motion, the temperature and all that, sometimes the
9 air makes the contaminant plume go in a very tight frame
10 for long distances. Therefore there's no dilution. That
11 is the worst-case scenario. That's the stability air
12 fighting, that's what.

13 So sometimes the conditions are such that
14 it allows the contaminant plume to rise far away from the
15 ground, mix really well and therefore dilute really well.

16 So that is another stability condition.
17 Those are the conditions that are used to calculate the
18 worst-case scenario when the contaminant comes to the
19 ground level and impacts people. That's what they mean by
20 stability.

21 **MEMBER TOLGYESI:** That was the question.
22 It will have an impact on dispersion, okay, and how --
23 when you add the winds to that you will increase
24 dispersion?

25 **MR. RAVISHANKAR:** Yes. When we do

1 dispersion modelling calculations, these aspects are all
2 taken into account during the calculations and it
3 calculates the worst-case scenario for the worst stability
4 condition and worst wind condition.

5 **MEMBER TOLGYESI:** Okay. Thank you.

6 **THE CHAIRMAN:** Okay, Dr. Barriault.

7 **MEMBER BARRIAULT:** Thank you, Mr. Chairman.

8 In the EA Screening Report, on your
9 analysis it states that your levels are below the 10
10 micrograms per litre for uranium. I'm just wondering,
11 what is the frequency of your analyses? Is it done on a
12 weekly basis, monthly basis, daily basis?

13 **MR. DESIRI:** For the record, Paul Desiri.

14 It's done on a quarterly basis.

15 **MEMBER BARRIAULT:** So every three months.

16 Thank you.

17 Next question. In your Slide 13 -- that's
18 GE-Hitachi -- your statistics for health and safety are
19 commendable, but if I look up at the annual effect of dose
20 maximum millisieverts per year, there seems to be a trend
21 going up; 7.8, 7, 10.5 and 9 on the millisievert per year
22 maximum dosage. Also, in 2009 you've got the values as
23 being estimated. Do you have the final values on that?

24 **MR. WARD:** Mark Ward, for the record.

25 I'll talk to the first part, about the

1 trend comment, and defer to Paul for the final numbers.

2 In 2008, the 10.5, it was particular to one
3 employee and we had an increased number of fuel bundles in
4 a given area, final inspection and testing area, as we
5 were making modifications and improvements from a quality
6 standpoint to equipment, and this one individual was also
7 one of the sole people trained to perform a given test.
8 So he had more hours with operation and that's in the 10.

9 And in 2008, also there was generally an
10 increased volume over 2007, so we've dealt with that issue
11 in terms of cross-training at least three people to
12 perform that work, to distribute the hours more
13 appropriately.

14 And in 2009 -- so this stretched, sorry,
15 from October 2008 in through to 2009, that issue, so that
16 will roll over -- and I think through the ALARA committee
17 and our meetings we're working to bring those numbers back
18 down to the historical 7-8 range.

19 **MEMBER BARRIAULT:** Thank you.

20 **MR. WARD:** And I will defer the second part
21 of your question to Mr. Desiri.

22 **MR. DESIRI:** For the record, Paul Desiri.

23 No, we do not have the results yet for
24 2009. We're still waiting for them from our service
25 provider, Mirion.

1 **MEMBER BARRIAULT:** Your fiscal year for
2 these results runs from January to January or is it ---

3 **MR. DESIRI:** Yes, and we will have the
4 results. They're scheduled to be received probably
5 February and we will have them in time to complete the
6 annual report, which is due March 15th.

7 **MEMBER BARRIAULT:** Thank you. The next
8 question is to CNSC staff.

9 In your Slide 13, you say the basic
10 insurance limits will be set at eight million, and if I
11 look back in the previous document for Hitachi, you're
12 carrying 16 million now, I understand. So will there be a
13 decrease in the insurance level with this LEU?

14 **MR. ELDER:** There are two things. There is
15 the financial guarantee, which is the 16 million which is
16 -- well, no. Wait a minute. So this ---

17 **MEMBER BARRIAULT:** What it says is the
18 amount of basic insurance under coverage "A" policy, \$16
19 million. It's in Attachment 2 of CMD 05-H35, page 23 at
20 the bottom of the page.

21 **MR. ELDER:** Yeah, I see the bottom of the
22 page 1. I will have to look into that one. I think there
23 may just -- it may be typo but I'll just ask Paul Hough to
24 look at this, to answer that.

25 Sorry, Gerald Crawford will answer it.

1 **MR. CRAWFORD:** When we first looked at
2 calculating the basis of the basic level of insurance, we
3 did a calculation on the worst case and it assumed no
4 containment for the facility. In the appendix of the
5 supplementary CMD, you'll see a calculation there, and on
6 review with our criticality experts the consensus was,
7 well, there is containment. It's a sealed building; it's
8 a brick/steel construction. And so there was a level of
9 containment, so we dropped that value down by a factor of
10 one, which reduced the insurance level from 16 down to 8.

11 That's a typo that was -- I guess it was --
12 that was the initial calculation and we've revised it
13 since down to eight million, so it's an error in the
14 report which I apologize for.

15 **MEMBER BARRIAULT:** An error in the new one
16 or the old one? The 16 million or the 8 million?

17 **MR. CRAWFORD:** They were both correct, they
18 were, but on revision of the assumptions made we've
19 reduced the value to eight million.

20 **MEMBER BARRIAULT:** Thank you.

