

DARLINGTON NEW NUCLEAR POWER PLANT PROJECT

**JOINT REVIEW PANEL**

PROJET DE NOUVELLE CENTRALE NUCLÉAIRE DE DARLINGTON

**LA COMMISSION D'EXAMEN CONJOINT**

**HEARING HELD AT**

Hope Fellowship Church  
Assembly Hall  
1685 Bloor Street  
Courtice, ON, L1E 2N1

**Monday, March 28, 2011**

**Volume 7  
REVISED**

**JOINT REVIEW PANEL**

Mr. Alan Graham  
Ms. Jocelyne Beaudet  
Mr. Ken Pereira

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Ms. Kelly McGee

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(ii)

ERRATA

Transcript :

Throughout the transcript the spelling Mr. Kavlevar was used when it should have read Mr. Kalevar.

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Throughout the transcript the spelling Wilf Rulland was used when it should have read Wilf Ruland

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Page 58, line 9

9 In PMD 1104 on pages 21 and 22,

Should have read:

9 In PMD 1.104 on pages 21 and 22,

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Page 244, line 5

5 consulted on the siding decision for OPG's proposed

Should have read:

5 consulted on the siting decision for OPG's proposed

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Page 244, line 20

20 problems facing SON and its territory. Was ask

Should have read:

20 problems facing SON and its territory. We ask

---

Page 249, line 9

9 MS. McKEE: Just for

Should have read:

9 MS. MECKE: Just for

**Page 266, line 15**

14 McGee will be able to complete the response. The

**Should have read:**

14 Mecke will be able to complete the response. The

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**Page 267, line 1 and 2**

1 ask Julie McKee to provide more details.  
2 MS. McKEE: Julie McKee. Each

**Should have read:**

1 ask Julie Mecke to provide more details.  
2 MS. MECKE: Julie Mecke. Each

---

**Page 272, line 25**

18 And finally, at CNSC's suggestion  
19 or upon request, CNSC staff and other  
20 representatives of the Government of Canada have  
21 met with the Métis Nation of Ontario and Oshawa and  
22 Northumberland Métis Councils, most of the Williams  
23 Treaty signatories and their coordinator, the  
24 Mississaugas of New Credit First Nation the  
25 Mississaugas of New Credit First Nation, the  
1 Haudenosaunee Development Institute, and in total  
2 approximately 70 percent of our distribution list  
3 we have met with in person, and you have on record  
4 those letters that you've received from the  
5 Aboriginal groups that have participated.

**Should have read:**

**(removed "the Mississaugas of New Credit First Nation" duplication**

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19 or upon request, CNSC staff and other  
20 representatives of the Government of Canada have  
21 met with the Métis Nation of Ontario and Oshawa and  
22 Northumberland Métis Councils, most of the Williams  
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24 Mississaugas of New Credit First Nation, the  
25 Haudenosaunee Development Institute, and in total  
1 approximately 70 percent of our distribution list  
2 we have met with in person, and you have on record  
3 those letters that you've received from the  
4 Aboriginal groups that have participated.

Page 276, line 13

13 going to ask Joe Kyle to speak to the Anishinaabek

Should have read:

13 going to ask Joe Heil to speak to the Anishinaabek

---

Page 277, line 8

8 MR. KYLE: Joe Kyle, for the  
9 record.

Should have read:

8 MR. HEIL: Joe Heil, for the  
9 record.

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1 Courtice, Ontario

2

3 ---Upon commencing at 9:02 a.m. /

4 L'audience débute à 9h02

5 --- OPENING REMARKS:

6 MS. MCGEE: Good morning. Mon nom  
7 est Kelly McGee. Welcome to the public hearing of  
8 the Joint Review Panel for the Darlington New  
9 Nuclear Power Plant Project.

10 Je suis la co-gestionnaire de la  
11 Commission d'examen conjointe du Projet de nouvelle  
12 centrale nucléaire de Darlington.

