

**Canadian Nuclear  
Safety Commission**

**Commission canadienne de  
sûreté nucléaire**

**Public hearing**

**Audience publique**

**September 28<sup>th</sup>, 2010**

**Le 28 septembre 2010**

Public Hearing Room  
14<sup>th</sup> floor  
280 Slater Street  
Ottawa, Ontario

Salle d'audiences publiques  
14<sup>e</sup> étage  
280, rue Slater  
Ottawa (Ontario)

**Commission Members present**

**Commissaires présents**

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

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

**Secretary:**

**Secrétaire**

Mr. Marc Leblanc

M. Marc Leblanc

**Senior Counsel :**

**Conseiller principal:**

Mr. Jacques Lavoie

M. Jacques Lavoie

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Ottawa, Ontario

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--- Upon commencing at 13:04 p.m./

L'audience débute à 13h04

**Opening Remarks**

**M. LEBLANC:** Bonjour, Mesdames et Messieurs. Bienvenue aux audiences publiques 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 des audiences.

The Canadian Nuclear Safety Commission is about to start a series of two public hearings. We will start this afternoon with Bruce Power on the application for a license to transport 16 steam generators to Sweden. On Thursday morning, we will hear from GE Hitachi on their application for the renewal of the licenses for the Toronto and Peterborough facilities. The Commission meeting will be held at 11:00 a.m. on Thursday, after the hearing on GE Hitachi.

During today's business, we have simultaneous translation.

Des appareils de traduction sont

1 disponibles à la réception. La version française est au  
2 poste 3 and the English version is on Channel 2.

3 Please keep the pace of your speech  
4 relatively slow so that the translators have a chance of  
5 keeping up.

6 Les audiences sont enregistrées et  
7 transcrites textuellement. Les transcriptions se font  
8 dans l'une ou l'autre des langues officielles compte tenu  
9 de la langue utilisée par le participant à l'audience  
10 publique.

11 I'd like to note that this proceeding is  
12 being video webcasted and that the proceedings are also  
13 archived on our website for a three-month period after the  
14 closure of the hearing.

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

17 And to make the transcripts as meaningful  
18 as possible, we would ask everyone to identify themselves  
19 before speaking. As a courtesy to others in the room,  
20 please silence your cell phones and other electronic  
21 devices.

22 Monsieur Binder, président et premier  
23 dirigeant de la CCSN présidera l'audience publique  
24 d'aujourd'hui.

25 Mr. President?

1                   **THE CHAIRMAN:** Thank you, Marc. And good  
2 afternoon and welcome to the public hearing of the  
3 Canadian Nuclear Safety Commission.

4                   Mon nom est Michael Binder, je suis le  
5 président de la Commission canadienne de la sûreté  
6 nucléaire.

7                   Je souhaite la bienvenue aux gens ici  
8 présents et à ceux qui se joignent à nous par webcasting.

9                   I would like to begin by introducing the  
10 Members of the Commission that are here with us today.

11                  On my right is Dr. Moyra McDill and Dr.  
12 Ronald Barriault, and my left, Mr. Alan Graham and  
13 monsieur André Harvey.

14                  We've heard from Marc Leblanc, the  
15 secretary of the Commission, and we have Jacques Lavoie,  
16 General Counsel to the Commission, with us here on the  
17 podium.

18                  Before adopting the agenda, please note  
19 that 12 supplementary Commission Member Documents were  
20 added to the agenda after publication on September 16,  
21 2010 as listed on the updated agenda.

22                  Marc?

23                  **MR. LEBLANC:** As mentioned earlier, we are  
24 starting the hearing on Bruce Power's application. We  
25 will have an evening session and will resume the hearing

1 tomorrow morning at 8:30 a.m. There will likely be an  
2 evening session tomorrow as well.

3 As this is a one-day hearing, we will hear  
4 from the licensee, CNSC staff and Studsvik, after which we  
5 will have a first round of questions from the Commission  
6 Members. After the questions, we will start the  
7 presentations from the intervenors. The submissions from  
8 intervenors were added to the agenda in the order of  
9 receipt. However, given that we added more time for this  
10 hearing, we accommodated many intervenors who were unable  
11 to present on the day they were scheduled and changed the  
12 time of their presentation.

13 We are planning to close today's portion of  
14 the hearing around 9:00 tonight.

15 Please note that the restaurant on the main  
16 floor will be open until approximately 6:00 p.m. for those  
17 who'd like to get something for dinner and that means we  
18 will break about 5:00-5:15 to allow people to go  
19 downstairs as necessary.

20 **THE CHAIRMAN:** Okay. Let's proceed with  
21 Bruce Power application. But before we start I would like  
22 to address a few matters.

23 There have been many allegations reported  
24 in the media that the decision has already been made and  
25 that this hearing is moot since CNSC staff has already

1 recommended that the transport licence be issued on the  
2 basis of their conclusion that there are no safety  
3 significant issues associated with the proposed shipment.

4 Anyone familiar with our proceedings would  
5 know that these allegations are false. It is the  
6 Commission Tribunal constituted here today of five  
7 independent Commission Members that will render a decision  
8 in this matter and only after having considered all the  
9 evidence that will be presented to it by Bruce Power, the  
10 CNSC staff, the Swedish recycler Studsvik and 77  
11 intervenors from Canada, the United States and Sweden.

12 Following the hearing, the Commission  
13 Members will deliberate and determine if they have enough  
14 sufficient information to render a decision or if they  
15 require additional information.

16 I also wish to emphasize that all licence  
17 applications on any subject are sent to our staff for  
18 their considerations. Given the level of interest in this  
19 Bruce Power application, it is not surprising that staff  
20 would recommend that a public hearing should be held.  
21 Furthermore, the Commission always seeks CNSC staff  
22 recommendations in all Commission hearings so there is  
23 nothing special or out of the ordinary in staff having set  
24 out its observations and recommendations in the hearing  
25 documents. It is the normal, usual process.

1                   Finally, I can assure you that a transport  
2 licence will not be granted in this matter unless the  
3 Commission is convinced that the shipment will be  
4 completed safely without risk to the health, safety or  
5 security of people and the environment.

6                   J'aimerais répéter en français ces derniers  
7 points. Je peux vous assurer que le permis de transport  
8 ne sera émis que si la Commission est convaincue que ce  
9 transport sera effectué de façon sûre, sans risque pour la  
10 santé et la sécurité des personnes et de l'environnement.

11                   Okay. We can start now.

12                   Marc, over to you.

13                   **MR. LEBLANC:** Okay so this is a one-day  
14 public hearing. The Notice of Public Hearing 2010-H09 was  
15 published on July 29<sup>th</sup>, 2010. A revised notice was  
16 published on September 16<sup>th</sup> to add more time on the agenda  
17 due to the large number of interventions received from the  
18 public.

19                   Submissions from Bruce Power and CNSC staff  
20 were due on August 20<sup>th</sup>, 2010. I know that supplementary  
21 information has been filed by Bruce Power and CNSC staff  
22 since the first publication of the agenda.

23                   Commission Member Document or CMD10-H19A is  
24 a confidential document as it pertains to security  
25 considerations and will be discussed in closed session as

1 necessary after the public portion of this hearing.

2 The public was invited to participate  
3 either by oral presentation or written submission.  
4 September 13, 2010 was the deadline set for filing by  
5 intervenors. The Commission received 77 requests for  
6 intervention. Three requests were received after the  
7 deadline and were accepted.

8 The Commission strongly urges, however, all  
9 parties to file their submissions within the deadlines set  
10 in the Public Notice of Hearings in compliance with the  
11 CNSC Rules of Procedure.

12 September 22<sup>nd</sup> was the deadline for filing  
13 of supplementary information. I know that supplementary  
14 information has been filed by staff, Bruce Power and  
15 several intervenors.

16 We have a few other procedural matters to  
17 cover before moving on to the presentation.

18 The Commission has received two requests  
19 for ruling. On September 10<sup>th</sup>, Sierra Club Canada filed a  
20 letter requesting the adjournment of the hearing to a  
21 later date and asking also for participant funding from  
22 the CNSC. These requests were denied and a response was  
23 sent to Sierra Club. The letter from Sierra Club Canada  
24 is under Commission Member Document or CMD10-H19.2 and we  
25 will hear later today the presentation from Sierra Club on

1 this request as they will be the first intervenor after  
2 the round of questions.

3 Also after the publication of the revised  
4 notice of public hearing, Mr. John Miller filed a request  
5 for a ruling asking the Commission to provide an  
6 additional 60-day notification period as the hearing was  
7 now a two-day hearing. The Commission denied this request  
8 as this hearing continues to be a one-day hearing but that  
9 is being conducted in consecutive days given the  
10 significant number of interventions.

11 This is it, Mr. President. The floor is  
12 yours.

13

14 **10-H16 / 10-H16.A / 10-H16.B / 10-H16.C**

15 **Adoption of Agenda**

16

17 **THE CHAIRMAN:** Thank you. Before we start  
18 I really need to call for the adoption of the agenda by  
19 the Commission Members as outlined in Commission Member  
20 Document 10-H16.C. Do I have concurrence?

21 For the record, the agenda is adopted.

22

23 **Bruce Power Inc.:**

24 **Application for a licence**

25 **to package and transport**

1        **under special arrangement**  
2        **16 steam generators to Sweden**

3  
4                    **THE CHAIRMAN:** So I'd like to start the  
5 hearing by calling on presentation from Bruce Power as  
6 outlined in Commission Member Document 10-H19.1 and 19.1A  
7 and I understand that Mr. Duncan Hawthorne, the presidency  
8 will make the presentation.

9                    Mr. Hawthorne, the floor is yours.

10  
11        **10-H19.1 / 10-H19.1A**  
12        **Oral presentation by**  
13        **Bruce Power Inc.**

14  
15                    **MR. HAWTHORNE:** Thank you Mr. Chairman,  
16 Members of the Commission. For the record, I am Duncan  
17 Hawthorne, President and Chief Executive Officer of Bruce  
18 Power.

19                    With me today I have Frank Saunders, our  
20 Vice President of Nuclear Safety and Regulatory Affairs,  
21 Norm Sawyer who is our Chief Nuclear Officer for the Bruce  
22 A facility.

23                    Like you, Chairman, we are supportive of  
24 this Commission hearing today. We understand that the  
25 circumstances surrounding this proposed shipment are

1 unusual. We understand the level of public discourses  
2 requires a transparent and open debate to take place. We  
3 recognize that in the media there is tremendous interest  
4 but we also feel there's a tremendous amount of  
5 misinformation that's been put in the public domain with  
6 respect to our intentions and indeed the risk associated  
7 with us pursuing our intentions.

8 I believe that this hearing affords us all  
9 the opportunity to explain the facts of the matter to give  
10 justification to the approach that we take and actually  
11 make many of the statements that you yourself made in your  
12 opening comments.

13 Before considering this proposal at all we  
14 had to satisfy ourselves that it was a safe thing to do,  
15 that it was an environmentally sound thing to do and,  
16 indeed, it was our responsibility of Bruce Power that we  
17 should pursue this option.

18 We recognize of course that we have to  
19 justify that decision making in front of the regulatory  
20 body and we're pleased to have the opportunity to do that.

21 As I said to the media commentators just  
22 before I arrived at this hearing, this is our opportunity  
23 to make use of the sound regulatory framework that exists  
24 in Canada to allow facts to be presented, to allow clear  
25 thinking judgement and decision making, to allow

1 transparency of that and frankly, as I've read the  
2 intervenor's, there are many very thoughtful considerate  
3 members of the public who have a legitimate need to  
4 understand the facts; that's why I'm here. That's what I  
5 believe this licensing regulatory process is all about and  
6 I look forward to the opportunity to present those facts  
7 before the Commission today.

8 Let me start then by saying why do we  
9 consider the prospect of moving these steam generators  
10 off-site for recycling. Well, firstly there's a policy  
11 imperative around that; CNSC's own Policy Document P-290  
12 entitled, "Managing Radioactive Waste" states that always  
13 should be minimized and that the waste management plan  
14 should include plans for reuse, recycling, storage and  
15 disposal.

16 So we have an obligation to consider best  
17 practice, to look for opportunities, wherever they may  
18 exist, to safely reduce our environmental footprint.

19 That is by far the driver behind this  
20 proposal. I'll explain to the Commission there is no  
21 commercial gain. We could store these units onsite or we  
22 can recycle and reduce their footprint.

23 It is more or less commercially neutral to  
24 us but it is the right environmental thing for us to do.

25 Coming now to that mantra of seeking to

1       reduce waste, why would the steam generators become a  
2       candidate for such a discussion?

3                       Well, I think as we'll demonstrate today in  
4       our presentation that contained within these steam  
5       generators which are large components there exists a very  
6       small quantity of radioactive material. It's located in a  
7       very well understood and well-defined area within the  
8       internal structure of these steam generators.

9                       However, surrounding that small radioactive  
10      quantity of material exists 1,600 tons of clean metal,  
11      clean metal that can be reclaimed and should be reclaimed;  
12      resulting in a waste volume reduction of more than 90  
13      percent.

14                      Of course the conditions for deciding on  
15      this course of action require a number of things; firstly,  
16      we have to understand the radioactive material we're  
17      dealing with, its characteristics and its quantity.

18                      We have to understand the value that comes  
19      from a significant reduction of its volume; we have to  
20      find and satisfy our own due diligence that there is a  
21      responsible facility available with a proven capability  
22      and a record in conducting waste separation activities.

23                      We found that in Studsvik and later this  
24      afternoon the Commission will have a chance to hear from  
25      Studsvik.

1           We have to, of course, meet international  
2           conventions because we are talking about transportation  
3           across international boundaries and we have to be bound to  
4           meet those regulatory requirements. And of course we have  
5           to meet our regulatory requirements here at home in  
6           Canada.

7           We have to consider the ability to  
8           transport safely and responsibly and, of course, as I've  
9           said many times before this Commission, safety first is  
10          our motto, we've demonstrated it time and time in front of  
11          this Commission, I believe, and had this not passed the  
12          safety test we would not have begun the debate.

13          Pictorially, I'm trying to give people a  
14          sense of what we are trying to do here. Our goal here is  
15          to reduce from a large -- lots of people in the media have  
16          likened the size of these steam generators to a yellow  
17          school bus, so if you don't mind I'll continue to use that  
18          analogy.

19          We're talking here about reducing the size  
20          of volume and our representative diagram here which shows  
21          90 percent of this material is useable steel.

22          There is the internal tube components are  
23          the areas where radioactive contamination exists but they  
24          form a small volume. So our intent here, our entire goal  
25          is to separate the non-radiated material, allow it to be

1 free released as normal and to concentrate our attention  
2 where the duty of care is most appropriate and in so doing  
3 greatly reduce the volume of material.

4 As I mentioned in my opening remarks, we  
5 have taken time to review all of the submissions, as you  
6 would expect us to do, people have given a lot of thought  
7 and attention to their comments and so we have sought to  
8 better understand them.

9 And I apologize for the crude grouping but  
10 nonetheless we tried to give a view of where people's  
11 comments were coming from. A number of people have a  
12 concern about the process.

13 Some people have concern about recycling  
14 and in fact, you know, is it reasonable to free release  
15 the metal from these components. Some people have an  
16 issue about the overall radioactive hazard. Some people  
17 are very concerned about the transport arrangements and  
18 the possibility of hazard during transportation. Even if  
19 the intent is good, if there is a risk associated with the  
20 transportation does that in itself increase the level of  
21 risk.

22 And of course some people have a view that  
23 these material could in some way be made available for  
24 inappropriate use and that comes -- we've categorized that  
25 in the area of nuclear security.

1                   But we understand these comments and I  
2 believe that with a well-informed open dialogue we can  
3 address most of these concerns to a reasonable person's  
4 satisfaction.

5                   Turning to the specific activity here, this  
6 is a pictorial representation of our steam generators.  
7 The area in blue is the components that we intend to ship  
8 offsite if we're given approval.

9                   In reality, if you look at the steam  
10 generator you can see clearly the outer casing. The inner  
11 area, the inner tube bundle is in fact the area where  
12 heavy water passes through and that is the area where  
13 radioactivity exists. The outer shell, free release  
14 material.

15                   So to come to the next picture -- I don't  
16 intend to turn everyone in the room into physicists or  
17 nuclear engineers but what I intend to show here is that  
18 what we have is heavy water flowing through those inner  
19 tubes, transferring heat to normal water which would then  
20 be used to generate steam to turn our turbines.

21                   So the heavy water material that passes  
22 over our fuel elements is concentrated in the inner tube  
23 sections of the boilers and as a consequence, over many  
24 years of operation, there are some deposits of radiated  
25 material on those inner tube sections. This is the area

1 that we seek to concentrate our attention on. And in  
2 fact, in my view, it forms the heart of the discussion  
3 we're having today.

4           However, when you look at the actual  
5 quantum of that radioactive material -- and we can prove  
6 this with facts and I'm sure CNSC staff will have their  
7 view. If you look at the actual concentrated amount of  
8 that radioactive material it would suggest, in a very  
9 strong way why, we're considering this situation.

10           We're looking to turn 100 tons of nuclear  
11 steam generator into a piece of concentrated radioactive  
12 material of 4 grams.

13           One of the things that obviously we have to  
14 deal with -- and I'm very aware of it whenever I engage in  
15 public dialogue -- is that radioactivity is not itself  
16 well understood. It's a difficult subject, it's a complex  
17 subject and coming with that is a natural risk aversion to  
18 it.

19           It's been -- my view of the industry, I've  
20 been in it 40 years and I have long understood it's very  
21 difficult to have a good dialogue with people about  
22 radioactivity and what radioactivity means.

23           What we've tried to do here is to place  
24 what we intend to do alongside things that happen  
25 naturally.

1                   These are not my numbers, these are  
2                   scientific numbers; you can get these numbers from lots of  
3                   scientific forums. For example, in terms of natural  
4                   occurring radioactive material in Lake Huron, these  
5                   numbers come from McMaster University, they are not mine  
6                   and I don't believe they are scientifically challenged.

7                   We are talking about very large amounts of  
8                   radioactive material resident in the lake. We're talking  
9                   here about shipping 16 steam generators which themselves  
10                  have 4 grams of radioactive material which means in total  
11                  the equivalent amount of radioactive material is 64 grams,  
12                  which would be the equivalent of me throwing a tennis ball  
13                  of that material into Lake Huron.

14                 Of course that's not what we intend to do.  
15                 We intend to protect this shipment through its entire  
16                 route. Regardless of the quantum we have a responsibility  
17                 to reduce risk to as low as reasonably practical.

18                 Our methodology for doing this is to secure  
19                 this material and perhaps the most robust container that  
20                 any radioactive shipment has taken place in before because  
21                 we intend to use the full structural integrity of these  
22                 steam generators as the container for this small volume of  
23                 radioactive waste.

24                 It's a very robust construction. Of  
25                 course, these steam generators have to withstand very

1 significant structural challenges during nuclear  
2 operation.

3 Our job here is to use that strong  
4 construction and make sure that we seal all of the  
5 penetrations from it, rendering this particular assembly  
6 to be a very structurally sound carrying case, if you  
7 like, for the inner radioactive material.

8 Again, this picture intends to show exactly  
9 what we have been doing on site. We look at all of the  
10 openings for the steam generator and we seal weld them  
11 creating a very robust, solid structure. Of course, as  
12 you might expect in the nuclear industry, the quality of  
13 those welds is subjected to the same level of inspection  
14 as you might expect from any pressure-vessel component  
15 that was in operational use in our nuclear plants today.

16 Next theory, of course, is how do we  
17 transport these things. Of course, we recognize it's a  
18 long transport route for us, so we have to look at the  
19 well-established regulations that are based on  
20 international standards and are used to good effect  
21 throughout the world, to ensure that packages of hazardous  
22 goods travel international waterways and, in fact, travel  
23 across the world in a sound, logical, secure manner.  
24 There are thousands of these radioactive shipments each  
25 year; medical, nuclear and industrial.

1                   For us, the international convention  
2 governs ownership of this material and, of course, as part  
3 of the regulation, we have to demonstrate that we have  
4 financial coverage in place in the form of insurance for  
5 these activities. This is one of the regulatory  
6 requirements in such a process.

7                   As part of the preparation for shipment, we  
8 have conducted very detailed analysis of the contents of  
9 these tubes.

10                  Let me also digress slightly to say when  
11 these steam generators are in operational use inside our  
12 reactors, we take tube samples; we remove them from  
13 service; we analyse them. We have manned entries inside  
14 these steam generators. Our people, even while we are  
15 still connected to the reactor, make access to these steam  
16 generators for inspection.

17                  We have a very detailed knowledge of these  
18 steam generators. We characterize them. We use gas  
19 spectrometry to characterize the materials. We have very  
20 accurate information and characterization of the  
21 radioactive constituents within it. We did those surveys  
22 on all of these steam generators and confirmed our  
23 theoretical calculations, so we have a good understanding  
24 of the radioactive components resident in these steam  
25 generators.



1                   Of course, we have transport regulations  
2                   that we must meet in terms of permits and various other  
3                   things and, you know, as you might expect, just prior to  
4                   exit we do a final delivery check, as we do with any  
5                   component that leaves our site; there are obvious things  
6                   to say whenever you're transporting any large load is to  
7                   make sure that you have your clear plans for the  
8                   transportation and security.

9                   This photograph shows exactly what the  
10                  steam generators look like as prepared for transport. You  
11                  can see the welded covers on them. You can see the  
12                  coating of them. You can actually see the cradles under  
13                  which they are -- onto which they are secured for  
14                  transport.

15                  The next photograph again shows -- this  
16                  trailer on the right-hand side is not the actual trailer  
17                  they'll be travelling in, but it's a good analogy for the  
18                  trailer. This is an on-site trailer, but the road one  
19                  would look in many ways similar.

20                  And, again, one of the things we have to do  
21                  is to compare this road transport with what would  
22                  typically be seen on the road, and so what you see on the  
23                  left-hand side is the sort of load limit that is accepted  
24                  for large vehicles. And you can see that that load  
25                  assessment does not represent close to the standard, so

1       it's not considered to be pushing the boundary of road  
2       transport material.

3                    Again, one of the important issues to note  
4       here -- and, again, I'm expecting staff will address this  
5       also.  If we consider the radioactive content of what we  
6       are intending to do, it's classified as a type A1 package.  
7       This photograph shows typically what A1 packages are  
8       transported in.

9                    Now, if it wasn't for the sheer volume of  
10       the steam generators themselves -- if I could remove that  
11       component, a reasonable thing to do would be for me to put  
12       those components inside a lead pot inside one of these  
13       cardboard or polystyrene containers.  That would be the  
14       appropriate, approved container for the radioactive  
15       material that we have in mind.

16                   Clearly, we don't intend to do that this  
17       time because the material is contained within a large  
18       steam generator, but as long as we understand that the  
19       quantum of radioactivity, were it small enough physically,  
20       would meet all of the requirements and we would fit in one  
21       of the containers shown in this photograph.

22                   Of course, one of the things that has been  
23       talked a lot about here is public communication and  
24       consultation and all of those things.  But if you see the  
25       world through the radioactive risk and the standards and

1 the rules for A1 packages, then you would understand that  
2 that's not why we are here today. We are here today  
3 because a public dialogue has taken place that has taken  
4 us beyond the science and the facts of this matter.

5 Our initial public consultation was in our  
6 local community who would be impacted by the  
7 transportation. It was not an attempt to explain the  
8 contents. We felt that the regulatory arrangements, you  
9 know, did that for us. But as I said in my opening  
10 remarks, as soon as this became a public discussion which  
11 affected my reputation, the reputation of my company and  
12 was fuelling a lot of misinformation, then it was entirely  
13 appropriate to be here.

14 But our original plan, of course, was to  
15 prepare our community for 16 large loads, to try and stay  
16 away from peak times to reassure our municipalities and  
17 our local councils that if there was any road  
18 reinforcement necessary then we would do that, and to give  
19 some sense about that. But, of course, we have extended  
20 that dialogue to include some open houses and some  
21 information sessions as we have seen the public discourse  
22 become less informed, if I can call it that.

23 In summary, Mr. Chairman, Members of the  
24 Commission, I would say that what we propose here is an  
25 environmentally sound thing to do. The containers that we

1 intend to transport this material in are perhaps the most  
2 robust containers you could find because they are, in  
3 fact, the outer shell of the steam generator.

4           Within the material itself, as I mentioned,  
5 we are talking about a small concentrated amount of  
6 radioactive material. The material isn't mobile. I know  
7 that there are many concerns about the worst-case scenario  
8 of -- the ships sinks and all of the steam generators fall  
9 out and all this material leaks in the lake. I think, you  
10 know, that can be addressed to people's satisfaction as a  
11 bounded case, but given the quantity of material, I think  
12 we can reassure people about that.

13           Summarily, I think we can explain that the  
14 public are protected at all times through the transport  
15 route through a very detailed risk-hazard assessment and  
16 appropriate corrective actions.

17           We are entirely compliant with  
18 international conventions and, as I mentioned in my  
19 opening remarks, recycling this material is the right  
20 thing to do. It's the right environmental thing to do  
21 and, you know, I could easily have shirked away from this  
22 in the face of the public dialogue. I will not do that.  
23 It's not a responsible thing to do. The responsible thing  
24 to do from an environmental point-of-view is to pursue  
25 this option.

1                   If the Commission chooses not to grant that  
2                   licence, that is entirely within your authority, but my  
3                   job is to meet policy guidelines and deliver the best  
4                   environmental solution and that is why we are here.

5                   What do we expect to achieve today? I  
6                   think -- my hope, as I told the media before I got in  
7                   here, was facts are my friend. I expect facts to be laid  
8                   here. I expect reasonable people to be convinced by  
9                   facts. I believe that I will demonstrate our intent to be  
10                  sound. I believe -- to show that what we did was thorough  
11                  and well thought out. It certainly complies, in our view,  
12                  with regulation and with international convention.

13                  I use the word "debunk" deliberate  
14                  misconceptions. There are some people -- you know, I'm  
15                  not living in a fantasy land. There are a number of  
16                  people who oppose our technology and at every opportunity  
17                  seek to oppose us, and they do that with misinformation  
18                  and scare tactics and the public. I believe that a  
19                  factual scientific debate will debunk many of those  
20                  stories and hopefully there will be some form of rebuke  
21                  for those people that have chosen to do this in an  
22                  irresponsible way.

23                  I think it -- but also it provides an  
24                  opportunity for legitimate questions. And there are a  
25                  number of very legitimate intervenor questions which I

1 look forward to answering. Given an opportunity to do  
2 that, I believe that we will give them a satisfactory and  
3 clear response and I look forward to the questioning.

4 Thank you very much.

5 **THE CHAIRMAN:** Thank you.

6 I'd like now to move to a presentation from  
7 the CNSC staff. I understand that Mr. Ramzi Jammal will  
8 make the presentation.

9 The floor is yours. Please proceed.

10

11 **10-H19 / 10-H19.B**

12 **Oral presentation by**

13 **CNSC staff**

14

15 **MR. JAMMAL:** Thank you, Mr. President.

16 Good afternoon, members of the Commission.

17 For the record, I am Ramzi Jammal,  
18 Executive Vice-President and Chief Regulatory Operations  
19 Officer.

20 Monsieur le président, avec moi cet après-  
21 midi, monsieur André Régimbald, Directeur général de la  
22 Direction de substances nucléaires; monsieur Sylvain  
23 Faille, Directeur de la division de transport; madame  
24 Karine Glenn à ma gauche, spécialiste en transport; et  
25 monsieur Philippe Eyre, spécialiste en transport.

1                   Avec nous aussi, l'équipe des spécialistes  
2 du personnel de la CCSN qui ont contribué à cette  
3 relation.

4                   In summary, Mr. President, staff conclude  
5 that the proposed shipment of 16 steam generators from  
6 Bruce Power to Sweden is safe. CNSC staff evaluation  
7 concluded that there will be no impact on the health and  
8 safety of the public and the environment.

9                   We recommend that the Commission accepts  
10 our conclusion and issues for a period of one year the  
11 proposed transport licence and certificate to authorize  
12 the transport of 16 steam generators from Bruce Power to  
13 Sweden.

14                   In this presentation, Mr. President, the  
15 reference to nuclear substances and radioactive material  
16 is intended to mean the same thing.

17                   I would like to explain what is low-level  
18 waste. In Canada, low-level waste is defined in the  
19 following manner: It does not require shielding during  
20 normal handling and transport. This is based on a dose  
21 rate criteria of two millisievert per hour or less, to  
22 distinguish between low and intermediate level radioactive  
23 waste.

24                   In this case, the steam generators are  
25 defined as low-level radioactive waste.

1           Mr. President, if we have evidence that the  
2 internal low-level waste in each generator was uniformly  
3 distributed, the package would satisfy the regulatory  
4 requirements and hence a special arrangement licence would  
5 not be required.

6           I would like to take a moment to describe  
7 the licensing process at the CNSC. The CNSC has  
8 established classes of licenses to include low risk  
9 licenses. The designated officer is authorized by the  
10 Commission to render licensing decision for such class of  
11 licenses to include this application.

12           The D-O's decision is based on CNSC staff  
13 recommendation. CNSC staff evaluation follows the same  
14 rigour as the Commission Tribunal. Staff recommends to  
15 the designated officer which in turn can accept or ask for  
16 more information if he or she deems necessary to render  
17 their decision.

18           Mr. President, Members of the Commission,  
19 the designated officer referred this application to the  
20 Commission for a decision due to high level public  
21 interest.

22           I would like now to explain the regulatory  
23 oversight of the transport of nuclear substances. The  
24 transport of all nuclear substances is governed by  
25 International Atomic Energy Agency, IAEA, under TS-R-1

1           entitled "Regulations for the Safe Transport of  
2           Radioactive Material".

3                         In Canada, these regulations are referred  
4           to in the CNSC Packaging and Transport of Nuclear  
5           Substances Regulation referred to as PTNS. In addition,  
6           there is a shared regulatory oversight between CNSC and  
7           Transport Canada with respect to the transport of  
8           dangerous goods under Transport Canada Transportation of  
9           Dangerous Goods Regulations.

10                        Mr. President, Sweden and the United States  
11           follow the same IAEA regulations and will independently  
12           evaluate Bruce Power application taking into consideration  
13           the CNSC's decision.

14                        How are nuclear substance is transported:  
15           Dangerous goods are categorized into nine classes. The  
16           classification is not an indication or not to be  
17           considered one class is more dangerous than the other. In  
18           the case of nuclear substances, they fall under Class 7  
19           which is specific to radioactive material.

20                        Mr. President, Members of the Commission,  
21           there are millions of shipments of different types of  
22           dangerous goods transported safely in Canada each year.  
23           About one million of these transport or shipments are  
24           nuclear substances and they are transported by air, ground  
25           and marine, for medical/industrial/educational purposes.

1                   The philosophy of transport safety relies  
2 mostly on the package and less on operational controls,  
3 hence allowing this transport of these packages in normal  
4 streams such as again air, ground and marine.

5                   I would like to share with you the types of  
6 packaging, and in specific the packaging that do sail the  
7 seaway and the Great Lakes and these transports are  
8 routine, such as shipments of uranium hexafluoride,  
9 shipments of uranium yellow cake, shipments of large  
10 quantities of cobalt 60, hence the transport of  
11 radioactive material on the seaway is considered to be  
12 routine.

13                   And this slide, Mr. President, shows the  
14 dangerous goods that were transported safely in 2009 along  
15 the seaway. As you can see, it varies from gasoline, road  
16 fuel petroleum, urea, sulphuric acid, and to those  
17 specific radioactive material, to the amount of 7,000  
18 tonnes were transported last year.

19                   How are nuclear substances transported?  
20 The CNSC regulatory oversight for the transport of nuclear  
21 substances is based on the principle of cradle to grave.  
22 The consignor -- and in this case CNSC licensee which is  
23 Bruce Power is responsible for the shipment of its  
24 preparation until its final delivery. Bruce Power is  
25 responsible to respond to any incident occurring during

1 the transport.

2 I would now like to describe the packages  
3 used for the transport of nuclear substances. All  
4 packages used for the transport of nuclear substances must  
5 meet performance requirements as stated in the  
6 regulations, and I refer to regulations here: both  
7 international and national requirements. The type of  
8 package is selected based on the nature of the nuclear  
9 substance and its radioactivity.

10 Package type for low risk nuclear  
11 substances do not require CNSC approval. However, they  
12 must meet relevant performance requirements under the CNSC  
13 transport regulations.

14 As I've stated previously, the consignor  
15 which is Bruce Power in this case has the ultimate  
16 responsibility from the preparation to delivery regardless  
17 of who the carrier is.

18 The packaging in Canada are classed in  
19 accordance to the best international practices. This  
20 table shows the classes of transport packaging in Canada.  
21 On the left-hand side for very low risk is the accepted  
22 package, industrial-type packaging and Type-A package. On  
23 the right-hand side packages requiring CNSC approval, and  
24 that is done by the designated officer. Type-H package,  
25 that is unique to Canada as a categorization of a package.

1 Type-B package, fissile Material package. Again, these  
2 packages require CNSC approval or approved by the  
3 designated officer.

4 Here is an example of accepted package.  
5 Those packages contain very small quantities of nuclear  
6 substances. I'd like to give you an example of such  
7 application; it's the transport of I-125 seeds for cancer  
8 treatment where the sources are permanently implanted in  
9 the prostate of the patient.

10 Here's an example of industrial package  
11 that will contain uranium ore and concentrate. And again  
12 it's considered to be as a low risk. Industrial package  
13 vary, and here is an example of surface contaminated  
14 object which arise from contaminated pumps, valves and  
15 tools from nuclear power plants. And again, and again  
16 this is classified as low risk.

17 Mr. President, to use an example of Type A  
18 packaging, on the left-hand side those packages are used  
19 daily, transported daily by air, by road and by marine  
20 transport. That contains medical isotope for human use  
21 and human consumption.

22 On the right-hand side is a portable gauge  
23 that is used again and transported daily in Canada and  
24 it's used with respect to density measurements in highway  
25 construction.

1                   Here is an example of Type H package which  
2                   is unique to Canada. It designed for uranium  
3                   hexafluoride and that fits into the intermediate risk  
4                   level.

5                   On the right-hand side is an example of the  
6                   packaging on a boat deck and those require CNSC approval.

7                   The next slides demonstrate -- gives an  
8                   example of type of packaging that requires CNSC approval  
9                   by the designated officer.

10                  Here is a Type B package for cobalt-60  
11                  isotope used for sterilization or radiation therapy  
12                  treatment. This Type B packaging is an example of 7.4  
13                  million mega-becquerels. Those are categorized as high  
14                  risk substance and the package design require CNSC  
15                  approval by the designated officer.

16                  And the last example is the fissile  
17                  material packaging which has a unique consideration of the  
18                  package due to criticality, and criticality must be  
19                  considered. Again, such high risk nuclear substance is  
20                  transported and the fissile material package and the  
21                  package require CNSC approval.

22                  Now, what does special arrangement mean? I  
23                  would like to take a moment to explain.

24                  It does not mean that the applicant is  
25                  allowed to transport nuclear substances in a non-compliant

1 manner against national or international regulations. It  
2 clearly means that in cases where the shipments do not fit  
3 into the compliant package, the overall safety of the  
4 transport must meet or exceed international and national  
5 regulatory requirements.

6 This is an internationally-known process  
7 and recognized by member states. Approval is required by  
8 every country into which the shipment will travel and in  
9 this case CNSC in Canada, the U.S. Department of  
10 Transportation and the Swedish Radiation Safety Authority  
11 must all approve independently the application for the  
12 special arrangements.

13 Now, we ask the question: How safe is the  
14 special arrangement?

15 The overall level of safety must meet or  
16 exceed, again, the national or international regulatory  
17 requirements of the compliant package.

18 In this case, Mr. President, I would like  
19 to be open in the public on the record that the returning  
20 waste from Sweden will be sent in complying packages that  
21 will require -- sorry -- that will not require CNSC  
22 approval.

23 Bruce Power, however, has obtained -- is  
24 required to obtain a licence to import, not due to safety  
25 factors but due to tracking requirements of nuclear

1 substances under international conventions.

2 I will now hand over the presentation to  
3 Ms. Karin Glenn.

4 **MS. GLENN:** Bonjour Monsieur le président,  
5 membres de la Commission, je m'appelle Karine Glenn et je  
6 suis spécialiste en transport à la Commission canadienne  
7 de sûreté nucléaire.

8 Before we begin discussing CNSC staff  
9 technical assessments, I will provide some background into  
10 the application.

11 Bruce Power submitted their application for  
12 transport licence in April 2010 for the transport of 16  
13 steam generators to Studsvik, Sweden for recycling of up  
14 to 90 percent of the steel.

15 As mentioned in the Bruce Power  
16 presentation, CNSC policy document P-290, "Managing  
17 Radioactive Waste" and guidance document G-219,  
18 "Decommissioning of Nuclear Facilities" state that: the  
19 generation of radioactive waste should be minimized to the  
20 extent particular and that the waste management plan  
21 should include provisions for reuse, recycling, storage  
22 and disposal of the waste.

23 Licensees are encouraged to submit new  
24 proposals which take into consideration new and emerging  
25 technologies in an effort to reuse and recycle radioactive

1 waste and, at the same time, to minimize the risk to the  
2 health and safety of persons and the environment.