21 **THE CHAIRMAN:** Just so I can understand, so
22 when is the trigger? I'm getting two different stories
23 here about when is the trigger for absolutely having to
24 have this eight million in place purchased -- I'm so
25 confused about the timing here. When is the eight million

1 required to be on the books?

2 GE, you want to start with that?

3 **MR. WARD:** Mark Ward, for the record.

4 I'm not sure of the timing requirement but
5 we will comply with whatever the requirement is.

6 **THE CHAIRMAN:** Staff, I thought your
7 recommendation is to go and get -- to start working on it?

8 **MR. HOUGH:** For the record, Paul Hough.

9 Yes, indeed, that is the recommendation, to
10 start working on it because there are a few steps that
11 need to be followed through.

12 In particular, if the Commission agrees to
13 the designation and the amount of eight million, then CNSC
14 has to go to Treasury Board to not only inform them but to
15 get Treasury Board agreement because, in essence, the 8
16 million is backed up by the government to the full 75
17 million. So, in essence, it adds to their liability
18 limit.

19 With respect to your original question,
20 sir, the actual requirement to have the insurance would be
21 triggered, in essence, if they're licensed to have more
22 than a critical mass on site.

23 The interim period where they're looking to
24 put together a couple of bundles with 80 percent or less
25 of -- the smallest critical mass is a situation where

1 there could not be a criticality incident.

2 So, strictly speaking, they would not
3 require this insurance in the interim but we're suggesting
4 that the process proceed because it does take time to
5 complete.

6 **THE CHAIRMAN:** Just for the record, maybe
7 it's me, but I need some clarity here.

8 So if this licence gets approved, licence
9 to amendment gets approved, what's going to happen next?

10 GE, what I'm trying to understand is why
11 you are here in front of us here and not waiting until
12 December 31st to come over with a whole kind of a ball of
13 wax? What are you going to do between now and December
14 31st on this LEU? Are you going to import this tomorrow
15 morning?

16 **MR. WARD:** Mark Ward, for the record.

17 This year most likely AECL would take LEU
18 bundles if we could acquire the pellets and bring them in
19 on site and manufacture them in our facility below the
20 critical mass, so we're probably looking at a two-bundle
21 campaign and then, potentially, next year a two-bundle
22 campaign.

23 **THE CHAIRMAN:** Do you need to build
24 facilities for just handling two-bundle campaign?

25 **MR. WARD:** There would have to be updates

1 to procedures obviously and other things that we would put
2 in place, but no major changes to the facility.

3 **THE CHAIRMAN:** But you will have to
4 separate ---

5 **MR. WARD:** We will have ---

6 **THE CHAIRMAN:** --- the processing alone is
7 ---

8 **MR. WARD:** --- to separate and designate
9 certain things, yes, but it wouldn't be a full, complete
10 production line we'd have to put in place.

11 **THE CHAIRMAN:** So for this -- just two
12 bundles, you don't need insurance, you don't need -- I'm
13 trying to just clarify this.

14 **MR. ELDER:** That's correct. If their
15 intention for this year is just to do two bundles, they
16 would not need insurance.

17 **THE CHAIRMAN:** So there's no criticality
18 possibility?

19 **MR. ELDER:** Because there's no criticality
20 possibility.

21 **THE CHAIRMAN:** What is the critical mass;
22 is it 10 kilograms?

23 **MR. ELDER:** I'll give you Vladimir Khotylev
24 who's our criticality expert to actually, precisely, give
25 you the number.

1 **MR. KHOTYLEV:** Vladimir Khotylev, Fuel and
2 Physics Division, for the record.

3 Determination of smallest critical mass is
4 the responsibility of licensee because they know perfectly
5 well what are impurities, what is requirements for
6 enrichment and so on and so on, but as a general
7 consideration I can tell you that, generally speaking,
8 smallest critical mass of five percent enriched uranium is
9 about 35 kilograms or if you're speaking about UO_2 , it's
10 about 40 kilograms. So their requirement -- or our
11 requirement is for them to have less than 80 percent of
12 smallest critical mass; it means they will have to have 80
13 percent of 40 kilograms.

14 **THE CHAIRMAN:** Thank you.

15 Okay, sorry, Dr. Barriault, the floor to
16 you.

17 **MEMBER BARRIAULT:** That's fine, Mr. Chair.

18 Next question is CNSC again; Slide 5. I
19 look at the bottom of that slide and it says:

20 "Percent of sewer release licence
21 action limit. Sewer release
22 individual back action limit, six
23 parts per million uranium."

24 What does that 40 mean. Is it that they
25 meet the criteria 40 percent of the time and what happens

1 in the other 60 percent? I'm not clear what it means.

2 **MR. ELDER:** It's what their average
3 releases are as a percentage of their -- that action
4 level, so it's just to note that they are well below the
5 administrative limits on that one.

6 Like I said, we struggled a bit on how to
7 present that information because the actual -- if you do a
8 calculation of a derived release limit, you know, they're
9 thousandths of one percent, you know, something like that.
10 It's not a very meaningful number.

11 It's a very, very, you know -- so what --
12 we decided to present it as the initial control point is
13 the action level and compare it against action level.
14 It's really to demonstrate they're well below their action
15 level on those releases.

16 **MEMBER BARRIAULT:** That's a 100 percent of
17 the time, not 40 percent of the time?

18 **MR. ELDER:** That's not a -- no, it is --
19 their average release is 40 percent of the action level.

20 **MEMBER BARRIAULT:** Okay.

21 On that same slide, you got a 2010
22 prediction. Is that based on the same process or is that
23 based on the LEU process?