13 Secretariat staff are available at  
14 the back of the room. Please speak with Julie  
15 Bouchard if you are scheduled to make a  
16 presentation at this session, if you are a  
17 registered intervenor and want the permission of  
18 the Chair to have a question put to a presenter, or  
19 if you are not registered to participate but now  
20 wish to make a statement.

21 Any request to address the panel  
22 must be discussed with Panel Secretariat staff  
23 first. Opportunities for either questions to a  
24 presenter or a brief statement at the end of a  
25 session will be provided, time permitting.

1                   We have simultaneous translation.  
2 Headsets are available at the back of the room.  
3 English is on channel one. La version française  
4 est au poste 2.

5                   A written transcript of these  
6 proceedings will reflect the language of the  
7 speaker. Please identify yourself each time you  
8 speak to make the transcripts as accurate as  
9 possible.

10                  Written transcripts are stored on  
11 the Canadian Environmental Assessment Agency  
12 website for this project. The live webcast can be  
13 accessed through a link on the Canadian Nuclear  
14 Safety Commission website and archived webcasts and  
15 audio files for these proceedings are also stored  
16 on the CNSC site.

17                  As a courtesy to everyone in the  
18 room, please silence your cell phones and other  
19 electronic devices.

20                  Thank you.

21                  CHAIRPERSON GRAHAM: Thank you  
22 very much, Debra, and good morning everyone. I  
23 want to welcome everyone here again this morning to  
24 our second week in these very important hearings.  
25 And I want to welcome all those that have joined us

1 through our audio link or on the internet.

2 My name is Alan Graham. I am the  
3 Chairman of the Joint Review Panel and the other  
4 members of the panel with me here today are Madam  
5 Jocelyne Beaudet on my right, and Mr. Ken Pereira  
6 on my left.

7 Before we start today's session  
8 with an intervention by Safe and Green Energy, I  
9 want to call upon our legal counsel to go through  
10 the undertakings that have been submitted up until  
11 now just to give an update on that and then we'll  
12 proceed directly to SAGE.

13 Mr. Saumure.

14 --- UNDERTAKING STATUS:

15 MR. SAUMURE: Thank you. I will  
16 now start just with CNSC. Can CNSC speak to  
17 undertaking number 7? That was independent  
18 assessment of the fuel core, fuel inventory using  
19 USNRC accepted models.

20 DR. NEWLAND: Dave Newland, for  
21 the record.

22 Yes, the two reports for that  
23 particular undertaking are currently being sent to  
24 the Secretariat.

25 I'll just add a little bit of

1 introduction to that. These two memoranda were  
2 undertaken by specialist staff to look at two  
3 particular aspects. They're independent  
4 calculations of core inventory in the one instance  
5 and in the second, an independent assessment of the  
6 off-site consequences of criticality accidents.

7 I will note in the latter that  
8 there is some, I would say, variance between the  
9 analysis that we did and with OPG, and our staff  
10 and OPG staff have been talking as to try and  
11 resolve what those differences are and why they've  
12 -- why they've come up.

13 We believe it's difference in  
14 methodology, but it does not change our overall  
15 conclusion with respect to the EIS or the licence  
16 to prepare a site.

17 Thank you.

18 MR. SAUMURE: Thank you.

19 I would now just like to go to  
20 Undertaking number 20, which is to CNSC again. It  
21 was with regard to worker tritium exposure. Date  
22 of filing is to be determined.

23 Does CNSC have a date?

24 DR. THOMPSON: Patsy Thompson, for  
25 the record.

1 I thought I had indicated that we  
2 would be able to submit the undertaking on  
3 Wednesday -- Wednesday, March 30<sup>th</sup>.

4 MR. SAUMURE: Thank you.

5 Undertaking number 30, which is  
6 provide info on health studies, monitoring in the  
7 Durham area, including methodology; date for filing  
8 is to be determined.

9 Does CNSC have a date?

10 DR. THOMPSON: Patsy Thompson, for  
11 the record.

12 The date is also Wednesday, March  
13 30<sup>th</sup> and our understanding is it was to cover not  
14 just in Durham Region, but the health studies that  
15 had been done of nuclear power reactor workers and  
16 other studies that had been done related to  
17 radiation and health effects.