3 The shipment as proposed requires  
4 authorization from the CNSC in the form of a special  
5 arrangement under the CNSC's Packaging and Transport of  
6 Nuclear Substances Regulations and the International  
7 Atomic Energy Agency's T5-R-1 Regulations for the Safe  
8 Transport of Radioactive Material.

9 It should be noted that from the CNSC's  
10 perspective Bruce Power is responsible for the safety of  
11 the shipment from the point of origin to its final  
12 destination in Sweden.

13 As discussed in their presentation to the  
14 Commission, Bruce Power intends to ship 16 steam  
15 generators to Studsvik, a specialized recycling company in  
16 Sweden.

17 The Swedish Radiation Safety Authority,  
18 SSM, has regulatory oversight at the Studsvik facility and  
19 of its operations.

20 Studsvik has received authorization from  
21 the SSM for the import of the steam generators and the  
22 return or export of the resulting radioactive waste back  
23 to Bruce Power. This authorization is valid for a period  
24 of three years.

25 The 16 steam generators would travel

1 individually by road from Bruce Power to the Port of Owen  
2 Sound where they would be loaded on a marine vessel. At  
3 that point, as shown on this slide, the marine vessel  
4 carrying the 16 steam generators would travel down the  
5 Great Lakes, up the St. Lawrence Seaway System and then  
6 across the Atlantic Ocean.

7 While travelling the seaway system the ship  
8 will enter U.S. waters at times. As such, Bruce Power  
9 will also require approval by the U.S. Department of  
10 Transportation for the proposed shipment.

11 At all times during the entire shipment  
12 Bruce Power, as the licensee, will be responsible for the  
13 safe handling and transport of the steam generators.

14 Upon leaving Canadian waters the vessel  
15 will travel across the Atlantic and continue its way to  
16 Sweden where it will dock directly into a harbour that is  
17 owned by Studsvik. This slide shows the route to be taken  
18 by the 16 steam generators onboard the marine vessel from  
19 the Port of Owen Sound to Sweden.

20 There are 16 steam generators in total,  
21 eight which were decommissioned from Bruce Power's Unit 2  
22 in 1995 and eight which were decommissioned from Unit 1 in  
23 1997. The terms "Unit 1 and Unit 2" refer to two of the  
24 four reactors at the Bruce A site that underwent  
25 refurbishment and each of these units has a total of eight

1 steam generators.

2 While the steam generators were  
3 decommissioned in 1995 and 1997, they were not removed  
4 from the Bruce A site to the Western Waste Management  
5 Facility until 2007 at which time all openings of the  
6 steam generator were welded shut.

7 Each of these generators is 2.5 metres in  
8 diameter, measures 11.7 metres in length and each one  
9 weighs approximately 100 tonnes.

10 As is shown in the picture on this slide,  
11 all openings in the steam generator's shells were welded  
12 shut to ensure the integrity of the steam generators and  
13 to contain the radioactive contamination within the inside  
14 of the generator's shell.

15 The steam generators are steel vessels  
16 designed to withstand high pressures. They were designed  
17 and constructed as pressure vessels in accordance with the  
18 standards of the American Society of Mechanical Engineers,  
19 Boiler and Pressure Vessel Code.

20 As I mentioned earlier, they were  
21 decommissioned from service in 1995 and 1997 but were left  
22 in place until 2007. It was at that time that all the  
23 openings of the steam generators were welded shut with  
24 closure plates and the generators were removed from the  
25 Bruce Power Generating Station. All the closure plate

1 welds were tested for integrity in 2007 using non-  
2 destructive magnetic particle examination in accordance  
3 with Section III, Division 1 of the Boiler Pressure Vessel  
4 Code. There were no defects found in any of the welds. A  
5 visual inspection of the integrity of the welds is also  
6 being conducted as the generators are being prepared for  
7 transport. CNSC staff considered that the visual  
8 inspection, along with the testing performed in 2007, is  
9 adequate verification of weld integrity.

10 These generators are not themselves  
11 radioactive, but rather have radioactive material in the  
12 form of metal oxides on their internal surfaces. The  
13 steam generators are heat exchangers that contain 4,200  
14 tubes each. These tubes form a loop, with one entry point  
15 and one exit, much like a car radiator.

16 There is no measurable contamination on the  
17 outside of the steam generators. All the contamination is  
18 contained inside the shell and most of this contamination  
19 is bound to the surfaces in the form of metal oxides.

20 Of the total contamination within each  
21 steam generator, 87 to 96 percent is bound to the interior  
22 surfaces of the steam generators in the form of metal  
23 oxides. Therefore, of the total contamination which,  
24 again, is on the inside of the generators, 4 to 13 percent  
25 of the activity is estimated to be non-fixed, but is

1 contained within the generator shell.

2 In all of their evaluations, CNSC staff has  
3 assumed the worst case; that is, the maximum of 13 percent  
4 of the contamination to be non-fixed.

5 This slide shows a table listing the  
6 isotopes which make up the majority of the contamination  
7 and their respective unit for the steam generators removed  
8 from Unit 1 and Unit 2. These isotopes include americium-  
9 241, cobalt-60, iron-55, tritium, and various plutonium  
10 isotopes.

11 It should be noted that the list presented  
12 here represents only the isotopes that constitute the  
13 majority of the contamination and that are significant  
14 from a transport perspective. A complete list can be  
15 found in the Bruce Power application.

16 Of note, various plutonium isotopes are  
17 amongst the isotopes found within the steam generators.  
18 The quantity of plutonium is minimal and cannot be  
19 extracted due to the form in which it is found and the  
20 difficulty in removing it from the internal surfaces of  
21 the generators, making it useless for malevolent purposes.

22 In comparison, plutonium-powered cardiac  
23 pacemakers that were used in the past contain up to  
24 148,000 megabecquerels. This quantity is greater than the  
25 total activity of plutonium that is contained within one

1 steam generator.

2 The steam generators are non-radioactive  
3 equipment in nature that became contaminated with  
4 radioactive metal oxides on their inside surfaces during  
5 their service life within the reactor station. As such,  
6 they meet the International Atomic Energy Agency's  
7 definition for surface-contaminated objects. The  
8 contamination is made up of many nuclear substances,  
9 including alpha, beta and gamma radiation emitters. The  
10 International Atomic Energy Agency's regulations provide  
11 limits applicable to SCO-1 objects for various types of  
12 emitters.

13 Based on the characterization done by Bruce  
14 Power, it is estimated that the total quantity of  
15 contamination within each steam generator is 36 percent of  
16 the limit for beta, gamma and low-toxicity alpha emitters,  
17 and 45 percent of the limit for all other alpha emitters.

18 Values from the steam generators removed  
19 from Unit 2 show levels of contamination slightly those  
20 below of Unit 1 since they were removed from service two  
21 years earlier, in 1995.

22 As part of their evaluation, CNSC staff  
23 evaluated the following safety control areas in regard to  
24 the application submitted by Bruce Power. These areas are  
25 packaging and transport, environmental impact, radiation

1 protection, emergency measures, and security. Security  
2 also covers the proposed transport route.

3 For the road transport, each shipment will  
4 consist of 1 steam generator; 16 individual shipments  
5 will, therefore, be required. Each generator will be  
6 transported individually as a heavy load on a specially  
7 designed trailer. As a result, a maximum speed limitation  
8 of 20 kilometres per hour will be imposed.

9 Each shipment will be escorted by personnel  
10 trained in radiation safety. Because each generator will  
11 constitute a heavy load, an engineering analysis will be  
12 performed by the Province of Ontario and municipalities  
13 along the route.

14 For this portion of the transport, as well  
15 as for the marine portion, each steam generator will be  
16 secured to specially designed transport saddles with wire  
17 ropes, turnbuckles and welds. As each steam generator  
18 arrives at the Port of Owen Sound, it will be loaded onto  
19 the ship upon arrival.

20 As part of their application, Bruce Power  
21 proposes the following compensatory measures for the road  
22 portion of the transport: a detailed emergency response  
23 plan covering all aspects of transport; measures that will  
24 be in place from Bruce Power to the Port of Owen Sound;  
25 and radiation protection personnel to escort each

1 shipment.

2 For the marine portion of the shipment, all  
3 16 steam generators will be loaded into the closed cargo  
4 hold of a single ship in a pre-determined arrangement as  
5 shown in Figure 1. The cargo hold is completely enclosed  
6 and covered by a double deck as shown in Figure 2. At no  
7 point during transport will the steam generators be stored  
8 on the deck of the ship.

9 Once the steam generators are loaded into  
10 the cargo hold, the transport saddles will be welded to  
11 the floor of the hold. The only goods to be transported  
12 aboard the ship will be the 16 steam generators, and their  
13 load represents approximately 25 percent of the total  
14 weight capacity of the ship.

15 The ship used will be MV Panthera or one of  
16 its sister ships that have been designed to transport  
17 heavy cargo. These ships, built around the year 2000, are  
18 118 metres long and each one can transport up to 7,000  
19 metric tonnes of cargo.

20 The maritime shipment is to be completed by  
21 a special dedicated ship with a radiation safety officer  
22 on board at all times and, in addition, the ship has its  
23 own radiation protection plan and emergency response plan.

24 In accordance with the original 2006 Bruce  
25 A refurbishment environmental assessment, all 16 steam

1 generators were moved and are now being safely stored at  
2 the western waste management facility within the Bruce  
3 site.

4 The shipment of the steam generators to  
5 Sweden for recycling is a new proposal by the proponent.  
6 Being a new proposal, CNSC staff reviewed the Bruce Power  
7 application to transport the steam generators and  
8 determined that the due activity does not require an  
9 environmental assessment as the proposal does not meet the  
10 definition of a project under the *Canadian Environmental*  
11 *Assessment Act*.

12 CNSC staff carried out an environmental  
13 impact evaluation of the project under the *Nuclear Safety*  
14 *and Control Act* to consider whether adequate measures for  
15 the protection of the environment would be in place.

16 Based on this impact assessment, CNSC staff  
17 has concluded that the environmental and human health risk  
18 from release would be negligible.

19 A number of accident scenarios were also  
20 considered by CNSC staff for both the road and marine  
21 portions of the transport, always taking into account the  
22 worst-case scenarios.

23 The following scenarios are discussed  
24 briefly in the following slides: a motor vehicle accident  
25 during road transport; a crane accident during a loading

1 at the Port of Owen Sound resulting in a breach of the  
2 generator shell; and the sinking of the ship.

3 In their evaluation, CNSC staff applied the  
4 guidance provided by the International Atomic Energy  
5 Agency, and derived from actual transport accident  
6 experience, in assessing the potential releases of nuclear  
7 substances.

8 The first accident scenario considered is a  
9 motor vehicle accident involving the truck carrying the  
10 steam generator. For the current storage location at the  
11 Bruce Power site to the Port of Owen Sound. When  
12 examining this type of accident scenario CNSC staff  
13 considered the following facts regarding each shipment:

14 The shipment will have a maximum speed of  
15 20 kilometres per hour at all times; Personnel trained in  
16 radiation protection will accompany the shipment; A  
17 police escort will accompany the shipment; The tie-downs  
18 which secure the steam generators to the trailer are  
19 designed to avoid causing damage to the steam generators  
20 which means that they will not affect the integrity of the  
21 generator outer shell.

22 Given these facts and the robust  
23 construction of the steam generators, CNSC staff have  
24 concluded that a motor vehicle accident will not result in  
25 a breach of the steam generator shell. Therefore, there

1 would be no nuclear substances released into the  
2 environment from a motor vehicle accident.

3 Next, CNSC staff considered a crane  
4 accident at the Port of Owen Sound occurring while a steam  
5 generator was loaded onto the ship. In this scenario, the  
6 steam generator would fall; hit the pier, resulting in a  
7 breach of the shell. The steam generator would then fall  
8 into the water.

9 While the scenario is the most plausible,  
10 it is still highly unlikely. CNSC staff considered the  
11 potential available releases to come from the non-fixed  
12 component of the internal contamination of the steam  
13 generators as well as from the scraping of the fixed  
14 contamination that is also confined to the interior of the  
15 steam generator.

16 This results in 13.2 percent of the total  
17 radioactivity within one of the steam generators that  
18 could be released in this type of accident with a  
19 corresponding maximum dose of .33 millisieverts. This is  
20 below the CNSC maximum allowable dose of 1 millisievert  
21 for the public.

22 Based on international experience with past  
23 transport accident a maximum of 1 percent of the activity  
24 that is available for release in a package would actually  
25 be released into the environment in a severe accident.

1 This is known as a release fraction.

2 Applying this release fraction to the  
3 releasable inventory, CNSC staff calculated that only .132  
4 percent of the total activity in the steam generator could  
5 be released into the water in a realistic worst case  
6 scenario accident. Even when assuming that 13.2 percent  
7 of the total activity is released in this accident  
8 scenario, CNSC staff conclude that there would be no  
9 impact to the health and safety of the public and the  
10 environment.

11 The third accident scenario considered by  
12 CNSC staff is the potential sinking of the ship. When  
13 examining this type of accident scenario, CNSC staff  
14 considered the following facts; The steam generators are  
15 capable of withstanding pressures up to a depth of 800  
16 feet; Personnel trained in radiation protection will  
17 accompany the shipment at all times; The tie-downs which  
18 secure the steam generator to the ship cargo hold are  
19 designed to avoid causing damage to the steam generators  
20 which means that they will not affect the integrity of the  
21 steam generator shell.

22 Based on these facts, CNSC staff have  
23 concluded that at a depth of less than 800 feet, the steam  
24 generators will sink but will remain intact. If the ship  
25 were to sink in depths greater than 800 feet, the steam

1 generators will sink and the welded cover plates may fail.  
2 This would allow the water to enter and the pressure to  
3 equalize on both sides of the generator shell.

4 It should be noted that the maximum depth  
5 within the Great Lakes and the St. Lawrence system is  
6 approximately 800 feet.

7 CNSC staff evaluated the impact on drinking  
8 water as a bounding human health and environmental  
9 protection scenario for a credible marine accident. The  
10 scenario assessed was the rapid release of all of the  
11 available inventory of one steam generator for a near-  
12 shore accident during transport through the Great Lakes.

13 This is a conservative scenario that does  
14 not take into account the likely recovery of the  
15 generator. It also includes three highly conservative  
16 assumptions.

17 First, the release is assumed to occur  
18 rapidly. Any release would most likely occur very  
19 gradually due to low solubility of the contamination in  
20 lake water.

21 Second, the accident is assumed to occur  
22 near shore, very close to a drinking water supply plant,  
23 even though the majority of the travel will occur far from  
24 the shoreline.

25 Third, the scenario assumes that all of the

1 inventory available for release, 13.2 percent of the total  
2 contamination, would be released. In fact, based on the  
3 International Atomic Energy Agency's guidance developed  
4 from package behaviour in severe accidents, only 1 percent  
5 of the available inventory would likely be released.

6 Based on these highly conservative  
7 assumptions, a credible pier loading accident scenario  
8 such as the one described earlier in the presentation  
9 would result in a dose to the public of .33 millisieverts  
10 or one-third the allowable public dose of 1 millisievert.

11 If we apply the international guidance a  
12 realistic release would be in the order of .0033  
13 millisieverts or less than one-third of 1 percent of the  
14 public dose limit. Even for alpha emitters with high  
15 inventories and low action levels such as Americium-241  
16 and the various plutonium isotopes, the individual  
17 isotopes dose would not exceed .047 millisieverts.

18 CNSC staff concluded that there is an  
19 abundant safety margin and that no intervention to protect  
20 drinking water supplies would be triggered from such an  
21 accident. Therefore, the environmental and human health  
22 risk from a release would be negligible.

23 In their assessment of radiation protection  
24 safety control area, CNSC staff reviewed Bruce Power's  
25 Units 1 and 2 steam generator classifications for

1 transport purposes and the transportation emergency  
2 response plan provided by Bruce Power. No radiation  
3 protection issues or concerns were identified.

4 CNSC staff reviewed Bruce Power's radiation  
5 safety program as it relates to the transport of the steam  
6 generators and conclude that the overall program meets the  
7 CNSC requirements.

8 CNSC staff also performed a detailed  
9 assessment of Bruce Power's radiation protection program  
10 in terms of the following -- dose rate estimates from the  
11 steam generators; radiation contamination control  
12 measures; accident scenarios; radiation doses to workers;  
13 and radiation doses to the members of the public.

14 CNSC staff have concluded that adequate  
15 provisions have been put in place to ensure the control of  
16 doses for the overall transportation operation.

17 CNSC staff verified that dose estimates for  
18 members of the public related to the road shipment and  
19 CNSC staff concluded that the dose to members of the  
20 public would be negligible. More specifically, the dose  
21 for people driving or walking by the steam generators  
22 while they are in transit on the highway would be well  
23 below 1 percent of the regulatory limit of 1 millisievert  
24 or 1000 microsieveverts applicable to members of the public.

25 CNSC staff conclude that appropriate

1 radiation safety measures have been proposed by Bruce  
2 Power to protect the health and safety of the public.

3 CNSC staff assessed the emergency response  
4 plan submitted with the application. The emergency  
5 response plan includes the actions that would be taken  
6 should an emergency situation arise such as notifications,  
7 reporting, emergency management and response.

8 Response procedures for worst case scenario  
9 accidents that could occur while the steam generators are  
10 in transit either by road or by vessel and also while  
11 being loaded onto and unloaded from the vessel, as well as  
12 the identification of resources, personnel and contractors  
13 to undertake the procedures to protect personnel, the  
14 environment, and the health and safety of the public.

15 The shipboard emergency plan gives guidance  
16 that is to be followed in emergency situations that could  
17 potentially arise on the vessel. The plan used was  
18 developed for irradiated nuclear fuel cargo and although  
19 the steam generators are not considered to be irradiated  
20 nuclear fuel cargo, the plan is still being used. It is a  
21 more restrictive and careful plan.

22 The plans include detailed procedures to be  
23 followed on the role and responsibilities of the emergency  
24 response teams, communication protocols, notifications and  
25 reporting procedures and also prevention and reduction of

1           contamination from nuclear substances.

2                        CNSC staff conclude that the emergency  
3           measures that would be in place for this shipment to  
4           protect the health and safety of the workers and of the  
5           public are adequate.

6                        Various security measures would be  
7           implemented throughout the transport within the Port of  
8           Owen Sound and the marine vessel, Transport Canada  
9           provides regulatory direction and oversight for security  
10          measures. The Marine Security Operation Centre, or MSOC,  
11          will coordinate the threat and risk assessment for the  
12          marine portion of the shipment.

13                      This Centre is led by the Royal Canadian  
14          Mounted Police and is made up of a broad range of law  
15          enforcement and public safety agencies from both Canada  
16          and the United States. For the purposes of this proposed  
17          shipment, both the CNSC and Bruce Power are represented on  
18          MSOC. Details related to the security plan are presented  
19          in a separate CMD and will not be made public.

20                      With respect to public and stakeholder  
21          engagement, the CNSC recognized the rising level of public  
22          interest and responded to requests for information as  
23          appropriate.

24                      On the invitation of the Mayor on July  
25          26<sup>th</sup>, 2010, the CNSC made a presentation to Owen Sound

1 city council on the topic of transportation of the steam  
2 generators from the Bruce Power Nuclear site to Sweden for  
3 recycling.

4 This presentation covered the CNSC's  
5 mandate, the licensing process, applicable regulations,  
6 the scope of the CNSC's evaluation, details of Bruce Power  
7 application and the required approvals at all levels.

8 Following the presentation, CNSC staff  
9 answered questions from the Mayor and councillors. This  
10 same presentation was also delivered in St. Catharines,  
11 Ontario to the Mayor and fire chief of St. Catharines, the  
12 Mayor and fire chief of Port Colborne and the Mayor of  
13 Thorold.

14 In addition, letters of notification about  
15 the Bruce Power steam generator application was sent by  
16 the CNSC to the Saugeen Ojibway Nation, the historic  
17 Saugeen Métis and the Grey-Owen Sound Métis Council.

18 Once available, copies of the CMDs were  
19 sent to these three First Nations groups as well as to the  
20 Métis Nation of Ontario.

21 Furthermore, CNSC staff sent notification  
22 of hearing to the Union of Ontario Indian Grand Chief and  
23 each of the 40 member First Nations.

24 In summary, CNSC staff have assessed the  
25 following safety and control areas: packaging and

1 transport, environmental impact, radiation protection,  
2 emergency measures and security. In their evaluations,  
3 CNSC staff applied conservative assumptions, methodology  
4 derived from actual accident experience and  
5 internationally accepted guidelines. No safety  
6 significant issues were identified.

7 CNSC staff conclude that the shipment of  
8 the 16 steam generators from Bruce Power to Sweden under  
9 special arrangement is safe as it meets the required  
10 overall level of safety and transport. Therefore, CNSC  
11 staff recommend that the Commission approve the proposed  
12 transport licence and certificate for the transport of the  
13 16 steam generators to Sweden for a period of one year.

14 Thank you.

15 **MR. JAMAL:** Mr. President, that concludes  
16 the CNSC staff presentation. We will be able to answer  
17 any questions you might have.

18 **THE CHAIRMAN:** Thank you.

19 Before opening the floor for questioning, I  
20 think we have one more presentation and I would like to  
21 move to the presentation from Studsvik Nuclear NB as  
22 outlined in CMD 10-H19.2. Please note that Studsvik has  
23 been invited to appear at the request of the Commission to  
24 explain its role and its processes in this matter.

25 I understand that Mr. Bo Wirendal, Product

1           Manager at Studsvik is here to make the presentation.

2                       Sir, the floor is yours.

3

4           **10-H19.2**

5           **Oral presentation by**

6           **Studsvik Nuclear AB**

7

8                       **MR. WIRENDAL:** Thank you very much.

9                       My name is Wirendal. I am Product Manager  
10           for the melting facility at the company's Studsvik Nuclear  
11           AB in Sweden.

12                      I will very shortly give a presentation of  
13           the group -- the company -- or you can see we have a  
14           different segment around -- across the world, U.S.,  
15           Germany, U.K. and Sweden.

16                      The next slide will give you the view of  
17           what we are doing in the different segment and later on I  
18           will focus on the segment Sweden, of course, because we  
19           are going to treat the steam generator in that facility.

20                      We have the segment Sweden where we have  
21           the waste treatment facility incinerating and melting. In  
22           U.K. we have also similar treatment but we are not melting  
23           or incinerating, we only treat and repack waste from that  
24           facility for final repository and store.

25                      We have a company in Germany which are very

1 deep involved in the commissioning and engineering of that  
2 kind of services and then we have the facility in U.S.,  
3 one in Memphis, Tennessee where we have similar treatment  
4 facility as we have here in the segment Sweden. We treat  
5 incoming waste metal and also other kind of material.

6 We have also a facility in Irving,  
7 Tennessee and the last segment is the global services  
8 which more are focused on the material technology and  
9 optimize the software around the operating of this -- of  
10 the reactors.

11 The scope of work which we provide in  
12 Sweden, we perform volume reduction on low-level waste for  
13 the Swedish and international market or the nuclear  
14 industry to create savings in the final repository,  
15 discussing cost and also of course volume.

16 Volume for us is very important goal.  
17 There is a statement in Sweden saying we should not  
18 dispose volume, we should only dispose the Becquerels and  
19 that's what we are working for.

20 Studsvik performs customer isolated  
21 campaigns so we could say that we are sending back waste  
22 or the secondary waste that only contain the nuclide or  
23 the waste coming from each owner of the material.

24 And of course in the last we are looking  
25 and then we are discussing the recycling -- the metal

1 treatment, we are trying to recycle as much as possible to  
2 the -- back to the open market for reuse of the steel.

3 We are working under the law requirement  
4 from the Swedish government, from the Swedish  
5 Environmental Protection Court and also the Swedish  
6 Radiation Safety Authority, SSM, which have been mentioned  
7 earlier in the presentation from CNSC.

8 The Swedish Radiation Safety Authority is  
9 the authority which we are having to licence for the  
10 facility from and we report to that -- to SSM for what we  
11 are doing in the facility.

12 Going over to the treatment of the steam  
13 generator, and this is a slide which I have to go through  
14 a little bit so everyone could understand what we are  
15 doing. I will try to put on this slide, we have discussed  
16 a lot, just now of the transportation from the site.

17 We are coming in to the facility in Sweden  
18 where we have different step of treatment for different  
19 kind of components and in this case we are discussing the  
20 steam generator.

21 The steam generator itself will be  
22 controlled when it's arrived to Studsvik so we could see  
23 that the monitoring and sampling have been correct on the  
24 Bruce Power side.

25 We will start cutting the steam generator

1 with a big band saw. We are -- after the cutting we are  
2 using a decontamination process where we are clean the  
3 tubes inside and try to remove as much as possible of the  
4 contamination over to the blasting residue.

5 After tube blasting we are cutting and chop  
6 off the steam generator in different fractions. The tube  
7 will be pulled out from the tube barrel and will be  
8 flattened and shoved up in small pieces and packed in a  
9 waste container provide by Bruce Power.

10 We are using, in the next step for the  
11 outer shell and part of the metal which will be melted, we  
12 could use a blasting chamber for removal of the rest of  
13 the expected contamination on the outer shell if there is.

14 After blasting we are going for the melting  
15 process and we have an induction furnace where we are  
16 melting the metal down to a homogenized batch of 3.5 -- up  
17 to four tonnes of melt material. From that melt or from  
18 the melting batch we will create ingots and that is what  
19 you are seeing on the -- where I'm pointing us now.

20 That is the material which after the  
21 process could be recycled. Of course after that we have -  
22 - make the evaluation of the left activity, if there is.

23 The secondary waste will be packed in a  
24 container or boxes or drums or what the customer want us  
25 to pack it in. In this case it will be boxes and drums

1 and in the end send back to Bruce Power. Also, the ingots  
2 which are not meet the rules for free release will be sent  
3 back, together with the secondary waste.

4 If the ingots will meet the criteria for  
5 free release we will keep them in Sweden and the ownership  
6 will go over to Studsvik.

7 To be able to do this we have to go in  
8 step-by-step and I will try to explain how we have built  
9 up this product, together with Bruce Power.

10 It started that we are forming a pre-  
11 contract or we are forming like a technical description of  
12 what will be done and that's very important in this case  
13 to evaluate if it's possible or not possible to treat the  
14 material in the facility we have in Sweden.

15 After that we have come to the step where  
16 we make an agreement of the contract and we have all the  
17 licence in place. The processing of the material will  
18 have started. I'm speaking from how we treat the material  
19 today so if it feels that already have done it, it's not  
20 right. We do this daily back home in Sweden so I will  
21 mention today we are -- we are (inaudible) steam generator  
22 in the workshop today. So that's the reason why I say we  
23 do this step.

24 After we have made the processing we  
25 generate -- we have generated metal ingots. We have

1 generated secondary waste. And why we are melting the  
2 metal, we are taking sample from each batch of this three  
3 and a half, four tonnes of melt material. Those samples  
4 will be sent to the laboratory in Studsvik for analysis of  
5 the left activity if there is.

6 The secondary waste will also be  
7 categorized and analyzed for -- be able to send it back.  
8 In this stream you can see the secondary waste will go  
9 back after analyze, back to the owner of the material.

10 We also are -- analyzed the sample from the  
11 melter and we are following the -- for free release, the  
12 RP89 plus the stipulation from the SSM in Sweden, how to  
13 recycle the ingots. After that we evaluate the result  
14 from the laboratory.

15 Ingots which are not meet the criteria for  
16 recycle will be sent back, together with the secondary  
17 waste to -- in this case to Bruce Power. Why the metal  
18 which could be recycled will be sent for remelt in the  
19 external foundry contracted by Studsvik for doing this.

20 Studsvik as a treater on waste handle, we  
21 have to present a good proof that any metal target for  
22 exempt and free release will follow the rules. There is a  
23 different way to do it. I mean you can recycle metal  
24 directly from a controlled area without melting but it's  
25 very difficult and we have found out that trying to

1       measure and take samples of different kind of metal, big  
2       components, very complex geometries, that's very  
3       difficult.

4                       That's the reason why Studsvik in -- very  
5       early in this process -- it was in the second-half of  
6       1980s we decided to install a melter to be able to melt  
7       the metal, homogenize it and take a sample from the  
8       melting batch because that's the best and the most robust  
9       way to measure left or the rest activity in the metal. So  
10      that's the full reason why we installed the melter, was to  
11      be sure that metal going out to the market is very well  
12      proved.

13                      So Studsvik, we are following the clear  
14      rules how to operate this melting facility stated by the  
15      Swedish Radiation Safety Authority.

16                      The free release procedure, the RP89, have  
17      been accepted in Sweden by the SSM and the rules for this  
18      RP89 is standards which are used in many countries around  
19      in Europe to be sure that everyone is having more or less  
20      the same levels to work through.

21                      This RP89 stipulates that we have to remelt  
22      the ingots or the metal recycled from the melting facility  
23      have to be remelted, one to 10 with other scrap in the  
24      foundry -- in the commercial foundry outside Studsvik.

25                      And after this and only after that we could

1 say that we don't need any more control of the metal. So  
2 when it has been re-melted the second time we could say  
3 it's free to be used for whatever you want to use the  
4 steel for without any more restrictions.

5 The (inaudible) analyze data is showing if  
6 the metal is -- meet the criteria and this is a very  
7 important thing. We take -- we take samples from the  
8 melter. As I mentioned before, that sample will be used  
9 as a proof for this three and a half, four tonnes of  
10 metal. And we could measure the gamma, beta, and alpha in  
11 those samples by the different method we have in the  
12 laboratory.

13 And before we were -- to be able to send  
14 the metal out to the market we have to have this contract  
15 with foundries for the second remelt and that we have to  
16 have a contract so we can show the SSM that these  
17 companies are following the rules which we have stipulate.

18 I think it's also very important -- and  
19 maybe it hasn't been clear before. Studsvik is not  
20 producing any consumer products. We only produce ingots  
21 which will be sent for remelting as a part of the normal  
22 scrap handling for producing used steel.

23 As I mentioned before, free samples are  
24 taken from each batch. Each batch gets a specified  
25 number. So it's very easy to follow the ingots which have

1           been produced from each batch by this -- by this tagging.

2                       All metal -- all metal meeting the criteria  
3           for exempt and free release is prepared for ownership  
4           change so when we have the result from the laboratory  
5           saying that the metal is possible to use for remelting in  
6           the foundry we are making change of owner from the -- for  
7           example, Bruce Power to Studsvik in this case.

8                       Some nuclides which is dominated in this  
9           case, and this is only part of the whole list of nuclides  
10          which we are dealing with normally, but you can see there  
11          is, for example, for Cobalt-60 when we come to ingots, it  
12          could keep 1 becquerel, a gram in total, in that batch and  
13          that batch could then go for re-melting in the commercial  
14          foundry.

15                      At the end of the day, the metal which goes  
16          to the open market should have less than 0.1 becquerel in  
17          that batch that will be used for producing commercial  
18          things. So this is very important to remember, that this  
19          1 to 10 had to be followed before the metal is free to go.

20                      Second, there are ways to manage metal. In  
21          this case we are -- as I mentioned before, treat material  
22          in campaigns so each campaign has its own batch and we can  
23          follow the whole tracking of the material coming in until  
24          the day it goes back to the customer.

25                      All secondary waste packages are analyzed

1 for the contents and that's gamma spectromatic on the  
2 drum. This is a sample of a drum which we are scanning on  
3 the device we have. The volume reduction waste consists  
4 of a concentrate, including the radioactive nuclides to be  
5 returned.

6 I'm sorry it mentions ash and dust. It's  
7 not relevant in this case because that comes from the  
8 incinerator we have, but this is basically what we send  
9 back to the customer. The great blasting dust from the  
10 decontamination, dust from the ventilation, slag from  
11 cutting and melting and assorted metal or metal not  
12 meeting the exemption criteria, the ingots and assorted  
13 waste; whatever it could be.

14 This is in general what we are sending  
15 back. In the case of Bruce Power, we have made very clear  
16 what type of secondary waste which will be raised for  
17 sending back.

18 The 16 steam generators from Bruce Power  
19 will be treated over a three-year period in Sweden. The  
20 tube material will be placed without melting in OPG-  
21 approved, low-level containers designated for long-term  
22 storage. Those containers will be provided by Bruce Power  
23 to Studsvik.

24 All other secondary waste will be packed in  
25 approved secondary waste containers. These containers

1 will then be loaded into approved Studsvik ISO containers  
2 and will be sent back to Bruce Power. The Studsvik ISO  
3 container is the transport container and are designed and  
4 certified to carry this type of material both on road and  
5 sea.

6 All secondary waste has to be sent back to  
7 Bruce Power within these three years according with import  
8 permits Studsvik has for these 16 steam generators.

9 The secondary waste will be transported  
10 back as follows. From Studsvik to the harbour in  
11 Gothenburg in Sweden by truck; from the harbour in  
12 Gothenburg to Halifax port in Canada by boat; and from  
13 Halifax to Bruce Power by truck. So there will be another  
14 route back with the secondary waste.

15 That is what I have to say about the  
16 process and I hope you get a picture of what we are doing.  
17 So I will thank you very much for this.

18 **THE CHAIRMAN:** Thank you very much. We'll  
19 now open the floor for questions.

20 Why don't we start with Mr. Graham?

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

22 Just to start off, I guess I will start  
23 with Bruce and ask the first question to Bruce.

24 When did you decide to change the policy?  
25 You had gone to an EA process and through that process it

1 had been to store the generators at the Western Waste  
2 Management site.

3 When did you decide to deviate from that  
4 policy or that arrangement and ship the materials to  
5 Sweden?

6 **MR. HAWTHORNE:** Thank you. For the record,  
7 Duncan Hawthorne.

8 The reality is that we have been watching  
9 industry best practice on a whole range of areas. There  
10 are things that we've seen happen. Mr. Wirendal didn't  
11 mention that this has been going on for a number of years,  
12 maybe since 2006 or so, and so we have oftentimes visited  
13 other facilities to try and understand what they are  
14 doing.

15 We have watched with interest how steam  
16 generators much larger than ours and, frankly, with higher  
17 levels of radiation have been dealt with. We've been  
18 interested to see the success rate with which that work is  
19 carried out and also very interested to see how much of  
20 the material, in fact, is returned.

21 So we've been watching that, I think it's  
22 fair to say, for the last couple of years because we  
23 wanted to be sure that the process worked and it was  
24 viable and it could be applicable to our own situation.  
25 As mentioned, we began in some detail towards the end of

1 last year to see this as a critical option and since then  
2 we've been evaluating the prospect of doing it.

3 We've looked at the viability of it and, at  
4 the same time, we've had people visit the Studsvik  
5 facility so we could understand the process and reassure  
6 ourselves about the prospect of it. But it's really, I  
7 would say, over the last year.

8 **MEMBER GRAHAM:** To CNSC staff.

9 When were you made aware of the deviation  
10 or the change and started to review whether it was  
11 necessary for a new EA trigger or when were you -- when  
12 did you start analyzing the whole process?

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

14 I will pass on this question to Mr. Mike  
15 Rinker.

16 **MR. RINKER:** Mike Rinker. I'm the Director  
17 of the Environmental Risk Assessment Division at the CNSC.

18 I would like to emphasize that the project  
19 that was considered previously under environmental  
20 assessment was for all of those undertakings required to  
21 bring the Bruce A Nuclear Generating Station back into  
22 operation.

23 Within that environmental assessment, the  
24 removal of the steam generators and their placement into  
25 the Western Waste Management Facility was considered. So

1 that project was considered. The EA was approved. It was  
2 licensed and those steam generators now rest at the  
3 Western Waste Management Facility.

4 So in April of this year, a licence  
5 application was received to consider a new proposal from  
6 Bruce and that was to transport these steam generators  
7 from the Western Waste Management Facility to Sweden for  
8 recycling. This is a new consideration or a new proposal  
9 from Bruce. It is separate from bringing the Bruce  
10 nuclear generating stations back into operation, and our  
11 analysis began in April of this year.

12 **MEMBER GRAHAM:** Could you take us one step  
13 further? In April, you were notified that Bruce was  
14 considering taking these generators -- deviating from the  
15 original EA in which steam generators in refurb were to be  
16 removed and taken to the Western Waste Management site.  
17 That was the original plan.

18 Then in April, you were informed of the  
19 fact that there may be a deviation of this and these  
20 generators may be shipped for processing or further  
21 processing in Sweden.

22 Did you -- or at that time, was there any  
23 consideration to this made -- may trigger a new EA to have  
24 this happen?

25 **MR. RINKER:** Mike Rinker, for the record.

1                   That's correct. CNSC staff analyzed the  
2 new proposal that was provided in April and how, or if,  
3 the *Canadian Environmental Assessment Act* would apply.  
4 That consideration included whether there would be a  
5 trigger and, of course, there is one for the reason we are  
6 here today, is the issuance of a licence.

7                   Another consideration is whether there was  
8 a project as defined under the *Canadian Environmental*  
9 *Assessment Act*. And in this case there is not a project  
10 as defined by the *Canadian Environmental Assessment Act*.

11                   Nevertheless, the CNSC does under the NSCA  
12 consider environmental protection measures under our own  
13 mandate and that was completed as well.

14                   **MEMBER GRAHAM:** So what you're saying it  
15 was determined that there was not a project but there was  
16 the possibility that there could be a trigger?