24 **MR. ELDER:** That is -- from the
25 environmental assessment is based on the LEU process, so

1 it was demonstrated to show that the environmental
2 releases are not predicted to change if you go to -- it's
3 actually -- the reference case is 100 percent production
4 at their maximum level using LEU.

5 So we're not expecting a change in the
6 releases because of going from natural uranium to LEU --
7 five percent LEU.

8 **MEMBER BARRIAULT:** Yeah. So that's not
9 what you're predicting is going to happen this year in
10 2010?

11 **MR. ELDER:** No, no, that's what we're --
12 it's a prediction based on the environmental assessment.
13 So the environmental assessment made some predictions and
14 it was really just to show we're not -- even in the sort
15 of abounding case, that you would not expect to see any
16 real change in the releases.

17 **MEMBER BARRIAULT:** Thank you. Thank you,
18 Mr. Chairman.

19 **THE CHAIRMAN:** Okay, this wraps up the
20 first round.

21 I think there's going to be probably
22 another round, but I think we may want to have a 10-minute
23 break, okay? Why don't we take a 10-minute break
24 reconvening at 11 o'clock? Thank you.

25 --- Upon recessing at 10:49 a.m. /

1 L'audience est suspendue à 10h49

2 --- Upon resuming at 11:01 a.m. /

3 L'audience est reprise à 11h01

4 **THE CHAIRMAN:** We're going to resume the
5 second round of questioning here with Dr. McDill.

6 **MEMBER MCDILL:** Thank you.

7 What would be the difference to you as a
8 company if this were left until December, until when you
9 come back?

10 **MR. WARD:** Mark Ward, for the record.

11 I think it would just delay our efforts
12 with Atomic Energy Canada to provide them with bundles for
13 testing, so it would really be at their schedule to meet
14 their schedule for testing.

15 **MEMBER MCDILL:** Does staff concur with
16 that?

17 **MR. ELDER:** That the delay would -- you'd
18 actually have to have gone back to the AECL, what it would
19 do on their ACR testing schedule. Other than -- all I can
20 say from experience is fuel testing is a long lead time
21 item on reactors, i.e. you have to do it very, you know --
22 it takes a long time to do the testing. It's a very
23 complex, thorough testing, so that it's one of the first
24 things you do for really novel fuel designs, you're
25 starting the testing. You need it now a decade before, so

1 this isn't a complete change, but certainly fuel testing
2 is one of the things you do very early in this part of the
3 design.

4 **MEMBER McDILL:** So I'll ask staff. Fuel
5 testing would normally be done in something like the NRU?

6 **MR. ELDER:** That is where AECL would
7 normally do their fuel testing, yes, but that's not the
8 only place internationally that it can be done.

9 **MEMBER McDILL:** So this is, basically, a
10 commercial response to a contract for you?

11 **MR. WARD:** Yes, yes, Mark Ward, for the
12 record. That is correct.

13 So we've been in a development program with
14 AECL for about two years in manufacturing bundles and it
15 was extremely important that we produce a shell of a
16 bundle for Hugh MacDiarmid for the Infrastructure Ontario
17 bid and it was critical to their program.

18 And at every opportunity they get, they try
19 to get us to expedite the schedule for the existing
20 bundles and we're currently at a design -- almost a print
21 design for bundle manufacturing with enriched -- sorry,
22 with natural fuel in the bundle.

23 **THE CHAIRMAN:** Can I jump -- I'm still
24 puzzled.

25 Just to prove the concept, why can't you do

1 it in Wilmington, in the States?

2 **MR. WARD:** Mark Ward, for the record.

3 Wilmington has a very different
4 manufacturing process as they're processing fuel for BWR
5 components, so they do not have the welding technology,
6 the welding equipment, which we will utilize in our
7 natural line.

8 **THE CHAIRMAN:** Thank you. Thank you.
9 Dr. Barnes?

10 **MEMBER BARNES:** I just have one and it
11 relates to the public consultation process.

12 I think one of the anonymous public
13 responders challenged whether there had been enough notice
14 given to some of the public meetings, but on page 43 of
15 the Screening Report, it's documented how much you
16 advertised this on radio stations and in newspapers and so
17 on.

18 A second bullet on that page says that you
19 hosted a public open house of approximately 120 people.
20 How many of those were GE-H people as opposed to the
21 general public?

22 **MR. WARD:** Mark Ward, for the record.

23 I'll defer that question to Paul Desiri as
24 he was in attendance for the meeting.

25 **MR. DESIRI:** For the record, Paul Desiri.

1 All of our senior team attended which is --
2 with the exception of Mark Ward -- a total of 11 people
3 and the rest were members of the public.

4 **MEMBER BARNES:** Okay, thank you.

5 **THE CHAIRMAN:** Thank you.

6 Mr. Graham?

7 **MEMBER GRAHAM:** Yes, I have a couple of
8 questions, but one of the things that concerns me and I'm
9 not going to get into today, but I just more or less want
10 to -- you're going to be back here in -- for a full
11 licence hearing -- and that is with regard to flooding and
12 models of flooding and how you deal with.

13 I know when you read there'd be so much
14 water that dilution is a factor and so on, but I'm still
15 concerned about when the models, the elevations and
16 everything else that we'd like -- we'll need real back-up
17 diagrams and so on to assure us that with global warming,
18 with two floods in the last decade, that we have
19 assurances, especially around the building and the
20 criticality and so on, but not only that but the whole
21 licensed area.