18 MR. SAUMURE: Thank you.

19 And if I can just finish with CNSC  
20 Undertaking number 32, is, I guess, the documents  
21 on safety safeguards.

22 DR. NEWLAND: Dave Newland, for  
23 the record.

24 My understanding of 32 is it's a  
25 bounding approach to accidents and malfunctions and

1 we're going to be sending that to the Secretariat  
2 this morning and it's a four pager and it covers a  
3 fair amount of material in relation to accidents  
4 and malfunctions, safety goals, how the safety goal  
5 base releases are determined, and once you've had  
6 that and had time to absorb it, you may wish to  
7 come back with questions.

8 Thank you.

9 MR. SAUMURE: Thank you. I will  
10 now turn to OPG, Undertaking number 8 with regard  
11 to passive cooling.

12 MS. SWAMI: Laurie Swami, for the  
13 record.

14 OPG is prepared to speak to that  
15 this morning. Jack Vecchiarelli can provide a  
16 three to five-minute discussion on that matter.

17 DR. VECCHIARELLI: Jack  
18 Vecchiarelli, for the record.

19 CHAIRPERSON GRAHAM: Yes, please  
20 proceed.

21 DR. VECCHIARELLI: There was a  
22 figure that I had requested to be available on the  
23 screen. I would like to have that during my  
24 discussion; is that available?

25 CHAIRPERSON GRAHAM: That's the

1 SAGE presentation. Oh, there it is, okay. Thank  
2 you.

3 DR. VECCHIARELLI: Okay. Thank  
4 you.

5 Mr. Chairman, in my response to  
6 this undertaking, I'd like to spend a few minutes  
7 to provide some further clarification and insight  
8 with respect to the inquiries from both you and Ms.  
9 Lloyd regarding the length of time that passive  
10 cooling can be maintained in the event of a loss of  
11 power.

12 I would like to emphasize,  
13 however, that a design with more passive features  
14 does not necessarily mean it is better in terms of  
15 safety compared to a design that relies more  
16 heavily on active systems.

17 Ultimately, it is the dose limits  
18 and the safety goals in RD-337 that need to be met  
19 and this can be accomplished in different ways  
20 through the use of passive systems, highly reliable  
21 active systems or a combination of both.

22 Now, getting back to the question  
23 of how long the passive cooling systems can  
24 maintain a safe condition in the event of a loss of  
25 power, we need to first establish the criterion for

1 what constitutes a safe condition.

2                               From the viewpoint of public  
3 safety, what we are most interested in is how long  
4 the passive systems can remain effective at  
5 preventing a substantial release of radioactivity  
6 from the site.

7                               In the case of a loss of off-site  
8 power, that is from the grid, each of the reactor  
9 technologies has been designed to address this  
10 scenario.

11                              While there are some differences  
12 in the way each design handles this in such an  
13 event, there are commonalities in the plant  
14 responses. And for purposes of illustration and in  
15 the interest of time, I'll refer mostly to the  
16 CANDU designs, the ACR and EC6, but what I describe  
17 here applies more or less to all of the vendor  
18 designs. So on the screen, as I'm sure you're  
19 familiar with, is a very simple representation of  
20 the CANDU core-cooling processes. In the centre  
21 there, in the lower half, is -- is a depiction of  
22 the reactor core. There are hundreds of tubes that  
23 pass through the core. Water is pumped through  
24 these tubes, picking up heat from the fuel, and  
25 then it flows up into that vertical vessel there,

1 which looks like a light bulb, the steam generator,  
2 it makes a U-turn, transferring heat to water on  
3 the secondary side of the steam generator, and is  
4 returned back through the core, now flowing in the  
5 opposite direction, again picking up heat; flowing  
6 up to another steam generator on the other side, a  
7 U-turn and back. So this is a closed loop and it  
8 requires power to -- to continue it to flow. The  
9 steam generator is basically like a giant kettle;  
10 water in, steam out through the top.