17                   **MR. RINKER:** In order for the *Canadian*  
18 *Environmental Assessment Act* to apply you would need a  
19 number of things; one, there would -- it would have to be  
20 something that was authorized by the CNSC which is a  
21 trigger. The second is it has to be a project as defined  
22 by the *Canadian Environmental Assessment Act*. And we  
23 would also look to see if it's the type of project that's  
24 excluded.

25                   In this analysis there's two options under

1 the *Canadian Environmental Assessment Act* to define a  
2 project. One is, is this an undertaking in relation to a  
3 physical work, and -- which it is not. The steam  
4 generators are not a physical work. And the second is, is  
5 it a project under the inclusion list regulations, and  
6 it's not.

7 The only provision that would come close in  
8 this case is based on the inventory of nuclear substances,  
9 and the inventory of nuclear substances in all of these  
10 steam generators is well below the threshold that would  
11 trigger environmental assessment in the inclusion list  
12 regulations.

13 **MEMBER GRAHAM:** Okay. We'll come back to  
14 that at another time because I have a whole series of  
15 questions here.

16 To Bruce, you must have a budget for this  
17 process, versus what it was, to put it, the Western Waste  
18 Management Site versus leasing a ship, moving  
19 transportation, hearings, licensing, return of materials,  
20 all of that. Could you tell us what your budget is for  
21 this?

22 **MR. HAWTHORNE:** For the record, Duncan  
23 Hawthorne.

24 I think it's been public knowledge that the  
25 value of the contract between ourselves and Studsvik is

1       \$37 million.

2                       That's, as I said before, we have -- the  
3       Western Waste Facility is operated by Ontario Power  
4       Generation under our contract. We provide cost recovery  
5       for them, of course, and so that would require as if we  
6       were storing these items here, to build enclosures for  
7       storing them for the long-term and for meeting obviously  
8       all the running costs.

9                       I mean, you look at the two things side-by-  
10       side there is not a financial real difference between  
11       those two options.

12                      **MEMBER GRAHAM:** So the status quo option  
13       was not -- versus what you're doing today, was not a  
14       reason why you chose the option today as far as finances  
15       go?

16                      **MR. HAWTHORNE:** No, and I think, I believe,  
17       Commissioner, I answered that in my opening remarks.

18                      But let me say again that we had an  
19       environmental assessment. The environmental assessment  
20       process is designed to bound the environmental impact of  
21       what we do, but it does not remove the obligation from us  
22       to continue to look for better ways to do it.

23                      So as we look to how we do this thing there  
24       is indeed a better way to manage these steam generators  
25       that's afforded by the expertise that Studsvik have and so

1 we have an obligation to look at that.

2 And, frankly, even if it were a financial  
3 penalty on us, I think it would be very difficult for me  
4 to say in the face of a better solution, I'm not prepared  
5 to explore it.

6 So I can tell you it's financially neutral  
7 to us. There's not a financial advantage in doing it.  
8 There's an environmental advantage in doing it and for  
9 that reason we have an obligation, derived from CNSC  
10 regulation, to look at it, and that's why we're doing it,  
11 it's not to save money.

12 **MEMBER GRAHAM:** Thank you.

13 Mr. Chair, is OPG here today who operate  
14 the Western Waste Management site to answer some questions  
15 with regards to that site?

16 **THE CHAIRMAN:** Not to my understanding.

17 **MEMBER GRAHAM:** Okay. We'll go on then to  
18 another question or another several questions I have for  
19 Studsvik.

20 My first question is you say that this  
21 process will take approximately three years to carry out.  
22 The three years is to handle those 16 generators. Our  
23 licence that is proposed to us today is a one-year licence  
24 for shipping. Do you have the facilities to store all 16  
25 generators if they're received on your site for that

1 period of three years?

2 **MR. WIRENDAL:** Yes, that's correct. We  
3 need these three years for treatment of those 16 steam  
4 generators based on the process we are using for this. We  
5 have an interim store for these steam generators waiting  
6 for treatment. So, yes.

7 **MEMBER GRAHAM:** You also said in your  
8 remarks that at the present time you're dismantling or  
9 cutting up a generator today or right now at your plant.  
10 Is that from a nuclear power plant or is that one that may  
11 be radioactive, or is that a non-radioactive generator?

12 **MR. WIRENDAL:** I will clarify. We are only  
13 working with material coming from the nuclear facilities.  
14 We are not allowed to treat other material.

15 Yes, this steam generator comes from the  
16 power plant Ringhals in Sweden and its three times bigger  
17 and much heavier than the steam generator from Ringhals --  
18 or from Bruce Power. So, yeah, the area is not treated.

19 **MEMBER GRAHAM:** And is it the norm that  
20 generally the waste that is not being able to be recycled  
21 and then put back on the open market generally runs around  
22 10 percent?

23 **MR. WIRENDAL:** That's normal for a steam  
24 generator we are treated or have treated so far, or other  
25 scrap heater changer turbine or whatever it is. It's much

1       less than that.

2                       But the steam generator generates a little  
3 bit more secondary waste. It depends but we have to send  
4 back the tubes. They are not possible to decontaminate  
5 and recycle as they are today.

6                       **MEMBER GRAHAM:** Question to CNSC staff; the  
7 returned containers that -- Studsvik mentioned that they  
8 would be sending that 10 percent or approximately  
9 materials -- approximate materials back to Bruce for  
10 storage at Western Waste Management, are those containers  
11 approved under CNSC regulations to come back into Canada?

12                      **MR. FAILLE:** I'm Sylvain Faille, Transport  
13 Division of CNSC.

14                      Those containers don't require  
15 certification by the Commission. They are the ones that  
16 were presented in our presentation as the low risk  
17 packages that don't require certification by the  
18 Commission, but they have to follow the performance  
19 requirements that are specified in the regulations.

20                      And such for the one that they are  
21 proposing they would be industrial packages type IP-2  
22 packages for the return shipment.

23                      **MR. JAMMAL:** Mr. Graham, if I may add to  
24 this, is the -- there are two categories where there are  
25 requirements that CNSC approval based on the risk of the

1 substance and the package itself.

2 For the record, it's Ramzi Jammal.

3 Second, versus the -- where the package  
4 itself meet international requirements and the case of the  
5 returned packages from Studsvik are in compliance with  
6 international requirements, hence, there is no CNSC  
7 approval is required.

8 **MEMBER GRAHAM:** So are you saying that the  
9 materials -- radioactive materials -- low-level  
10 radioactive materials that come out of the -- come back  
11 from Sweden can come in any sort of container?

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

13 The answer is no, not any sort of  
14 container. The container must be specially designed where  
15 its design and its safety requirements meets the  
16 international regulatory requirement, hence, there are no  
17 safety risk associated with the substance inside in the  
18 transport.

19 **MEMBER GRAHAM:** Okay. I have a lot -- and  
20 I don't want to -- I'm just going to take one more set,  
21 Mr. Chair, if I may, and then I'll pass on to my  
22 colleagues and come back in another round.

23 The road from Bruce to the port, we didn't  
24 have road map of that, but is it a secondary road, a four-  
25 lane highway, a single-lane highway? What type of highway

1 is it?

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

4 It's a combination actually of different  
5 highways. We've actually tried our best to stay off of  
6 the main thorough route between Owen Sound and Port Elgin  
7 for obvious traffic reasons.

8 But the important thing I think is that all  
9 the route that's being proposed is being engineering  
10 reviewed and evaluated both by the province and by us to  
11 make sure that it's suitable for this type of traffic, and  
12 we wouldn't get the permit if it wasn't.

13 **MEMBER GRAHAM:** Is it chip seal or asphalt?

14 **MR. SAUNDERS:** I believe its all asphalt  
15 but you're a little bit beyond my detail. We can  
16 certainly get that information for you.

17 **MEMBER GRAHAM:** Yeah, I think we do need to  
18 know, because Transport Canada has some quite strict  
19 regulations with regard to after an accident happens as to  
20 the width of the road and so on.

21 And what I was wanting to find out was does  
22 it meet all of those requirements and, you know, does it  
23 have the 3.75 metre width from centre line to the  
24 shoulder, what the widths of the shoulders are. Are there  
25 any bridges or culverts that require axle tonne weight

1 limits? I would hope that we would have that today  
2 because by looking at that material that's being  
3 transported, it's about 100 tonnes.

4 The trailer, I would estimate in my  
5 experience with those type of trailers are -- some would  
6 be somewhere in the vicinity of 35 to 40 tonne trailers,  
7 so you're probably at 140-150 tonnes of weight which would  
8 be a maximum of 15 tonne axle weight on bridges which is  
9 quite high, on secondary roads. That is something that I  
10 think we should have known or should know.

11 And secondly, when you start transporting,  
12 how many school buses pass on that road a day -- what your  
13 contingency plans are at the time of school buses. You  
14 are meeting a school bus and what are -- you can't haul  
15 off on the shoulder of the road with type of weight. You  
16 have to stay right on that -- at least 3.75 metre width on  
17 one side of the road and so on.

18 So with my experience with transport Canada  
19 regulations and accident reviews and so on, those are all  
20 things that are very necessary. So I'm wondering have you  
21 got that information for us?

22 **MR. HAWTHORNE:** For the record, Duncan  
23 Hawthorne. Let me try and answer some of your questions.

24 Firstly, don't forget that we actually have  
25 new steam generators on site that replaced these ones so

1 we have transported 16 steam generators, in fact more than  
2 that already to our site -- same weight, same dimensions,  
3 same road transport arrangements and actually many of the  
4 same controls.

5 So we have a process by which we do exactly  
6 as you said. We have entirely a complete baseline data  
7 because we've shipped all these items before. We use that  
8 baseline data to interact with the various municipalities  
9 on the route. We use that baseline data to assess the  
10 bridges.

11 Yes, there are a couple of bridges we have  
12 to go over. We have to look at their integrity. We have  
13 measurements and metrics around that. We have to satisfy,  
14 you know, the municipal engineering group around that. We  
15 have to satisfy the Ministry of Transport Ontario around  
16 that. So we do have all of that data.

17 Secondly, we are choosing transport times  
18 where (a) it is low traffic and, (b) it reduces some of  
19 the issues you talked about -- school buses, et cetera.  
20 We will do that and cause coordination with the  
21 municipalities. Most of our shipments were intended to be  
22 late afternoon for that reason.

23 So we've thought about all of those things.  
24 We can certainly provide chapter and verse detail on that  
25 if you want that and we have many files of data to date to

1 do that. But what I can assure this Commission is of  
2 several things.

3 Firstly, this is not new territory for us.  
4 We have shipped these components.

5 Secondly, as part of our risk assessment  
6 and just a general road transport rules, we have taken  
7 action in concert with the municipalities and county  
8 officials to reinforce roads where necessary to do that.

9 We have already satisfied the MTO in terms  
10 of the intentions here because, as I say, we've done that  
11 activity before.

12 We will vary this route in some ways to  
13 respond to community issues, either be it with respect to  
14 the volume of traffic, the timing of the transportation --  
15 because we want to minimize the impact and we obviously  
16 want to be a good neighbour as we do this work.

17 **MEMBER GRAHAM:** I appreciate that and not  
18 necessarily do I need it but I would certainly expect --  
19 first of all the steam generators you moved to the site  
20 were not radioactive and these are. So it's a little  
21 different.

22 And I would expect that CNSC staff would  
23 have these as licence conditions that all those permits,  
24 all those regulations and all those things that I have  
25 mentioned are met and met to the proper code that is

1 required.

2 Secondly, when I had questions of Studsvik  
3 I just failed to ask one question that I had here. Have  
4 you ever been in violation of any of the Swedish laws --  
5 your plant -- with regard to processing?

6 Or have there ever been any violations or  
7 any citings by the Swedish government or the Swedish  
8 nuclear industry for anything that you have not done  
9 correctly at your plant since it's been in operation?

10 **MR. WIRENDAL:** No. We have not been in  
11 that situation before.

12 **MEMBER GRAHAM:** Thank you.

13 **THE CHAIRMAN:** Thank you.

14 Just for staff on the transportation --  
15 just I want to understand. Transport Canada has been  
16 engaged. Would you dare to issue a permit, their own  
17 permit, for this? Is that correct?

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

19 Mr. President, Transport Canada staff was  
20 supposed to be present here. At the last minute there has  
21 been a change. We will look into the requirements under  
22 Transport Canada for that specific question by Mr. Graham.

23 However, on the record -- but I'll try to  
24 put my finger on the statement made by the transport  
25 engineer of Owen Sound either during my presentation at

1 the Council or I came across it somewhere and I searched  
2 this afternoon in order to be able to find the declaration  
3 that was made where the Owen Sound transport engineer has  
4 declared that they've assessed the weight; they've  
5 assessed the capacity on the bridges.

6 And from the transport requirements, they  
7 have no issues with the weight and the transportation with  
8 regard to the steam generators being transported on the  
9 roads of Owen Sound. I will confirm this one more time  
10 but that's the declaration.

11 I'm going by memory and I could stand  
12 corrected but I will search for that declaration.

13 **THE CHAIRMAN:** Thank you.

14 **MR. HAWTHORNE:** Commissioner Graham, just  
15 to finish the point -- the requirement is -- and clearly  
16 you have some knowledge of this so it's a knowledgeable  
17 discussion.

18 But we have to apply for a licence within  
19 30 days of the transportation taking place. You know, we  
20 have to be granted that or else we don't get the OPP  
21 support. We don't meet any of those requirements and  
22 therefore we don't -- it's a straightforward go/no go  
23 decision.

24 If we would apply for that 30 days --  
25 within that 30 day period -- you can't apply for it six

1 months before. It's a requirement that it would be within  
2 30 days of the transport.

3 **THE CHAIRMAN:** Thank you.

4 Mr. Harvey?

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

7 My first question has to do with the  
8 contamination. In your presentation, Mr. Hawthorne, you  
9 mentioned that the contamination inside the steam  
10 generator was well known. You have taken samples and so  
11 on.

12 So could you give some additional  
13 information of how it was done and when, because when  
14 reading the staff CMD pages 7 and 11 it said,

15 "The interior cannot be accessed which  
16 does not allow direct confirmation of  
17 the estimated internal surface."

18 So could you give more explanation on that  
19 point?

20 **MR. HAWTHORNE:** Yes. For the record,  
21 Duncan Hawthorne.

22 Yes, I think I can answer it in two or  
23 three ways, Commissioner.

24 Firstly, as I said before, during the  
25 operational life of these units we do make manned

1 (phonetic) entry to these steam generators. In fact, one  
2 of the things that determines the remaining operational  
3 life of these units is the condition of the internal two  
4 components.

5 It's part of the verification that we do  
6 tremendous examination of these steam generators, looking  
7 for flaws and various other things. It involves the use  
8 of equipment and it involves the use of manned access, et  
9 cetera.

10 So we collect data on the condition of the  
11 tubes both in terms of structure and integrity, but also  
12 radiation and measurements that we collect as part of our  
13 ongoing activities.

14 In addition to that, we can run statistical  
15 models of that but we can actually monitor. We do pool a  
16 sample of boiler tubes. We do that to satisfy CNSC on a  
17 range of other things, like life cycle component  
18 integrity.

19 But we do pool the samples of tubes. We  
20 send them off for analysis, and again that gives us a good  
21 insight into the oxide deposits that exist on the tube,  
22 the quantity of activity on them. Simply, of course, we  
23 know what exactly flows through those tubes. We know it's  
24 D<sub>2</sub>O. We know the integrity of that. We measure that.

25 And finally we can do spectrometry of the

1 tubes. We can measure the radiation dose coming from  
2 them. So we know the constituent isotopes because we know  
3 the constituent isotopes both of heavy water and indeed of  
4 the fuel.

5 We know the quantum of radiation that comes  
6 from them by very sound scientific measurement of the  
7 radiation emanating from that.

8 And thirdly, we have pooled tubes. We have  
9 analyzed tubes for a lot of things but included within  
10 that is the amount of oxide deposit that exists on the  
11 tubes.

12 All of those things I believe give us  
13 confidence that statistical calculation and scientific  
14 measurement actually confirm our assessment.

15 **MEMBER HARVEY:** So the margin of error is  
16 quite precise -- or what is the margin of error of such  
17 estimation?

18 **MR. HAWTHORNE:** Well, I would believe it to  
19 be very accurate because what we've done is -- a  
20 statistical analysis is done in one area using a lot of  
21 background information from a large population. Don't  
22 forget that we actually have, you know, reactors in  
23 operation today. So we have a large population of data  
24 based on operating reactors to draw upon alongside what  
25 you've got with these steam generators removed from

1 service, so I think the margin for error is very tight.  
2 We can then confirm that by measurement. So I don't  
3 believe that we are in any way doing anything other than  
4 you'd expect us to do which is a conservative bounding of  
5 this information.

6 **MEMBER HARVEY:** Just to check my  
7 comprehension of the contamination, is the contamination  
8 limited to the interior of the tubes or there is some  
9 contamination of the larger envelope which is in steel?

10 **MR. HAWTHORNE:** Again for the record,  
11 Duncan Hawthorne.

12 I think staff give a good explanation of  
13 what we're talking about. Effectively we're talking about  
14 oxide deposits and the internal surfaces of the boiler  
15 tubes. There's one way in and there's one way out. So  
16 there is a working understanding that most of these  
17 deposits have effectively plated out on the tubes and they  
18 are fixed. There is a conservative assumption that some  
19 of it may be loose and be down at the bottom end of the  
20 boiler itself where the inlet and outlet section resides.

21 But that's basically how we come to this  
22 conclusion. We know that most of these components in  
23 operational use would plate out on the tubes themselves  
24 but we're talking about the internal diameter of the  
25 boiler tubes.

1                   **MEMBER HARVEY:** Okay. Now I'll go to  
2 Studsvik. Just when the -- in your -- the figure we had  
3 on screen just showing the process. When you -- the first  
4 operation was cutting apart of the steam generator. So  
5 when you do that first step, you're not touching the  
6 tubes?

7                   **MR. WIRENDAL:** No. What we do is we are  
8 cutting away the water chamber from the end of the steam  
9 generator to be able to get in the -- so we could reach  
10 the tube and start -- clean them by the contamination --  
11 by using a blasting. So we are not touching the tube in  
12 that ---

13                   **MEMBER HARVEY:** In that portion of the ---

14                   **MR. WIRENDAL:** No. We are cutting through  
15 the channel head, as what you call it.

16                   **MEMBER HARVEY:** And why you -- after that  
17 when you continue your operation and when you start to cut  
18 the tubes, is the envelope, the steam generator itself or  
19 just the envelope -- cut at the same time? You cut the  
20 tubes, I mean is it -- are you going through the envelope  
21 and the tubes and everything goes in the same place at the  
22 bottom?

23                   **MR. WIRENDAL:** Yeah. We are cutting the  
24 part of the tube and mostly I will say the time when we  
25 are cutting tubes is the U-bend of the tube -- to remove

1 that and then the rest of the tube material will be pulled  
2 out from the location they have and during that process  
3 they will be flattened and chopped in smaller pieces so  
4 all tube material will be collected together in this  
5 netted boxes.

6 **MEMBER HARVEY:** Okay. That job is not done  
7 at the same time you do the envelope itself?

8 **MR. WIRENDAL:** Yeah.

9 **MEMBER HARVEY:** There's two different ---

10 **MR. WIRENDAL:** So what's left when we have  
11 removed the tubes or the outer shell of the steam  
12 generator and the internals where the tubes have been  
13 located during the process.

14 **MEMBER HARVEY:** So there is no mix with the  
15 tubes and the shell itself?

16 **MR. WIRENDAL:** No. We try to avoid that as  
17 much as possible because the shell will be able to recycle  
18 while the tube material will be sent back as a secondary  
19 waste and we try to reduce the volume as much as possible  
20 so we don't want to mix it.

21 **MEMBER HARVEY:** When you say that you're  
22 having low-contaminated material with non-contaminated  
23 material and melted together ---

24 **MR. WIRENDAL:** We ---

25 **MEMBER HARVEY:** Go ahead.

1                   **MR. WIRENDAL:** We are not -- what we are  
2 doing -- for example, the steam generator itself is one  
3 product and we melt that material together with -- we  
4 don't take any material from other part of containerized  
5 material, whatever it is, and mix it together with this.

6                   The steam generator is melted as it is with  
7 its own material, so to say.

8                   **MEMBER HARVEY:** You're not adding material  
9 from outside?

10                  **MR. WIRENDAL:** No. We are not allowed to  
11 add anything from the outside to be like -- to mix in for  
12 reduce the level in the melt. We are only allowed to use  
13 the incoming materials as waste.

14                  **MEMBER HARVEY:** How come at the end you've  
15 got to separate -- it's like after sampling the -- you can  
16 have, well a part going directly -- I would say in the  
17 public and the other one that you cannot do that? How  
18 come -- where do you separate and why there is a  
19 difference between some after the melting?

20                  **MR. WIRENDAL:** If I fully understand, the  
21 process is like that. If we take a steam generator --  
22 maybe I have to try to explain this -- a steam generator  
23 coming in one of those 16 or two of those 16 or whatever -  
24 - those will be treated as one campaign so we try to  
25 separate part from the steam generator, the tube material

1       -- and if we find other part of that steam generator which  
2       have a higher level of activity, we put that inside and  
3       designate that material as a secondary waste.

4               The rest of the material after that we have  
5       make pre-calculation of measure of the material, maybe we  
6       decide to blast it in another machine to be sure that we  
7       reached the limit for recycling of the ingots after  
8       melting because if you introduce to the melter the  
9       activity together with the metal you will also create  
10      secondary waste in form of ingots and that's what we are  
11      trying to avoid.

12              **MEMBER HARVEY:** How do you sample the --  
13      oh, I'm not talking of the tubes now, just the shells  
14      themselves. If there is a contaminated part of it how do  
15      you determine that kind of test you do to get the ---

16              **MR. WIRENDAL:** We are using a dose  
17      measurement and also smear test measurement. Sometimes  
18      you also take sample from the metal by taking a small  
19      fraction from that and send it to the laboratory for  
20      analysis before re-melting it because sometimes you can  
21      not risk steam generator itself maybe but material in  
22      general when we are treating.

23              It could be sometimes problematic to  
24      exactly say what the level of activity will be after you  
25      have melted it so it's better to make it in advance sure

1       that you are not destroying more material than -- and when  
2       I say destroyed it means that we have to send it as  
3       secondary waste.

4                        So this is the type of knowledge you have  
5       to have when you are running this kind of process.  How  
6       could you process it without risk to produce more  
7       secondary waste than necessary?

8                        **MEMBER HARVEY:**  You have processed other  
9       steam generators but is it the first time you process --  
10      you will process some coming from countries like Canada  
11      where there is -- it's a CANDU with system with maybe some  
12      difference, for instance, with usual material you use to  
13      process?

14                      **MR. WIRENDAL:**  Yeah.  This is the first  
15      time we are going to treat the steam generator from -- we  
16      have with tritium contamination but again we have treated  
17      steam generators from Germany, for example, from Sweden  
18      and we treat material from all kinds of reactors but again  
19      it depends on that we are not going to melt the tube  
20      material and part which -- part of the steam generator  
21      which had been in contact with a water or the primary  
22      water means that we could avoid again the problem with  
23      sending back as secondary waste.

24                      **MEMBER HARVEY:**  Okay ---

25                      **MR. HAWTHORNE:**  Can I -- sorry, I'm just

1       trying to help the understanding of this if you don't  
2       mind.

3                       For the record, Duncan Hawthorne.

4                       One of the things that I think is important  
5       is differentiate CANDU steam generators from the other  
6       ones because I think that's also part of your questioning.

7                       Firstly, our steam generators are different  
8       in a very material way from the other light water reactor  
9       steam generators. They're much smaller physically,  
10      there's less activity in them also and somehow that's a  
11      function of the fact that we in our plant designs -- if  
12      you remember the diagram I put up we have a steam drum  
13      that sits across the top. That's not typical that some of  
14      those components that would be in the steam run are  
15      typically in the internals of other reactor designs. So  
16      in terms of how we look at this, from our point of view,  
17      it's smaller, less complex and less active than what would  
18      typically have been managed by Studsvik.

19                      So again that gives us a high degree of  
20      confidence that there will be a significant volume  
21      reduction because as I say it starts off with a lower  
22      level of activity. It's a much less complex internal  
23      reactor, this steam generator design and, you know, I  
24      don't want to put words in Studsvik's mouth but I think  
25      it's important that the Commission are made aware of that

1 difference.

2 **MEMBER HARVEY:** Thank you.

3 We'll just go to the staff and just ask if  
4 they have the same knowledge or the same expectation vis-  
5 à-vis the process.

6 In other words, what is your knowledge of  
7 the process and what is -- what confidence you have that  
8 the -- like Mr. Hawthorne said, that it will be -- may be  
9 easier to work on those stationary third and -- what they  
10 use to work on?

11 **MR. JAMMAL:** For the record, Ramzi Jammal.  
12 I would like to provide a couple of  
13 answers.

14 Number one, Monsieur Harvey asked the  
15 question about external contamination. Just to assure the  
16 Commission that when we went on site in July at the Bruce  
17 Power we did take swipe samples on the external part of  
18 the generators and these were random samples of multiple  
19 generators and we analyzed them in our laboratory  
20 independent of Bruce and we have no measurable  
21 contamination on the external part of the generators.  
22 That's how we confirmed.

23 **MEMBER HARVEY:** Just a moment. My question  
24 was linked to the -- mostly on the inside of the shell. I  
25 read the paper and documents and I noted that what the

1 interior itself -- I was just asking if the contamination  
2 was limited to the inside of the tubes and not on the also  
3 the inside of the shell itself.

4 **MR. JAMMAL:** Well, thank you for clarifying  
5 this. I will pass on the answer to our steam generators  
6 experts.

7 But in addition to -- with respect to the  
8 process of Studsvik, we, CNSC staff, have been in  
9 communication with the Swedish regulators with respect to  
10 the performance of Studsvik, the release requirements and  
11 any major non-compliance issues between Studsvik and the  
12 regulatory oversight.

13 We received confirmation from our  
14 regulatory colleagues from Sweden that Studsvik is in good  
15 standing with respect to compliance, regulatory compliance  
16 activity.

17 So I don't have the information with the  
18 process, but I will pass it on to our steam generators  
19 experts in the room, either Mr. Ken Lafreniere or Blair  
20 Carroll to answer the question on specificity of the  
21 inside of the steam generator.

22 **MR. CARROLL:** For the record, Blair  
23 Carroll, technical specialist with the CNSC.

24 With regards to the contamination in the  
25 steam generators, if you think about the process, we have

1 hot heavy water going in at above 300 degrees Celsius into  
2 the tubes and as it exits it cools to about 265 degrees  
3 Celsius.

4 And it's in that temperature difference  
5 that the materials in solution in the heavy water come out  
6 of solution and bond to the inside of the tube. So that's  
7 the main process -- how the contamination gets on the  
8 inside of the tubes in the first place.

9 With regards to the primary head which is  
10 on the bottom, you have it divided into -- one side is the  
11 hot side and the other side is the cool side. In the hot  
12 side the water temperature is generally too high for the  
13 material to precipitate out so it waits until it cools  
14 inside the tubes. And by the time it reaches the cool  
15 side of the main bowl in the bottom, it's cooled enough  
16 that all of the -- or the vast majority of the material is  
17 already precipitated out onto the tubes.

18 So that's why we consider the vast majority  
19 of the materials to be on the ID of the tubes. There is  
20 the potential if there are primary to secondary side leaks  
21 through the tubes due to inserts degradation that very  
22 small quantities of contamination could be on the outside  
23 of the tubes but that's not -- the levels would be nowhere  
24 near close to what's on the inside of the tubes.

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

1 record. I'd just like to add that Bruce Power makes  
2 several entries into these steam generators while the  
3 reactor operates. They do that for tube integrity  
4 verifications and they do that safely under the Radiation  
5 Protection Program and there is no spread of  
6 contamination. There is no risk to the workers that do  
7 this work and they are quite experienced doing this work.  
8 So there's nothing from the terms of the Radiation  
9 Protection Program.

10 **MEMBER HARVEY:** Thank you.

11 **THE CHAIRMAN:** I'd just -- just to finish  
12 my understanding of this Studsvik process -- I'm really  
13 not entirely interested in the magic of how you do all of  
14 this. What I want to know is the output. You talk about  
15 free release. What I want to understand is what -- is  
16 free release exactly like brand new steel; can one use  
17 that steel for anything?

18 I'm talking about some people are concerned  
19 about that they're going to be turned into forks and  
20 knives and people will get activity in their food. Is  
21 that a concern here?

22 **MR. WIRENDAL:** Yes, but that could only be  
23 done -- and you can use it for whatever you want. After  
24 that they have been re-melted once again from that -- the  
25 material leaves Studsvik, they have to be re-melted in the

1 commercial foundry for one to 10 and after that they have  
2 been mixed into other scraps 1 to 10 it's free to use for  
3 whatever you want to use it.

4 **THE CHAIRMAN:** So do they know that they  
5 have to do this? I mean, did the recipient going to the  
6 commercial meltdown -- do they know that they have to  
7 treat it before they use it as good as brand new steel,  
8 non-reactive steel?

9 **MR. WIRENDAL:** Yes, as I mentioned in the  
10 presentation, we had to have an agreement with the user of  
11 those ingots that they are re-melting it in the quality  
12 way either this 1 to 10. So those companies who are using  
13 those ingots have to sign this agreement with Studsvik,  
14 and SSM in Sweden they check that we have these kind of  
15 agreement with those companies.

16 **THE CHAIRMAN:** Before we break one last  
17 question.

18 **MEMBER HARVEY:** Just a complement. When  
19 you say "1 to 10", can we figure that saying that, that  
20 it's a sort of a dilution or a spreading the contamination  
21 on a greater volume?

22 **MR. WIRENDAL:** This is a -- yeah, you can  
23 always call it diluted. This is more like how the scrap  
24 market are working when you deliver scrap to a melter or  
25 to a steel foundry they need to make a proper quality of

1 the steel and they use different parts from different  
2 incoming scrap loading. So these are used as a based  
3 scrap for using together with other scrap, but we have to  
4 do it 1 to 10.

5 **MEMBER HARVEY:** Okay, thank you.

6 **THE CHAIRMAN:** I think we need a biological  
7 break here. We'll pursue this subject more I'm sure.

8 Let's break for 10 minutes please.

9

10 --- Upon recessing at 3:24 p.m./

11 L'audience est suspendue à 15h24

12 --- Upon resuming at 3:39 p.m./

13 L'audience est reprise à 15h39

14

15 **THE CHAIRMAN:** Okay, we are ready to  
16 proceed.

17 Dr. Barriault, you're next on my list.

18 **MEMBER BARRIAULT:** Merci, monsieur le  
19 président.

20 My first question is to CNSC staff on your  
21 presentation Slide 33. I guess I just want some  
22 clarification. It states really that what you're looking  
23 at is contamination on the surface of the steam  
24 generators. Is the contamination on the surface or is it  
25 inside the tubes because I was led to believe it was

1           inside the tubes. I'm a little confused.

2                           It's on your Slide 33, SOC, a solid object,  
3           which is not radioactive but has a radioactive material  
4           distributed on its surface.

5                           **MR. JAMMAL:** Thank you, Dr. Barriault.  
6           It's a very good question and it's very confusing. You're  
7           correct to be confused. I will try to explain it.

8                           With respect to our assessment -- for the  
9           record, Ramzi Jammal. With respect to the assessment of  
10          the level of safety required for this package, CNSC staff  
11          took into consideration the most conservative  
12          requirements, even though the generators do not have  
13          external contamination, we applied the criteria for  
14          surface contamination.

15                          So, in other words, we have taken all of  
16          the safety precautions in the most conservative manner  
17          considering the requirements as a surface-contaminated  
18          object. If it's not clear, I will go in a bit more  
19          detail.

20                          **MEMBER BARRIAULT:** So what you are saying  
21          really is that it's not contaminated on the surface, but  
22          you qualify it as contaminated on the surface. Is that  
23          correct?

24                          **MR. JAMMAL:** Correct. We considered from  
25          safety analysis and conservative perspective for the level

1 of safety for the packaging that the steam generators will  
2 fall under the surface-contaminated object.

3 **MEMBER BARRIAULT:** From an occupational  
4 health point-of-view, what is the level of protection that  
5 you use when you go into these steam generators to inspect  
6 the tubes?

7 **MR. JAMMAL:** For the record, Ramzi Jammal.  
8 I will ask a couple of our specialists to  
9 answer the question. Sorry, I'm getting the name of the  
10 specialist. Melanie Rickard.

11 **MEMBER BARRIAULT:** Can I ask Bruce Power to  
12 explain?

13 **MR. HAWTHORNE:** As I mentioned, for the  
14 record, Duncan Hawthorne.

15 As we said, we do these inspections and  
16 service. Typically, we would do -- what we normally  
17 always do -- we do our radiological survey. We issue our  
18 radiological permit for the work. People who are doing  
19 the work carry with them alarming dosimetry set for a  
20 level which we expect it would encounter during the period  
21 of activity. They are within the internals of the boiler.  
22 In fact, it's that dose information that we collect, it  
23 gives us some of that background information.

24 So whenever we do any work in our  
25 radioactive environment, of course, it's all done within a

1 radiological permit. And, of course, as I say, we do this  
2 work on a very regular basis so we have a baseline survey  
3 and we then back that up with surveys done at the point of  
4 entry.

5 **MEMBER BARRIAULT:** When you are on the  
6 outside of these generators, is there any exposure to  
7 radioactivity?

8 **MR. HAWTHORNE:** Well, we -- hard to give  
9 you an explanation without showing you a diagram actually  
10 of what this looks like. But these boilers, when you look  
11 at their condition, these boilers all placed in service  
12 are typically encased in concrete, and we do have manned  
13 re-access to them so we limit access to that area. It's a  
14 Zone 3 area within our facility so, again, people have to  
15 be qualified radiation workers to go in that area. They  
16 have to wear dosimetry in that external area.

17 And we will collect -- because the dose  
18 levels are low in that area, we will collect that as part  
19 of their monthly dose -- the normal dose record. It is  
20 only when we are in an outage situation where we do more  
21 invasive entry that we actually have a certificate for the  
22 actual activities they will perform.

23 **MEMBER BARRIAULT:** So when they are drained  
24 of heavy water -- there is no water in them -- is there  
25 still exposure to radioactivity on the outside of these

1 containers?

2 **MR. HAWTHORNE:** Yes, we tried to -- we  
3 tried to explain some of that -- perhaps not well -- to  
4 people on the process, but we still have to recognize that  
5 the internal components do emit radiation. And so if  
6 people are in close proximity to their shell for a  
7 significant period of time, we do, in fact, continue to  
8 monitor the dose records.

9 And in an effort to try and explain what  
10 this looks like for these steam generators, we have tried  
11 to give examples of what exposure someone might expect if  
12 they stood for an hour right against the steam generator  
13 which, of course, they don't do. As a means of bounding  
14 it, I think it's a logical thing to try and do to give  
15 some example, but yes, the short answer is, if people  
16 stood right against the outer shell for a period of time  
17 then there would be some dose pickup. It would be  
18 minimal, but it would be present.

19 **MEMBER BARRIAULT:** Thank you.

20 You replaced these generators because of  
21 corrosion, I would assume?

22 **MR. HAWTHORNE:** Well, relative -- they were  
23 replaced for a number of reasons.

24 Firstly, Unit 2 -- if you remember Unit 2  
25 was taken out of service in this plant long before Bruce

1 Power came to the site, but there was a lead blanket left  
2 inside which was part of shielding. The lead blanket did  
3 what lead does when it was heated up. It plated out, it  
4 created problems with the primary circuit and it resulted  
5 in Unit 2 coming out of service early.

6 Unit 1, actually slightly different. The  
7 Unit 1 boilers, because we were replacing reactor  
8 components, we could have operated with those boilers for  
9 a short period of time and then changed them afterwards,  
10 but we took a decision that we would do that as all part  
11 of a large program of work.

12 So the aging impact of boilers -- I think I  
13 have explained to the Commission before -- typically, we  
14 are talking about the structural integrity of the tubes  
15 either because of vibration or because of fretting or some  
16 of those wasting effects, but yes, you are correct. That  
17 is basically the reason why we would do it. The reasons  
18 for Unit 2 and 1 are slightly different.

19 **MEMBER BARRIAULT:** So the shell, the  
20 casing, then is relatively intact of corrosion; the  
21 outside?

22 **MR. HAWTHORNE:** Yes, the structural  
23 integrity of the shell casing is not the issue. It is  
24 really the -- it's the heat transfer properties of the  
25 boiler tubes.

1           As people would certainly understand, the  
2           boilers themselves are designed to have an excess number  
3           of tubes and, over time, we will plug tubes as they age.  
4           And we get to the point where we have reached the tube  
5           plugging limit and at that time, we say, "Okay, it's no  
6           longer an efficient boiler and it's time to put a new one  
7           in".

8                   **MEMBER BARRIAULT:** Thank you.

9           In the transport -- and you mentioned a  
10          variety of scenarios -- I'm sorry, this is to CNSC staff.  
11          You mentioned a variety of scenarios. Did you look at the  
12          scenario of dropping a generator inside the ship when a  
13          crane lets go or whatever?

14                   **MS. GLENN:** Karine Glenn.

15          We did not examine that particular  
16          scenario. Regardless, we do not believe there would be a  
17          breach in the steam generator shell. Most likely, the  
18          ship would be damaged as opposed to the generator being  
19          damaged.