22 So I'm not going to get into a lot of
23 questioning on that or any questioning, but I want to give
24 you forewarning that that will be required when you come
25 back and we'll expect that.

1 The two questions that I do have, one is
2 with regard to -- this application is for LEU, but for SEU
3 and HEU will there -- if that ever -- if GE-Hitachi ever
4 went forward on that, would that require another
5 environment -- trigger another environmental assessment or
6 has that been covered in this environmental assessment?

7 **MR. ELDER:** The environmental assessment
8 was based on their project description and said up to 5
9 percent.

10 **MEMBER GRAHAM:** Up to 5 percent.

11 **MR. ELDER:** Five (5) percent, so it would
12 cover SEU which is normally within 5 percent. It would
13 not cover ---

14 **MEMBER GRAHAM:** HEU.

15 **MR. ELDER:** No. And internationally, the
16 definition of LEU is up to 19 percent.

17 **MEMBER GRAHAM:** Right.

18 **MR. ELDER:** So this is not even the full
19 range of LEU. It's up to 5 percent. Anything -- you
20 know, all the studies, all the calculations for safety
21 case criticality is up to 5 percent. So you essentially
22 have to go through the whole process. You'd have a good
23 base to start from but you'd go through the whole process
24 again if you wanted to go above 5 percent.

25 **MEMBER GRAHAM:** Okay. And that's your

1 understanding also that if you're planning ahead for
2 anything that the lead time would be significant to do the
3 environmental assessment on taking this beyond 5 percent?

4 **MR. WARD:** Mark Ward, for the record. Yes,
5 that's our understanding and right now our scope is just
6 up to the 5 percent.

7 **MEMBER GRAHAM:** Next question and the only
8 other question I have is in the licensed amendment that
9 you produced, and it's 5.2:

10 "The licensee shall produce a Nuclear
11 Criticality Safety Manual acceptable
12 to the Commission or person authorized
13 before enriched uranium is introduced
14 into the facility."

15 You want to introduce uranium into the
16 facility forthwith. Has that manual been completed and
17 has it been accepted by the Commission? So first is GE
18 Capital.

19 **MR. WARD:** Mark Ward, for the record.

20 Yes, the manual has been completed in draft
21 just recently. It's going through internal review within
22 GE-Hitachi and the proposed date is to have it presented
23 to the CNSC, submitted to the CNSC in the first quarter of
24 2010.

25 **MEMBER GRAHAM:** And you will follow this

1 licence condition that you will not start bringing in
2 enriched uranium until such time as it's accepted by the
3 Commission?

4 **MR. WARD:** Yes; we will follow all of the
5 licence requirements.

6 **MEMBER GRAHAM:** In the licence and in
7 follow-up, I think it was to Dr. Barriault's question
8 about -- or one of my colleagues' questions with regard to
9 80 percent of 40 kg processing, that limit; is that a
10 licence condition? I didn't see it in the licence
11 conditions and I read the licence. Is it there or how do
12 you police that?

13 **MR. ELDER:** That would be described in
14 their manual. So if they wanted to do -- so what we're
15 doing is saying there must be -- our acceptance is based
16 on the international standards that we listed. The
17 Commission is also aware that we're in the process of
18 producing our own document on criticality safety.

19 What we're proposing and one of our
20 requirements that we've communicated to GE-Hitachi for
21 approval of that program are completely consistent with
22 our draft document based on the other Canadian-American
23 standards.

24 They can in their program describe how they
25 would control below 80 percent versus above 80 percent.

1 So when we approve the program, you could approve part of
2 the program for less than the 80 percent critical mass and
3 the program would say you cannot go above that without
4 implementing part 2 of the program which is for above.

5 **MEMBER GRAHAM:** So in other words, it's
6 covered in the manual in the program rather than in a
7 licence condition.

8 **MR. ELDER:** That's correct.

9 **MEMBER GRAHAM:** Thank you.

10 **MR. ELDER:** Because there are some factors,
11 as Mr. Khotylev explained. That manual has to define for
12 what they want to do what 80 percent of the critical mass
13 -- the detailed calculation of what that would be and
14 that's dependent on the enrichment that they want to use
15 for that initial phase.

16 **THE CHAIRMAN:** Thank you. Monsieur Harvey?

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

19 I just want to verify something about the
20 follow-up program. In Ms. Ducros's presentation this
21 morning I think I heard that this follow up will last
22 three years. Am I wrong or is that the case?

23 **DR. DUCROS:** The follow up program is every
24 year for three years. It's Caroline Ducros.

25 **MEMBER HARVEY:** Sorry. That's three years?

1 Oh, every three years.

2 **THE CHAIRMAN:** No, every year for three
3 years.

4 **MEMBER HARVEY:** For three years. So after
5 three years there is -- it's the end. That's all?

6 **MR. ELDER:** Under the environmental
7 assessment portion, under the CEAA and what we're
8 following in terms of the follow-up program required under
9 CEAA. The main elements are that which are our routine
10 annual compliance program, our review of the Criticality
11 Safety Program will continue under the licence.

12 What it is is that there is under the
13 *Canadian Environmental Assessment Act*, a requirement for a
14 defined follow up program to the environmental assessment.
15 That usually turns into part of our routine compliance for
16 the facility. In this case, it definitely will because
17 it's based on what we are currently doing in our
18 compliance program anyway.

19 **MEMBER HARVEY:** But this is a special
20 project because when will start that period of three
21 years? I mean, we don't know exactly when will that be
22 in, well, '16 or in '14 or when? When they will start to
23 import LEU?