11                   Now, in the event of a loss of  
12 offsite power, the reactor would be automatically  
13 shut down, and done so passively. That would  
14 terminate the nuclear fission process, however  
15 there is still heat that is being produced. This  
16 is a much lower level, called the decay heat, and  
17 that must be removed.

18                   At this point one of multiple  
19 backup diesel generators would be automatically  
20 started and would provide the necessary power  
21 within approximately three minutes to continue to  
22 actively cool the fuel. The diesel generator --  
23 and that startup would occur within approximately  
24 three minutes. The diesel generator would have  
25 enough onsite fuel supply to run for a number of

1 days, typically seven days, and this should provide  
2 enough time for restoration of the offsite power,  
3 or to replenish the diesel fuel supply.

4                   However, in the unlikely event  
5 that this does not happen, there are additional  
6 provisions from a passive safety point of view.  
7 And this scenario could lead to what's called a  
8 station blackout, where you have a loss of both  
9 onsite and offsite power.

10                   With no available power, there are  
11 various cooling mechanisms that come into play.  
12 With reference to this figure, very simply what you  
13 have is because of the steam generators that are at  
14 a higher elevation than the reactor core, and  
15 because the steam generators are cooler, what you  
16 have is a natural circulation of that primary  
17 coolant in the reactor core. It will tend to rise.  
18 Hot fluid rises and it will transfer heat to the  
19 secondary side, the cold water -- the cooled water,  
20 then, will want to sink.

21                   So this is a natural flow, which  
22 will evolve through the core and the steam  
23 generators. And as long as there is water in the  
24 primary coolant system, and as long as there is  
25 water in the steam generators, this process can

1 continue passively for an indefinite period of  
2 time.

3                               So what is not shown in the figure  
4 here is an overhead tank in the case of the ACR and  
5 EC6, and this overhead tank provides by gravity,  
6 water to the steam generators. And this will allow  
7 for about at least three days of this natural  
8 circulation from the primary coolant to the steam  
9 generators. So you've got about at least three  
10 days with the provision of this overhead reservoir  
11 of water.

12                               In addition, the tubes in the  
13 reactor core are surrounded by a large volume of  
14 water at low temperature, called the moderator, and  
15 this provides an alternate means for passive heat  
16 removal from the reactor core in the event that the  
17 thermal siphoning that's natural circulation,  
18 should that break down. And the moderator would  
19 absorb heat and it could eventually boil away this  
20 heat into the reactor building, and that would take  
21 a few days.

22                               So in summary -- well, you should  
23 also note that in -- it's reasonable to expect that  
24 offsite power would be -- would be eventually  
25 restored, but in the case that doesn't happen,

1 still with these passive systems working away, we  
2 would expect that there would be some human  
3 intervention and -- and it would be a replenishment  
4 of the water in this overhead tank. And, again,  
5 the passive cooling process could continue, and  
6 that could continue indefinitely.

7                   In summary, just to put it  
8 altogether. For the CANDU design's considered, in  
9 the event of a loss of offsite power, the safe  
10 conditions can be expected to be maintained for  
11 typically seven days using active means, plus  
12 several more days from passive means, with the  
13 potential for indefinite passive cooling, assuming  
14 some limited operator actions.

15                   Thank you.

16                   CHAIRPERSON GRAHAM: Thank you  
17 very much, OPG. Mr. Saumure, another -- two other  
18 undertakings, I guess.

19                   MR. SAUMURE: I would just like  
20 now to move to Undertaking No. 19, which referred  
21 to copy of hosting agreement between OPG and  
22 Clarington.

23                   MS. SWAMI: Laurie Swami, for the  
24 record. We will be providing a copy of the  
25 Clarington Agreement this morning. I just wanted

1 to be clear that I -- when we had the discussion  
2 earlier I mentioned that we worked well with  
3 Clarington to ensure that a development around the  
4 facility would be maintained. You will note in the  
5 Clarington Agreement there is no specific clause  
6 that addresses that particular item, and I just  
7 wanted to make sure that I had not left that  
8 impression with the panel.