20                   **MEMBER BARRIAULT:** That's an assumption,  
21          but the scenario wasn't looked at, was it?

22                   **MS. GLENN:** No, that's correct.

23                   **MEMBER BARRIAULT:** Thank you.

24          Next question really is something -- you  
25          mentioned there is a 10 percent return of materials when

1       you have a smelting of the materials. That 10 percent  
2       would translate to how many tonnes coming back to Canada?  
3       Assuming 100 tonnes per generator, 10 percent would be at  
4       least a tonne per generator, so would it -- can you  
5       imagine 16 tonnes coming back?

6                   **MR. WIRENDAL:** The 10 percent is related to  
7       volume reduction. There is much more than that coming  
8       back because the tube material itself is around 25 tonnes  
9       and then you have to add some kilos of slag from the  
10      melting -- some part from the -- decontaminated by this  
11      blasting.

12                   So it's around 400 tonnes coming back in  
13      total of these 16 steam generators. That is what we have  
14      calculated here.

15                   **MEMBER BARRIAULT:** Okay, yeah. So I guess  
16      my understanding is that we were getting a small container  
17      back, but this is a big container we are getting back of  
18      nuclear contaminated substances?

19                   **MR. WIRENDAL:** Yeah ---

20                   **MEMBER BARRIAULT:** Yeah.

21                   **MR. WIRENDAL:** --- there is -- we have a  
22      loading calculation of those boxes and also drums which we  
23      are using from Bruce Power, so I cannot say the figures  
24      today. I don't remember them, but there are several boxes  
25      coming back with a waste, yes.

1                   **MEMBER BARRIAULT:** Next question really was  
2 -- dealt with the radiation levels in the ingots and, as  
3 you pointed out earlier, you will re-melt them with some  
4 other substances to reduce the level. The final level of  
5 radiation, when it goes to the market, can you give us an  
6 idea of what level that is?

7                   **MR. WIRENDAL:** Yeah, the contamination in  
8 this case in the ingots, we are recycling metal based on  
9 the volume and you have becquerels into ingots which are  
10 stick into metal, so the normal level will be two points  
11 below -- far away below 0.1 becquerels per gram.

12                   We are not recycling metal with 1 becquerel  
13 per gram all the time. It will be various -- from 0.1 up  
14 to 0.8 when we send it for re-melting and then if you are  
15 using 1-to-10 or in the reel, it will be much more than 1-  
16 to-10 because the quality of those ingots -- the steel  
17 quality itself -- will mean that you will have to -- maybe  
18 to use more than 1-to-10 to get a good quality of the  
19 steel to make a product of.

20                   **MEMBER BARRIAULT:** Do you have control over  
21 the final distribution of these materials or where they  
22 are going to wind up? My understanding from our  
23 discussion is that you sell them off to recycling plants  
24 that re-melt them, but the final product winds up where?  
25 Do you know?

1                   **MR. WIRENDAL:** No, we don't -- in this  
2 regulation, we are working under from the regulators in  
3 Sweden and also the standard for European recycle -- is  
4 that we have to know who has re-melted the second time,  
5 but after the second we have no tracking anymore of the  
6 metal.

7                   **MEMBER BARRIAULT:** Thank you.

8                   **THE CHAIRMAN:** Just to piggyback -- so you  
9 cannot export it to other countries that do not subscribe  
10 to those RP -- whatever the regulatory ---

11                   **MR. WIRENDAL:** No -- yes, we have to -- if  
12 we should export it we have to fulfil that country's rules  
13 and that -- these rules in that country.

14                                 Let's say it will be Germany, for example,  
15 they use the same RP89 as a free release limit. If the  
16 country we are sending they use another we have to be  
17 aware that they are in the same range of the limit as RP89  
18 as stipulated.

19                   **THE CHAIRMAN:** So if you send it to Germany  
20 -- just to pursue it -- does the material then become  
21 under the German regulatory authority?

22                   **MR. WIRENDAL:** Yeah, and as I mentioned, in  
23 Germany they are using this RP89 again so it will be the  
24 same level when the metal will be out on the market again.

25                   **THE CHAIRMAN:** Okay. Thank you.

1 Dr. Barriault?

2 **MEMBER BARRIAULT:** The next question is to  
3 CNSC.

4 Just to put all of this in perspective, if  
5 I have a container, a shipping container of radioisotope,  
6 for example, medical radioisotope, and I've got a steam  
7 generator, what is the comparison in terms of  
8 radioactivity, or can you give me that?

9 **MR. JAMMAL:** Ramzi Jammal for the record.

10 It's -- I just need to ask one more  
11 question -- is the clarification is with respect to dose?  
12 The packaging of the ---

13 **MEMBER BARRIAULT:** Yes. I'm sorry --  
14 respect to dose, yes.

15 **MR. JAMMAL:** Thank you.

16 A very simple answer is the steam  
17 generators will have a lot lower dose with respect to any  
18 Type-A packaging depending of course on the activity  
19 inside the package.

20 And I will call onto my colleagues, the  
21 specialists, to clarify more precision.

22 However, as part of the transportation and  
23 the packaging of the medical isotopes in Type-A packaging,  
24 the individual who is packing the package must be  
25 certified under the TDG7 classification. And as part of

1 the packaging they will take measurements around the box.

2 Of course, before packing they will do wipe  
3 testing to ensure there is no contamination on the  
4 outside. And every package is classed according to what  
5 we call the Transport Index, and that's measured at one  
6 metre, and the categorization of the package is level 1 or  
7 2 or 3, depending on what we call a TI, Transport Index.

8 But I want to ask my colleagues to add  
9 anything else they need.

10 **MR. FAILLE:** Sylvain Faille for the record.

11 Just to follow on Mr. Jammal, the measure  
12 on the surface determines the label that goes on the  
13 package, which is the category 1, 2 or 3.

14 And for the steam generators it would be  
15 about the same or smaller than most of the medical isotope  
16 shipments that we see on a regular basis. The dose rate  
17 on the surface is smaller than most of the shipments of  
18 medical isotopes.

19 **MEMBER BARRIAULT:** So what you're saying  
20 really is that shipments of radioisotopes are actually  
21 higher than one of these steam generators?

22 **MR. FAILLE:** For the dose rate on contact  
23 with the steam generators, that's correct.

24 **MEMBER BARRIAULT:** Thank you.

25 That's all for now, Mr. Chairman.

1                   **THE CHAIRMAN:** Well, just so I understand  
2                   it perfectly -- really I am slow here -- so you're really  
3                   considering the steam generator as a shell that can  
4                   actually act as a container to the inside radioactive  
5                   material. So in fact why is the international community  
6                   not deeming those kinds of structures to be acceptable  
7                   containers for such shipments?

8                   **MR. JAMMAL:** For the record, Ramzi Jammal.  
9                   That's a very good question, sir -- Mr.  
10                  President. The inherent design of the steam generators  
11                  and the five centimetre thick of steel provides the  
12                  inherent shielding. The only technical factor here is the  
13                  uniform distribution of the radioactive material inside  
14                  the generator that we don't have evidence that, that is  
15                  the case, which is the international requirement that the  
16                  level of radioactive contamination must be evenly  
17                  distributed.

18                  If that was the case in the generators, and  
19                  we have that evidence, then the exterior shell will --  
20                  does meet the industrial package, hence we will not be  
21                  having this hearing.

22                  The special arrangements has been invoked  
23                  because the contamination is not confirmed to be evenly  
24                  distributed in the generator. However, that does not mean  
25                  that the exterior shell does provide adequate shielding

1 from the contamination on the inside.

2 **THE CHAIRMAN:** Thank you.

3 Dr. McDill?

4 **MEMBER McDILL:** Thank you.

5 My first question is for Bruce. These two  
6 generators were brought out of service in 1995 and 1997  
7 and sat around for 15 and 13 years. They were welded shut  
8 in 2007 and they were -- the welds were inspected at that  
9 time with magnetic particle resonance or inspection. Is  
10 that correct?

11 **MR. HAWTHORNE:** I'm not sure that that  
12 characterization is accurate, but yes, that is when they  
13 were welded shut, yes. They were part of an installed  
14 nuclear reactor system before that.

15 **MEMBER McDILL:** Yeah, I was referring to  
16 the welding of the plates on the intakes and outlet at the  
17 time, and they were inspected in 2007. They have been  
18 visually inspected since that time? The welds have been  
19 visually inspected since that time -- when was that done?

20 **MR. HAWTHORNE:** Well, we're -- these steam  
21 generators were inspected at the time they were welded  
22 with NDT. They were inspected prior to movement because  
23 we had to clean them out through the roof. They were  
24 inspected again on receipt into the storage facility at  
25 the Western Waste Facility. And they will be inspected

1 again before they're transported. So they've been  
2 inspected several -- every time we've handled them we've  
3 inspected them.

4 **MEMBER McDILL:** Thank you.

5 We have a Slide 17 which shows them now  
6 completed coated; is that correct?

7 **MR. HAWTHORNE:** Yes.

8 **MEMBER McDILL:** And they're coated with  
9 what? Some polymer of some kind?

10 **MR. HAWTHORNE:** Yes, it's a polymer paint  
11 cover.

12 **MEMBER McDILL:** So my question is when was  
13 the last inspection of the weld? If they're now coated  
14 those welds are now coated and you can't inspect those  
15 welds now, at least not visually. You can inspect them by  
16 other methods but not ---

17 **MR. HAWTHORNE:** Correct. So the last NDT  
18 inspection of the welds was done in 2007, and they were  
19 inspected again before they were coated, visually.

20 **MEMBER McDILL:** At the time they were  
21 welded shut were you able to ascertain that all of the in  
22 canal tubes inside were -- some would have been plugged  
23 from use, but that they were all intact and they were all  
24 where they belonged -- nothing had fallen, become  
25 detached, was resting against a side?

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

3                   Yeah, we knew that from the operating  
4 history. As you know, we measure the secondary side of  
5 these heat exchangers for any releases and that's how we  
6 tell whether a tube is leaking. And so during the  
7 operation that monitoring was constantly in progress so we  
8 knew the state of the tubes when we shut the reactors  
9 down.

10                  **MEMBER McDILL:** Yes, you knew the -- I  
11 agree that the state of the tubes at the time of the  
12 reactors were -- the time the steam generators came out of  
13 service was well understood, but in 1995 till 2010 it's a  
14 long time for some tubes to be sitting there. So you  
15 can't ---

16                  **MR. HAWTHORNE:** Let me try and answer that  
17 again.

18                  Firstly, when tubes are in service we  
19 inspect them often. I did mention in my comment earlier  
20 to Dr. Barriault that we had looked at the possibility of  
21 extra life in these units so we did inspect the structural  
22 integrity of these tubes.

23                  There is a very clear methodology for  
24 plugging tubes in service. It involves anti-vibration  
25 bars and it involves plugs that themselves provide

1 structural integrity to these tubes even if they're  
2 removed from operational service. So we do have a full  
3 history of that. We did inspect before we did the seal  
4 weld.

5 Because again, actually I can point you  
6 back to the diagram I showed previously where these were  
7 connected to both the steam drum at the head, and as  
8 mentioned previously, there's a hot and cold light  
9 penetration.

10 All of those areas were inspected, because  
11 of course we're looking for loose material, debris,  
12 foreign material, all those things prior to incorporating  
13 a seal weld. So we can confirm the structural integrity  
14 of these boilers at the point of their removal from the  
15 Bruce A facility.

16 **MEMBER McDILL:** Were there any tests done  
17 for -- other than -- was the surface of each generator  
18 inspected before polymer coating for -- I mean we see them  
19 in the yard. They look like they've had a good healthy  
20 life. So has the surface has been verified as leak-tight?

21 **MR. HAWTHORNE:** Yeah, I guess -- if I give  
22 you the history of these barrels of course I don't think  
23 there's any dubiety about the degree of inspection they  
24 get when they're in service but we were doing a lot of  
25 (inaudible) movements here. We were core drawing concrete

1 so we could remove these items. We were cutting holes in  
2 the roof of the reactor building. We were craning them  
3 onto cradles. So, yeah we videoed all of those movements  
4 to make sure there were no collisions or any damage that  
5 could have occurred.

6 But we're talking here about -- you know --  
7 as I'm sure, Dr. McDill, you know, these are very secure,  
8 robust steel vessels. But nonetheless we did look for  
9 damage.

10 We did do surface samples as CNSC staff  
11 also did their own. But as well as looking at the  
12 radioactive elements of it we were also looking at the  
13 structure and integrity. Were there any blemishes or  
14 things that needed to be dealt with at the -- that  
15 occurred either during operation or during removal or  
16 during transportation.

17 We confirmed the absence of those things  
18 before any coating was applied.

19 **MEMBER MCDILL:** Thank you. Because if the  
20 pressure vessel is to act as a container it needs to be  
21 tight, okay? This is why -- this is why the questions.

22 Would CNSC staff like to add anything to  
23 that?

24 **MR. CARON:** For the record, Blair Caron.  
25 Just with regards to the tubes being stable

1 inside the container, generally the approach to plugging a  
2 tube, if it's being plugged due to degradation is you  
3 would stabilize it internally using some kind of a device  
4 that would prevent it from -- if the degradation were to  
5 progress so that the tube would severe, it wouldn't be  
6 allowed to move around inside.

7 So we're pretty confident that, with that  
8 in mind, plus just the configuration of the tube bundle  
9 that there shouldn't be any tubes moving around inside the  
10 -- inside the steam generator at this point.

11 Other than that we've confirmed -- we've  
12 looked at the magnetic particle inspection records that  
13 were done and we've also reviewed the welding procedures  
14 that were done. They were all welded to -- as in Section  
15 9 procedures registered with the TTSA, so we have  
16 confidence in the integrity of the welds as well.

17 **MEMBER McDILL:** Thank you.

18 My question for Studsvik, the route that's  
19 proposed goes between Norway, Denmark and Sweden. Are  
20 there standing agreements between the regulators in those  
21 countries for the passage of vessels such as this, bearing  
22 loads such as this?

23 **MR. WIRENDAL:** Yes. Maybe I shouldn't  
24 answer this question. But yeah, we are going in  
25 international water around U.K. or -- and also outside

1 Danish water, also outside the Norwegian water, coming  
2 into Sweden on the Swedish water.

3 So that's the reason why we have to have  
4 approval from Canada, from U.S. and also from the Swedish  
5 regulators for these transporters.

6 **MEMBER MCDILL:** Thank you.

7 And the normal movement of spent fuel in  
8 Sweden; for example, from Ringhals, would be by ship. Is  
9 that correct?

10 **MR. WIRENDAL:** Yeah, we have vessels in the  
11 Swedish nuclear industry which are dedicated to do this  
12 transportation and those vessels also used for  
13 transportation of waste from the plant to Studsvik and  
14 also to the repository.

15 We could use that vessel also for other  
16 commercial transportation of waste from -- for example,  
17 from Germany to Studsvik for treatment of steam  
18 generators.

19 **MEMBER MCDILL:** If I may, why is such a  
20 vessel not being used to bring the secondary stream back  
21 from Studsvik to say Gothenburg -- why truck?

22 **MR. WIRENDAL:** Sorry?

23 **MEMBER MCDILL:** Why is such a vessel not  
24 being used to bring the secondary stream from Studsvik  
25 back to say Gothenburg for transport back to Canada?

1                   **MR. WIRENDAL:** No, we are -- it's not  
2 necessary to use this vessel for this re-transport of the  
3 secondary waste. The transportation of the secondary  
4 waste, we follow the international transport rules and  
5 could be done by the -- by truck to Gothenburg and then  
6 will be used on the container vessel for transport of  
7 container over to Halifax, so that's following the  
8 international rules and it makes no sense to take that  
9 dedicated vessel for transportation of those containers.

10                   **MEMBER McDILL:** Thank you.

11                   And my last question for CNSC staff; what  
12 are the long-term implications of the space issues in the  
13 Western Waste Management facility for this?

14                   **MR. JAMMAL:** For the record, Ramzi Jammal.  
15 I'm going to ask Mr. Don Howard to answer  
16 the question.

17                   **THE CHAIRMAN:** While he sets up, I really  
18 would like to follow -- I'm trying to understand, did you  
19 answer that in Sweden you are actually transporting fuel  
20 waste which is not low level? We talked about very high-  
21 level materials by ship around the country; is that what  
22 you said?

23                   **MR. WIRENDAL:** Yeah, that's correct. These  
24 vessels we have in the nuclear industry in Sweden are used  
25 for transport or spent fuel from the power plants to the

1 intermediate store of spent fuel; yes, that's correct.

2 **THE CHAIRMAN:** So it's done with a  
3 dedicated ship. What's so special about that kind of a  
4 ship and how does it compare to the ship that is being  
5 proposed to ship?

6 **MR. WIRENDAL:** It's nothing. There is no  
7 difference at all. The only reason why we have this  
8 opportunity in Sweden is that the industries in Sweden  
9 have decided to have a ship for doing this type of  
10 transportation.

11 It could be done by using this ship we are  
12 proposing for -- pick up the steam generator from Bruce  
13 also. But now we have the ship so we are very lucky of  
14 that.

15 **THE CHAIRMAN:** So do you get any kind of  
16 public hearing and debates about -- every time you move  
17 such a shipment?

18 **MR. WIRENDAL:** Nothing. There have never  
19 been, as I know.

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

21 Mr. Howard?

22 **MR. HOWARD:** Don Howard, Director of the  
23 Waste and Decommissioning Division.

24 Currently at the Western Waste Management  
25 Facility a building was constructed on the Western Waste

1 Management site to store up to 24 generators. Currently  
2 there are 16 that are safely stored there right now in a  
3 building.

4 And basically in order -- if all generators  
5 were to be stored there additional buildings would have to  
6 be constructed which would use up a large footprint of the  
7 Western Waste Management Facility, requiring expansion  
8 down the road from management of the normal low and  
9 intermediate level waste.

10 As far as the long-term management -- and  
11 Dr. McDill, you may want to maybe coach me on your  
12 question again, I lost a little bit there.

13 **MEMBER MCDILL:** Well let's say less than 50  
14 years. What are the implications in terms of space if  
15 this is done?

16 **MR. HOWARD:** If the generators are sent to  
17 Sweden ---

18 **MEMBER MCDILL:** Are -- yes.

19 **MR. HOWARD:** --- processed and resulting  
20 secondary waste is returned back ---

21 **MEMBER MCDILL:** Returned, yeah.

22 **MR. HOWARD:** --- to the Bruce site,  
23 basically they'd be returned back to Bruce Power who would  
24 then in turn transfer the material over to OPG for storage  
25 at the Western Waste Management Facility.

1                   So in the short term it would be managed  
2                   along with other low and intermediate level waste at the  
3                   Western Waste Management facility. Right now the storage  
4                   space at Western has taken this into consideration and for  
5                   the short term there is sufficient space at Western to do  
6                   this.

7                   For the long-term, Ontario Power Generation  
8                   is currently investigating a potential deep geological  
9                   repository on the Bruce site where they will have long-  
10                  term management for all of their low and intermediate  
11                  level waste stored at the Western Waste Management  
12                  Facility and that produced at the Pickering/Darlington and  
13                  the Bruce site till the end of life of the reactors.

14                  **MEMBER McDILL:** Thank you.

15                  Mr. Hawthorne, you were looking like you  
16                  wanted to add something to that?

17                  **MR. HAWTHORNE:** I really just didn't want  
18                  to confuse the issue about talking about the DGR. It's a  
19                  different topic, it's a different issue entirely.

20                  The point of the matter is that we have 16  
21                  yellow, school bus-size components here. I have eight  
22                  reactors on my site, so I've got two reactors worth of  
23                  steam generators stored there.

24                  But the Province of Ontario, the current  
25                  plan is that we are going to refurbish all of these units,

1       which means that over time we will have 64 of these school  
2       bus-size steam generators and there will be a need to  
3       expand the Western Waste Facility. So there is an  
4       obvious, logical solution here to create space and not  
5       require expansion of that facility.

6               So clearly, as was mentioned by a  
7       representative here from Studsvik, the intent here is to  
8       greatly reduce the volume. It doesn't fit in a shoe box,  
9       but it certainly is very materially less than the steam  
10      generators, and so we will reduce our footprint on that  
11      Western Waste Facility, so negating the need for further  
12      expansion.

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

14              **THE CHAIRMAN:** Thank you.

15              I would like to move to the intervention  
16      list. There is a particular burning issue.

17              Mr. Graham?

18              **MEMBER GRAHAM:** I had one question.

19              In your draft licence that you are  
20      proposing -- this is to CNSC -- there is nothing with  
21      regard to financial guarantee or liability insurances and  
22      so on.

23              I wonder, could you advise us what type of  
24      insurances you are going to require from Bruce Power to  
25      facilitate this movement if it's approved?

1                   **MR. JAMMAL:** For the record, Ramzi Jammal.  
2                   I'll give the high-level answer and I will  
3 ask Paul Hough to answer specifically.

4                   Mr. Graham, there are several issues.  
5 Number one is this transport. The ultimate responsibility  
6 lies with Bruce Power with respect to all the requirements  
7 for the transport and, in specific, the *Nuclear Liability*  
8 *Act* applies for this transport.

9                   And I will ask Mr. Paul Hough to provide  
10 more details.

11                  **MR. HOUGH:** Paul Hough.

12                  Yes, if there is any radiological damage,  
13 personal injury or property damage, the *Nuclear Liability*  
14 *Act* comes into effect.

15                  For any other kind of accident that causes  
16 any sort of damage, that would come under normal general  
17 liability insurance. And our understanding is that not  
18 only Bruce Power, but the carrier and Studsvik, all have  
19 requisite insurance policies in place.

20                  **MEMBER GRAHAM:** So under the present  
21 *Nuclear Liability Act* as it stands, because I don't think  
22 anything ever got approved on the new one through  
23 Parliament, it's 75 million. Is that correct?

24                  **MR. HOUGH:** That is correct.

25                  **MEMBER GRAHAM:** And over and above that,

1 Bruce Power is responsible for anything in excess of that,  
2 and is that going to be in the licence -- a condition?

3 **MR. HOUGH:** No. In fact, anything over and  
4 above the 75 million, it comes under Coverage B, which is  
5 the responsibility of the federal government -- the  
6 federal government.

7 **MEMBER GRAHAM:** For the benefit of --  
8 because it has come up, it is a concern of some  
9 intervenors and it's not clear in my mind -- if there was  
10 a -- and as my colleague had said -- a dropping of a unit  
11 while loading the ship -- because we did experience losing  
12 a couple of similar generators within a year ago in the  
13 harbour at Saint John, New Brunswick and dropping a -- and  
14 accidents do happen.

15 If it drops straight down, it might not do  
16 any damage, but if it dropped crossways and there were  
17 other ones in there, it might break open and so on even  
18 though it is five centimetres thick. What other type of  
19 insurances or how is the public protected?

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

21 Mr. Graham, I would like to clarify one  
22 thing. The incident at New Brunswick Power -- was on the  
23 barge.

24 This one -- we would like to put -- in fact  
25 in place that the ship itself and the braces on the ship

1 with respect to the steam generators will be anchored  
2 accordingly, and if there is an accident -- accidents do  
3 happen.

4 With respect to licence conditions on  
5 liability or insurance, I would like to assure the public  
6 and the Commission that in case of Bruce Power, or anyone  
7 else, but in specific here we have the licensee as Bruce  
8 Power -- we have the regulatory powers to order Bruce  
9 Power or anyone to carryout any activity in order to  
10 ensure protection of the environment and the public, and  
11 the cost will be paid for by the licensee.

12 So we have multiple layers of regulatory  
13 tools that we can use in case of -- which is not going to  
14 happen because we have the assurances in place with  
15 respect to insurance -- as Mr. Hough mentioned, the  
16 insurance with respect to the carrier on the road, the  
17 carrier on sea and the *Nuclear Liability Act*.

18 The end point is: CNSC will review actions  
19 taken by the licensee to ensure the protection of the  
20 public and the environment and we will order anybody,  
21 including the licensee and non-licensees, in order to  
22 carry out any decontamination at any cost.

23 **MEMBER GRAHAM:** Just one other thing.

24 This ship, I believe, is registered in  
25 Antigua or Barbuda and I'm just wondering what the

1 requirements are. Some of those countries don't carry  
2 very large requirements for insurance.

3 Will you be checking all that out before  
4 anything is done and will that be part of the licence  
5 conditions?

6 **MR. HAWTHORNE:** Commissioner Graham, for  
7 the record, Duncan Hawthorne. Let me try and reassure you  
8 on some of these matters.

9 As CNSC staff have pointed out, we are the  
10 proponent and so we have responsibility for that. But,  
11 obviously, as part of securing our own due diligence,  
12 we've looked at the various insurance and who else is  
13 capable of stepping up if they need to. So within Canada  
14 and within our area of responsibility, we are bound by the  
15 *Nuclear Safety Control Liability Act*, so we are liable for  
16 up to 75 million.

17 Studsvik, the contractors, have their own  
18 nuclear transport liability insurance and they also have  
19 nuclear liability insurance which significantly exceeds  
20 that for international waterways and international  
21 activities. We've confirmed that.

22 We've assured ourselves that that is part  
23 of their requirement to meet their own ability to  
24 transport these materials around. As Mr. Wirendal  
25 mentioned, this Studsvik requirement covers all of the

1 activities that they pursue.

2 So there's a significant amount of that,  
3 but clearly there is non-nuclear damage conventional  
4 insurance for road traffic accidents, et cetera, which our  
5 road carrier, WMG, has insurances in place for also.

6 So there are a range of layers of  
7 protection in the form of insurance; *Nuclear Safety*  
8 *Control Act* as it applies to us, insurance coverage that  
9 is provided by Studsvik and others. We have satisfied  
10 ourselves to all of those numbers.

11 I'll happily share with those with the  
12 Commission staff, that we can provide some reassurance  
13 here that there's more than adequate funding to deal with  
14 any reasonable event and, in fact, some pretty  
15 unreasonable events, as you might expect.

16 **THE CHAIRMAN:** Okay, thank you. I would  
17 like to ---

18 **MR. JAMMAL:** Sorry, Mr. President, I would  
19 like to add -- sorry to interrupt -- Mr. Graham's question  
20 with respect to the ship.

21 Mr. Graham, the ship, even though it's  
22 registered in Antigua, the transport and registration must  
23 be done in accordance with the International Marine  
24 Organization and the ship must be in compliance with the  
25 IMO as it relates to that shipment.



1 and I won't read it all, but my brief says that this  
2 Hearing is inappropriate; that our legal advice is that  
3 because Bruce Power specifically described the storage,  
4 how those steam generators were going to be stored in the  
5 environmental assessment, this is an extension of that  
6 project, and I heard the hair splitting earlier.

7 I think it's hair splitting to suggest that  
8 this is not part of the refurbishment of Bruce, that this  
9 is somehow separate.

10 I'm also very concerned with the process in  
11 that, as we heard earlier today, your staff had since the  
12 beginning of April to produce its report which was  
13 delivered sometime in August giving people like myself and  
14 others who are concerned about this issue 30 days to  
15 respond, actually less because the deadline to supply the  
16 written materials was less than that.

17 That is not sufficient. It's not  
18 appropriate.

19 When I questioned this process with staff I  
20 was told that we were going to go ahead with the hearing  
21 because the Panel wanted to hear all the evidence. Well,  
22 I would suggest to you that you can't hear all the  
23 evidence if you don't provide sufficient time and  
24 sufficient resources for those who have other evidence to  
25 produce.

1                   Your professional staff took months to do  
2 this. There is no environmental organization in the  
3 country that has a nuclear physicist on staff who can  
4 immediately analyze such complicated documents. To  
5 suggest that it's a fair process to give us 30 days to  
6 come in and say something and especially during a response  
7 to a press release that says that everything is fine and  
8 we should grant the process but we'll allow people to come  
9 so we can clarify the issues, suggests that there is a  
10 bias in the process.

11                   So to conclude, and I won't use up my 10  
12 minutes because I want to have all my associates have an  
13 opportunity to say something over the next day or so, is  
14 that this hearing should be adjourned, that the legal  
15 advice on environmental assessment is incorrect.

16                   Your staff did not read the entire act and  
17 see how it all applied. Clearly, this is a major  
18 deviation from the original environmental assessment.  
19 It's part of the refurbishment. There's no other way to  
20 explain it.

21                   And then one last point is we also had a  
22 prolonged process in Canada to talk about how we were  
23 going to manage nuclear waste. And the conclusion of that  
24 process is that nuclear waste would remain at the reactor  
25 sites until such time as there was a permanent solution of

1 a repository somewhere in Canada.

2 This is an attempt to actually circumvent  
3 that process and begin the export of nuclear waste from  
4 Canada before we have come to that solution. So either  
5 that process has some validity and you'll reject this  
6 request or it has no validity whatsoever and you'll allow  
7 circumventing of it.

8 So thank you very much for your attention  
9 today.

10 **THE CHAIRMAN:** Thank you.

11 The floor is open for questions.

12 Mr. Graham.

13 **MEMBER GRAHAM:** Well, again -- pardon me.

14 Again, my opening question in the first  
15 round was that -- and I had the explanation that it's  
16 considered that this is not a project. I wonder, it seems  
17 -- there still seems to be confusion. I wonder if it  
18 could be explained how you arrived at this not being a  
19 project as under CEAA.

20 Could we have an explanation?

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

22 I will ask Mr. Mike Rinker to provide the  
23 answer.

24 **MR. RINKER:** Mike Rinker. I'm the Director  
25 of the Environmental Risk Assessment Division.

1                   In the first place, Mr. Graham, the  
2                   environmental assessment under the Canadian *Environmental*  
3                   *Assessment Act* is the planning tool and I think almost all  
4                   of our facilities have gone through an environmental  
5                   assessment. When new proposals come in when the licensees  
6                   change their plans, we consider the application of the  
7                   Canadian *Environmental Assessment Act* to those  
8                   applications. Sometimes they do trigger environmental  
9                   assessments for our existing facilities when their plans  
10                  have changed and sometimes they don't.

11                  In this case the Canadian *Environmental*  
12                  *Assessment Act* was not triggered. The reason is there is  
13                  no project. The project would be -- the test for a  
14                  project under the Canadian *Environmental Assessment* is -  
15                  is it on the inclusion list regulations as an activity,  
16                  which it's not; or is it an undertaking in relation to a  
17                  physical work.

18                  An undertaking in relation to a physical  
19                  work requires -- means like a verb associated with a  
20                  physical work; a construction of a mine, operation of a  
21                  plant. In this case the definition of a physical work is  
22                  defined in CEAA guidance as a thick structure such as a  
23                  building, a plant. It's not something that you could pick  
24                  up and put in the back of a truck and transport away.  
25                  This is not a physical work. There is no undertaking in

1 relation to a physical work.

2 When there is no project and therefore the  
3 CEEA Act does not apply, none of the later provisions in  
4 the CEEA Act would apply as well.

5 **MEMBER GRAHAM:** So what you're saying is  
6 that there's no physical work under the definition in  
7 taking -- instead of moving those generators from the  
8 Bruce site to the Western Waste Management site and having  
9 them stored as the original one, going the next step and  
10 taking them from the Western Waste Management site to a  
11 ship and shipping them out of the country and export; this  
12 is not -- is that defined as no physical work?

13 **MR. RINKER:** Correct. The transport or the  
14 movement of these generators from the Western Waste  
15 Management Facility to Sweden is not an activity in  
16 relation to the Bruce Nuclear Power station. It is simply  
17 the transport of a large apparatus, steam generators.

18 **MR. BENNETT:** May I respond?

19 **THE CHAIRMAN:** Please go ahead.

20 **MR. BENNETT:** In the documents for the  
21 environmental assessment, Bruce Power says:

22 "Transfer to the Western Waste  
23 Management Facility will occur  
24 entirely within the Bruce Power site  
25 and not require the use of public

1 roads."

2 If you read the -- if that's not a  
3 modification of what was proposed in the environmental  
4 assessment, what is? Yes, you know, I think if you can  
5 throw it on a truck and drive it away, but I don't think  
6 you can throw this on a truck without a crane and a whole  
7 lot of effort and physical work. It's about -- it's a  
8 sacred trust that the Commission has with the public that  
9 its decisions will be respected.

10 A decision to not force an environmental  
11 assessment in this situation is a message to proponents of  
12 all sorts under the *Environmental Assessment Act* to bait  
13 and switch. To say in the hearing process "This is how  
14 we're going to do it" and then wait a couple of years and  
15 say, "Oh, this is not a modification. We're going to do  
16 it entirely differently."

17 And this is a deviation from both the  
18 environmental assessment and from the work of the waste  
19 management organization.

20 We have assurance that the policy up there  
21 is that this waste will not be shipped out of Canada and  
22 now this is different. We have assurances from Bruce  
23 Power in the environmental assessment that the waste will  
24 be stored on the Bruce site. Now, this is different.

25 What you're telling by granting this

1 licence, you're saying to future proponents, "Don't tell  
2 us the truth because you don't have to because you change  
3 your mind later on. You can change the process and  
4 there's no problem. We'll issue you a licence."

5 Well, that can't be -- that's not  
6 acceptable and, you know, we will not accept that. This  
7 issue won't end here if that's how it comes down.

8 **THE CHAIRMAN:** Staff, you want -- Mr.  
9 Jammal.

10 **MR. JAMMAL:** Thank you, Mr. President.

11 The EA, as Mr. -- for the record, Mr.  
12 Jammal -- the EA, as Mr. Mike Rinker stated, is a planning  
13 tool. The EA itself, since we're picking and choosing  
14 selective elements of the EA -- in 2005-2006 the EA  
15 exempted any other licenced activity on that site and the  
16 transport of these generators is a licensed activity  
17 outside the EA as the planning tool.

18 So the transport of radioactive material  
19 from Bruce in general and any other facility is a separate  
20 licenced activity that did not trigger the environmental  
21 assessment under the CEEA Act.

22 **THE CHAIRMAN:** Mr. Graham?

23 **MEMBER GRAHAM:** Just that exemption --  
24 could you just be a little more explicit on the exemption  
25 that you're referring to, regarding any other activities?

1                   **MR. RINKER:** Mike Rinker, for the record.

2                   Mr. Graham, the environmental assessment  
3                   that was conducted previously considered a larger project  
4                   but a part of that was the transport of some generators to  
5                   the Western Waste Management Facility without using public  
6                   roads.

7                   The steam generators are located now in the  
8                   Western Waste Management Facility. They were transported  
9                   there without using public roads.

10                  We now have a new proposal in front of us  
11                  that wasn't part of original projects but it is no longer  
12                  a part of that original project as well. The steam  
13                  generators are located at the Western Waste Management  
14                  Facility that was considered in the previous environmental  
15                  assessment and was assessed and was completed.

16                  **MR. BENNETT:** (Off microphone) having given  
17                  their approval, I think you have to go back to the root of  
18                  this problem. You can't deal with this in isolation you  
19                  know.

20                  I think it's only reasonable that this is  
21                  all part of one thing, that if they are there as a waste  
22                  facility and it's legal there, how did they get there and  
23                  by what permission and what decisions were made to get  
24                  them there? This is a totally different change from that.  
25                  It's a modification of the project.

1                   **THE CHAIRMAN:** Wait a second. I don't get  
2 something here. This is a new proposal. Everybody  
3 accepts it's a new proposal.

4                   **MR. BENNETT:** I don't. And no one else at  
5 the next -- here accept that.

6                   **THE CHAIRMAN:** It is now in front of us to  
7 consider a new proposal. It's up to us to approve it or  
8 not approve it. We have all the authority to approve it  
9 or not approve it.

10                  **MR. BENNETT:** Absolutely.

11                  **THE CHAIRMAN:** So that's what we are  
12 deliberating right now.

13                         What I'm trying to understand is -- we  
14 didn't -- the staff -- we are presented here with not an  
15 environmental assessment but we are presented here with --  
16 under our own CNSC Act there is a requirement to do an  
17 environmental impact.

18                         Now, you may not like what is being  
19 presented. I may not like what has been presented, but my  
20 question is the environmental impact study that was done  
21 by staff -- does it deal with safety, yes or no? That's  
22 what I'm trying to figure out.

23                         I'm like you. I'm not into the legalese  
24 here. I don't know whether it's a project or not a  
25 project. All I'm trying to understand is the impacts that

1           were done.

2                               Did they give us some sort of a feel as to  
3 whether this is a safe undertaking or not?

4                       **MR. BENNETT:** Well, they also advised you  
5 of whether or not -- of the legal status of this hearing  
6 in which they said that this did not trigger the  
7 *Environmental Assessment Act*. And the advice you got is  
8 wrong. And that's the part that I'm willing to comment on  
9 until we're given a full opportunity to prepare a counter  
10 case on this issue which we haven't been given -- thirty  
11 days is not sufficient.

12                       **THE CHAIRMAN:** Well, we will take your  
13 suggestion on adjournment under advisement.

14                       Well, I think there's some more questions  
15 here. Dr. McDill?

16                       **MEMBER McDILL:** Thank you.

17                       I wonder if I could ask staff to comment on  
18 other variations in previous EAs that would be -- I  
19 realize there's nothing that's the same, but something  
20 that is similar that would be useful for the public.

21                       **MR. RINKER:** Mike Rinker, for the record.

22                       Dr. McDill, I could give examples of those  
23 that do trigger environmental assessments. For example,  
24 modifying an operation, so conducting your operation in a  
25 way that was different than what was assessed before.