24 **MR. ELDER:** It should be from when they
25 actually start to use LEU. It's not that -- the amendment

1 now, and that starts today when they're not actually
2 implementing the project -- when they're actually
3 implementing the project for those periods.

4 **MEMBER HARVEY:** But the project would be
5 implemented over a period of three or four years?

6 **MR. ELDER:** Over a -- yes.

7 **MEMBER HARVEY:** So it's strange.

8 **MR. ELDER:** So I guess we looked at our
9 requirements and said it's the requirements of the follow-
10 up program is also requirements of our routine compliance
11 so we didn't look too much into it. That will continue.
12 They require us to have annual compliance programs. As
13 you're aware that we've been pushing all our licensees on
14 their proactive disclosure to make these publicly
15 available so that the fact that they would be publicly
16 available under the EA we expect would continue under our
17 licence.

18 The other one is criticality safety.
19 criticality safety will continue to be verified as long as
20 there is HEU in that facility.

21 **MEMBER HARVEY:** Thank you.

22 **THE CHAIRMAN:** Thank you.

23 **MEMBER HARVEY:** I'm sorry. Maybe another
24 question about the ---

25 **MR. ELDER:** Just to clear. I said HEU; it

1 should be LEU. Just so I can put myself on the record
2 properly.

3 **THE CHAIRMAN:** I think we understood.

4 **MEMBER HARVEY:** Just a last question about
5 the insurance. What is the role of the Treasury Board?
6 We say that we -- not approve, but command eight million
7 -- but what could be the reaction of the Treasury Board,
8 downgrade or ---

9 **MR. ELDER:** Well, as Mr. Hough explained,
10 under how the *Nuclear Liability Act* works, under the
11 current version of the Act, there is a maximum amount of
12 insurance which is set at \$75 million. When a basic
13 insurance amount is set at less than \$75 million,
14 essentially, the government is re-insuring for the
15 difference and so that becomes a liability for the Federal
16 Government so Treasury Board has to accept that liability.

17 So it's just making sure that the
18 government is formally accepting the liability. It's a
19 standard process that we have used over the years. I
20 don't believe we've got any feedback from Treasury Board
21 on rejecting the amount, but it is also making sure that
22 it starts the process with the licensee to make the
23 arrangements to get the insurance. Insurance is provided
24 by one association in Canada so they have to start the
25 negotiations with that association to get those insurance

1 as well.

2 So Treasury Board likes to see that they
3 can actually get the insurance from the group.

4 **THE CHAIRMAN:** I'd like to follow up on
5 this. I'm not sure I understood exactly the relationship
6 with the eight million and the 75.

7 **MR. ELDER:** I'll ask Dr. Hough to give you
8 a more detailed answer.

9 **DR. HOUGH:** Paul Hough, for the record.
10 The *Nuclear Liability Act* sets a maximum
11 liability for any installation to be at 75 million. That
12 applies to all major facilities. In other words, all the
13 current nuclear reactor operators; AECL have nuclear
14 liability insurance issued by the Nuclear Insurance
15 Association of Canada to that amount.

16 Other facilities, such as Cameco in Port
17 Hope and the universities for instance where SLOWPOKES are
18 located or McMaster, the liability limit has been
19 determined to be much lower than 75 in each case.

20 However, the *Liability Act* stipulates that
21 for any facility where an accident occurs, anything over
22 and above the liability limit for that facility is
23 backstopped by the Federal Government to a maximum of 75
24 million.

25 So if there were an accident to occur at

1 any of the facilities that have insurance -- let's say 4
2 million, for instance -- and the ultimate costs were
3 greater than that, then the Federal Government assumes
4 that responsibility.

5 There has never been a claim against the
6 Act, but the Act as it stands now is such that any
7 facility, regardless of the liability limit set by the
8 Commission, does ultimately have insurance up to 75
9 million because it is backstopped by the Federal
10 Government, making up the difference between that, as Mr.
11 Elder said, between the liability limit that the
12 Commission sets and the 75 million.

13 **THE CHAIRMAN:** So the Treasury Board has to
14 approve this eight million dollars?

15 **DR. HOUGH:** That is correct, sir.

16 **THE CHAIRMAN:** This may be an unfair
17 question. I recall that your CEO, Mr. Mason, made a
18 passionate plea in front of the Standing Committee to get
19 the new *Liability Act* passed. What would that number be
20 under the new *Liability Act* or do we have any feel for
21 that?

22 **MR. ELDER:** I'll just say that under the
23 new Act, or the one that was in front of Parliament, they
24 would -- those calculations would be set through a
25 regulation and NRCAN would lead that regulation. Those

1 have not been drafted at this stage, so it would be hard
2 to determine what it would be for this type of facility.

3 The overall limits would go from 75 million
4 to, I believe, 650 million. So there's about a tenfold --
5 roughly a tenfold increase in that one.

6 **THE CHAIRMAN:** So, Dr. Hough, you were
7 going to say something?

8 **DR. HOUGH:** In actual fact, Natural
9 Resources Canada has come up with a schedule that they had
10 attached to that Bill in front of the House.

11 The facilities that currently are
12 designated but at much lower liability limits, the actual
13 insurance limit under the new Act would not change that
14 much. The only comparable facility to the GE one, for
15 instance, is the Cameco fuel manufacturing facility in
16 Port Hope and if I remember correctly, that facility is
17 currently at 2 million and it would increase to something
18 like 2.3 million; it's not a huge increase.