9 MR. SAUMURE: And the last two, I  
10 would just ask if OPG can provide an expected  
11 completion date for Undertakings No. 18 and 23.

12 MS. SWAMI: Laurie Swami for the  
13 record. For No. 18 we can respond on Wednesday,  
14 and on No. 23, we anticipate this will be a  
15 discussion tomorrow during the waste discussions  
16 that will proceed, if that's acceptable.

17 CHAIRPERSON GRAHAM: Panel agree  
18 to that Undertaking No. 23, do it tomorrow, and  
19 when that's been done, Mr. Pereira?

20 MEMBER PEREIRA: Yes.

21 CHAIRPERSON GRAHAM: Yes, that's  
22 agreeable to the panel, so thank you very much.

23 MR. SAUMURE: That is all with  
24 regard to the undertaking for today, Mr. Chairman.

25 CHAIRPERSON GRAHAM: Thank you

1 very much, and thank you for those -- those  
2 procedural undertakings. I believe they're all  
3 necessary so that the public and those intervenors  
4 have all the information possible as they appear  
5 before us. So I thank all the -- all those  
6 committed undertakings. And the ones that are  
7 still outstanding that will meet the -- the  
8 deadlines or the -- the promised deadlines.

9                                 With that we'll start today's  
10 session with --

11                                 DR. THOMPSON: Mr. --

12                                 CHAIRPERSON GRAHAM: -- an  
13 intervention.

14                                 DR. THOMPSON: -- Mr. Graham --  
15 Mr. Chair, if I could. We've reviewed our notes  
16 and we did commit to an undertaking, which we have  
17 -- we can't remember the number, but there was an  
18 undertaking committed to -- that we committed to do  
19 on Saturday on safeguards, but we don't have the  
20 number. We would be able to provide a date by  
21 which we would be able to provide the information  
22 later this week.

23                                 MR. SAUMURE: That was Undertaking  
24 No. 32. I guess there was a bit of confusion with  
25 regard to what it referred to. So tomorrow will be

1 the date of completion -- you can file the  
2 documents?

3 DR. THOMPSON: Tomorrow is the  
4 date when we would be able to -- to tell you when  
5 we will be able to file the document.

6 CHAIRPERSON GRAHAM: Okay. Okay,  
7 that's satisfactory. So, again, we will start  
8 today's session with an intervention for -- or by  
9 Safe and Green Energy. And, Dr. Fairlie, the floor  
10 is yours, and whoever other presenters are with  
11 you, please join us at the -- at the table. So  
12 please proceed.

13 And, pardon me, and that is under  
14 PMD 11-PM1.104. And I believe there is a -- some  
15 overheads that have been provided this morning, and  
16 those will be 104A, if we see fit to do that. So  
17 the presenters, you proceed, thank you very much.

18 MR. BRADY: Good morning. Thank  
19 you, Mr. Graham, and the panel.

20 I am Roy Brady from Safe and Green  
21 Energy, Peterborough. Over to my left is John  
22 Etches, also from Safe and Green Energy,  
23 Peterborough.

24 I would, at this time, like to  
25 introduce our presenter, Dr. Ian Fairlie. He is an

1 independent consultant from London, England. He is  
2 a Canadian. He has lived in Toronto and Sarnia.  
3 He's a graduate of the University of Western  
4 Ontario.

5 His expertise is in assessing the  
6 radiation exposures from nuclear power plants. In  
7 addition, from 2000 to 2004, he was the Scientific  
8 Secretary for United Kingdom Government Committee  
9 on the radiation risk of internal emitters.

10 It is the pleasure of SAGE to  
11 introduce Dr. Fairlie.

12 --- PRESENTATION BY DR. FAIRLIE:

13 DR. FAIRLIE: Mr. Chairman and  
14 panel members. Let's get the technology sorted  
15 out. Can you hear me now?

16 First of all, may I say that it's  
17 a great pleasure to be back in Canada, however,  
18 that pleasure is mitigated by the fact that we are  
19 in the middle of -- well, this is now day 17 of the  
20 world's worst nuclear accident which is ongoing.  
21 It gives me no pleasure to say that.