1 These things happen such as a production increase where  
2 the original EA considered production at a certain level.  
3 There was a change in plans, a new application to amend  
4 their licence to change how they're operating.

5 That would -- because that's an undertaking  
6 in relation to a physical work meaning a change in the way  
7 they're operating their facility, there is a project.  
8 There is a trigger and it would trigger an environmental  
9 assessment.

10 There are administrative changes that don't  
11 trigger environmental assessments. There are small  
12 considerations such as changes in science and technology  
13 where the courts have advised us that those should be  
14 considered under the NSCA and not the CEAA that don't  
15 trigger EAs.

16 **MEMBER McDILL:** Sorry. Can you stop right  
17 there? Changes in science and technology?

18 **MR. RINKER:** Yes, an example would be the  
19 McLean Lake mill where the McLean Lake mine and mill  
20 facility was assessed under the -- actually under the  
21 Panel process. The proponent decided to change their  
22 tailings facility from using pervious surround to natural  
23 surround and they were challenged in the courts.

24 It went to the Appeal Court and the Appeal  
25 Court ruling suggested that they expect the projects over

1 time may evolve and that in this case the project did not  
2 change the project that was assessed sufficiently enough  
3 to trigger the *Canadian Environmental Assessment Act* and  
4 that the Board at the time should have considered it under  
5 the *Atomic Energy Control Act*, now the *Nuclear and Safety*  
6 *Control Act*.

7 **MEMBER McDILL:** Thank you. When did  
8 recycling of steam generators become common in the  
9 European nuclear community? When did it start?

10 Maybe Mr. Hawthorne can answer that.

11 Maybe Mr. -- Studsvik can.

12 **MR. WIRENDAL:** Maybe I should do it because  
13 we started around 2002-2003 with the planning for the  
14 production or treatment of steam generators.

15 **MR. HAWTHORNE:** For the record -- no, let  
16 me just clarify that, Commissioner McDill.

17 The first steam generator that was actually  
18 processed was 2006, correct? The facility was  
19 constructed, conceived, you know developed beginning 2003  
20 but it was 2006 before the first steam generator was  
21 processed.

22 **MEMBER McDILL:** So at the time of the  
23 environmental assessment this technology did not exist in  
24 practice. Is that correct?

25 **MR. HAWTHORNE:** That's correct.

1                   **MEMBER MCDILL:** Does staff feel that this  
2 advance in technology is substantive given that the  
3 secondary stream will bring back to Canada the  
4 contaminated product?

5                   **MR. RINKER:** Mike Rinker, for the record.

6                   I think the idea that the nuclear  
7 substances contained in those steam generators were  
8 assessed to be managed in the Western Lakes Management  
9 Facility and over the long term that's where they will  
10 reside after this recycling, would indicate that the  
11 project that was assessed previously is very similar.

12                   However, the tests that you're asking for -  
13 - I would have to put some more thought into it to say  
14 with certainty that this would be exactly the same as what  
15 was considered previously.

16                   **MEMBER MCDILL:** No, it can't be exactly the  
17 same, but it certainly has some similarities.

18                   So the radioactive material will remain,  
19 except for presumably a very small amount, on Canadian  
20 soil three to five years from now; is that correct, Mr.  
21 Hawthorne -- if all goes well as planned?

22                   **MR. HAWTHORNE:** Yes. As I said, the  
23 rationale here is to significantly reduce the volume.  
24 There are elements of the works that Studsvik do, such as  
25 was mentioned earlier about looking to do some degree of

1 surface decontaminating the inner surfaces of the chip  
2 before crushing it, et cetera. But by and large the  
3 quantum of radioactivity will exist before and after  
4 refurbishment. The volume will be very materially  
5 reduced.

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

7 **THE CHAIRMAN:** So I'd like to ask the  
8 Sierra Club a hypothetical situation. Please bear with  
9 me.

10 If you thought that shipping this material  
11 to Sweden and getting it back was safe -- the actual  
12 shipping itself is safe and getting the recycle and the  
13 waste back to where it belongs -- as an environmentalist,  
14 would you not support that?

15 **MR. BENNETT:** I'd say have an environmental  
16 assessment so that all the issues can be discussed and  
17 then I would make my -- form my opinion. I don't make  
18 opinions -- I don't form opinions hypothetically and the  
19 problem with here is it's a process.

20 If this is a good idea then prove it and  
21 have them sit down at an environmental assessment and put  
22 it forward.

23 **THE CHAIRMAN:** And you don't think that  
24 there is enough material right now presenting to this  
25 Panel to this Commission to make a decision?

1                   **MR. BENNETT:** This is a totally one-sided  
2 approach. You haven't given other points of view enough  
3 time to prepare or any resources to prepare that --  
4 prepare arguments or counter positions on what's been said  
5 here.

6                   So no, I'm not going to comment on whether  
7 that -- if it was safe I'd accept it. I want to have an  
8 environmental assessment.

9                   If you want to change -- if you go to have  
10 an environmental assessment -- you say you're going to do  
11 something, you should do it. I just don't understand how  
12 you can hair split and say that this is a totally separate  
13 thing.

14                   Without the refurbishment that was  
15 approved, there wouldn't be steam generators to ship.  
16 Without the assessment that was approved there wouldn't be  
17 steam generators sitting at the waste facility. And if  
18 they weren't sitting at the waste facility, they couldn't  
19 be shipped.

20                   So clearly they are connected. It's a  
21 modification of what was put forward before you five years  
22 ago and you should see it as that.

23                   **THE CHAIRMAN:** Staff?

24                   **MR. RINKER:** Mike Rinker, for the record.

25                   I think it's being over-emphasized for

1 projects such as even the refurbishment which was a  
2 screening environmental assessment, the expectations for  
3 public involvement.

4 For low-risk projects generally there are  
5 screenings. Then the Commission is the one who makes the  
6 decision on screening environmental assessments, much like  
7 they would do under licensing. They would do it under a  
8 process like this and they would do it with the option of  
9 whether they would consider public hearings or public  
10 consultation of not. That's an option for screenings  
11 under the *Environmental Assessment Act*.

12 **THE CHAIRMAN:** Thank you. Any other  
13 question?

14 Thank you very much.

15 We will move now to the next submission  
16 which is an oral presentation by Ms. Sharen Skelley  
17 Kolohon as outlined in CMD 19.4

18 The floor is yours.

19  
20 **10-H19.4**

21 **Oral presentation by**

22 **Ms. Sharen Skelley Kolohon**

23  
24 **MS. KOLOHON:** Thank you, and good  
25 afternoon. My name is Sharen Skelley Kolohon. I am the

1 spokesperson for CARGOS. That represents Citizens Against  
2 Radioactive Generators in Owen Sound.

3 I'm a resident of Owen Sound. I'm a single  
4 mother. I'm a retired nurse and I have some concerns  
5 about this proposed project.

6 Since residents initially became aware of  
7 the Bruce Power project -- we actually became aware of it  
8 through the newspapers and radio. We were not included in  
9 the decision making at all; there were no discussions or  
10 debate. They did, however, hold open houses hosted by  
11 Bruce Power; there were three of them and we attended  
12 those, but they were simply information sharing exercises.

13 I met one of the representatives from Bruce  
14 Power at the open house at the Health Unit in Owen Sound,  
15 Ross Lamont, and I did have a discussion with him that  
16 night. I suggested to him that perhaps they would think  
17 of maybe building their own recycling plant onsite; it  
18 would be ground-breaking, it would be, you know, something  
19 amazing for Bruce Power to have one of their own. He said  
20 they didn't have enough money and it would be too  
21 expensive and the cost would be downloaded to the  
22 consumer.

23 Then I suggested maybe building their own  
24 docks right at Bruce Power and once again he said it was  
25 too expensive and he said, very sarcastically, "Why should

1 we? You have your own docks in Owen Sound and we're going  
2 to use yours." So there was obviously never going to be  
3 negotiating with them.

4 Initially, Owen Sound city council was  
5 informed that they were going to have to issue a heavy-  
6 load permit to allow this shipment access to the city.  
7 Bruce Power has shown that it was not prepared to  
8 negotiate with the city.

9 Regarding the heavy-load permit, Bruce  
10 Power spokesmen, Ross Lamont, suggested -- and this is a  
11 quotation, "The city would be in a legal fight if it  
12 refuses to issue it." He's quoted as saying, "I find life  
13 is a lot simpler when we don't use lawyers. I would hope  
14 we would have a fulsome discussion." And that's from the  
15 Sun Times on July 24<sup>th</sup> and Denis Langlois wrote that.  
16 He's one of our reporters.

17 Owen Sound city council hasn't been very  
18 effective in keeping the residents informed during this  
19 process. The CNSC representative did come to one of our  
20 council meetings and give a PowerPoint presentation to us  
21 and our Public Health Unit Medical Officer of Health gave  
22 a very brief presentation about the risks that we would  
23 receive if they -- when the shipment would be sitting in  
24 our harbour. It was about two minutes long and I would  
25 like to have a second opinion on that.

1                   On September 13<sup>th</sup> we attended city council  
2 and asked them to refuse Bruce Power the heavy-load permit  
3 and that they needed to -- that they needed to bring the  
4 generators into the city.

5                   And it isn't just 16 generators, by the  
6 way. There are going to be other shipments.

7                   On September 20<sup>th</sup> we were told that the  
8 heavy-load permit would not be needed by Bruce Power when  
9 we initially were led to believe that we were going to  
10 have to issue one to them.

11                  Our city council had discussed this with  
12 their lawyer and the lawyers from Bruce Power and CNSC, so  
13 essentially then Owen Sound has no authority in any of  
14 this. So I guess it's a federal government issue and Owen  
15 Sound has no authority at all.

16                  This is a precedent setting issue for our  
17 city. We don't want our harbour to be known as a port for  
18 nuclear waste.

19                  Bruce Power is a corporate neighbour of  
20 ours. Many residents in Grey-Bruce work there. Folks do  
21 business directly and indirectly with Bruce Power.

22                  There may not be allowed public outcry  
23 against this venture because it is intimidating to do so,  
24 but believe me, many residents feel that they -- they care  
25 about the issue very strongly.

1                   Grey-Bruce, Owen Sound, the whole area,  
2           does feel somewhat violated by the way they have been not  
3           included in any of this and they do care about the whole  
4           area, the Great Lakes and the world, and they tell me that  
5           we don't want this, we didn't ask for this and Bruce Power  
6           didn't give us a chance or a choice.

7                   Now, we won't accept threats about lawyers  
8           and we can't afford -- our city can't afford a legal bill  
9           to fight this and that's not being a good corporate  
10          citizen. And this is not a "not in my backyard" issue.  
11          We don't want anyone to have to take this shipment.

12                   This shipment is going to have to come down  
13          through a whole lot of small towns, through agricultural  
14          areas. People don't want it coming past their door,  
15          whether it's one metre away, it's the amount of a chest x-  
16          ray and then they're going to sit it in our harbour until  
17          they load all of these bus -- school-bus-size generators  
18          on and it's going to sit there.

19                   And in our harbour we have salmon. We have  
20          our grain elevators. Owen Sound is known for sports,  
21          tourism, fishing. It's a tourist area. That's the place  
22          -- and that's where we get our drinking water. And we're  
23          just -- you know, the residents, we want to have a say.

24                   And then -- then a lot of people  
25          downstream, all the mayors of all the cities of the Great

1       Lakes; that's where they get their drinking water. And  
2       nothing is foolproof, you can't say that an accident won't  
3       happen. We don't want one to happen and maybe not with  
4       this shipment, but there will be plenty of shipments more  
5       to go and we don't want Owen Sound to be known as the  
6       place where it all started.

7                       We don't want this to happen. Please  
8       consider not allowing this licence to go through.

9                       Thank you.

10                      **THE CHAIRMAN:** Thank you.

11                      Mr. Graham?

12                      **MEMBER GRAHAM:** I just -- couple of  
13       questions; since the open houses and since CNSC staff have  
14       visited your city, are you any further assured of the very  
15       low level that these -- that these steam generators have  
16       in comparison to other higher-level materials, radioactive  
17       materials that do travel on the Great Lakes every day?

18                      **MS. KOLOHON:** Well, we've been doing our  
19       research and we need to learn more and that's one of the  
20       problems; that they haven't included us in any of the  
21       discussions.

22                      And what we've been learning too is that  
23       there's this environmental assessment that should be done  
24       and we've been reading all of these contracts and  
25       educating ourselves the way we should have been educated

1 all along.

2 So no, we're not convinced, along with  
3 many, many other people too.

4 **MEMBER GRAHAM:** Another -- in your  
5 intervention -- and this question I think should go  
6 probably to CNSC staff. Second-last paragraph in your  
7 presentation, you're concerned about the shipping company  
8 and are the crews subject to Canadian labour laws, health  
9 and safety laws and health standards and so on and are  
10 they properly trained?

11 I realize most ships have to travel under  
12 certain international laws and so on, but can you address  
13 the concern that the intervenor has, to staff?

14 **MR. JAMMAL:** Ramzi Jammal, for the record.  
15 I'll ask colleague Nathalie to respond to  
16 this question.

17 **MS. GADBOIS:** Nathalie Gadbois, Radiation  
18 Protection Specialist, for the record.

19 In that case, the Canadian Labour Code does  
20 not apply to the crew of the ship.

21 As far as the training -- training  
22 requirements of the IMDG which is the Internatinonal  
23 Maritime Dangerous Good Code will be met. The IMDG Code  
24 is an accepted -- is accepted, sorry, as an international  
25 guide to the transport of the dangerous goods by sea.

1           The personnel responsible for radiation  
2 protection have successfully completed the radiation  
3 safety training and certificate of the RP program were  
4 provided and the content of the training were reviewed  
5 just to ensure that it meets CNSC expectation.

6           It was determined that CNSC staff is  
7 confident that the crew of the ship will be properly  
8 trained.

9           **MEMBER GRAHAM:** The stevedoring will be done  
10 not by the ship's crew, but there'll be a private company  
11 doing the stevedoring, could you -- could OPG (sic) advise  
12 us who that will be and are they well trained in this type  
13 of stevedoring?

14           **MR. HAWTHORNE:** I hope you mean Bruce  
15 Power, but as we mentioned before -- so you said OPG  
16 (inaudible).

17           **MEMBER GRAHAM:** I meant Bruce Power.

18           **MR. HAWTHORNE:** (Inaudible) you may answer,  
19 but (inaudible) WMG, I think actually may be in the room  
20 here and can answer for themselves.

21           WMG are the people who will do the road  
22 transport part of the journey. I don't know if they're  
23 actually here.

24           Yes, they are, so maybe they can answer  
25 that question for you.

1                   **MR. LAPIERRE:** Good afternoon, sir.

2                   Actually, WMG will be overseeing the  
3 logistics. The road transport will be done by Cambridge  
4 Rigging and a combination of it. Cambridge Rigging staff  
5 and the ship's crew will be doing all of the loading  
6 operations.

7                   **THE CHAIRMAN:** Can you identify yourself,  
8 please?

9                   **MR. LAPIERRE:** Oh, I'm very sorry, John  
10 Lapierre from WMG, for the record.

11                  **THE CHAIRMAN:** Thank you.

12                  **MEMBER GRAHAM:** And your company has  
13 extensive experience in this type of work -- this type of  
14 large ---

15                  **MR. LAPIERRE:** We do. We have arguably the  
16 greatest level of expertise in shipping large components  
17 in the United States.

18                  **MEMBER GRAHAM:** To Bruce Power, just a  
19 question.

20                  When the ship -- if you get approval, you  
21 order the ship. The ship arrives. How long will it take  
22 before -- the intervenor talked about the material sitting  
23 on dockside. My understanding was it was going to be  
24 removed in its presentation directly from the trailers  
25 onto the ship. What is the timeframe you're looking that

1 that ship will be in port?

2 **MR. HAWTHORNE:** For the record, Duncan  
3 Hawthorne.

4 Yes, you're right, Commissioner.

5 The intention here is that we will ship  
6 directly to the location and we will load directly onto  
7 the boat. There will be on dock storage. To be fair,  
8 that was one of the responses that we provided and then  
9 cancelled because they had some reservations about  
10 creating a storage area on the dock which we modified. So  
11 the intention is we will load directly.

12 The intention here is to obviously do this  
13 as a continuous series of shipments so if you work on that  
14 basis, in an ideal world we see it as being all completed  
15 within 20 days or so.

16 **MEMBER GRAHAM:** You only would -- you would  
17 do one a day, though.

18 **MR. HAWTHORNE:** Well, that's why I said  
19 within 20 days or 16 days. Obviously, there are some  
20 controls such as weather conditions being favourable and  
21 other things that we would obviously take into  
22 consideration before we approve a load delivery on any  
23 given day.

24 **MEMBER GRAHAM:** What is the latest date  
25 that that ship can sail and not be tied up within winter

1 conditions and the like?

2 **MR. HAWTHORNE:** Obviously, again, that's a  
3 consideration here. We are seeking a licence approval  
4 which was within a year.

5 Obviously, we contemplated shipping within  
6 that period of time but we're going to do it at a time  
7 where we don't run into a risk of contradicting -- your  
8 seaways are encountering touch weather conditions.

9 So the reality is we are considering  
10 exactly what date that would be based on our view of how  
11 long it takes to complete this work, how long it takes for  
12 the boat to traverse to Sweden and, you know, we haven't  
13 picked a date frankly at this stage.

14 **THE CHAIRMAN:** Other questions?

15 Mr. Harvey.

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

18 In this whole present document submitted,  
19 on page 2, the third paragraph, this plan is precedent-  
20 setting. Not only is it the first time that nuclear waste  
21 has been transported through the Great Lakes, it's the  
22 first time that it has been sent out of Owen Sound  
23 Harbour.

24 I would like the staff just to -- in this  
25 morning's presentation you have listed -- you have a list

1 of different dangerous goods travelling on the Great  
2 Lakes. So I don't know the type of activity in the Owen  
3 Sound Harbour but is it possible that some of those  
4 products come into the harbour?

5           Could you compare all the possible impacts  
6 of -- compare just with the nature of the shipments with  
7 those steam generators and some of these other products  
8 there? Compare the impact that could be derived from  
9 those products.

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

11           Monsieur Harvey, your question is very  
12 valid. However, the Environmental Impact Assessment was  
13 done under the NSCA was taking into consideration the  
14 worst case scenario as it pertains to these generators and  
15 as presented; the evaluation determined there is no impact  
16 with respect to the environmental assessment under the  
17 *Nuclear Safety Control Act*.

18           With respect to comparing this nuclear  
19 material or this low-level waste transport versus other  
20 dangerous goods, I have to be fair with respect to the  
21 safe transport of dangerous goods across the seaway or at  
22 Owen Sound. In Owen Sound itself, we talk about the ship  
23 being docked for 20 days. Proper perimeters will have  
24 been put up with respect to both security and radiation  
25 protection.

1 I am not at ease to say the comparison of  
2 impact; but if in general terms, the solubility of the  
3 steam generators are not soluble because they are covered  
4 in steel. The list of other elements such as petroleum  
5 products or toxic or sulphuric acid solubility is very  
6 well known with respect to the waters on the seaway.

7 So I would ask the environmental  
8 specialists if they need to add anything else but from a  
9 safety perspective, from an environmental assessment under  
10 the NSCA and the impact on the environment it's generally  
11 there is no impact.

12 **THE CHAIRMAN:** I thought you were making  
13 the assumption or the assertion that the list of dangerous  
14 goods -- there is a lot of more dangerous detail going  
15 through the Lakes. I thought that's what he was trying to  
16 convey by this list that are just as dangerous or even  
17 more dangerous than nuclear.

18 Is that what you're trying to say?

19 **MR. JAMMAL:** Yes, I am, although I was  
20 trying to be politically correct not to point out other  
21 dangerous goods. I'm focusing on ---

22 **THE CHAIRMAN:** It's too late. It's in your  
23 slide deck.

24 **MR. JAMMAL:** Well, for example, the fact  
25 that regardless of the dangerous goods there is regulatory

1 oversight with Transport Canada and the CNSC and other  
2 regulatory bodies. That there is safe transport of  
3 dangerous goods on the seaway.

4 Comparison, potentially, other substances  
5 are much more potent than the low-level radioactivity with  
6 respect to solubility or impact.

7 **MEMBER HARVEY:** You said that there would  
8 be a perimeter, a safe perimeter in the harbour. As you  
9 mentioned this morning, there is no radiation or very  
10 light radiation outside the shelf itself. So I suppose  
11 that there will not be any radiation outside the ship.

12 So what will be the nature of that  
13 perimeter if we believe that there is no radiation?

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

15 You're correct. The dose will be extremely  
16 negligible. The purpose of the perimeter around the ship  
17 is to ensure isolation of the ship from security  
18 perspective. And you don't have another boat just  
19 literally beside to latch onto the ship and everything  
20 else.

21 And again, in our assessment, in our  
22 requirements, it is taking most conservative requirements  
23 in order to ensure proper safety measures in place.

24 **MEMBER HARVEY:** Thank you.

25 **THE CHAIRMAN:** Any other?

1                   I have a quick question. I was intrigued  
2 now in hindsight, Bruce Power, why didn't you build your  
3 own dock and ship the material from your own site and  
4 avoid going through, you know, the municipalities?

5                   **MR. HAWTHORNE:** So several answers to that.  
6 Firstly, you know, in order to build the dock you need to  
7 have the right requirements around that in terms of water  
8 depth, a whole set of other things which the Bruce site  
9 doesn't have. That's why there is a dock in Owen Sound.  
10 It's deep water. It's a good location. That's why lots  
11 of heavy good are shipped in and out. That's why it's  
12 there. It's strategically placed.

13                   We don't have that facility around us. The  
14 environmental assessment -- a plant would very quickly  
15 give the Commission an understanding of the water  
16 attributes our facility isn't credible to do that.

17                   Of course we looked at alternatives here.  
18 We looked at credible ways to do this and the most obvious  
19 way to do it is to use the closest federally-approved,  
20 suitably-equipped location, and that is the Owen Sound  
21 harbour.

22                   **THE CHAIRMAN:** Thank you.

23                   Dr. McDill.

24                   **MEMBER MCDILL:** Could I ask the staff what  
25 kind of heavy things go into Owen Sound currently at the

1 deep water harbour? What else is going in there? I have  
2 seen tourist boats and things like that. I have been in  
3 the area but what else?

4 If it's a heavy -- if it's a harbour that  
5 can take this kind of ship something must be going in  
6 there other than -- grain handling, what?

7 **MR. HAWTHORNE:** For the record, I should --  
8 you know I may -- I should have said this earlier, I work  
9 and live in this area too. This is my community too.  
10 This is my Great Lake too.

11 This is a rural community. There's lots of  
12 things that you would expect to come in and out of there.  
13 There are grain -- obviously fertilizer. You know  
14 fertilizer is on the list of dangerous goods.

15 There is lots of other things that come in  
16 and out of the harbour. Do I have a complete inventory?  
17 No, I don't but there are heavy goods coming in and out  
18 including components for wind turbines and a range of  
19 other things. You know, it is a harbour that -- the Mayor  
20 of Owen Sound is going to be here. Why don't we ask her?  
21 Certainly she is better equipped than me.

22 But certainly I know my community well  
23 enough to know that grain shipments are a significant part  
24 of this and so too are fertilizers and fertilizers as  
25 mentioned in CNSC staff's own tables represent a

1 significant risk if the ship sank containing that.

2 **THE CHAIRMAN:** Thank you.

3 I'd like to thank the intervenors here.

4 Thank you very much.

5 So you had another question?

6 **MEMBER MCDILL:** Are we going to ask the  
7 mayor?

8 **THE CHAIRMAN:** Oh yes. She's appearing --  
9 I think the last one today.

10 The next presenter I understand is Mr.  
11 Seitz. He's not available and has requested that we  
12 consider his intervention as a written submission. And we  
13 will therefore address his submission later. Okay?

14 So the next one is an oral presentation  
15 from the Nuclear Information and Resource Services, as  
16 outlined in CMD H19.7, and I understand that Ms. Diane  
17 D'Arrigo will make this presentation.

18

19 **10-H19.7**

20 **Oral presentation by**

21 **Nuclear Information and**

22 **Resource Services**

23 **Ms. Diane D'Arrigo**

24

25 **MS. D'ARRIGO:** That's correct.

1                   **THE CHAIRMAN:** She is doing via  
2                   teleconference. Okay, can you hear us?

3                   **MS. D'ARRIGO:** I can hear you. Can you  
4                   hear me?

5                   **THE CHAIRMAN:** Yes. Please go ahead.

6                   **MS. D'ARRIGO:** Okay. My name is Diane  
7                   D'Arrigo. I am the radioactive waste project director at  
8                   Nuclear Information and Resource Service. I have been  
9                   here with the organization going on 25 years and  
10                  previously worked for other nuclear organizations in the  
11                  past.

12                                My history is in chemistry and  
13                   environmental studies and I have produced a report the  
14                   link for which was added to my statement. It's  
15                   [www.NIRS.org/radwaste/outofcontrol/outofcontrolreport.pdf](http://www.NIRS.org/radwaste/outofcontrol/outofcontrolreport.pdf)  
16                   and it was a number of years of work reviewing the whole  
17                   concern. The title is "Out of Control on Purpose: the  
18                   dispersal of radioactive waste into landfills and consumer  
19                   products".

20                                A major concern that we have with this  
21                   planned project, this shipment of nuclear power components  
22                   from Canada to be recycled into the free market via  
23                   Studsvik, Sweden is that it will allow radioactive waste  
24                   to be dispersed into the marketplace to make everyday  
25                   personal use items, to make construction equipment, to be

1 used in any way that metal is used.

2 We have for a long time been on record  
3 opposing this deregulation and the effort to deregulate or  
4 release or disperse or dispense radioactive waste from  
5 nuclear power and the weapons industry into the commercial  
6 marketplace, either into landfills or released into  
7 everyday recycling has been going on for a number of  
8 decades.

9 In the United States we have been opposing  
10 it somewhat successfully. There is no free release or  
11 clearance level that is allowed in the United States and I  
12 am not aware of the Canadian public ever addressing this  
13 question -- you know, whether the regulations have it  
14 buried, I am not clear.

15 But in the United States and I believe in  
16 Canada the public has never accepted any amount of  
17 additional radioactivity into the marketplace from nuclear  
18 power wastes or nuclear weapons wastes.

19 So the fact that these contaminated  
20 components -- and we can debate the amount of  
21 radioactivity that is present -- I would need additional  
22 time to review the documents because I believe that the  
23 assumptions that are being made about the amount of  
24 radioactivity and then the amount that would be released  
25 and the exposures that people would get both from the

1 transport and from the release and use of the material in  
2 the open marketplace are not valid.

3 They have not been -- the assumptions are  
4 not necessarily correct. And a problem with this whole  
5 plan is that we can talk about doses either in sieverts in  
6 Canada or Europe or in rems and millirems in the United  
7 States. But the amount of exposure that a person gets  
8 cannot be measured. It can only be calculated based on  
9 assumptions.

10 So by allowing radioactive waste to be  
11 dispersed, to be melted down and recycled into one of the  
12 best recycling systems in the world -- and the metal  
13 industry is one of the best industries at recycling metal.  
14 And so to poison that metal stream by adding radioactivity  
15 is an assault and should be stopped.

16 What you're looking at here today in  
17 addition to the actual movement of these materials, these  
18 steam generators back and forth across the oceans and on  
19 our Great Lakes; is also participating in a much larger  
20 scheme to pretend that radioactive waste doesn't exist, to  
21 pretend that it's an acceptable level when we can never  
22 know.

23 It's a blank cheque for radioactivity to be  
24 dispersed into the marketplace and as I said, the United  
25 States public has over and over again said "no." There's

1 a timeline in the report that I referenced -- the "Out of  
2 Control" report -- that looks at the history of the  
3 efforts to allow radioactive waste to be dispersed into  
4 the marketplace to be treated as not radioactive or free  
5 released and documents over and over again preventing that  
6 from happening.

7 So we do not have a clean safe level of  
8 radioactivity. Whatever amount of radioactivity is  
9 dispersed from these steam generators could cause health  
10 effects and we can't know how much is actually going out.  
11 We will never know. What we're doing is opening the flood  
12 gates by letting this material out.

13 The goal with radioactive waste should be  
14 to isolate it from the environment to prevent dispersal,  
15 to prevent exposures and what's going on here violates the  
16 basic principles in the international agencies, in the  
17 nuclear policies of preventing exposures rather than  
18 allowing. There is not a safe level.

19 I also in the report have a criticism  
20 of the RESRAD computer code which is used by the agencies  
21 and the governments to justify melting down and releasing  
22 radioactive materials and as I say, there's no way to  
23 verify or confirm or enforce any amount of contamination.

24 What's happening here is radioactivity  
25 being dispersed without knowing how much.

1                   Even if there was a safe level or a good  
2 level of radiation exposure, this is not the way to  
3 deliver it. They're not going to ever even know how much  
4 radioactivity the recipients of the frying pans, the belt  
5 buckles, the zippers, the intrauterine devices, the  
6 silverware, the other materials made out of metal -- what  
7 the levels will be because it is expensive to measure and  
8 detect.

9                   The U.S. has never -- Canada to my  
10 knowledge has never accepted the European Union and the  
11 Studsvik Sweden levels for free release. So even though  
12 we're being told that the levels of release are  
13 acceptable, the levels are not acceptable to the rest of  
14 the world. This is simply a contract between those two  
15 agencies and CNSC has the opportunity here to prevent this  
16 from -- to prevent Canada from being part of this.

17                   I also wanted to mention that Studsvik's  
18 facilities in Tennessee -- as they mentioned, they have  
19 two -- have had their problems and there is growing  
20 opposition to those facilities in Tennessee. There have  
21 been high radiation exposures at the fence posts at the  
22 Irwin facility.

23                   The facility in Memphis was found to have  
24 violated the EEOC -- Equal Employment Opportunity  
25 Commission -- by exposing African American employees to

1 excessive radiation exposure, more than their white co-  
2 workers and had to pay a \$650,000 penalty to settle that  
3 harassment and retaliation suit. And so there are  
4 problems with that company in the U.S.

5 I also want to mention that there are only  
6 two or three places in the world that allow radioactive  
7 metal to be released out into the marketplace. Studsvik  
8 is one and another one is Sosnovy Bor in Russia. And  
9 another is at Chernobyl.

10 So the goal of the community should be to  
11 prevent this radioactive metal release from those places,  
12 not to expand their businesses.

13 I wanted to also express the concern that  
14 there is no place in this whole process at this point to  
15 evaluate whether or not we want to make personal consumer  
16 items out of radioactive waste and one can argue that  
17 they're separating the radioactive part from the not  
18 radioactive part but it's impossible to separate it  
19 completely and come out with a totally clean metal.

20 And the message should be to prevent any  
21 contamination of the metal supply which is, as I said, one  
22 of the best recycling systems in the world.

23 The E.U. and Sweden may think that it's  
24 okay to contaminate the metal supply but Canada should not  
25 be a part of it and it is not allowed here, as I said

1 earlier.

2 I think I talked about the no safe dose.

3 I wanted to express a concern too on the  
4 transport that -- oh, before I go to that, the steel  
5 industry in the United States -- the steel unions in both  
6 the U.S. and Canada -- have policies preventing, opposing  
7 nuclear materials coming into their supply.

8 The Steel Manufacturers Association opposes  
9 policies and rule-makings that sanction the free release  
10 of radioactively contaminated scrap metals from nuclear  
11 power plants or Department of Energy weapons facilities.  
12 The steel industry cannot -- the U.S. steel industry  
13 cannot be the dumping ground for the discards of the  
14 global nuclear aid. This is part of their most recent  
15 policy which is an update on their zero tolerance for  
16 radioactive materials into the metal supply.

17 And then moving on to the transport issue,  
18 as I think I said but I wanted to express concern about  
19 the assumptions that have been made on the transport, on  
20 the amount of radioactivity, would like the opportunity to  
21 actually review the background documents that purport to  
22 have such miniscule amounts and ---

23 **THE CHAIRMAN:** Can you please wind up?

24 **MS. D'ARRIGO:** Yeah. Yes, my very last  
25 point is that I believe that one of the doses -- one of

1 the statements was that -- that one millisievert, I  
2 believe that was what was stated, was -- that this would  
3 only be doses that are a fraction or a smaller amount than  
4 a millisievert -- if a millisievert was an acceptable  
5 amount from a shipment.

6 And in the United States a millisievert  
7 which is 100 millirems is not acceptable for a dose --  
8 that's the amount that is acceptable from an operating  
9 nuclear facility. Actually half of that is acceptable  
10 from a nuclear facility, according to our Environmental  
11 Protection Agency standards.

12 So the dose that was suggested was not a  
13 miniscule dose and -- you know -- throwing out  
14 millisievert and millirems and rems and sieverts only  
15 serves to confuse the public and ---

16 **THE CHAIRMAN:** Thank you very much. Thank  
17 you very much. We get it.

18 **MS. D'ARRIGO:** Okay.

19 **THE CHAIRMAN:** Okay, the floor is open.  
20 Anybody? Dr. Barriault?

21 **MEMBER BARRIAULT:** Just a brief question to  
22 the CNSC staff on the issue of the metal supply, actions  
23 of contamination for lack of a better word I guess what I  
24 have to use. Could you comment really on what our  
25 Canadian policies are on this?

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

2                   I will start first the answer and then I'll  
3 ask Mr. Bert Thériault, our dosimetry specialist to answer  
4 the question.

5                   I'm trying to be politically correct with  
6 my answer here but I'm trying hard enough to make very,  
7 very clear that European Commission RP89 requirements have  
8 been compared with respect to the Canadian requirements by  
9 our dosimetry specialists globally -- they are equal as  
10 such.

11                   And I will refer to Mr. Thériault with  
12 respect to the -- because he did assess and compared the  
13 two.

14                   **MR. THÉRIAULT:** Bert Thériault, for the  
15 record.

16                   Yes, we did review the criteria used by the  
17 CNSC for the removal of nuclear substance from regulatory  
18 control with those used in Sweden, Studsvik and overall  
19 there are in fact the same for -- we saw on a slide  
20 presented by Studsvik earlier today a series of numbers  
21 for Cobalt-60 for example, .1 Becquerels per gram, this is  
22 the same one used in Canada.

23                   For Cesium-137, the same number as well.  
24 Our numbers are more conservative by a factor of 10 for  
25 nickel isotopes, for example.

1                   **MEMBER McDILL:** Sorry, could you repeat who  
2 was more conservative, I missed that?

3                   **MR. THÉRIAULT:** We are more conservative; we  
4 saw the nickel 63, nickel 59; in Studsvik's slide we saw  
5 1,000. In our regulations we have 100 Becquerels per  
6 gram.

7                   We saw a number on the slide which was  
8 Cobalt-58. Studsvik numbers are more conservative but  
9 it's not in the steam generator inventory, so overall it's  
10 the same.

11                   **THE CHAIRMAN:** I think the intervenor is  
12 alleging that the whole European policy is only -- you  
13 know -- adhered to by Sweden and she mentioned a couple of  
14 other countries and not by Canada and not by U.S.

15                   I mean somebody help me on this one. Is it  
16 true, not true? What's the status of this and maybe the  
17 people from Studsvik can suggest some of the allegation  
18 that -- you are way offside, and you cannot get clean  
19 material into the market.

20                   **MR. WIRENDAL:** I can answer from Studsvik  
21 that this regulation RP89 is also used by the Germans, by  
22 Belgium and I will add to this last speaker that there is  
23 another facility in Germany which are doing exactly the  
24 same, melt material coming from the nuclear industry in  
25 two purposes; one to make a product of this which goes

1 back into the industry and the other part of it is to  
2 recycle metal to the open market, the steel market again.

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

4 **MEMBER BARRIAULT:** So what I'm hearing is  
5 that in Canada we do have contamination of our metal  
6 stream from radioactive materials; is that correct or we  
7 have a zero tolerance?

8 **MR. REGIMBALD:** André Regimbald here, for  
9 the record.

10 Dr. Barriault, the regulations on nuclear  
11 substance define levels at which -- to which by licensees  
12 are allowed to release into normal streams of waste and  
13 these are based on the IAEA Basic Safety Standards. And  
14 licence conditions as well limit to extremely low levels  
15 the amount of radioactive material that can be released  
16 through normal waste.

17 **MEMBER BARRIAULT:** So that's in the  
18 recycling process is what I'm hearing?

19 **MR. REGIMBALD:** In every -- whenever the  
20 licensee wants to dispose they have to comply with the  
21 nuclear substance regulations and their licence conditions  
22 for unconditional clearance.

23 **MEMBER BARRIAULT:** Thank you.

24 Thank you, Mr. Chair.

25 **THE CHAIRMAN:** Monsieur Harvey?

1                   **MEMBER HARVEY:** Well I think it's not the  
2 same thing; you are talking of waste and sending it into  
3 normal streams but not in a free market, like -- it's not  
4 at all the same thing.

5                   **MR. REGIMBALD:** The unconditional clearance  
6 levels mean that the material can be sent to normal  
7 streams, either recycling or waste.

8                   Maybe Mr. Thériault can expand on the basis  
9 for these unconditional clearance levels.

10                  **MR. THÉRIAULT:** Yes. What was done was for  
11 the unconditional clearance levels -- the criteria used  
12 are based on recommendations of the International Atomic  
13 Energy Agency in their Report RSG 1.7, and those numbers  
14 have been published in 2004 by the IAEA and have since  
15 been adopted in the Nuclear Substance Regulations by the  
16 CNSC.