19 **THE CHAIRMAN:** Okay, thank you.

20 Monsieur Harvey, c'est finis? Monsieur
21 Harvey?

22 **MEMBER HARVEY:** Just one question.

23 How can we compare those figures with the
24 practice in the U.S., for example?

25 **MR. ELDER:** This is in terms of the nuclear

1 liability?

2 **MEMBER HARVEY:** Insurance, yes.

3 **MR. ELDER:** Very hard to compare right now
4 because of the Act; the Americans' went through and their
5 Act is much more moderate now than ours.

6 There's a process to have a modern act in
7 Canada, but we're still operating under the current
8 *Nuclear Liability Act* that was put in force in the mid-
9 seventies, whereas the Americans have within the last five
10 years updated their act so the comparison is very
11 difficult to do.

12 **THE CHAIRMAN:** I must tell you that
13 Honourable Members in the House of Commons have been
14 pondering that question now with a lot of advice from all
15 quarters, ranging from billions of dollars as the numbers
16 should be to the number that the government is sticking
17 with, which is 650, and this is not going to be a subject
18 that we will deliberate or have anything to do with. We
19 will have to live within the parameters that Parliament
20 will establish for us.

21 Okay, Mr. Tolgyesi?

22 **MEMBER TOLGYESI:** Merci, Monsieur
23 Président.

24 You answered to my first question. My
25 question was, what's happened about the 75 million.

1 But coming back to this insurance and the
2 public comments, there was a comment where they're saying
3 the Peterborough City Council also became the 20th
4 municipality in Ontario to pass a motion calling for a
5 moratorium on uranium mining. It's only the uranium
6 mining or they were claiming also processing because you
7 are there?

8 **MR. WARD:** Mark Ward, for the record. I'll
9 defer that to Paul Desiri.

10 **MR. DESIRI:** For the record, Paul Desiri.
11 Our interpretation is that the moratorium
12 applies to uranium mining and not processing.

13 **MEMBER TOLGYESI:** And what we could expect
14 as a reaction when we say we reduce the insurance from 16
15 to 8 million, and what will be or could be the reaction of
16 the population there?

17 **MR. ELDER:** Basically, we don't have any
18 reaction because all these were made available for public
19 -- for intervention today and we didn't get any
20 interventions. So I can't really comment on what reaction
21 we have.

22 **THE CHAIRMAN:** But let me understand
23 something. The 16 is not the liability as it exists right
24 now, or the insurance that exists right now, is it?

25 **MR. ELDER:** No, it's not what exists right

1 now ---

2 **THE CHAIRMAN:** Okay ---

3 **MR. ELDER:** --- what you're seeing as the
4 16 is a -- there was an error in the draft ---

5 **THE CHAIRMAN:** Okay, okay ---

6 **MR. ELDER:** It's a little confusing and I
7 think that's why, actually, when I ---

8 **THE CHAIRMAN:** So it's not changing?

9 **MR. ELDER:** It's not changing. Well, it is
10 changing, it's new. It was zero, now it will be eight ---

11 **THE CHAIRMAN:** Right ---

12 **MR. ELDER:** --- is what we're promoting.

13 **THE CHAIRMAN:** So it's okay.

14 On this city moratorium, just again for
15 clarification, the city could not -- and I don't want to
16 get into legalese here -- the city hasn't got the ability
17 or the power to stop the processing if the Commission
18 licence the uranium processing. You want to comment on
19 that, GE, or not?

20 **MR. WARD:** No, I have no comment.

21 **THE CHAIRMAN:** Staff has any comment on it?

22 **MR. ELDER:** I don't think I would have a
23 comment on that.

24 It's just that we regulate the facility.

25 It's required as under the *Nuclear Safety Control Act* as

1 being an area of Federal interest and when they passed the
2 Act -- I'd also like to -- I was just going through the
3 comments and say we did receive comments from the City of
4 Peterborough on the environmental assessment. They are
5 not the ones who raised the moratorium. So we would
6 assume that the City of Peterborough was -- assuming that
7 it didn't apply -- I think we would have got the comment
8 from them about the moratorium if they were concerned
9 about it.

10 **THE CHAIRMAN:** Thank you.

11 **MEMBER TOLGYESI:** I have two more.

12 One is, the beryllium emission increased
13 about to double -- I mean, it's a small amount but to
14 double -- from 2007 to 2008 it increased from .001 to
15 0002. You don't have any provisions for 2009?

16 **MR. WARD:** Mark Ward, for the record.

17 I'll just state that the fact that the
18 numbers are extremely low and really negligible, small
19 differences even with measuring techniques, it's hard to
20 quantify that.

21 **MEMBER TOLGYESI:** Okay.

22 **MR. WARD:** I'll defer the second part of
23 your question for estimates for -- or results for 2009 to
24 Paul Desiri.

25 **MR. DESIRI:** For the record, Paul Desiri.

1 We will have the 2009 data shortly. It
2 should be ready within one month and it will be published
3 in the annual compliance report.

4 **MEMBER TOLGYESI:** And my last is regarding
5 health and safety. When you're talking about lost-time
6 rate and the recordable rate it's on what basis; 200,000
7 hours, a million hours, or how you calculate that?

8 **MR. WARD:** Mark Ward, for the record.

9 It's based on a per-employee case, so each
10 individual case over the number of hours worked by the
11 total site. So typically an employee would be based on
12 2,000 hours in a year, so it's a cumulative number of
13 occurrences or cases over the total hours by all employees
14 at that site.