22 I have great sympathy for the  
23 tragedy of what the Japanese people are going  
24 through but it behoves us to be humble or to have  
25 some humility in our proceedings this morning and

1 certainly not to have any hubristic attitudes. And  
2 I have seen these I'm afraid.

3                   This morning I'm not going to talk  
4 about catastrophic incidents. I'm going to talk  
5 about routine discharges and emissions from nuclear  
6 power stations.

7                   This is the summary of my talk.  
8 I've got half an hour and obviously I'm not going  
9 to be able to cover all the things which are  
10 included in my written presentation, but I'm going  
11 to try and cover these seven items listed here  
12 today.

13                   I'm going to cut straight to the  
14 chase and perhaps summarize the most important of  
15 my findings and this is a comparison of the  
16 expected annual tritium releases, and that's  
17 TerraBecquerel's per annum.

18                   Comparing what's going on right  
19 now at Darlington, this is an average over the past  
20 four or five years annually, the expected releases  
21 from the EC-6 CANDU reactor and similarly expected  
22 from the ACR reactor and as you can see here, we're  
23 talking about a four-fold increase with the EC-6 or  
24 more than two-fold increase with the ACR. And  
25 that's basically the important things that we

1 should be considering.

2                                 We're talking about a doubling of  
3 tritium releases with the EC-6 or -- sorry, a  
4 doubling with the ACR and a quadrupling with the  
5 EC-6 and that should give us some pause for  
6 concern. I was rather surprised when I saw this  
7 and I've been investigating it a bit further to see  
8 where these increases were.

9                                 And as you can see from this slide  
10 that most of the increases are water discharges to  
11 Lake Ontario with slight increases in the tritium  
12 emissions through air. And right away I commend  
13 that in the sense that if there are going to be  
14 increases that the large lion's share should really  
15 go to Lake Ontario rather than into air because  
16 most of the doses to people nearby are from air  
17 emissions.

18                                 Now, OPG has said that this a  
19 small increase and I'm quoting here:

20   "The projected increases from  
21   the NND will result in a  
22   small increase compared with  
23   the present."

24                                 Well, ladies and gentlemen, I beg  
25 to differ. In fact, there were large increases.

1                   In fact, if you look at the  
2 expected doses, the dose to the most exposed person  
3 from nuclear is about four microSieverts a year  
4 compared with the present day about 1.4; in other  
5 words a tripling of doses.

6                   However, I'm not going to dwell on  
7 that because I don't think that doses really -- the  
8 word "dose" is particularly useful. It's not a  
9 reliable concept for a number of reasons.

10                   First of all, they're only  
11 estimates. They're not measurements.

12                   What it is, Chairman, and most  
13 people are -- how would I put it -- not au fait  
14 with radiation of such. Radiations to most people  
15 are x-rays. You stand in front of an x-ray machine  
16 and you get boom, an exposure and you switch it off  
17 and that's it.

18                   But we're talking about internal  
19 exposures as people breathe in or ingest  
20 radionuclides and they're irradiated from inside  
21 and you don't just switch it off.

22                   And the thing is that when you're  
23 trying to calculate how much radiation you get from  
24 the internal emissions, you have to make estimates  
25 and they contain large uncertainties. And

1 unfortunately, despite the fact that the guidelines  
2 say that you should try and figure out what the  
3 uncertainties are, no attempt has been made to  
4 quantify these uncertainties.

5                   In particular, what I would like  
6 to have seen is some sort of an estimate to doses  
7 to embryos and to foetuses of pregnant women living  
8 nearby and that is just not even attempted.

9                   The reason why internal emissions  
10 or internal doses are so unreliable as that it's  
11 the method of their estimation. And just very  
12 quickly I'm going to run you through how we arrive  
13 at these estimates.