17                  **MEMBER HARVEY:** Can you give us ---

18                  **MS. D'ARRIGO:** May I say something about  
19 the IAEA Regs?

20                  **THE CHAIRMAN:** Go ahead.

21                  **MS. D'ARRIGO:** The IAEA, when they were  
22 working on these clearance levels, did not allow public  
23 participation and we in the United States made many  
24 efforts to effect and give input and were not successful.  
25 These are recommendations that are developed by agencies

1 themselves without -- they don't reflect when they talk  
2 about a consensus on acceptable risks. They don't really  
3 represent a consensus by those who are receiving the  
4 risks, who are put at risk but by the generators of the  
5 waste.

6 So IAEA may have its recommendations which  
7 in fact it does, and we over and over have been fighting  
8 the adoption of those into the U.S. code.

9 Now, maybe it got snuck into the Canadian  
10 code and no Canadian activists or public interest people  
11 knew about it, and so that would be interesting to find  
12 out if they were adopted right in 2004 or if they're  
13 actually in place, or if it's just something that's being  
14 used.

15 But when we in the U.S. found out that the  
16 international atomic community was trying to set levels to  
17 allow release of radioactive wastes we stopped it over and  
18 over again.

19 **THE CHAIRMAN:** Thank you.

20 **MS. D'ARRIGO:** And I would be interested to  
21 know if Canada decided that it was okay, but I'll bet you  
22 that most Canadians are not aware of it.

23 **THE CHAIRMAN:** Mr. Graham?

24 **MEMBER GRAHAM:** Mr. Jammal just had a  
25 comment I think first, then I have a question.

1                   **MR. JAMMAL:** For the record, it's Ramzi  
2 Jammal.

3                   Mr. President, I would like to make it  
4 very, very clear that the intervenor is not correct at all  
5 with respect to the sneaking of these new limits -- I  
6 won't call them even new limits -- in our regulations.

7                   The regulatory process, as you know, and  
8 everybody knows, has to be published, go through under  
9 consultation process, and we did go through this  
10 consultation process from Canadian public. We have the  
11 database with respect to the dispositions of the comments.

12                   And I do not accept the fact that Canada  
13 has no public consultation. The public consultation  
14 process did take place before the regulatory amendments.

15                   **THE CHAIRMAN:** Thank you.

16                   **MS. D'ARRIGO:** So when were they adopted?

17                   **MR. JAMMAL:** For the record, Ramzi Jammal.  
18 It was adopted in April 2008.

19                   **MEMBER GRAHAM:** Mr. Chair, I have a  
20 question for Studsvik.

21                   Earlier today I asked a question had the  
22 company ever been in violation of any -- or had been cited  
23 for any violations within the environmental laws or with  
24 any other laws and you'd said no.

25                   The intervenor just said you got fined

1       \$850,000 for some labour practices in the U.S. Could you  
2       confirm that this is correct, and also are there any other  
3       violations for any of your companies or sister companies  
4       that you might like to share with us?

5                   **MR. WIRENDAL:** My answer on this is I spoke  
6       for the Swedish facility. I was not taking that to the  
7       American. And I cannot comment on that because I don't  
8       know exactly what the end of that history is. So my  
9       comment earlier was around the Swedish facility.

10                   **MEMBER GRAHAM:** But the American company  
11       you did cite when you did your presentation that you  
12       operated in other areas. So is this -- are these American  
13       companies all part of your company?

14                   **MR. WIRENDAL:** That's part of the Studsvik  
15       group, yes, but when I gave my presentation in general I  
16       thought the question was if the facility in Sweden had  
17       been in that position and I say no.

18                   **MEMBER GRAHAM:** Maybe we'd like to find out  
19       some time within the very near future ---

20                   **THE CHAIRMAN:** I think we should ---

21                   **MEMBER GRAHAM:** --- to provide us ---

22                   **THE CHAIRMAN:** Mr. Graham, I think this is  
23       an unfair line of questioning here.

24                   **MEMBER GRAHAM:** Okay.

25                   **THE CHAIRMAN:** Let's stick to what this

1 guest has been invited to talk about the Swedish facility  
2 and the process. Don't expect him to know about  
3 everything that goes in the vast empire called Studsvik.

4 Any more?

5 **MEMBER GRAHAM:** I don't have any other  
6 question.

7 **THE CHAIRMAN:** Dr. McDill?

8 **MS. D'ARRIGO:** Just to clarify, it was  
9 \$650,000.

10 **THE CHAIRMAN:** Dr. McDill?

11 **MEMBER McDILL:** Thank you.

12 In Canada when we decommission something  
13 and the buildings are brought down and the steel beams are  
14 sent out, are they in the range of the numbers on the  
15 Studsvik side?

16 Let's take Pinawa since we need an example  
17 here.

18 **MR. JAMMAL:** Sorry, for the record, Ramzi  
19 Jammal.

20 I have to use the microphone to call on Mr.  
21 Howard to provide the answer.

22 **MEMBER McDILL:** Thank you.

23 **MR. HAWTHORNE:** Excuse me, Commissioner.  
24 While were in the impasse let me just explain that we, the  
25 licensees, provide to this Commission our decommissioning

1 plan and which gets formally approved.

2 As part of the decommissioning plan we take  
3 a full inventory of all the equipment that has to be  
4 disassembled, dismantled, decontaminated, stored, all of  
5 those things. It's very possible and in fact highly  
6 likely that within a decommissioning plan we include the  
7 prospect that we will decontaminate and release some items  
8 that meet the standard that is in place in Canada. That  
9 is an integral part of our decommissioning plan.

10 **MEMBER MCDILL:** Thank you, Mr. Hawthorne.  
11 I was aware of that but I was trying to get on to Mr.  
12 Graham's question a little earlier.

13 So we have decommissioned a number of  
14 facilities in this country or are in the process of -- not  
15 power reactors necessarily. So we have a facility that's  
16 releasing -- I assume releasing steel.

17 Maybe staff could comment about it.

18 **MR. HOWARD:** Don Howard for the record.

19 I can give a couple of examples where  
20 decommissioning has occurred. The Bruce heavy water  
21 plant, for example, which was just concluded in the last  
22 couple years, out of that, even though it was not -- there  
23 was no radioactive material involved, there was some  
24 hydrogen sulphite, so there was some chemical issues with  
25 that, but they managed to recycle 97 percent of the

1 material that was decommissioned on that site. That's one  
2 example.

3 With Whiteshell we are decommissioning a  
4 nuclear research site. Right now is basically all of the  
5 material that is being produced will have to be -- is  
6 being cleared in accordance with their nuclear substance  
7 and devices regulations clearance levels for either  
8 conditional or non-conditional clearance. They're  
9 following those regulations. All other material is being  
10 treated as radioactive waste and is going into interim  
11 storage.

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

13 **THE CHAIRMAN:** Any other questions?

14 I just want to make sure I understand.  
15 Would we -- in Canada would we accept some of the steel,  
16 the recycled steel from Studsvik's? I mean, can they send  
17 it to us, the recycled steel, or do they have to go  
18 through still another, you know, melting kind of a  
19 facility? I'm trying to understand whether we'll accept  
20 their products. Anybody?

21 **MS. D'ARRIGO:** It goes internationally.

22 **THE CHAIRMAN:** Not according to what I  
23 understood. They have to know precisely who the recipient  
24 is for the second process. Did I get this right?

25 **MR. HAWTHORNE:** I think the message -- for

1 the record, Duncan Hawthorne.

2 The message was after the second melt free  
3 release means freed release. It can go internationally  
4 anywhere.

5 **THE CHAIRMAN:** Right. But I'm talking  
6 about before the second; will we allow to take their thing  
7 and melt it here in Canada and do the secondary process?  
8 Yes; no, don't know?

9 **MR. JAMMAL:** We'll have to -- Ramzi Jammal  
10 for the record.

11 The answer is as long as it's below  
12 regulatory limits the answer is yes. If there are any  
13 measured radioactivity; hence if it's not unconditional  
14 release, we -- based on the activity of the metal and in  
15 Studsvik's case you're asking the question -- they  
16 characterize the radioactive material in the best  
17 available methodology by taking samples of the melted  
18 metals and determining the factors.

19 If it's above all regulatory limits it must  
20 be controlled material. If it's freed release the answer  
21 is yes, it can be brought.

22 But I would like to assure everybody that  
23 on Canadian ports and ports of entry, even recycling metal  
24 facilities, we have radiation detectors that are set equal  
25 to and (inaudible) background where we've turned away

1 several ships that contained steel that triggered those  
2 alarms and they were shipped back to the origin where they  
3 came from.

4 So the point here is if it's a controlled  
5 substance, i.e. controlled requires regulatory oversight,  
6 then it's controlled through the licensing of importation.  
7 If it's free release then it's free to come into Canada.

8 **THE CHAIRMAN:** My last question on this one  
9 is am I to understand the U.S. doesn't recycle? I mean, I  
10 think the intervenor made the point that the U.S. does not  
11 allow for recycling. Is that correct?

12 What are they doing with all the steam  
13 generators? I thought somebody mentioned that some of the  
14 steam generators in the U.S. were also being recycled.  
15 Can somebody clear me up on this?

16 **MR. LAPIERRE:** If I may, sir, John  
17 Lapierre, from WMG.

18 Steam generators in the U.S. are being  
19 buried whole; put in the ground, and that is taking up  
20 quite a bit of space. There are opportunities for  
21 recycling of contaminated metal, but in specific  
22 applications they are used to create shielding blocks and  
23 their distribution is controlled. So they remain in a  
24 licensed controlled space.

25 **THE CHAIRMAN:** Thank you.

1 Any other questions?

2 Thank you very much. We must now break for  
3 -- until 6:30. I think the restaurant is being kept open  
4 specifically for any one of you who wants to grab a bite  
5 and I think they remain open until six so we've got to get  
6 moving.

7 Thank you.

8

9 ---Upon recessing at 5:33 p.m./

10 L'audience est suspendue à 17h33

11 --- Upon resuming at 6:32 p.m.

12 L'audience est reprise à 18h32

13

14 **THE CHAIRMAN:** Okay, we are ready to  
15 proceed and we will move to the next submission which is  
16 an oral presentation from the Bruce Peninsula Environment  
17 Group as outlined in CMD 19.9, 19.9A, and I understand  
18 that Mr. Ziggy Kleinau will make the presentation.

19 Go ahead, sir.

20

21 **10-H19.9 / 10-H19.9A**

22 **Oral presentation by the**

23 **Bruce Peninsula**

24 **Environment Group**

25

1                   **MR. KLEINAU:** Thank you very much, Chair  
2 and Members of the Commission. Thank you for the  
3 opportunity to present our concerns and recommendations on  
4 Bruce Power's project proposal.

5                   My name is Siegfried Kleinau. This  
6 presentation is made on behalf of the Bruce Peninsula  
7 Environment Group (BPEG) incorporated as a not-for-profit  
8 corporation, founded by Linda Hoita and myself 21 years  
9 ago.

10                   BPEG has a membership of over 200 families  
11 and individuals living along the shores of Georgian Bay  
12 and Lake Huron. The active organization -- this active  
13 organization has been holding monthly meetings in Lion's  
14 Head, 70 kilometres north of Owen Sound since its  
15 inception.

16                   I have reviewed CMDs 10-H19, 10-H19.1 and  
17 10-H19.2. The steam generators in Bruce Power's requested  
18 licence are from Bruce A, Units 1 and 2 and originate from  
19 Ontario Power Generation's power production, previously  
20 Ontario Hydro from 1972 to 1997. Bruce Power never  
21 brought them into service.

22                   This clearly constitutes that these steam  
23 generators are historic radioactive waste and are owned by  
24 OPG. Bruce Power has only detached them from those units,  
25 transported them to OPG's Western Waste Management

1 facility and there OPG has taken possession of its own  
2 waste components.

3 Bruce Power has no jurisdiction over the  
4 further disposition of these steam generators; therefore,  
5 the Commission should reject Bruce Power's application due  
6 to a matter of ownership and jurisdiction.

7 Should the Commission continue to deal with  
8 Bruce Power's request we contend that there's no evidence  
9 of lessening the environmental footprint by this proposed  
10 project.

11 The shipment is classified as surface  
12 contaminated objects, the SCO-1, having radioactive  
13 material distributed on those surfaces according to 10-H19  
14 section 4.1.2.

15 No matter how staff twists and turns in  
16 describing this classification, radioactive emissions will  
17 be present during transportation, loading, and shipping,  
18 spreading dangerous effects along the whole land and sea  
19 route.

20 And in Sweden the radioactive contamination  
21 will be even more pronounced with the scrapping and  
22 melting operations.

23 Selling the so-called decontaminated scrap  
24 into the open market for consumer goods is the height of  
25 unethical behaviour. It is all about maximizing profit,

1       which was well amplified by Bruce Power's CEO on their  
2       website.

3                       We are curious why Bruce Power wants to  
4       ship those huge radioactive crates 90 kilometres north to  
5       the Port of Owen Sound on Georgian Bay, making the  
6       shipping route much longer and treacherous instead of  
7       choosing the deepwater commercial port of Goderich on Lake  
8       Huron, only a 60 kilometre drive straight south, down  
9       Highway 21. Must have something to do with the friendly  
10      constituency in Grey and Bruce County.

11                      Further to staff's conclusion, and I quote,  
12      "That the environmental and human health risks from a  
13      release to a credible accident would be very low," we  
14      refer to the prominently displayed logo on the front page  
15      of CNSC's website there we read, "We will never compromise  
16      safety."

17                      Bruce Power has contracted Studsvik from  
18      Sweden to oversee the proposed project from the point of  
19      leaving the Bruce site, Studsvik's submission 10-H19.2  
20      describes only the waste processing procedures and in no  
21      way refers to the handling of this project.

22                      Studsvik engages four third-party  
23      contractors. Has CNSC staff even bothered to look into  
24      their backgrounds, their safety record? WMG doesn't even  
25      disclose what the three-letter acronym stands for on their

1 website. We will never compromise safety; staff keeps  
2 working with Bruce Power's calculation of dose rate  
3 estimates, comparing them to CNSC's regulatory limits of 1  
4 millisievert to the public; stating that people driving or  
5 walking by the steam generators in transit would receive  
6 less than 1 percent of that limit.

7 Numerous recent studies have found that low  
8 doses like that can have detrimental effects on people's  
9 health. Yes, it needs special mention that those  
10 regulated limits are based on the model of 154 pound  
11 Caucasian male, 20 to 30 years old and 1 metre, 70 tall  
12 tall.

13 No consideration is given to the different  
14 body characteristics of women, or rapid development of  
15 children and of foetuses.

16 The BEIR 7 Report in 2006 of the National  
17 Academy of Sciences shows a substantial cancer incidence  
18 risk for women from radiation exposure compared to men.

19 The Bruce Grey Medical Officer of Health,  
20 in her comments assuring the safety of Bruce Power's  
21 project, is quoted as comparing any exposure to the public  
22 to a chest x-ray, mentioning gamma and beta radiation.  
23 She does not seem too much informed about the effects of  
24 breathing in alpha particles.

25 In this context we are questioning the

1 ability of the Owen Sound Hospital of dealing with large  
2 numbers of radiation victims. This accreditation must be  
3 part of any emergency response plan and so must be the  
4 certification of training of all first responders. We  
5 will never compromise safety.

6 Contracting a vessel flying the flag of  
7 Antigua and Barbuda West Indies Shipping Company would  
8 raise suspicions regarding training and security of the  
9 crew handling radioactive cargo -- I mean, there's three  
10 different vessels mentioned -- to carry a dangerous load  
11 through the channels and locks of the Great Lakes and the  
12 Seaway, a rigid evaluation must be performed by CNSC  
13 staff.

14 Pilots have to be taken onboard, are they  
15 protected? Maritime disasters are more common and widely  
16 known. Collision scenarios and fires on ships like the  
17 one travelling the Welland Canal have not been included in  
18 the accident lists. We will never compromise safety.

19 There's barely a mention to the return  
20 shipment of highly concentrated radioactive waste which  
21 apparently would be covered by the request licence.

22 How is the transport being evaluated; this  
23 must be public knowledge and discussion. We will never  
24 compromise safety.

25 The environmental assessment conducted and

1 approved by the CNSC in 2006 under CEAA Reference Number  
2 04-01-8081 clearly laid down the handling and storage  
3 activities regarding the steam generators.

4 If the Commission decides to keep  
5 deliberating Bruce Power's request, this must be  
6 classified as a new project, subject to an environmental  
7 assessment, despite staff's denial, and because of the  
8 myriad of risks involved in this scheme that precautionary  
9 principle must be applied as constituted under the  
10 *Canadian Environmental Protection Act, CEPA, 1999* and  
11 needs to be referred to, to the Minister of the  
12 Environment, for an independent panel review environmental  
13 assessment.

14 We urge the Commission to seriously  
15 consider our concerns and accept our recommendations in  
16 light of fairness and transparency to validate this  
17 regulator's commitment not to compromise safety.

18 Thank you for your time. We will attempt  
19 to answer your questions.

20 **THE CHAIRMAN:** Thank you.

21 The floor is open.

22 Dr. McDill?

23 **MEMBER McDILL:** Perhaps this is a matter of  
24 corporate record, but why didn't Bruce consider Goderich,  
25 or did Bruce consider Goderich?

1                   **MR. HAWTHORNE:** For the record, Duncan  
2 Hawthorne.

3                   Yes, we did. As I said, we did consider  
4 various scenarios. If anybody knows the area around us,  
5 Goderich Harbour, to access it, it requires access down a  
6 very steep hill and manoeuvrability over a significant  
7 bridge structure; it didn't suit for road transport, and  
8 for that reason we ruled it out.

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

10                  **THE CHAIRMAN:** Mr. Graham?

11                  **MEMBER GRAHAM:** Yes, the intervenor was  
12 referring to emergency response plans, radiation victims,  
13 treatment facilities at Owen Sound Hospital, training of  
14 first responders, et cetera. You have developed, I  
15 believe, four emergency response reviews. There was April  
16 1<sup>st</sup>, July 22<sup>nd</sup>, August 6<sup>th</sup> and August 10<sup>th</sup>.

17                  Have you a fully developed emergency  
18 response program in place now? That's to CNSC staff.

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

20                  The answer is yes. And I will call on Mr.  
21 Richard Tennant to respond on any specifics with respect  
22 to the emergency plan.

23                  As part of the submission from Bruce CNSC  
24 staff requested additional information, and we did  
25 receive, and to our satisfaction Bruce Power responded to

1 all of these issues.

2 With respect to the capacity of the Owen  
3 Sound Hospital training of first responders, the medical  
4 health authority -- sorry -- I'm forgetting the title  
5 right now -- did present to Owen town council a written  
6 intervention with respect to the risk associated with this  
7 transport declaring that there is no health risk.

8 But Mr. Tennant ---

9 **MR. TENNANT:** For the record, Richard  
10 Tennant.

11 We reviewed the emergency plan as submitted  
12 by WMG for Bruce Power. So in their emergency plan they  
13 do cover emergency response if an accident was to happen  
14 in a road scenario. They also submitted a plan for the  
15 shipboard vessel plan, which is from the flag state of  
16 Antigua and Barbuda, which is approved under IMO.

17 So under the IMO, Canada has been a  
18 signatory of the member state since 1948 and  
19 Antigua/Barbuda since 1986. So the vessel coming in has  
20 an emergency plan as well.

21 Also for any emergency that might happen in  
22 the vessel, the vessel conforms to a SOLAS plan, which is  
23 the Safety of Life at Sea Convention. So they have fire  
24 suppression and emergency plans onboard the vessel.

25 So we've reviewed in detail any emergency

1 that may arise and we believe and are fully confident that  
2 in any situation that would arise they have the resources  
3 and the emergency response capability to respond.

4 **MEMBER GRAHAM:** Thank you.

5 **THE CHAIRMAN:** Thank you.

6 Mr. Kleinau, do you want to respond to  
7 this?

8 **MR. KLEINAU:** What about a fire -- you  
9 know, fires with radioactive materials involved. They can  
10 be pretty hazardous even if it's a very stable hull. And  
11 if those outlets if they ever get heated up and the plugs  
12 go on it we have all the radiation that's in there out in  
13 the environment.

14 **THE CHAIRMAN:** That's a question I think --  
15 staff you want to take that?

16 Go ahead.

17 **MR. TENNANT:** Could you just repeat the  
18 question please? I understand there's a fire component to  
19 the question.

20 **MR. KLEINAU:** Well, it was about the fire  
21 on one of those cargoes, if that really gets going, the  
22 fires -- like we've had a fire on the vessel there in the  
23 Welland Canal -- and if the radioactive vessel is being  
24 breached, if the welds don't hold, hold fast, then we have  
25 all the radiation going into the environment. So I guess

1 that is something that needs to be investigated as a  
2 scenario. And collisions as ---

3 **THE CHAIRMAN:** Go ahead.

4 **MR. TENNANT:** For a fire to make all the  
5 radioactive contents of the steam generators be dispersed  
6 it would have to first penetrate or break down the entire  
7 sheathing or the outside stainless steel capsule of the  
8 steam generator, and then it would also have to be of such  
9 intensity it would break down the tubes that the radiation  
10 is fixed to.

11 So this would be a pretty much infeasible  
12 scenario because there's no combustible material present  
13 in the hold or minimal. So I don't think the temperature  
14 in a fire would be able to break down the outside of the  
15 steam generator or the package.

16 Sylvain, would you like to add to that?

17 **MR. FAILLE:** Sylvain Faille.

18 Just to comment on what Mr. Tennant just  
19 said. As explained, there's no combustible material in  
20 the cargo hold, and the steam generators themselves can  
21 survive -- like it's a steel component so it takes a very  
22 intense fire to melt the steel or even to bring some  
23 pressure inside the steam generator. And to our knowledge  
24 there's a minimum amount of -- not water, but vapour  
25 inside the steam generator, so it would be hard to build

1 up some pressure that would cause some of the welds to  
2 fail inside the steam generators themselves.

3 **THE CHAIRMAN:** Okay. Just you know I like  
4 simple answers. What's the melting point of steel and  
5 could that melting point be reached through a fire on the  
6 ship? Anybody?

7 **MR. WIRENDAL:** I can take it from Studsvik.  
8 That's from 1550 degrees C. So it's ---

9 **THE CHAIRMAN:** So is that likely such fire  
10 to occur on a ship? The ship will sink first?

11 **MR. JAMMAL:** For the record, it's Ramzi  
12 Jammal.

13 No, our information and the experience that  
14 we've got with respect to such ship, that it will not  
15 reach that temperature. And as you mentioned, the ship  
16 will sink before the generator's integrity has been  
17 compromised.

18 **THE CHAIRMAN:** Thank you.  
19 Monsieur Harvey.

20 **MEMBER HARVEY:** Merci monsieur le  
21 président.

22 In Mr. Kleinau's documentation in 10 H-19 -  
23 - 10 -- no, it's 9.9 -- number 9 -- return 170 tonnes of  
24 consented highly radioactive scrap being part of the  
25 project proposal not addressed regarding said issue.

1           I just want the staff to comment on that.  
2           Because I know in your presentation you touched that point  
3           that it will be returned without no requirement for CNSC  
4           approval. So can you qualify the nature of scrap coming  
5           back?

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

7           In our presentation we discussed and  
8           putting out on the record that it will be a return of  
9           radioactive material through proper transport packaging in  
10          accordance with international regulatory requirements and  
11          national requirements.

12          The 170 tonnes -- I don't have the exact  
13          number. We're going by a potential estimation with  
14          respect to post-melting.

15          However, I would like to confirm to the  
16          Commission that it's not one shipment. It's not one  
17          container. It will be multiple containers in accordance  
18          with the international requirement for industrial  
19          packaging that meets, again, the IAEA transport  
20          requirements, the international requirements and so the  
21          Canadian requirements.

22          So the safety has been assessed as part of  
23          the design of the package and the practice that's being  
24          done. And, again, even though the package is not  
25          certified, the design and the requirements under the

1 international regulations must be met.

2 **MEMBER HARVEY:** And how would you qualify  
3 the waste? Here, it's highly radioactive scrap.

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

5 I would like to ask the intervenor -- for  
6 us is highly radioactive material in the form of scrap or  
7 bound or in a container to us is what we go by is the  
8 activity itself, the specific activity in the package,  
9 scrap or not.

10 I mean, is your question, "Is it going to  
11 be scrap?" The answer is, "It's a radioactive waste,  
12 post-melting." If we're going to use the general term  
13 being "scrap", I have no problem calling it scrap, but the  
14 packaging and the safety requirements are based on the  
15 activity that is being put in that package.

16 **MEMBER HARVEY:** But it wasn't scrap, but it  
17 was mostly highly radioactive.

18 **MS. GLENN:** From our transport  
19 perspective, where or what the material is used for or  
20 where it came from -- from a transport perspective, it's  
21 nuclear substances. If it's waste or if it's medical  
22 isotopes, the level of safety that is required for  
23 transport is the same no matter what.

24 So in this case, based on the activity and  
25 the isotopes being transported, the packaging will be

1 selected accordingly and the shipment will be made in full  
2 compliance with the regulations.

3 **MR. HAWTHORNE:** Mr. Harvey, if I can just  
4 get to the question. The statement here is "high-level  
5 scrap", that's what you asked. This is low-level waste  
6 when it left and it's low-level waste when it comes back.  
7 It's not concentrated. It doesn't become high-level waste  
8 on the way back ---

9 **MEMBER HARVEY:** That was the ---

10 **MR. HAWTHORNE:** --- which is the point ---

11 **MEMBER HARVEY:** --- intent of the question.

12 **MR. HAWTHORNE:** --- you're asking.

13 **MEMBER HARVEY:** Yeah, I'm sorry. Maybe my  
14 question was not clear enough.

15 Is there any maximum in volume for such  
16 transportation?

17 **MS. GLENN:** Volume is not a defining factor  
18 when it comes to transportation.

19 **MEMBER HARVEY:** As long as it can be  
20 transported by truck?

21 **MS. GLENN:** That's correct.

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

23 **THE CHAIRMAN:** Mr. Kleinau, if you want to  
24 say something on this?

25 **MR. KLEINAU:** Yes, Siegfried Kleinau, for

1 the record.

2 I mean, it's 400 tonnes, as was stated, and  
3 this is concentrated radioactive waste, and I can't really  
4 see for the world of it, you know, that this can't be --  
5 can be classified as low-level radioactive waste. It's  
6 concentrated because it's rejected by the firm that is  
7 doing the recycling so it definitely -- there's a lot of  
8 doubt in our minds that this is a safe way of shipping  
9 back.

10 And also -- I mean, the licence is -- like  
11 the whole process takes three years. The licence is -- if  
12 it's being given to the proponent, it would be only for  
13 one year. So when would the shipment actually come back?

14 **THE CHAIRMAN:** Bruce Power?

15 **MR. HAWTHORNE:** All this is a bit of  
16 confusion about what we're asking for. We're asking for a  
17 licence to ship. That is, indeed, valid for one year.

18 On the way back, I think staff explained it  
19 well. We're bringing back low-level waste to  
20 internationally accepted standards. We will have to get  
21 permission for the transfer, but there is no limit to that  
22 piece; that will be a separate activity. The one-year  
23 activity in the licence, we're granted this for a shipment  
24 from Canada to Sweden.

25 **THE CHAIRMAN:** Thank you.

1 Any other -- Dr. McDill?

2 **MEMBER McDILL:** Thank you.

3 To address another of the intervenors'  
4 questions, who owns the steam generators?

5 **MR. HAWTHORNE:** The reality is we are the  
6 licensee. We have licensee responsibility; there's no  
7 doubt about that. We have an obligation.

8 Whether or not we lease this facility from  
9 Ontario Power Generation or the Ontario Government is  
10 irrelevant. We are the licensee. We are the people that  
11 you look to to meet licence conditions. We have an  
12 obligation and a responsibility to you, to the Canadian  
13 public, to manage this facility appropriately. The  
14 responsibility rests with us. The ownership of the  
15 material is not the issue.

16 **MEMBER McDILL:** Staff, would you like to  
17 comment?

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

19 Before us is one applicant and one licensee  
20 and Bruce Power will be held responsible for all its  
21 obligations under the Act; regulations, licence  
22 conditions.

23 From our perspective, regardless who owned  
24 the generators, there is an applicant and a licensee that  
25 will be responsible for the safety and proper transport.

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

2                   **MR. KLEINAU:** Siegfried Kleinau, for the  
3 record.

4                   Now, OPG has the sole jurisdiction over  
5 their Western Waste Management Facility, so I can't see  
6 this argument that it's Bruce Power's waste. It's been  
7 shipped there. It's been stored there. There's lots of  
8 room for even more steam generators, and as we heard from  
9 WMG, I mean, in the States they're just burying the steam  
10 generators.

11                   So I mean, I can't see why they can't stay  
12 right where they are and why they would have to be removed  
13 from the OPG's jurisdiction?

14                   **THE CHAIRMAN:** Bruce Power, you want to  
15 comment?

16                   **MR. HAWTHORNE:** Well, the first thing to  
17 say is this is not the United States. It's Canada.

18                   We're a licensee in Canada. We're looking  
19 to develop and implement best practice. In my view, I  
20 don't consider it best practice to bury steam generators  
21 underground. That's my view.

22                   I think it's supported by our obligations  
23 in the policy documents approved by this Commission, and  
24 that licensees are asked to adhere to it. I am asked to  
25 take every measure to reduce the radioactive footprint

1 that we have from our operation.

2 This proposal does that. Burying them or  
3 storing them is not the optimal solution in that regard,  
4 which is why we brought forward this proposal.

5 **THE CHAIRMAN:** But just to clarify though,  
6 even though your steam generators now are in the waste  
7 facility that is owned by OPG, you do -- it's like a  
8 rental. If I understood correctly, you pay them a rental  
9 fee for this privilege of storing your stuff at their  
10 facility. Is that correct?

11 **MR. HAWTHORNE:** Yeah, (inaudible) another  
12 licensee, but let me explain.

13 Of course, this Commission grants a licence  
14 to OPG to operate their Western Waste Facility. Within  
15 that, they have their own licensee obligation to accept  
16 packages and to store in accordance with licence  
17 requirements. We have to meet that requirement.

18 The way in which we place those steam  
19 generators intact had to meet that requirement, and the  
20 way we return them to OPG, to that waste facility, will  
21 also have to meet their own regulatory requirement.

22 OPG have made it very clear their  
23 expectations for storage of these components which is very  
24 consistent with the regulations, as you might expect. But  
25 you're right, as a service provider. It's a contractual

1 relationship. We pay them a fee for taking this material  
2 and storing it on our behalf, but they have their own  
3 licensee requirements and we have to meet those.

4 **THE CHAIRMAN:** Last comment, Mr. Kleinau?

5 **MR. KLEINAU:** Yes, Siegfried Kleinau, for  
6 the record.

7 OPG is just taking responsibility for their  
8 own waste. These reactors have never been run by Bruce  
9 Power, so it's still their own waste, the same as the  
10 radioactive waste that was removed from those reactors.  
11 That is something that Bruce Power has no responsibility  
12 for, so these steam generators should be classified in the  
13 same way. It's historic waste.

14 **MR. HAWTHORNE:** Again, Mr. Chairman, let me  
15 clarify.

16 We have an operational licence for the  
17 Bruce A nuclear facility. We, Bruce Power, are the -- we  
18 obtained that licence in 2001 with all of those units in a  
19 shutdown state. We assumed licence responsibility for  
20 those plants and a de-fuelled, guaranteed safe shutdown  
21 state. At that point, the licence responsibility  
22 transferred to us.

23 Since that time, we've returned two units  
24 to service. We've come before this Commission making  
25 representations to allow us to refurbish units. We've

1           been through screening panel reviews, et cetera.

2                           We have the obligation as the licensee.  
3           There is no abdication of that responsibility in any shape  
4           or form. The ownership of the assets is a commercial  
5           transaction. It doesn't excuse me as the licensee, nor  
6           would I ever expect it to excuse me; nor does it allow OPG  
7           to assume licensee's responsibility in my stead. That's  
8           not the arrangement. We are the sole responsible  
9           licensee. That's how we've always been as we've appeared  
10          before this Commission.

11                           **THE CHAIRMAN:** I'm informed that OPG is  
12          anxious to actually add to this clarification. Go ahead,  
13          please.

14                           **MS. SWAMI:** Lori Swami, for the record.  
15          I'm the Vice-President of nuclear regulatory programs for  
16          Ontario Power Generation. I may say a few words here but  
17          I'm not anxious to enter into the conversation. What I  
18          would like to say is that we have a relationship as Mr.  
19          Hawthorne has described. He has described correctly that  
20          as the licensee he is responsible for those wastes. OPG,  
21          in that business relationship, will obviously accommodate  
22          the business decisions that Bruce Power makes and will  
23          ensure that all of the legal requirements are met through  
24          that business relationship.

25                           As evidenced today they are appropriately

1 applying for the licences and other legal processes to  
2 allow that to take place.

3 **THE CHAIRMAN:** Thank you very much. I  
4 think we've beaten that particular item to death.

5 Anybody else want to ask any other  
6 question?

7 Okay, thank you very much, Mr. Kleinau.

8 We'll move to the next submission, which is  
9 an oral presentation by John Miller as outlined in H-  
10 19.11.

11 Mr. Miller, the floor is yours.

12

13 **10-H19.11**

14 **Oral presentation by**

15 **Mr. John Miller**

16

17 **MR. MILLER:** Thank you, Mr. Chairman and  
18 Commissioners. It's getting late and I'm a morning  
19 person. I got up very early this morning to travel up  
20 here for these hearings so I have a suggestion.

21 Since your staff has ruled against my  
22 motion that this is really a two-day hearing and declared  
23 it a one-day hearing in disguise, I suggest we all try to  
24 pretend it's 11 a.m. and proceed from there since you have  
25 yet to hear a lot of interventions.

1           I'm from Port Hope which is a community on  
2           Lake Ontario that this Commission and its predecessor have  
3           helped make into the poster child of how not to manage  
4           low-level radioactive waste.

5           Two years ago when Cameco Corporation  
6           discovered its uranium hexafluoride plant was leaking  
7           uranium and arsenic into Lake Ontario, they figure for at  
8           least 10 years, you allowed them to argue it's too  
9           expensive to clean up and made them remediate only a small  
10          fraction of it.

11          They're still leaking, by their own  
12          admission, 23 kilograms of uranium into the lake each  
13          year.

14          For 30 years you and AEBC licensed the  
15          pipeline that dumps groundwater runoff from a temporary  
16          low-level radiation dump into Lake Ontario. When the  
17          pipeline ruptured and citizens tested the effluent, it  
18          showed higher than recommended levels of uranium.

19          Then we found out the astounding truth that  
20          your licences set no levels for uranium being dumped into  
21          the lake. And soon you will oversee the cleanup of  
22          historic radiation from hundreds of parks and gardens and  
23          schools in Port Hope. Never in the history of nuclear  
24          waste has so much had to be cleaned up from an urban area  
25          -- 1.5 million cubic metres worth.

1           You're not only going to let our community  
2 keep it, you're going to let children play soccer on it.

3           My point is you have allowed Lake Ontario  
4 to be used as a cesspool for radioactive contamination.  
5 You have allowed it to be used as a drainage ditch for  
6 radioactive contamination. You must not now make it a  
7 highway for radioactive contamination.

8           I wasn't going to come here. The cards  
9 seemed stacked against any meaningful public consultation.

10          As evidence for that statement, which you  
11 will quarrel with, look at the national and international  
12 regulations your staff is willing to cut corners on;  
13 overloading a ship with radioactive material and letting  
14 it go through shallower-than-usual channels when the risk  
15 of stormy weather is greatest, without even any accurate  
16 measure of what's inside the cylinders.

17          It appears that the MV "Panthera" will sail  
18 this fall, at least according to the company's website.  
19 It's docked in the Great Lakes now. At least they plot it  
20 at Port Arthur, which is the old name of Thunder Bay. And  
21 if that's true, it's another sign that the Proponents  
22 think this licensing is a foregone conclusion.

23          Look at the sloppy documentation by both  
24 Bruce Power and CNSC staff. Two more documents yesterday  
25 -- hardly enough time to read -- showing that your staff

1 got its maximum contact dose rates wrong and oh yes,  
2 forgot to mention an isotope of plutonium.

3 Look at all the very obvious yet unanswered  
4 questions including 11 of mine in my written presentation  
5 that arise from these documents that you should have  
6 answers to before you make a decision.

7 I'm not an engineer. I'm not a scientist,  
8 but as a retired university professor I know sloppy work  
9 when I see it. I also know what should be done with it.  
10 You toss it back until they get it right. You don't give  
11 them a licence.

12 We are here what seems to be an  
13 unprecedented gathering of First Nations groups, municipal  
14 governments, environmental organizations, not only in  
15 Canada but the United States and abroad, and private  
16 citizens, almost all of us opposed to this unnecessary and  
17 poorly prepared proposal.

18 If this hearing is not prepared to be  
19 convinced that public concern alone should scuttle this  
20 shipment, then I'm sorry, this hearing should be seen as a  
21 sham. It obviously -- if the CNSC staff is erring on the  
22 side of caution in its designation of this cargo, why then  
23 does it not err on the side of caution and demand an EA?