15 **MEMBER TOLGYESI:** Okay, because generally
16 you have a measure of what you are saying is based on
17 200,000 hours or a million hours, not the total hours
18 worked on the site.

19 **MR. WARD:** Actually, no, it's more
20 normalized by the number of hours that are worked and then
21 we'll work to sort of a known standard. So a .61 would be
22 an accepted -- or .6 would be an industry standard for GE
23 Energy and we'll work to that, so it's normalized on the
24 number of hours worked at each site.

25 **MEMBER TOLGYESI:** And on the recordable

1 rate what's included? It's lost time, modified
2 assignment, medical aid, first aid? What's there? Or
3 event?

4 **MR. WARD:** Okay, a near miss and first aid
5 are not included in a recordable event. So a recordable
6 event would typically be if an employee had to go for
7 hospitalization or seek medical attention, be it stitches
8 or something more severe.

9 The difference between a recordable rate
10 and a lost-time rate is you could have an event where
11 someone may need to get medical attention, it's a
12 recordable rate, but they return to their next shift. If
13 they do not return to their next shift then that is the
14 calculation for the lost time.

15 **MEMBER TOLGYESI:** Okay. Just, you know,
16 usually in the industry, in other industry sectors, when
17 we are talking about rates we are basically talking about
18 200,000 hours rate because you could compare site to site
19 because if you have one site where you are talking -- I
20 don't know, 3,000,000 hours, another one where you are
21 looking for 100,000 hours, you will have a hard time to
22 compare your performance.

23 **MR. WARD:** Mark Ward, for the record.

24 It's a GE standard that's used across the
25 world that this is the way that it's calculated, by

1 normalizing the total hours by the number of cases. I do
2 hear your point but we are measured based on historical
3 practice and GE set targets for us to achieve regardless
4 of the relative size of the site.

5 **MEMBER TOLGYESI:** Okay. Thank you.

6 **THE CHAIRMAN:** Thank you. Dr. Barriault.

7 **MEMBER BARRIAULT:** Just a few brief
8 questions, Mr. Chairman, Thank you.

9 In the CMD 10-H3 it states, reading under
10 Environmental Management, that the only site approved for
11 disposal of LEU here in Canada is Chalk River. Have you
12 made arrangements for disposal at AECL?

13 **MR. WARD:** Mark Ward, for the record.

14 At this time we haven't made arrangements
15 with AECL. They are a possibility and there could be
16 other waste vendors that could be utilized in the future
17 but we would have to establish that relationship as we go
18 forward. And that's in particular talking about the waste
19 streams, but we have sintered pellets that come in, say,
20 that are unusable or chipped, still in that form, we could
21 also have the option to send that back to where we
22 acquired it from; either from Wilmington or from another
23 pelleting manufacturing site.

24 **MEMBER BARRIAULT:** So you have that
25 possibility to go back to the U.S. with these products?

1 **MR. WARD:** Yes, we believe we do. Not for
2 waste but for product that's still basically in the same
3 form.

4 **MEMBER BARRIAULT:** Okay. And for waste?
5 You mentioned other sites in Canada. Other there other
6 sites, other than Chalk River?

7 **MR. WARD:** We're aware there's other
8 companies that we would look at to see if they have the
9 approval for waste disposal.

10 **MEMBER BARRIAULT:** Does staff want to
11 comment on this?

12 **MR. ELDER:** There was some question about
13 where the waste could go, and we were just pointing out
14 that the only place where it could go currently that it's
15 licence is accepted would be Chalk River and also that
16 it's sort of government policy on waste that AECL is
17 required to offer that facility on a fee-for-service
18 basis. So that Chalk River facility is open to these
19 other sources of waste.

20 **MEMBER BARRIAULT:** So it would be a given.

21 **MR. ELDER:** It is an available source if
22 there -- yeah, at a cost.

23 **MEMBER BARRIAULT:** Okay, thank you.

24 Next question, just briefly. In your Table
25 1 on page 3 your average dose in millisieverts per year,

1 whole body, those statistics -- it's an average, so I'm
2 wondering what would be your highest and what would be
3 your lowest? It's not in the table and I couldn't find
4 anything.

5 But when you're looking at doses and you're
6 mentioning average, obviously there's some that are way
7 above and some that are zero or negligible. I guess what
8 I'm wondering is, you know, which one would have been the
9 highest? It's on page 3, the table, but you're not going
10 to find the information that I'm looking for there.

11 **MR. ELDER:** I think you want to look at
12 page 13 of GE's presentation. That does have the maximum
13 as well as the average.

14 **MEMBER BARRIAULT:** So you based your
15 statistics on theirs?

16 **MR. ELDER:** Their statistics is based --
17 yes. They are required to measure it. It goes all into
18 the one national dose registry, so the statistics are all
19 the same, yes.

20 **MEMBER BARRIAULT:** Okay. No, I've seen it.
21 Thank you.

22 Thank you, Mr. Chairman.

23 **THE CHAIRMAN:** Any other kind of question?

24 Just a couple of quick ones. In describing
25 the process that you're going to have to implement to deal

1 with LEU, I'm trying to understand, is the unit to use
2 remote control or people actually can handle it
3 personally? How does this work?

4 **MR. WARD:** For the record, Mark Ward.

5 Certain pieces of equipment are automated
6 outside of the LEU area where we take the tubes and put
7 the appendages on and braze that. But when the actual
8 tubes -- when the uranium dioxide pellets get loaded in,
9 that's a manual operation. They'll get loaded in and then
10 the tubes will be carried, placed into another automated
11 machine which would take it through and perform the
12 automatic welding and the sealing of the tube.