14                   First of all, you use about four  
15 or five computer models. These are the major  
16 models. There are a whole series of minor models.

17                   These are the reactor isotope  
18 models here which -- sorry -- whereby you estimate  
19 the various radionuclides which are generated in  
20 your reactor during fission, and then you plug a  
21 figure into the environmental models, which models  
22 behaviour in the environment, and then you plug  
23 that result into various Bio-Kinetic models and  
24 into dosimetric models ,and then you wind up with  
25 some milliSieverts and you apply some arbitrary

1 weighting factors and then after that you figure  
2 out what the doses are to infants.

3                   So what I'm saying to you here is  
4 that after you've done all these things, the  
5 official doses have huge uncertainties.

6                   And I can say that to you with  
7 quite a lot of certainty, and the reason why is  
8 because I was the scientific secretary at the U.K.  
9 Government Committee for five years, which looked  
10 at this matter, and its basic conclusion was that  
11 internal doses aren't worth the paper they're  
12 written on. There are huge uncertainties.

13                   Now, the best you can do is you  
14 can give it your good shot and say, "This is what  
15 we think the doses are". But what you should also  
16 do is have some sort of bounding figures round  
17 about that to say, "Well, these are the  
18 uncertainties involved. We try to do an  
19 uncertainty analysis." Well, this hasn't been  
20 done.

21                   Perhaps I should make it easier  
22 and simple and say that we've got a good handle on  
23 external doses, doses that we get from x-rays. We  
24 know about that and we can actually -- you can  
25 actually measure that with a Geiger counter or



1                                   But in reality, it's not like  
2 that. It's more like a solid line. So that the  
3 range -- the uncertainty range, which is a 95<sup>th</sup>  
4 percentile here divided by the 5<sup>th</sup> percentile here,  
5 is very large, and we should really come out and  
6 discuss this and say -- and be open about it  
7 because at the very least if you did that, you  
8 wouldn't have people like me criticizing the  
9 official models.

10                                   Now, it's not just me saying all  
11 of this. We studied this in the government  
12 committee in the U.K. These are the results from a  
13 study by the United States Nuclear Regulatory  
14 Commission and the reference by the way for those  
15 people who are interested is up at the top here.  
16 It's in small letters but you can download the  
17 PowerPoint presentation and click it.

18                                   This was prepared by the U.S.  
19 Nuclear Regulatory Commission and the European  
20 Commission back in 1999 and this table comes from  
21 it, and what this table shows is the uncertainties  
22 in dose core fissions and these are for the  
23 dosimetric models.

24                                   And I'll just take you through  
25 one, the top one, caesium-137, and method of intake

1 is through ingestion and doses to the red bone  
2 marrow and the uncertainty range now is -- the  
3 5<sup>th</sup> percentile into the 95<sup>th</sup> is a range of four.  
4 Well, that's quite a good handle and we've got a  
5 good idea of what the doses are here.

6                               However, if we take other ones  
7 like, say, strontium-90 by inhalation dose to the  
8 lung, we can see the uncertainty range is 5,000.  
9 Well, a better way of putting it is that we just  
10 don't know.

11                              It would be honest to say we just  
12 don't know, and it gets worse if you go onto  
13 plutonium with ingestion and bones surfaces.

14                              And, as I say, these are not my  
15 figures. These are figures from the NRC and the  
16 European Commission.

17                              So what does that mean? Well, I  
18 think that it would behove both the OPG and the  
19 CNSC that when they're trying to assess people's  
20 exposures near Darlington that they should really  
21 use becquerels, not Sieverts. At the very last  
22 minute they should use Sieverts perhaps, but they  
23 should -- for most of their analysis they should  
24 use becquerels, i.e. radioactivity.

25                              Why? Well, because you can

1 actually measure radioactivity for a start. Doses  
2 are just a theoretical construct.