24 Secondly, this is only a licence to ship it  
25 there inside supposedly secure containers. Does it

1       require a CNSC licence to return? I hope I'm wrong in  
2       what I heard earlier that it does not. It strains  
3       credulity if this is true, that the public of Canada  
4       should see a shipment of concentrated low level  
5       radioactive waste transported back into Canada without the  
6       CNSC having any control over it or ruling on it, granting  
7       it a licence. I hope I'm wrong in what I heard. I would  
8       like that clarified.

9               Am I also correct in understanding that  
10       Bruce Power sealed shut the generators years ago without  
11       taking an accurate measurement of the radiation within.  
12       I'm not a gambler, and throughout the documentation  
13       they're asking you to be gamblers and I don't think that's  
14       wise.

15               The point was made by the pervious  
16       intervenor, Mr. Kleinau, about a fire and the answer was  
17       something mentioned 1,500 degrees Centigrade which is a  
18       very hot fire. In fact, my reading of the Atomic Energy  
19       Agency's Regulations for the Safe Transport of Radioactive  
20       Material, TSR-1 which is cited in the documentations,  
21       requires that the design of the containers must  
22       demonstrate protection against radiological release to the  
23       environment under four hypothetical accident conditions  
24       designed to encompass 99 percent of all accidents. One of  
25       those is a 30-minute all-engulfing fire at 800 degrees

1 Celsius.

2 I see no evidence in the documentation that  
3 that was ever done. There were various other tests too  
4 which don't appear to be followed. The staff appears to  
5 have made assumptions about what the likely accidents  
6 would be. I don't think that passes muster with the  
7 Canadian people.

8 The holes in the documentation will come  
9 back to haunt this Commission if something happens. Let's  
10 hope it doesn't.

11 If this is the standard of detail you  
12 demand in order to issue a licence for the transport of  
13 radioactive waste, then God help us all -- those of us in  
14 Port Hope and others around the Great Lakes.

15 I decided to come here largely to support  
16 our First Nations brothers and sisters who claim almost  
17 universally that they were not consulted. And I would  
18 like to stand with them and I would like answers to my  
19 question, please.

20 Then I would like you to stop what I'm  
21 going to call the "Ship of Fools" from sailing.

22 Thank you. Megwetch.

23 **THE CHAIRMAN:** Thank you.

24 The floor is open. Who wants to go first?

25 Mr. Graham.

1                   **MEMBER GRAHAM:** I have I guess two  
2 questions I want to ask coming out of this and one is  
3 referred to as the bad timing of shipments regarding the  
4 seasonal water levels and so on.

5                   And in Bruce Power's document on page 9 or  
6 A-9 I guess it is, you give the following cargo dimensions  
7 and scantling draught of the ship. They show that it's  
8 7.25 metres. It was mentioned that -- the overloading of  
9 a ship.

10                  My understanding was, first of all, that  
11 the 1,600 tonnes that are going to be on the ship there is  
12 only about a quarter of what -- in the documents there it  
13 was only about a quarter of what the capacity of that ship  
14 is. Is that correct, first?

15                  **MR. HAWTHORNE:** Yes, that's correct.

16                  **MEMBER GRAHAM:** With 1,600 tonnes on that  
17 ship what is the draught going to be going through the  
18 various jurisdictions of the St. Lawrence Seaway and the  
19 Lakes?

20                  **MR. LAPIERRE:** John Lapierre for WMG.

21                  The expected draught of the ship is 7.25  
22 metres. Is that correct? And I believe by adjusting  
23 ballast it can float at 4.0 metres -- 5 metres.

24                  **MEMBER GRAHAM:** Well, yes, 4.25.

25                  **MR. LAPIERRE:** Yeah.

1                   **MEMBER GRAHAM:** But what I guess I'm saying  
2                   is the maximum draught is still 8.23 and then between  
3                   Montreal and Lake Ontario section on the Welland Canal,  
4                   it's 8.08 metres. That's quite close to 7.25 metres but  
5                   you say it can be adjusted upward?

6                   **MR. LAPIERRE:** The ballast can be adjusted,  
7                   yes.

8                   **MEMBER GRAHAM:** So what is that ship going  
9                   to sail at over the areas where it's 8.08 metres between  
10                  the Welland Canal and sections over Lake Ontario to  
11                  Montreal?

12                  **MR. LAPIERRE:** That is not an answer I'm  
13                  equipped to provide. That would be up to the master of  
14                  the ship.

15                  But we can certainly get that answer for  
16                  you.

17                  **MEMBER GRAHAM:** I guess because of water  
18                  levels and because of adjusting of water levels and so on,  
19                  if they are going to sail at 8.25 -- or 7.25 and the  
20                  draught is -- the maximum is 8.08, that's not acceptable.  
21                  And those are things that perhaps someone should clarify  
22                  before the ship sails and so on. But you say it can sail  
23                  at 4.25?

24                  **MR. LAPIERRE:** It can sail and I believe  
25                  that those figures you quoted were actually -- that was

1 it; the maximum draft at that point.

2 **MEMBER GRAHAM:** Okay. The other question I  
3 have --

4 **THE CHAIRMAN:** And again just to clarify,  
5 I'm trying to understand the authorities on these. When  
6 Transport Canada or the Maritime authorities grant the  
7 licence they actually take stock at the water level of  
8 that particular week, I assume?

9 **MR. LAPIERRE:** That's correct.

10 **THE CHAIRMAN:** And they decide whether it's  
11 a go/no go. Correct me if I'm wrong on this?

12 **MR. LAPIERRE:** St. Lawrence Seaway would  
13 control that, that's correct.

14 **THE CHAIRMAN:** So they can stop you cold if  
15 they feel it's unsafe?

16 **MR. LAPIERRE:** They could.

17 **THE CHAIRMAN:** Thank you.

18 **MEMBER GRAHAM:** Literally, then, you could  
19 have a ship loaded, ready to sail, getting near the  
20 shutdown season of the Seaway and I'm not sure whether  
21 that's around the end of November, first week of December,  
22 to my knowledge -- and I could be wrong. And that ship  
23 could be stopped because of water levels and have to sit  
24 somewhere all winter; is that correct?

25 **MR. LAPIERRE:** Those are factors we don't

1 consider -- we would consider before we loaded the ship.

2 **MEMBER GRAHAM:** So you would work back from  
3 the time you would -- and I just was looking at -- you  
4 need -- there is a decision of the Commission if it is  
5 positive then you have to get all your permits in place?

6 **MR. LAPIERRE:** That's correct.

7 **MEMBER GRAHAM:** And that takes -- that'll  
8 take -- what's your estimated time on that?

9 **MR. LAPIERRE:** We would -- over-the-road  
10 transport permits we would apply for within 30 days of  
11 when we expected to ship so we could conceivably begin  
12 loading the ship -- once you have made a decision, if the  
13 decision is affirmative we could begin loading as soon as  
14 30 days after that fact. We have a 30-day notification to  
15 get the ship into port.

16 **MEMBER GRAHAM:** But we're at the end of  
17 September now, first of October.

18 **MR. LAPIERRE:** That's correct.

19 **MEMBER GRAHAM:** Thirty (30) days takes you  
20 to the end of -- first of November.

21 **MR. LAPIERRE:** That's correct.

22 **MEMBER GRAHAM:** You're taking 20 days  
23 minimum to load the ship.

24 **MR. LAPIERRE:** That is correct.

25 **MEMBER GRAHAM:** So that's November 20th.



1 Captain Burgess from the Seaway Authority. The last day  
2 for sailing on the Seaway is December 21<sup>st</sup> and, as Captain  
3 Burgess mentioned, that if the ship enters -- let's say  
4 it's going through past December 21st, it will be allowed  
5 to continue its journey towards Sweden.

6 And as our President mentioned, the Seaway  
7 Authority is in charge and the captain of the ship is in  
8 communication with the Seaway with respect to  
9 authorization to go.

10 **MEMBER GRAHAM:** And that is if all water  
11 levels are correct and everything else is permitted and  
12 all the things fall in place?

13 **MR. JAMMAL:** Correct.

14 **MEMBER GRAHAM:** Okay, but the timeframe is  
15 getting narrow?

16 **MR. JAMMAL:** Correct.

17 **THE CHAIRMAN:** In fact, if you factor in  
18 the Americans in there I'm not sure -- it doesn't sound  
19 like it's going to be this season.

20 Mr. Miller, you wanted to say something  
21 about that?

22 **MR. MILLER:** Sorry, I just wanted to  
23 clarify because Commissioner Graham picked up my  
24 overloaded thing. I wasn't referring to the weight of the  
25 cargo. I was referring to the fact that it's a special

1 arrangement because it exceeds the amount of radioactivity  
2 that should go on one shipment. How much it exceeds it is  
3 not clarified in the documentation but I see another  
4 intervenor has done the math and it's claimed 50 times,  
5 which seems like a lot to me.

6 I think there is too many shortcuts for my  
7 liking in this.

8 **THE CHAIRMAN:** Staff?

9 **MS. GLENN:** One of the reasons that Bruce  
10 Power requires a special arrangement for the shipment is  
11 that the limit for surface-contaminated objects on a  
12 single ship has been exceeded. The statement that it is  
13 50 times over the limit is wrong. It is based on the  
14 wrong limit; the wrong regulatory limit was being used.  
15 The shipment is actually approximately six times over the  
16 limit.

17 The 50 times value was based on large  
18 shipments on inland waterways and so we are basing -- CNSC  
19 staff has concluded that the limit that applies is the 100  
20 A2 limit which is for larger vessels. This has been  
21 confirmed in consultation with the International Atomic  
22 Energy Agency as well.

23 Furthermore, this limit is based on  
24 surface-contaminated objects. As we described earlier,  
25 surface-contaminated objects allow for contamination on

1 the external surfaces of the surface of the material being  
2 transported. In the case of the steam generator there is  
3 no contamination on the external surfaces. All the  
4 contamination is sealed within the steam generators.

5 So if I can compare this limit, I'm going  
6 to compare it in a bit like an elevator limit where it  
7 says "Maximum 10 people," right? So if you have 20  
8 children on that elevator it's still safe to use the  
9 elevator? The answer is yes, but have you exceeded the 10  
10 people limit? Yes, you have.

11 So what we're looking for, again, when it  
12 comes to special arrangement is an equivalent level of  
13 safety. So in this case CNSC staff based on their  
14 analysis has concluded that the shipment, even though it  
15 exceeds the limit for a single ship, has met an equivalent  
16 level of safety.

17 **THE CHAIRMAN:** We're digesting that.

18 Okay. One last crack at this. Where I  
19 lost you is -- I understand the equivalency. I still am  
20 stuck a little bit about -- so it's not 50 over, it's six  
21 over, six over what? So what are we comparing the six  
22 over exceedence here.

23 Six times what, are we talking about? It's  
24 not -- it stopped the steam generator.

25 **MS. GLENN:** It's six times the activity

1 based -- but that activity limit was based on surface  
2 contaminated objects with external surface contamination  
3 once again. In this case, there was no external surface  
4 contamination.

5 **THE CHAIRMAN:** So what is the limit then,  
6 allowed limit for non-surface, according to the maritime  
7 rules?

8 **MS. GLENN:** There is none for this type.  
9 So the SCO-1 limits -- so surface contaminated object has  
10 been sort of arbitrarily set to a certain level, 100 A2.  
11 And if you go into the rationale of how that limit was  
12 set, they talk about the pieces of equipment rubbing  
13 against each other on the ship and, as such, as they would  
14 rub against each other they may release particles on the  
15 ship.

16 And in this case, the steam generators  
17 could rub together and no material would get released.

18 **THE CHAIRMAN:** So for low-level -- if I  
19 understand what you're saying -- for low-level there  
20 really -- there is no kind of regulated numbers that you  
21 are -- like a maximum for a ship load.

22 Is that correct for low-level material, for  
23 low-level nuclear material, there's no prescribed limit?

24 **MR. JAMMAL:** For the record, Ramzi Jammal.  
25 Yes, you're correct with respect to such

1 type of containment and containers, there is no limit.

2 We have to be very careful on what we've  
3 done as an assessment. We were looking for equivalency of  
4 the worst-case scenario. These generators are not surface  
5 contaminated objects on the outside.

6 In our assessment, we wanted to take the  
7 most conservative methodology in equivalency in safety  
8 with respect to the transport itself.

9 So there are apples and oranges and we  
10 should not mix them up in this case. Correct -- if, if, -  
11 - the generators were contaminated on the outside then  
12 those limits do apply. These generators are not  
13 contaminated on the outside, hence we used an equivalency  
14 factor for safety level on the most conservative  
15 methodology in accordance with international law.

16 And to confirm our assessment, we consulted  
17 with the IAEA as a reference to review what we've  
18 estimated and agreed what the factor is, that is the most  
19 conservative methodology to be applied.

20 **THE CHAIRMAN:** Thank you.

21 Mr. Miller?

22 **MR. MILLER:** I wonder if I could have an  
23 answer to my reference to the safe transport of  
24 radioactive waste tests that should have been performed?

25 My understanding that those tests, besides

1 showing the containers can survive a 30-minute fire at 800  
2 degrees Celsius, they also should be subjected to a 1-hour  
3 immersion under 200 metres of water.

4 It's not clear from the documentation that  
5 those tests had been done.

6 **THE CHAIRMAN:** Okay, who is going to try to  
7 deal with this?

8 Go ahead, sir.

9 **MR. LAPIERRE:** If I may. John Lapierre  
10 from WMG.

11 The tests that you're referring to were for  
12 Type B packages that are certified for much higher  
13 quantities of radioactive material. Those tests do not  
14 apply to industrial packages, which is what the standard  
15 would be for this level of radioactive material.

16 **MR. MILLER:** Thank you.

17 **THE CHAIRMAN:** Nevertheless, do we know  
18 what the engineering specs for the steam generator is a  
19 steel container. You should have some engineering data  
20 about what it can withstand and how strong it is, et  
21 cetera, et cetera.

22 Anybody want to try that?

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

24 Just we have to remember -- we're getting  
25 into technical -- Type B packaging and certification of

1 the Type B packaging, hence it must pass certain test  
2 requirements, correct, as mentioned by the gentleman, the  
3 intervenor.

4 In the case of low-risk, low-level  
5 radioactivity, and this is the case we are dealing with,  
6 the industrial packaging does not need to go through a  
7 certification. The intent of the package here is to  
8 maintain the integrity of the substance inside it.

9 And this classification of industrial  
10 package is not unique to the CNSC. That's international  
11 recognized requirements under the safe transport, under  
12 TSR-1 in accordance with the IAEA regulation.

13 So, yes, there will be engineering designs  
14 to ensure containment of such packaging in several  
15 scenarios, whether it be from fire to friction and so on  
16 and so forth, but the intent of the industrial package is  
17 as such to meet industrial requirements.

18 There are different type of packaging,  
19 whether it be fissile material packaging, you've got Type  
20 B packaging, those require a special blueprint design and  
21 undergo a specific testing.

22 **THE CHAIRMAN:** But that's not the question.  
23 The question -- on the steam generator itself, the steam  
24 generator, what's it's -- can it withstand 800 degrees?  
25 Can it -- what's its strength about immersion in water for

1 -- I'm just talking about that particular steam generator.

2 **MR. JAMMAL:** That particular -- for the  
3 record Ramzi Jammal.

4 As mentioned by CNSC staff and my  
5 colleagues that the steam generators were designed as a  
6 pressure vessel under the ASME code, the steam generators  
7 withstand up to 800 feet of pressure. It's 5 centimetres  
8 of steel and we were -- mentioned that the melting point  
9 is roughly 1,500 degrees Celsius.

10 Are these generators -- What is the shield  
11 or the external shell of the generators. Would they  
12 qualify as industrial packaging? The answer is yes.

13 **THE CHAIRMAN:** Okay, Mr. Miller?

14 **MR. MILLER:** Sorry, one last question  
15 because I think it's important.

16 Could you confirm for me whether the CNSC  
17 will be licensing the return journey of this material?

18 **THE CHAIRMAN:** Staff?

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

20 With respect to transport as the nuclear  
21 material and low-level radioactive material being returned  
22 to Canada, as long as they are packaged in accordance with  
23 international requirements then there is no licence  
24 required, as we stated before.

25 As the substance is being melted and if

1       there is a need -- potential need -- for an import licence  
2       for controlled material returning to Canada, the CNSC will  
3       be licensing on that import.

4                       There'll be no licence for transportation  
5       as long as the requirements are being met in accordance  
6       with the international regulations, and the Swedish  
7       authority will ensure that is the case because if there is  
8       a licensing requirement, that will be done under the  
9       Swedish authority as we're currently doing.

10                      And then if there is a need -- I mean, I'm  
11       going now hypothetical, completely hypothetical -- then  
12       the CNSC will take into consideration the certification  
13       requirements from Swedish authority. But that's way too  
14       far, and I went too far.

15                      **THE CHAIRMAN:** But let me understand -- let  
16       me repeat so I can understand in my own mind.

17                      If the return waste is such that it is low-  
18       level enough and it is in the approved -- internationally  
19       approved container, you know, then there's no licensing  
20       requirement, if I understand correctly?

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

22                      That's correct. And there is currently  
23       millions of shipments are taking place around the world in  
24       such type packaging. That's not unique, again, for that  
25       low-level radioactive material coming back.

1                   **THE CHAIRMAN:** Monsieur Harvey?

2                   **MEMBER HARVEY:** Is this to say that the  
3                   CNSC wouldn't be advised of the coming packages?

4                   **MR. JAMMAL:** For the record, Ramzi Jammal.  
5                   No, the CNSC will be informed of the  
6                   transfer and the movement of such shipment; we will be  
7                   made aware of it.

8                   **MEMBER HARVEY:** So you're aware of all the  
9                   millions of packages entering or going out of the -- of  
10                  Canada?

11                  **MS. GLENN:** Karine Glenn.

12                  We would be advised from an import/export  
13                  perspective for the control of -- for non-proliferation  
14                  purposes.

15                  However, from a transport perspective,  
16                  safety is based on the packaging, and the individual  
17                  shipments, if they made in accordance with the  
18                  regulations, do not require individual licensing or  
19                  notification of the authorities and that's how the  
20                  millions of shipments that take place every year all over  
21                  the world are conducted.

22                  **MEMBER HARVEY:** And at the moment they meet  
23                  the international regulation. You don't have to check  
24                  that it meets the Canadian ones?

25                  **MS. GLENN:** That's correct.

1                   **MR. JAMMAL:** For the record, my name is  
2 Jammal.

3                   Mr. Harvey, I'd just like to add more  
4 thing. I do not want to leave the impression that this  
5 transport or transfer of nuclear material is not  
6 controlled even though the transport component does not  
7 require the CNSC licensing as such; however, the entity  
8 receiving that substance must be licensed by the CNSC.

9                   My point here, there is no controlled  
10 regulated it substance that will end up in non-licensee's  
11 hand.

12                   **MEMBER HARVEY:** Okay. Merci.

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

14                   **MEMBER BARRIAULT:** Thank you, Mr. Chairman.  
15 I don't want to belabour the point. I'm just trying to  
16 understand this SCO-1 regulations with surface  
17 contamination. What I'm hearing is that there is no  
18 surface contamination of the steam generator but yet in  
19 your slide you say, like, we're at 36 percent of the limit  
20 for the beta, gamma and low-toxicity alpha so if there is  
21 no surface contamination then how can you have 36 percent  
22 contamination? I'm confused.

23                   **MR. JAMMAL:** For the record my name is  
24 Ramzi Jammal.

25                   I will start and I will ask the specialist.

1 The surface contamination applies under the definition  
2 with respect to externally contaminated object. If you  
3 take a piece of steel, okay, let's consider ---

4 **MEMBER BARRIAULT:** But that's -- I'm okay  
5 with that.

6 **MR. JAMMAL:** So the surface contamination  
7 has multiple classes; Class 1, 2, and 3 and based on the  
8 surface contamination activity then it fits under SCO-1,  
9 SCO-2, SCO3. And our evaluation, the contamination of the  
10 inside of the generator falls under SCO-1 which is the  
11 lowest category. And for us to take the conservative  
12 methodology, we applied this same safety requirements on  
13 internally contaminated generator, the same safety  
14 requirements if it was externally contaminated and that's  
15 the SCO-1 comes from. There are three levels.

16 **MEMBER BARRIAULT:** Okay. So even though  
17 there's no surface contamination, it's still considered a  
18 SCO-1 category?

19 **MR. JAMMAL:** We're applying the  
20 requirements of the SCO-1; yes, correct.

21 **MEMBER BARRIAULT:** The issue of exceeding  
22 the total limit for one shipment?

23 **MR. JAMMAL:** Is not relevant.

24 **MEMBER BARRIAULT:** Thank you.

25 **THE CHAIRMAN:** Anything else?

1 Thank you very much.

2 We move now to the next submission which is  
3 an oral presentation from the Great Lake and St. Lawrence  
4 Cities Initiatives as outlined CMD 19.19 and 19A and we  
5 have Mr. David Ullrich and Miss Sarah Rang here to make  
6 the presentation. Please proceed.

7

8 **10-H19.19 / 10.H19.19A**

9 **Oral Presentation by**

10 **Great Lakes and St. Lawrence**

11 **Cities Initiative**

12

13 **MR. ULLRICH:** Thank you very much, Mr.  
14 President and Commissioners. I greatly appreciate the  
15 opportunity to present the views of the Great Lakes and  
16 St. Lawrence Cities Initiative. With me is Sarah Rang,  
17 our Program Manager, who operates out of Toronto. We have  
18 a three-person staff in Chicago and we have people working  
19 with us in Toronto, Ottawa, Montreal and Quebec City. We  
20 are an organization of over 70 units of local government,  
21 mostly cities, towns, regions, counties are members as  
22 well. Roughly 13 million people are represented in this  
23 organization.

24

25 I am the Executive Director of the Great  
Lakes and St. Lawrence Cities Initiative. I serve in some

1 other capacities as well including Commissioner on the  
2 Great Lakes Fishery Commission. I also serve as a member  
3 of the Water Quality Board of the International Joint  
4 Commission; I was a past co-chair of the Water Quality  
5 Board, and before retirement I spent 30 years with the  
6 U.S. Environmental Protection Agency and included Director  
7 and head of the Great Lakes Regional Office for USEPA in  
8 Chicago. But tonight I am only appearing on behalf of the  
9 Great Lakes and St. Lawrence Cities Initiative.

10 The primary purpose of our organization is  
11 to work to protect and restore the Great Lakes and St.  
12 Lawrence. Through all of the presentations and  
13 discussions today, I've been a little surprised that we  
14 haven't recognized that we jointly share stewardship for  
15 the largest body of surface fresh water in the world. We  
16 have an incredible responsibility having 20 percent of  
17 that surface fresh water at our doorsteps here in the  
18 United States and Canada and although all of the technical  
19 analysis is impressive and incredibly important, I don't  
20 think we can ever lost sight of that fact. It provides  
21 drinking water for approximately 40 million people and  
22 also contributes to making Ontario, Quebec and the eight  
23 Great Lake states the second-largest economy in the world  
24 as a region, second only to the United States' economy.

25 We have three primary concerns that are at

1 the heart of our presentation tonight.

2 Number one, we do feel that the shipment  
3 presents significant risks that have not been adequately  
4 assessed. Secondly, we believe that the process that has  
5 been followed and considering the application has lacked  
6 openness, transparency, and adequate information to make  
7 decisions about the shipment. Finally, we think that the  
8 shipment would set a very bad precedent for the future.

9 Let me go right to the heart of our  
10 concerns about the risk of the release of radioactive  
11 material and the implications for public health and the  
12 environment.

13 First of all, the amount of radioactive  
14 material and radioactivity on one ship that would be  
15 sailed through the Great Lakes and St. Lawrence does  
16 indeed exceed the standards by 50 times. I've listened to  
17 the exchange recently, I would point people's attention to  
18 the International Atomic Energy Regulations, Table 5  
19 "Conveyance Activity Limits for LSA Material and SCO in  
20 Industrial Packages or Unpackaged." SCO; the activity  
21 limit for a hold or compartment of an inland watercraft --  
22 it doesn't say a barge or anything else, it says an inland  
23 watercraft. It is the -- the limit is 10A2.

24 My understanding from the document  
25 submitted is that the amount of radioactive material would

1       be 545A2. I am not a nuclear physicist but I think that  
2       that is more than 50 times the limit. I heard comments  
3       that it wasn't intended to apply to this situation because  
4       somehow or another it deals with containers rubbing  
5       against one another. I spent 30 years in the regulatory  
6       business and the intent of the regulators as how a  
7       violation might occur really is not relevant, whether it  
8       occurs by rubbing one against or another or breaking apart  
9       or whatever it might be -- and we realize these are thick  
10      steel containers -- that really is not what is relevant  
11      here.

12                    So we do firmly believe that these numbers  
13      are exceeded by 50 times; frankly, I don't feel a whole  
14      lot more comfortable if it's only six times. And let me  
15      read from the materials in the draft licence and the  
16      Certificate for Special Arrangement.

17                    "Compensatory measures had been put in  
18                    place to compensate for the regulatory  
19                    requirements that could not be met."

20                    It does appear to me that the regulations  
21      have not been met and I understand through special  
22      arrangement, a variance process or whatever, that somehow  
23      or another, this is made allowable, but the document  
24      itself does say that the regulatory requirements cannot be  
25      met.

1                   Secondly, we learned just yesterday  
2                   afternoon that the calculations as to the amount of  
3                   radioactivity were wrong in the materials that had been  
4                   provided to date and that, in fact, they're actually 50  
5                   percent greater than had been portrayed before. Now, I  
6                   understand that the analysis was, well, it still doesn't  
7                   present a problem. I find that difficult to accept and  
8                   getting this information late, we're a very small  
9                   organization. It's very difficult for us, and I do have  
10                  to give my compliments to Ms. Rang who's done an excellent  
11                  job of assessing this material, but it's very, very  
12                  difficult to do this and much of the information has come  
13                  very late in the process and it does call into question  
14                  much of the other analysis that has been done.

15                  Thirdly, we think that there are  
16                  significant information gaps in the environmental review.  
17                  In the CNCS's submission, there is less than one page  
18                  available. We have requested a copy of the environmental  
19                  impact analysis. We don't have a copy of it. It makes it  
20                  very, very difficult.

21                  The next thing in terms of the risk  
22                  assessment itself -- based on what we have been able to  
23                  determine from the materials available, the "worst-case  
24                  scenario" appears to be a situation where one of the 16  
25                  generators is breached and 1 percent of the material is

1 released. I understand how that was done. I frankly find  
2 it exceedingly difficult to understand how that is a  
3 worst-case scenario. Frankly, it does appear that there  
4 may well be other scenarios that could lead to greater  
5 releases.

6 The scope of the environmental -- the scope  
7 of the environmental review does seem to be limited. I  
8 understand that the drinking water standards were somewhat  
9 of a surrogate for the ecological risk assessment. Again,  
10 I am not a scientist or an engineer or a licensed risk  
11 assessor, but it does seem to me that there are certain  
12 ecological risks associated with exposures that, in fact,  
13 might not show up in the drinking water standards.

14 I -- one thing that comes to mind -- I  
15 don't know if this is a good example or not, but exposure  
16 to chlorine which is used to disinfect our drinking water,  
17 I know in terms of some aquatic biotic creatures is not a  
18 very good thing.

19 Next, it doesn't consider the potential of  
20 an accident on the St. Lawrence or the connecting  
21 channels. We have just heard discussions about not only  
22 the St. Lawrence and the depth concerns and my  
23 understanding is that projections are that those levels  
24 will go down in the balance of this fall and the other  
25 part of it is certainly the winter weather.

1                   We can't -- the fall and winter weather --  
2                   it is not clear again from the lack of information as to  
3                   really what kind of assumptions were made as to what time  
4                   of year this would occur. Having done a little sailing on  
5                   the Great Lakes myself and even in the summertime, there  
6                   can -- and I know it is in a lot smaller boat than this  
7                   ship would be, but there can be some very, very  
8                   treacherous weather. I guess the Edmund Fitzgerald is  
9                   perhaps one of the best examples of that.

10                   Finally, we are learning a little bit more  
11                   today about the return shipment. We had great difficulty  
12                   finding out anything about that before.

13                   Next, just from the documents themselves  
14                   that were provided -- and I do want to thank your staff  
15                   for being very helpful and cooperative in providing  
16                   information. It almost appears that the CNSC staff  
17                   assumed the burden of proving that this was safe rather  
18                   than Bruce Power. I think it puts the staff in a very  
19                   difficult position to have to do that and assess its own  
20                   work.

21                   The emergency response plans, again, appear  
22                   to be quite vague and generic, not designed for this  
23                   specific situation. As I understand it, this is kind of a  
24                   one-of-a-kind shipment in terms of this many generators  
25                   being put on one ship and it would seem that a tailor-made

1 specialized emergency plan would be necessary.

2 Although there's not a problem with this  
3 concept of exclusive use for the shipment, I guess we are  
4 still finding a little difficulty in understanding how  
5 that is part of the basis for allowing in exceedance (sic)  
6 of the regulatory standards that appears to be built into  
7 the rationale.

8 Finally ---

9 **THE CHAIRMAN:** Time is running out. Could  
10 you please ---

11 **MR. ULLRICH:** Okay.

12 **THE CHAIRMAN:** --- wind up, please?

13 **MR. ULLRICH:** Yeah, finally, I do want to  
14 point out that several had mentioned that there are many  
15 more dangerous goods shipped on the Great Lakes and St.  
16 Lawrence. Frankly, that doesn't give me a great deal of  
17 comfort. Maybe we need to provide better scrutiny for  
18 that.

19 In terms of the process involved, we simply  
20 do not think there was enough, early enough or enough  
21 quantity or got -- did get out to enough people far enough  
22 away from Bruce Power that potentially would be affected  
23 by this.

24 These generators have been sitting there  
25 for, I guess, close to 15 years and to rush this through

1 in a six-month period from application to final decision,  
2 I think, doesn't -- there doesn't appear to be a  
3 justification for that. Much of the analysis came late in  
4 the process. We submitted a list of 36 questions. We  
5 have not received answers as yet.

6 Finally, in terms of precedent, as best we  
7 can tell, this would be the first thing like this that  
8 would be a shipment from North America to Europe exceeding  
9 the standards without a good process. I understand that  
10 there are 16 more waiting to be shipped. We have a lot of  
11 nuclear power plants on the U.S. side ---

12 **THE CHAIRMAN:** Okay, please wind up,  
13 please.

14 **MR. ULLRICH:** Yeah.

15 **THE CHAIRMAN:** You don't want me to cut you  
16 off.

17 **MR. ULLRICH:** No, no, well, we are close to  
18 that, but thank you very much.

19 Finally, I would say I had the greatest  
20 difficulty in accepting the statement in the Bruce  
21 submission that there was no risk submitted -- presented  
22 by this situation. That simply is not the world that we  
23 live in and I do think that the Commission needs to take a  
24 very close look at this and frankly, I think it needs to  
25 not go ahead with approval and start from scratch.

1                   **THE CHAIRMAN:** Thank you.

2                   **MR. ULLRICH:** Thank you very much.

3                   **THE CHAIRMAN:** Thank you.

4                   The floor is open. Who wants to go first?  
5                   Mr. Graham? Dr. McDill?

6                   **DR. McDILL:** Thank you. Perhaps we could  
7                   have another go around with 50 times versus 6 times.

8                   **MS. GLENN:** The issue regarding the 50  
9                   times versus the 6 times is very difficult to explain  
10                  without getting into some very technical discussions. As  
11                  we mentioned, the limit that is cited as the 50 time  
12                  increase is based on a limit which is -- in table 5 of the  
13                  regulations, he's very correct in citing his reference,  
14                  but it is -- we have consulted with the transport unit at  
15                  the International Atomic Energy Agency and CNSC staff have  
16                  concluded based on the advice provided by the  
17                  International Atomic Energy Agency that this 10 A2 limit  
18                  applies for barge shipments; does not apply for sea-going  
19                  vessels.

20                  The limit that we have used is the 100 A2  
21                  and once again, this limit -- we have consulted with the  
22                  International Atomic Energy Agency so we -- CNSC staff  
23                  believe and have concluded that the limit is exceeded by 6  
24                  times, not 50 times.

25                  Once -- and the reason -- now, the reasons

1 for allowing this shipment -- one of the reasons which for  
2 which special arrangement is required. Now, if we go back  
3 to what a special arrangement means, it means that some of  
4 the provisions of the regulations could not be met, but  
5 that compensatory measures have been applied to ensure  
6 that the shipment has a safety level that is at least  
7 equivalent than if all the provisions of the regulations  
8 were met.

9 So Bruce Power has applied for a special  
10 arrangement. It is -- what has to be determined is -- is  
11 the level of safety of the shipment equivalent to if the  
12 provisions of table 5 of the regulations had been met.

13 Now, in order to assess that, CNSC staff  
14 has looked at a number of different factors. First of  
15 all, no surface contamination on the external surfaces of  
16 the steam generators and once again, the regulations for  
17 safety contaminated objects allow for surface  
18 contamination on the outside as well as on the inside  
19 based on the regulations.

20 Secondly, the steam generators are going to  
21 be placed in an enclosed cargo hold with -- on specially  
22 designed supports on a ship that is designed for the  
23 transport of irradiated nuclear fuel. The safety level  
24 afforded by a ship of this type is about 10 times greater  
25 than a regular vessel. So given all these facts in

1 addition -- you know, in addition to a number of other  
2 ones the staff have examined, we have concluded that even  
3 though the shipment exceeds by six times the overall  
4 limits allowed on a single ship, this shipment has  
5 demonstrated an adequate level of safety that is  
6 equivalent to what it would be if it had met all the  
7 provisions of the regulations.

8 **THE CHAIRMAN:** Just again, does Transport  
9 Canada or the maritime authorities have a view on that  
10 particular thing or is it strictly this Commission who has  
11 to decide?

12 You know, like let us assume 6 times 50,  
13 whatever the number is, is it up to us to say, yes, it's  
14 okay or is it Transport Canada and the maritime  
15 authorities that have to concur? How does it work? Is it  
16 a double approval process?

17 **MR. FAILLE:** Sylvain Faille from the  
18 Transport Division at CNSC.

19 For a special arrangement, the Canadian  
20 Nuclear Safety Commission is the competent authority to  
21 issue the certificate for those shipments. In the past,  
22 Transport Canada was part of the process but not anymore.  
23 That was a few years ago.

24 **THE CHAIRMAN:** So it's up to us -- so they  
25 -- so, for example, they will look to us to say that this

1 is according to the international regulation?

2 **MR. FAILLE:** That's correct.

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

4 Dr. McDill?

5 **MEMBER McDILL:** Thank you.

6 I appreciate the comment by staff that this  
7 is a very technical issue. The communities through whom  
8 or by whom these shipments would go are concerned. And I  
9 think it's incumbent upon us as a Commission to make sure  
10 that it's understood and that they are comfortable.

11 Are these letters -- are these  
12 communications with IAEA considering barge versus  
13 seagoing, are these available? Are these referenced or  
14 were they telephone conversations, for example?

15 Can the communities who are listening to  
16 this, can they have access to these documents so that they  
17 can be assured?

18 **MS. GLENN:** We can obtain this in writing  
19 if it would make the Commission satisfied.

20 **MEMBER McDILL:** I would suspect it would  
21 give the communities a lot of reassurance, but I can't  
22 speak for the communities.

23 Thank you, Mr. Chairman.

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

25 **MEMBER GRAHAM:** A couple of just quick

1 questions.

2 First of all, did Bruce look at any  
3 alternatives to this proposal going anywhere else,  
4 shipping anywhere else, shipping another means, other  
5 locations and so on, other than leaving it at Western  
6 Waste Management site or sending it to Sweden? Did you  
7 look at any other alternatives?

8 **MR. HAWTHORNE:** I think as we tried to say  
9 earlier, Commissioner, that we looked at any reasonable  
10 alternative as the Studsvik representative explained. You  
11 know, there is a facility capable of doing this. This is  
12 the one that offers the best option. It's a tried and  
13 tested facility. It clearly is geographically remote from  
14 us.

15 We have to consider how we get our material  
16 there, but as we looked at the capable places where it  
17 could go, this is the place. This is the best in class  
18 place for doing this and, you know, we've done our own due  
19 diligence. We've seen other utilities use it. We have  
20 visited the facility and we have reassured ourselves that  
21 this is the right place.

22 The next challenge for us, of course, is to  
23 assure ourselves that we can get there from A to B without  
24 creating undue risk or hazard. You know, I think we are  
25 being somewhat repetitive here in our commentary, but I

1 believe we have assessed all of the risk and the  
2 packaging, transport, monitoring across the entire route.  
3 We have used very reputable companies who have a lot of  
4 experience, like WMG and Studsvik, and we have prepared  
5 our emergency plan which is comprehensive.

6 Not all the intervenors have spoken yet.  
7 You know, before we're finished here we will hear from  
8 people who are involved in the process and will give a  
9 view of their role and, hopefully, by the time we're  
10 finished the Commission's questions will be answered by a  
11 number of people.

12 But, you know, for our part, the CNSC staff  
13 have said we are responsible. We have taken that  
14 responsibility seriously as we have sought to look at  
15 alternates.

16 This is the right environmental solution  
17 for us and we fully evaluated that before we brought it  
18 before the staff.