13 So it's a combination of both human
14 interaction and automated equipment.

15 **THE CHAIRMAN:** And there's no -- so that's
16 a normal kind of a process? There is no extraordinary
17 safety issue that goes with that particular manual
18 operation?

19 **MR. WARD:** Mark Ward, for the record.

20 The existing equipment is well known to us
21 and we have -- what we will have to do is work on the
22 training and the procedures for the employees working with
23 the LEU specifically, but we would not need specific --
24 like different training practices or procedures
25 necessarily to run the equipment, but it would be more in

1 the handling of the LEU and the processing within that
2 area both right from the point of the receipt of the
3 sintered pellets to the finished fuel bundle when it goes
4 into a control container.

5 **THE CHAIRMAN:** So staff, are you going to
6 monitor this? Is that where you're actually going to go
7 and inspect and do some verification?

8 **MR. ELDER:** Yes. There are two things in
9 terms of verification that are very important on at least
10 the initial ones -- is the training, especially on the
11 criticality safety. It's a very important aspect and that
12 has to start even as soon as there is LEU in the plant,
13 regardless of whether it's less than one critical mass,
14 the first really important is training.

15 Another one is to make sure that the
16 radiation doses don't go up. If they do it properly, we
17 don't expect that there would be an increase in the doses
18 to workers but this is carefully monitored right now and
19 we would continue to carefully look at it.

20 **THE CHAIRMAN:** Okay, thank you.

21 And just a couple of quick questions. I
22 know you answered Dr. Barnes on the organizational chart.
23 Where does the safety officer or the safety culture
24 reside? Is that in quality manager?

25 **MR. WARD:** Mark Ward, for the record.

1 No, that is with Paul Desiri, the manager
2 of environmental health and safety.

3 **THE CHAIRMAN:** And that's a well-understood
4 position and power?

5 **MR. WARD:** Mark Ward, for the record.

6 Yes, it is a well-understood position and
7 Paul has the power to shut down any operation or the
8 facility at any time.

9 **THE CHAIRMAN:** Okay, thank you.

10 I also was intrigued by -- on Slide 9.
11 This is a question on established light isotope centre of
12 excellence. What does that mean?

13 **MR. WARD:** Mark Ward, for the record.

14 The light isotope technology, COE, right
15 now it's falling under our nuclear services group and what
16 it's focusing on is the removal of tritium from heavy
17 water.

18 **THE CHAIRMAN:** The removal of it?

19 **MR. WARD:** Yes. I can defer ---

20 **THE CHAIRMAN:** Yeah, there's a lot of
21 interest in that.

22 **MR. WARD:** Yes.

23 **THE CHAIRMAN:** Right.

24 **MR. WARD:** So we're working with a
25 prototype station with new technology that we've acquired

1 through GE Healthcare, and we're coming out with a
2 prototype at the Peterborough facility that the utilities
3 are interested in.

4 **THE CHAIRMAN:** So have you got customers
5 now doing it -- using it or is it a new process?

6 **MR. WARD:** No, at this point it is still a
7 prototype, but there's been a lot of discussions with the
8 utilities here in Ontario regarding this new technology
9 and moving forward.

10 **THE CHAIRMAN:** Thank you.

11 Anybody want -- last chance?

12 Mr. Graham?

13 **MEMBER GRAHAM:** Just one question to CNSC
14 staff.

15 When you were answering questions to the
16 Chair with regard to your monitoring and so on once LEU is
17 introduced at the plant, what experience has CNSC got in
18 staffing to -- in past experience in dealing with LEU? Do
19 you have a team or how does that work?

20 **MR. ELDER:** We have a lot of experience,
21 most of it is at this table.

22 Mr. Crawford has worked in a variety of
23 facilities that have had Criticality One so he's well
24 aware of it. Mr. Khotylev has a lot of international
25 experience.

1 So while it's new to the Canadian industry
2 and -- well, not completely new, but for this type of
3 facility we have a staff that have worked in other
4 countries who are very familiar with criticality safety.

5 **THE CHAIRMAN:** Anybody else?

6 **MEMBER TOLGYESI:** Yeah, just coming back to
7 that table, you were saying that health and safety at the
8 last 2009 is asterisks which means fuel and rate.

9 What does it mean, fuel and rate?

10 **MR. WARD:** Mark Ward, for the record.

11 The data from 2002 up to 2008 includes all
12 of the employees in the nuclear facility at Peterborough,
13 so including both the fuel and the nuclear services
14 employees, but the asterisks there for 2009 include just
15 the fuel -- just the fuel employees and their hours.

16 **MEMBER TOLGYESI:** Oh, just the fuel.

17 **MR. WARD:** Yeah.

18 **MEMBER TOLGYESI:** Okay, and you have about
19 in the site, Peterborough, you have about 200 employees?

20 **MR. WARD:** Yes.

21 **MEMBER TOLGYESI:** That's what you were
22 saying.

23 **MR. WARD:** Yes.

24 **MEMBER TOLGYESI:** Okay. Thank you.

25 **THE CHAIRMAN:** Okay, thank you very much.

1 We will now move to the back room to deal
2 with some security issues, so the GE, please join us and
3 our security people, please join us.

4 Thank you.

5 By the way, this also concludes the public
6 hearing and we'll reconvene for a public meeting at 1:30.

7 Thank you very much.

8 --- Upon adjourning at 11:39 a.m.

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