19 **MEMBER GRAHAM:** The other point is, will  
20 you be responding to the 36 questions that were outlined  
21 in this group's brief?

22 **MR. HAWTHORNE:** I don't think you're asking  
23 me that question, are you?

24 **MEMBER GRAHAM:** Well, I'm asking you. Are  
25 you going to assist or is --

1                   **MR. HAWTHORNE:** If requested by staff,  
2 well, we will obviously ---

3                   **MEMBER GRAHAM:** Okay.

4                   **MR. HAWTHORNE:** --- always respond to staff  
5 but the questions were to staff.

6                   **MEMBER GRAHAM:** So CNSC staff, will you be  
7 responding to the 36 questions?

8                   **MR. JAMMAL:** For the record, Ramzi Jammal.  
9                   Mr. Graham, that's a good question.  
10 However, I would like to provide the Commission with a  
11 comment.

12                   We were providing the answers to any  
13 requestor before this matter became the Commission -- or  
14 came before the Commission as such. And at that point,  
15 once the CMD was produced, then it became a matter before  
16 the Commission and that's why we are conducting the  
17 hearings.

18                   The end point is, yes, we will answer these  
19 questions. We have nothing to hide and we will be more  
20 than pleased to do so, but one -- the issue has been  
21 progressing. It came before you, the Commission.

22                   **MEMBER GRAHAM:** My other question to CNSC  
23 staff is, is there now because of this, because this is  
24 new, this process of moving large pieces of equipment that  
25 you can't put in a container and that -- will you be

1 developing some new policy and regulations to cover this  
2 type of movement on special cases? You know, I used it  
3 without packaging, excess weight, consultation with the  
4 public, emergency response plans and all those built into  
5 this type of case because this is something that -- the  
6 reason we have so many intervenors is that they don't know  
7 what the regulations are and so on.

8 So will you be developing new regulations  
9 for this type of movement of materials?

10 **MR. FAILLE:** Yes, Sylvain Faille.

11 There is some discussion at the  
12 International Atomic Energy Agency level when we were  
13 revising the IAEA transport regulation, T5-R-1. There is  
14 already some discussion including some guidance documents  
15 in the advisory material related to the regulation. As we  
16 move forward, we're basing this experience based on other  
17 countries that have shipped large components from steam  
18 generators to other components from reactor operations.

19 And as the other countries are moving  
20 towards moving those pieces of equipment, we're gathering  
21 more information and those are included in the -- right  
22 now the advisory material -- but in the process those are  
23 probably going to move forward to the IAEA regulations.  
24 They are going to be recognized internationally.

25 So, yes, it's starting. There has been --

1       there is going to be some additional information as a  
2       guidance in the next edition of the advisory material that  
3       is linked to the IAEA regulations. That's going to be  
4       about one to two years from where we are right now where  
5       that's going to be included as guidance.

6                   **THE CHAIRMAN:** I think I support this  
7       suggestion.

8                   The intervenor read a point which could be  
9       regulatory correct but nobody will understand it. As it  
10      is, the special arrangement is when you cannot meet a  
11      regulatory requirement -- sounds terrible, sounds  
12      absolutely terrible -- but if I understand what it means  
13      in this case, is that it's not a container to put the  
14      material in. That's my understanding.

15                  And if we have to explain this to the  
16      public, you need to have some guidance that actually deals  
17      with those special arrangements; what does it mean and  
18      under what circumstances we'll be approving?

19                  So we don't have to go through such  
20      arrangements just to explain what does it mean when you go  
21      through such a special, you know, large material and you  
22      want to move it around.

23                  So is that what you're going to plan, to  
24      put into sort of a new approach or a new -- at least a  
25      guidance or explanatory regulation?

1                   **MR. FAILLE:** At this point, it's to provide  
2 guidance to an applicant on what would be required for  
3 those kinds of shipments, and probably when it's going to  
4 be moved within the regulations it's going to be  
5 considered as any other type of package. Those are going  
6 to be the regulatory requirement that apply for those  
7 shipments.

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

9                   **MR. ULLRICH:** Mr. President, if I may, it's  
10 my understanding that the issue is not the type or size of  
11 the containers. The issue is the amount of radioactivity  
12 and whether it's 6 times or 50 times. The issue that  
13 still needs to be dealt with is that there is more  
14 radioactivity on one ship than the regulations allow, and  
15 whether it's a barge or inland or whatever, it is the  
16 amount of radioactivity.

17                   I guess that's where I always had a  
18 difficulty, people talking about 4 grams of radioactivity  
19 in 100 tonnes. It's not the weight of it. It's the  
20 radioactivity that counts.

21                   And, likewise, with the return shipment,  
22 there isn't any recycling of radioactivity. There is  
23 recycling of steel. What comes back is a more highly  
24 concentrated, as I understand it, container of radioactive  
25 material, which I assume means that more radioactivity can

1 be put in that storage facility, and I think that kind of  
2 risk assessment needs to be done as well.

3 **THE CHAIRMAN:** Yeah, but that's not my  
4 understanding at all, at all, at all, and maybe we should  
5 get clarification on it.

6 If there were a container -- if there was a  
7 container available similar to the things they move cobalt  
8 or any other -- more radioactive material, we wouldn't be  
9 here having this hearing. Because they were using a  
10 container that is internationally approved and therefore  
11 there is no debate about that. Somebody correct me if I  
12 am wrong.

13 Because it is a large kind of a thing that  
14 does not fit in a container that's why we're sitting in a  
15 special arrangement.

16 Staff, please correct me if I am  
17 misunderstanding this.

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

19 Mr. President, you are correct on this.

20 And as I stated previously in our  
21 presentation, if the -- if we had evidence that nuclear  
22 substance is uniformly distributed in these generators,  
23 the shell of these generators would have been considered  
24 to meet the international requirements under the IP or the  
25 Industrial Package. That's point one.

1                   Number two, there is a myth about special  
2 arrangements that, as I stated in the presentation, I  
3 clearly stated that the special arrangement does not mean  
4 that the transport will be done in a non-compliant manner.  
5 The special arrangement exist in Canada and in the rest of  
6 the world and there is an equivalency permit under  
7 Transport Canada for dangerous goods where when the  
8 material does not fit in an existing compliant package,  
9 special arrangement is taken in consideration again to  
10 provide an equivalent safety requirements under the  
11 regulations, IAEA and Canadian CNSC transportation.

12                   Again, we talk about surface contamination  
13 and everything else. The existence of the special  
14 arrangement is to have a level of equivalency, regardless  
15 if it's 6A1, 6A2, 50A1, 50A2. The special arrangement is  
16 addressing these issues with respect to equivalent level  
17 of safety.

18                   **THE CHAIRMAN:** Any further questions.

19                   Monsieur Harvey?

20                   **MEMBER HARVEY:** Yes, I would like to have a  
21 comment from the staff on two points. It's in the written  
22 document submitted by Mr. Ullrich. One is the burden of  
23 the proof for environmental safety appears to be reversed,  
24 and -- well, in fact, we see a number of questions  
25 addressed to staff compared to the number of questions

1 addressed to -- one could think that it's true -- and the  
2 number 7, which is the shipment under exclusive use -- use  
3 and obligations. That's 19.19, points 6 and 7. That  
4 point has been mentioned by Mr. Ullrich in his  
5 presentation.

6 **MS. GLENN:** Si j'ai bien compris, la  
7 deuxième partie de votre question fait référence à l'usage  
8 exclusif.

9 **MEMBER HARVEY :** Oui.

10 **MS. GLENN:** La première partie, est-ce  
11 que vous pourriez la répéter s'il-vous-plaît?

12 **MEMBER HARVEY :** Le fardeau de la preuve.

13 **MS. GLENN:** Le fardeau de la preuve,  
14 okay merci.

15 **MEMBER HARVEY:** For environmental safety.

16 **MR. FAILLE:** I'll explain the second part  
17 regarding the exclusive use and how it's used in the  
18 regulations. What is meant under exclusive use is that  
19 the entire shipment is under the control or under the --  
20 like there's an agreement between the person who is  
21 shipping -- in this case Bruce Power -- and the transport  
22 company who's taking care of the shipment. In this case  
23 it will be WMG. So that Bruce Power is directing the  
24 carrier or the shipper -- I'm sorry, the carrier on how to  
25 handle and how to transport safely the material.

1                   So everything has to go with Bruce Power;  
2 they're directing how to do and safely transport the steam  
3 generator, in this case. And there cannot be any other  
4 cargo that the -- the ship cannot take on any cargo from  
5 other than the steam generators. So that's one of the  
6 reasons for exclusive use.

7                   So you can -- and because of that -- and  
8 the company or Bruce Power has the control. You're  
9 allowed to put more -- usually on the regulatory you can  
10 put more radioactive material on board that conveyance or  
11 the vehicle -- or in this case the ship -- because the  
12 person who's -- or from where it's coming from has the  
13 sole control of the shipment.

14                  And if you put that in a perspective from  
15 other types of transport, if you take a courier company,  
16 for example, they can go to multiple locations, so there's  
17 limits on the regulations because they don't know where  
18 this vehicle will go from the first licensee, it could go  
19 to another one, pick up more packages.

20                  So there's a restriction on how much can be  
21 put into -- because there is no control of this, we don't  
22 know where it's going to go at the end, but if everything  
23 comes from the same company and nothing else goes on the  
24 shipment then you have more control so you can put more  
25 packages within the vehicle because you know exactly

1 what's going to be in that vehicle when it's moving.

2 **MEMBER HARVEY:** M'hm. But ---

3 **MR. FAILLE:** That's kind of the  
4 explanation. And the relief from the regulations are only  
5 administrative relief. There's no safety provisions that  
6 are removed from the regulations by calling it exclusive  
7 use.

8 **MEMBER HARVEY:** Okay.

9 **MR. JAMMAL:** Ramzi Jammal for the record.  
10 With respect to your second question on the  
11 proof of the submission of Bruce Power, we sincerely  
12 accept the compliment of the intervenor with respect to  
13 CNSC staff doing our job and assessing the application of  
14 Bruce.

15 Staff independently evaluated the  
16 information submitted by the Applicant to ensure that the  
17 impact, as claimed by the Applicant. We agree with or we  
18 disagree with? So we've done our job and due diligence  
19 with respect to the safety of Canadians, the public, and  
20 independently evaluated the information.

21 **MEMBER HARVEY:** Thank you.

22 **THE CHAIRMAN:** Anybody else?

23 You made a -- for the intervenor, you made  
24 the observation you don't think that the worst-case  
25 scenario has been addressed. I thought that Bruce -- what

1 was your reaction to Bruce Power -- I think a scenario  
2 they showed that even if you threw the 64 grams into the  
3 water there would be hardly any measurable impact. I  
4 think that I'm putting words into Bruce Power -- but I  
5 mean, they said that that particular quantity is so small  
6 in the big lakes it will not really be deemed to be an  
7 impact. Is that -- what's your assessment of their view  
8 of the doomsday scenario?

9 **MR. ULLRICH:** Well, maybe I better hear it  
10 again because I'm not sure I heard that clearly. Is that  
11 in fact if all of this were released in a single location  
12 near a drinking water intake there would be no problem?

13 **THE CHAIRMAN:** They have a graph. I don't  
14 know if you remember this slide that they had that shows  
15 the comparison of the naturally occurring activity in the  
16 lake, and you add this small amount of radioactive -- the  
17 reason I'm asking this question is because you keep saying  
18 about poisoning 40 million people around the lake ---

19 **MR. ULLRICH:** No, I didn't ---

20 **THE CHAIRMAN:** --- and I'm just trying to  
21 understand whether -- you know, how do you reach that  
22 particular conclusion about this particular scenario  
23 unfolding.

24 **MR. ULLRICH:** Mr. President, I don't  
25 believe that I said poisoning 40 million people. I said

1           that this is the water supply for 40 million people.

2                           The figure that was used in terms of -- I  
3           can't remember how many millions of grams of radioactive  
4           material. And naturally occurring, I'm not sure exactly  
5           where it naturally has come from. That is spread out over  
6           an absolutely huge lake. If there is an accident where  
7           all 64 grams are released in a concentrated area -- and  
8           frankly one of the problems with the risk assessment is  
9           there wasn't any kind of a clear explanation as to how  
10          dilution factors were applied. We think that that could  
11          present both some public health and environmental issues  
12          that simply have not been addressed.

13                           **THE CHAIRMAN:** That's what I'm trying to  
14          assess. What would be the environmental issues and the  
15          health risk? Somebody could help us on that particular  
16          point?

17                           **MR. ULLRICH:** Well, I think that's why we  
18          need the assessment. I would like to know ---

19                           **THE CHAIRMAN:** No, I think staff -- if I  
20          understand correctly, in the environmental assessment  
21          staff alluded to the -- that they've done that particular  
22          scenario analysis.

23                           So staff or Bruce Power, can somebody deal  
24          with that particular question?

25                           **MR. HAWTHORNE:** Chairman, for the record,

1 Duncan Hawthorne. I'm sure staff can answer themselves and  
2 I'm sure they did answer it in their presentation.

3 Throughout this entire exercise both from  
4 our point of view and from staff we've piled pessimistic  
5 assumption upon pessimistic assumption. That's fine.  
6 That's exactly what we do in the nuclear safety world. I  
7 am very comfortable with that.

8 In staff's assessment, they talked about  
9 the loss of structural integrity of a steam generator  
10 close to an inlet to a water source which would be drawing  
11 directly drinking water from the lake. They bounded that  
12 issue.

13 I'm sure staff can answer but as did we,  
14 and we concluded that in the overall impact of such an  
15 event -- having said that, we also then went on to say  
16 that is not the route the ship will take. It will be out  
17 at sea. It will not be travelling close to water rights  
18 but despite the fact that it would be there we assume from  
19 the point of conservatism that it would.

20 We took all of that information into our  
21 calculation we assumed. In a worst case scenario, a worst  
22 case event, and a worst possible location closest to the  
23 largest water source and in that situation both ourselves  
24 and verified by staff concluded that the effect would be  
25 negligible. That's science.

1                   Staff can answer themselves, but that's how  
2 we looked at it. That's how the numbers come out. As I  
3 mentioned before, the terms of naturally occurring  
4 radiation -- they're not my numbers. They come from  
5 McMaster University. They're well-published, well-thought  
6 through information about the components that exist in the  
7 Great Lakes.

8                   I do accept the intervenor's point about  
9 concentration but that's exactly how we assessed it. We  
10 assessed that as a point concentration, worst case  
11 scenario and a worst location and still concluded it to be  
12 negligible.

13                   **MR. ULRICH:** Dave Ulrich speaking. I guess  
14 I'd like to understand what the worst case scenario is  
15 because the documents say one percent loss from one  
16 generator. Is that the worst case scenario that you're  
17 referring to?

18                   **MR. HAWTHORNE:** Again, I'm sorry, but I  
19 think it's right we answer. Commissioner Harvey said, you  
20 know, we keep asking staff, so again we will answer.

21                   As we mentioned before, these contaminants  
22 we know to be plated out on the internal components. A  
23 large majority of them -- we have a very good explanation  
24 about the conditions going in -- plus 300 degrees on the  
25 way in, 265 degrees on the cold leg on the way out; how

1 that creates a plating out effect. The plating out exists  
2 within the internal tubes. We know just based on good  
3 physics where that plating out would occur. We know the  
4 oxide build-up. We measured that.

5 We know that the vast majority of any of  
6 this plating out is fixed contamination and from that we  
7 then assume very conservatively some amount of transient  
8 material and we assume that all of that transient material  
9 is released, despite the fact that our advice from IAEA is  
10 that it's an overly conservative assumption but  
11 nonetheless we assume that overly conservative assumption  
12 to bound the case. And we conclude that it's less than  
13 one percent of the dose to the public.

14 Staff can answer because the job of our  
15 licensee is to propose and the job of the CNSC is to  
16 dispose. We proposed, we did the facts, and staff  
17 independently verified.

18 **THE CHAIRMAN:** Okay, staff. Last word?

19 **MR. RINKER:** Mike Rinker, for the record.

20 First of all I just want to make some  
21 clarification. We're talking about what staff did in  
22 terms of environmental assessment and this kind of follows  
23 along the discussion we had where we said no environmental  
24 assessment was required under the Canadian *Environmental*  
25 *Assessment Act*.

1                   The Commission is required under Section 24  
2                   to consider that -- are there adequate measures for the  
3                   protection of the environment? And established in  
4                   regulations made under the *Nuclear and Safety Control Act*  
5                   we are required to determine what are the environmental  
6                   effects, what are the significance of those, what are the  
7                   effects of accidents and malfunctions, and so on. It's a  
8                   very strong act in terms of environmental protection.

9                   So staff did the analysis under the *Nuclear*  
10                  *Safety and Control Act*. I'd like to ask Dr. Steve Mihok  
11                  to give an overview of what we've done.

12                  **MR. MIHOK:** Steve Mihok with the  
13                  Environmental Risk Assessment division.

14                  It's quite normal for staff  
15                  essentially to go way beyond what documentation we receive  
16                  and to analyze these situations independently and using  
17                  different approaches. And this is perhaps one of the  
18                  times where we have put in more effort than perhaps  
19                  expected or typical, simply because of the situation with  
20                  so many people using the drinking water from the Great  
21                  Lakes and the level of public interest that was obviously  
22                  going to occur.

23                  And so within our own division I'm  
24                  consulting among several people and so we have looked at  
25                  what I would call credible bounding scenarios as opposed

1 to worst case scenarios. We can always give you the most  
2 conservative kind of what-if scenario but those scenarios  
3 very often are meaningless. They are almost in the realm  
4 of science fiction.

5 So when we look at credible scenarios, ones  
6 that bound what might happen and those are scenarios again  
7 near a drinking water supply of a big city like Toronto  
8 with a near shore accident, a spill right in Owen Sound, a  
9 spill in a lock; all of these different situations lead us  
10 to believe that there is an abundant safety margin for any  
11 significant health impact.

12 In most cases it looks like there  
13 would not even be the triggering of let's say an  
14 intervention for the drinking water supply, a temporary  
15 closure for a day or two of the supply because an action  
16 level as recommended by Health Canada would be exceeded.

17 **THE CHAIRMAN:** Thank you.

18 Anything else on this?

19 Thank you very much.

20 The next submission is an oral presentation  
21 from Michigan Sierra Club as outlined in CMD 19.20. Mr.  
22 McArdle is joining us via teleconference for this  
23 presentation.

24 Mr. McArdle, can you hear us?

25

1       **10-H19.20**

2       **Oral presentation by the**

3       **Michigan Sierra Club**

4

5                   **MR. McARDLE:** Yes, very well. Can you hear  
6 me?

7                   **THE CHAIRMAN:** Go ahead, please.

8                   **MR. McARDLE:** Okay, thank you.

9                   Yes, good evening. I really appreciate  
10 being able to watch this proceeding on the webcast which  
11 led me to change some of my oral presentation.

12                   So I'll begin by saying my name is Ed  
13 McArdle. I am conservation chair for the Michigan Sierra  
14 Club. We have 16,000 approximate members and we too share  
15 the same concerns of our sister organization, the Sierra  
16 Club Canada, namely that the process for such a precedent-  
17 setting proposal requires a full independent environmental  
18 assessment.

19                   In the haste to approve this proposal,  
20 consultation on both sides of the border appears to be  
21 minimal. I would believe that the International Joint  
22 Commission should have some role in this process. I  
23 checked with the IJC office in Windsor and in Washington,  
24 DC. They sent a letter to Dr. Binder asking how this  
25 application would comply with the Great Lakes Water

1       Quality Agreement.

2                       And the letter also asked that there would  
3       be further public hearings for stakeholders and the public  
4       at large. And as of yesterday they hadn't had a reply  
5       although I understand from an email which I haven't been  
6       able to open yet that there has been a reply. But the  
7       fast-tracking of this decision leaves little time for  
8       research and response from all the stakeholders.

9                       Also, the venue of the hearing, in Ottawa,  
10       is not very convenient to either Canadian citizens, First  
11       Nations, or U.S. citizens along the route of the shipment  
12       that would be most affected. We believe every effort  
13       should be made to have these voices heard.

14                      Also, there was debate this morning about  
15       the change and the environmental assessment to benefit two  
16       private companies, Bruce Power and Studsvik. And I was  
17       surprised to hear that the gentleman from Bruce said they  
18       were doing this out of their obligation to reduce,  
19       recycle, and it's the right thing to do, and they don't  
20       expect any commercial gain or be -- or the gain would be  
21       neutral.

22                      But I just question why they would do  
23       this. Their energy footprint transport, shipping, melting  
24       two times -- it just seems like it's a huge carbon  
25       footprint compared to just leaving them as they are.



1       this up -- but I don't know Canadian law or the Canadian  
2       legal system but I would question the legality of the  
3       Memorandum of Understanding that transferred the ownership  
4       of the steam generator's waste from Ontario Power  
5       Generation, a Crown corporation, to a private company,  
6       Bruce Power, thereby avoiding the ban on exporting and  
7       importing nuclear waste by the Ontario government. But I  
8       leave that up to the Canadian legal people.

9               Also Bruce Power's indicated they wanted to  
10       ship these steam generators this fall and typically this  
11       is the high season for winds. Gales have already occurred  
12       on the Great Lakes this summer and of course, you know,  
13       storms are rampant across the North Atlantic.

14               I should point out too that the ship, the  
15       Motor Vessel Panthera, is registered under a flag of  
16       convenience from Antigua and Barbuda, West Indian Islands  
17       with a population of 72,000. We would also insist that  
18       the ship comply with the Michigan Permit System to prevent  
19       additional invasive species from entering the Great Lakes  
20       on its inbound journey.

21               In addition, the Sierra Club Michigan  
22       Chapter along with other groups have signed onto a letter  
23       to petition the U.S. Department of Transportation Pipeline  
24       and Hazardous Materials Safety Administration to conduct a  
25       full investigation pursuant to the *National Environmental*

1       *Policy Act* upon approval if the Canadian agency approves  
2       the licence.

3                       So if the licence is approved, we will  
4       continue to oppose this project on the U.S. side.

5                       So thank you for the opportunity to speak.

6                       **THE CHAIRMAN:** Thank you. The floor is  
7       open. Any questions?

8                       Just for the record, you should know that  
9       the CNSC replied to the IJC letter on September the 21<sup>st</sup>  
10      so if you were correspondence with them, check it out.

11                      **MR. McARDLE:** Okay, thank you.

12                      **THE CHAIRMAN:** I have a question. Tell me  
13      again, what is that you're looking for? Michigan  
14      certificate for species? I missed something.

15                      **MR. McARDLE:** Yes, for invasive species.

16                      **THE CHAIRMAN:** Last I understand, we have  
17      no species -- ha ha. We're not dealing with any ---

18                      **MR. McARDLE:** Well ---

19                      **THE CHAIRMAN:** --- so how does that happen?

20                      **MR. McARDLE:** Well the ship entering the  
21      Great Lakes. You know, we have the -- because of the St.  
22      Lawrence Seaway, we have a real problem in the Great Lakes  
23      with invasive species and Michigan has a permit system  
24      where the ship would have to, you know, dump the bilge  
25      water or apply chemicals or whatever to destroy any

1           invasive species that the ship may be carrying.

2                       **THE CHAIRMAN:**   What has this got to do with  
3 nuclear?  They would get this as a matter of routine.  If  
4 that's a requirement, they will get it, right?

5                       **MR. McARDLE:**   Right, right.

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

7                       Mr. Graham?

8                       **MEMBER GRAHAM:**   The ship's already in Great  
9 Lake waters now.  We understand it's tied up at Sarnia or  
10 somewhere like that so it must have got those permits.

11                      **THE CHAIRMAN:**   Is that correct?  Anybody  
12 knows if the ship is already here?

13                      **MEMBER GRAHAM:**   I thought we were informed  
14 today that the ship is sitting somewhere in another port  
15 waiting for approvals and so on.  My understanding was  
16 that from one of the answers I got.  Maybe I'm wrong.

17                      **MR. HAWTHORNE:**   One of the intervenors  
18 suggested that they check the ship's manifest on the  
19 internet.  It's not there because we asked that it be  
20 there so I can't comment or confirm.

21                      **MEMBER GRAHAM:**   Aren't one of the  
22 intervenors said they'd -- it's on the internet, yeah.  
23 That's what we heard it is.  So they must have got their  
24 permits.

25                      **THE CHAIRMAN:**   Okay.  Any other questions?

1 Thank you very much for your intervention.

2 **MR. McARDLE:** Thank you.

3 **THE CHAIRMAN:** We move to the next  
4 submission which is an oral presentation from the City of  
5 Owen Sound as outlined in CMD 19.73 and 19.73A and I  
6 understand we have a Mayor Lovell Stanners who will  
7 present the submission. Your Worship, the floor is yours.

8

9 **10-H19.73 and 19.73A**

10 **Oral presentation by**

11 **Mayor Lovell Stanners**

12

13 **MS. STANNERS:** Thank you and I'm going to  
14 bring a whole different perspective to this hearing.

15 I am Ruth Lovell Stanners. I am the Mayor  
16 of the City of Owen Sound and that is the city from which  
17 the steam generators which are the subject of this hearing  
18 are proposed to depart by ship.

19 Owen Sound is a spectacular and beautiful  
20 city of just over 22,000 people. It is the largest urban  
21 municipality in Grey and Bruce Counties. The city is  
22 surrounded by Niagara Escarpment; the city centre and  
23 harbour sit in a valley. Neither can be reached without  
24 going down a steep hill.

25 Owen Sound was once known as the Chicago of

1 the North, a reputation gained because of its vibrant  
2 harbour-front activity. Over the years, the industries  
3 along the harbour have closed and the number of ships has  
4 lessened and it's fairly well confined now to grain and  
5 cement and salt and sand occasionally.

6 Silt has been filling in slowly the mouth  
7 of the harbour and the ships are accommodating the lower  
8 levels of the Great Lakes plus this silt by coming and  
9 going with reduced loads. The city supports a very active  
10 recreational harbour and we hope as the water levels get  
11 better that we will see more shipping activity.

12 Today this city has carved a strong niche  
13 for itself. We are the health, education, commercial and  
14 industrial centre of our region and we are passionately  
15 proud of our community. Our new logo says it: "Owen  
16 Sound -- Where you Want to Live."

17 We have established a good relationship  
18 with our friends and neighbours in the two nearby First  
19 Nations communities. We are presently engaged in the  
20 first stage of consultation dealing with the upgrading of  
21 our wastewater treatment plant. Consultation is not  
22 onerous for either side when we all in the end want the  
23 same thing -- responsible stewardship for our Earth, our  
24 Mother Earth.

25 We are a community that is seen as safe by

1 its residents. We are enthusiastic about our hockey  
2 teams, our salmon, our festivals and our special events.  
3 We rarely see protests of any kind and when we do, the  
4 ones we see are peaceful, courteous and polite attempts of  
5 small groups to share concerns.

6 The picture of this community will, I hope,  
7 give you an idea of why the city council has filed an  
8 intervention with you. We have been able to host 10,000  
9 rock fans at a music fest, 12,000 summer folk fans, tens  
10 of thousands of people at the Salmon Spectacular Fish  
11 Derby without any major incidents. This is because we are  
12 very good at planning and anticipating.

13 We hope for the best but we are prepared  
14 for the worst and this formula has worked well for us. We  
15 are asking you as a tribunal to work with us to ensure  
16 responsible measured steps are taken that our council  
17 deems necessary to ensure the safety and security of our  
18 community if the steam generators are to pass through the  
19 city.

20 The measures outlined in our submission are  
21 what this city would ask under our Moving Large Objects  
22 bylaw, however, we understand with respect to nuclear  
23 energy it is the Commission who has absolute authority and  
24 the ability to enforce conditions.

25 The points we have asked you to include in

1 your decision should you approve the transportation of the  
2 steam generators through our city would in Council's  
3 opinion help to ensure the safety, security and protection  
4 of residents and property in the community. These  
5 conditions would ensure adequate compensation for any  
6 extraordinary costs associated with policing, preparation  
7 of route, property damage, et cetera.

8 I shall just very briefly touch on the  
9 points outlined. I know that you've had an opportunity to  
10 read them.

11 But we would like to know the details of  
12 the whole route and particularly the time of the routes.  
13 We have one artery only that goes from one side directly  
14 through to the other, east-west, and this is the artery  
15 that is being proposed for the shipment. The times being  
16 proposed were nine a.m. to three p.m. and this simply  
17 would be a terrible burden for our community in terms of  
18 traffic. It would be extremely difficult and so we would  
19 ask that there would be consideration of that.

20 We have asked for general liability of  
21 insurance of \$25 million but I heard today that it was \$75  
22 million that was available so maybe we were a bit low.

23 We have asked for a security bond of  
24 \$200,000 and a copy of the complete emergency or  
25 contingency plans to be provided to the City at least 10

1 days before any shipment.

2 And we want clearance letters from the  
3 following entities -- and this is something that we would  
4 have asked for under the Bylaw were we allowed to enforce  
5 it. That would be we would need clearance from the Owen  
6 Sound Police Services, the Owen Sound Fire Services, the  
7 emergency ambulance services, the City operations  
8 department, Hydro One, Rogers Cable and Bell Canada in the  
9 event that lines have to be moved.

10 And any extraordinary expenses associated  
11 with policing we would ask would be the responsibility of  
12 the proponent as opposed to the City.

13 Thank you for your indulgence.

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

15 The floor is open.

16 Mr. Graham?

17 **MEMBER GRAHAM:** You forgot your \$50.

18 **MAYOR LOVELL STANNERS:** Oh, yes, that's  
19 right. After all that, \$50 to do ---

20 **MEMBER GRAHAM:** No, the question I have is  
21 to OPG -- not to OPG -- I'm sorry -- to Bruce Power,  
22 regarding the details of haul route city, the times of  
23 haul, and so on, you've heard the Mayor mention traffic  
24 problems and so on, are you going to be able to  
25 accommodate that and have you worked out a plan with the

1 city already or are you preparing for a plan with that?

2 **MR. HAWTHORNE:** For the record, Duncan  
3 Hawthorne.

4 Let me start by saying I've spoken myself  
5 directly to Mayor Stanners. She is highly regarded in our  
6 community so we want to respond as much as we reasonably  
7 can to her request whether the Bylaw is enforceable or  
8 not.

9 We did look at -- the original plan was  
10 that transportation would occur between nine and three.  
11 That was the advice that we got. But in response to the  
12 Mayor's request we have asked for a variation to that so  
13 we can indeed accommodate times which would suit.

14 So that's how we can meet that requirement.

15 I would start from the bottom and say I can  
16 give her the \$50 before she leaves this evening.

17 But, yes, we do indeed have liability  
18 insurance. We have no problem at all providing the  
19 details of the emergency plan and the contingency plan.  
20 And many of the things that are listed in item five are  
21 things that, as the Mayor pointed out, would have been  
22 required had the Bylaw been enforceable, but none of them  
23 are difficult to provide and we are more than happy to do  
24 that.

25 I think in large measure here there has

1       been a conversation about what we intend to do and how we  
2       intend to do it. The Mayor has very clearly articulated  
3       her thoughts on what we need to do to at least make her  
4       comfortable that we've done it in a responsible way. She  
5       might never love the idea that we're doing it but I think  
6       when I look at the items she's requested of us, I don't  
7       see anything particularly challenging in that because we  
8       are -- this is our community too.

9                   The Mayor, probably if asked, could confirm  
10       that a significant number of my employees live in Owen  
11       Sound, that they enjoy everything that she offered in the  
12       City of Owen Sound. I spend a fair amount of time there  
13       myself so I know exactly what's required. As I say, this  
14       is a reasonable intervention that we don't see any real  
15       difficulty in accommodating.

16                   **MEMBER GRAHAM:** Just one other question.  
17       The Mayor did mention -- I've never been to Owen Sound --  
18       apologize -- but a very large hill coming down off the  
19       escarpment. Will that cause any problems with the vehicle  
20       or the mode of transportation of hauling those, coming  
21       down that very steep incline into the city?

22                   **MR. HAWTHORNE:** It certainly has to be  
23       factored in. It has to be accommodated. I mentioned  
24       earlier in response to a question about Goderich, you  
25       know, one of the things we talked about was the hill going

1 into Goderich, which I don't know well, but there is also  
2 quite a steep tunnel there and a bridge, which is not the  
3 case in Owen Sound.

4 But there is no doubt as we assess the  
5 route we have to factor in the fact that there is a steep  
6 hill. It's not unusual. If you remember some of the  
7 photographs we showed of large loads, you know those sort  
8 of loads do travel but, of course, you have to acknowledge  
9 that there is a steep hill there, so it will of course be  
10 a part of the risk assessment of transportation, but we  
11 don't see that as being a stumbling block.

12 **THE CHAIRMAN:** Monsieur Harvey.

13 **MEMBER HARVEY:** Merci, monsieur le  
14 président.

15 My question is addressed to the Mayor. Can  
16 you inform the Commission on the nature of the activities  
17 in Owen Sound Harbour? Is it mostly recreation and  
18 tourists? What types of boats are coming in the harbour?

19 **MAYOR LOVELL STANNERS:** We occasionally and  
20 at this time of the year actually, more than occasionally  
21 have ships that come in to our grain elevators. We also  
22 have cement elevators in our harbour. So there is an  
23 occasional ship.

24 There is not a lot of shipping that goes on  
25 in our harbour. We will see some -- more activity at this

1 time of the year. It's not like it used to be. It was a  
2 very active harbour at one point. But it's the grain  
3 elevators and the cement elevators and the occasional  
4 shipment of sand or salt for winter maintenance.

5 **MEMBER HARVEY:** Thank you.

6 **THE CHAIRMAN:** Just to follow up, do you  
7 follow what kind of traffic goes in and out? I know  
8 nuclear is always an attraction but I'm just wondering  
9 whether you know mayors follow anything else that might go  
10 through?

11 **MAYOR LOVELL STANNERS:** Mayors are the ones  
12 who get the calls when the traffic doesn't move and I'm  
13 very aware of that. We have quite an issue at this  
14 particular moment and it would certainly be something that  
15 would have to be considered in any plans.

16 One of our bridges is out. We are just in  
17 the process of replacing it. So the other route that  
18 actually goes part of the way across town is closed. So  
19 the traffic is incredible right now. When you live in  
20 Owen Sound you get impatient if you have to wait five  
21 minutes but now people are having to wait at least 10  
22 minutes sometimes and it's not pretty.

23 **THE CHAIRMAN:** Thank you.

24 Mr. Graham?

25 **MEMBER GRAHAM:** One of the questions I

1 forgot to ask you, you mentioned about the harbour silting  
2 in.

3 **MAYOR LOVELL STANNERS:** Yes, yes.

4 **MEMBER GRAHAM:** What's the draught of the  
5 harbour at low water now?

6 **MAYOR LOVELL STANNERS:** I do not know the  
7 answer to that question. I did ask the people from  
8 Studsvik when they were in Owen Sound at the health unit  
9 if they had checked that out and they said that they had.  
10 I certainly hope that they have because it's fairly well  
11 known, like every other Great Lakes port, there are  
12 challenges and we have had some definite issues.

13 **MEMBER GRAHAM:** OPG -- Bruce Power, you  
14 have taken that into consideration?

15 **MR. HAWTHORNE:** Yeah, that was three times  
16 you've called me OPG, Commissioner. But, yes, we have.  
17 We have, as an important measurement, absolutely, the  
18 draught. But, yes, we have taken it into consideration.

19 **MEMBER GRAHAM:** I have to apologize but I  
20 do have the Joint Review Panel on my mind quite a bit  
21 these days.

22 **THE CHAIRMAN:** Dr. McDill?

23 **MEMBER McDILL:** Thank you.

24 One more question with respect to the  
25 refurbished steam generators. Did they come in through

1 Owen Sound?

2 **MR. HAWTHORNE:** No, the new steam  
3 generators were built by Babcock & Wilcox in Cambridge and  
4 so they travelled by road from the Cambridge facility.

5 **MEMBER McDILL:** Thank you.

6 **THE CHAIRMAN:** Any other questions?

7 Thank you, Your Worship.

8 **MAYOR LOVELL STANNERS:** Thank you.

9 **THE CHAIRMAN:** Is there anybody else?

10 We're actually on time. In fact we are a  
11 bit early. Is there any other volunteers that want to do  
12 an oral presentation today instead of tomorrow.

13 Okay, you can think about it and raise your  
14 hand anytime. In the meantime, why don't we go into the  
15 second round of questions and -- or we can also start some  
16 of the written material -- written submission.

17 You will need a five minute break? Five  
18 minute break -- five minute break, please.

19 **MR. LEBLANC:** We have only 10 minutes left.

20 **THE CHAIRMAN:** There's only 10 minutes  
21 left?

22 **MR. LEBLANC:** So no break.

23 **THE CHAIRMAN:** No break.

24 Okay, we are -- unless we absolutely need -  
25 - five minutes.

1                   No, I think I'd like to do one more round  
2 of questions, no? No?

3                   **MEMBER HARVEY:** Not tonight.

4                   **THE CHAIRMAN:** Okay, sorry, change of plan;  
5 you are dismissed for the evening. We'll give you -- I  
6 think everybody here has had enough for one day.

7                   So thank you for your patience and we will  
8 reconvene tomorrow at 8:30.

9                   Okay, thank you all, and see you tomorrow.  
10 --- Upon adjourning at 8:43 p.m.

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