3                   So that means I would like to see  
4 becquerel data and air concentrations at the  
5 proposed stations, becquerel data on food and water  
6 concentrations and becquerel radioactivity levels  
7 in people because you measure them. But very  
8 little data on this or almost none was actually  
9 presented in the EA. Instead, everything was in  
10 Sieverts.

11                   Well, as I say, I don't have much  
12 faith in Sieverts and neither do most of my  
13 colleague scientists.

14                   What I was hoping to see is  
15 something like this. Now, this is a histogram from  
16 -- or I should say a chart from a report prepared  
17 by Richard Osborne, for whom I have a great deal of  
18 respect, and a report prepared by him for CNSC a  
19 couple of years ago, in 2002. Sorry, that was nine  
20 years ago.

21                   And what this shows here is on the  
22 x-axis is distance from the reactors and then the  
23 y-axis is tritium concentrations in air. And you  
24 can see as you approach the -- sorry -- the  
25 reactor, the tritium concentrations go up and this

1 is what we would expect.

2 But I'd like to have seen more  
3 discussion of this and some discussion with the  
4 population levels near Darlington and what kind of  
5 collective doses we would have seen. We didn't get  
6 that.

7 Also, I would have liked to have  
8 seen something like this next slide which is the  
9 concentrations of tritium in food near our Canadian  
10 reactors. Again, this is a CNSC report, or a  
11 report prepared for them by Richard Osborne.

12 As you can see, on the x-axis,  
13 again as you approach the reactor, that the food  
14 concentrations or soil concentrations go up  
15 exponentially as you can see.

16 And we're talking about a log  
17 charge here and the slope here from 20 kilometres  
18 is a slope of about 2 -- or -2 I should say as you  
19 would expect for rapidly increasing concentrations  
20 as you got nearer the power station.

21 The thing about estimating doses  
22 to local populations is that you have to do a lot  
23 of estimations so to speak.

24 Here I've got seven of them, seven  
25 of the methods and by the way, the last two weren't

1 considered by OPG. I don't know why, but they  
2 should have been considered.

3                               So there's a lot of means by which  
4 people can get -- or local residents can get  
5 exposures from tritium, carbon-14 in particular  
6 which I'm worried about.

7                               Now, this is another official  
8 model result from the beginning of the IEA in 2007.  
9 This is another CANDU reactor but this time in  
10 another country, in Romania, and this is Cernavoda,  
11 and that blue line through the middle is the Danube  
12 River -- the Blue Danube -- except that when I went  
13 there it was a dirty grey.

14                              And what this does is that this  
15 models what happens when you open up a reactor for  
16 refuelling. They modelled here one terabecquerel  
17 over a 24-hour period, and this is what it's  
18 saying, and the weather was strong winds from the  
19 south-east to the north-west. And these are doses  
20 from -- tritium doses from inhalation. As you see,  
21 there are doses seen nearby. There's quite a bit  
22 of a built-up around here.

23                              And if you look at another slide,  
24 this is where different weather patterns,  
25 changeable weather and light winds, and as you can

1 see there are doses here and these are doses from  
2 organically bound tritium in cows' milk.

3                   These are all official, nothing to  
4 do with -- none of my work whatsoever. I'm showing  
5 them to you because -- so that the public can see  
6 what actually is going on. Now, people who live  
7 near Darlington, they're getting this every time  
8 the reactor opens up.

9                   Indeed, I think that I've  
10 recommended that people near nuclear power stations  
11 should be advised as to when the reactors are going  
12 to be opened up for refuelling and given the  
13 opportunity to move away.

14                   And I would also like to have  
15 guidance given to OPG that they should only open up  
16 a reactor when the winds are blowing out to the  
17 lake or at night-time when people are in bed.

18                   Let's look at some official  
19 estimates of tritium intakes within for 5 or 10  
20 clicks of Pickering and Darlington.

21                   Again, these are -- it's not my  
22 data. This is data produced by Richard Osborne for  
23 CNSC and he looked at the various sources of  
24 tritium near Darlington and Pickering and reckoned  
25 what the becquerel intakes would be. This is 5 to

1 10 clicks.

2                                   And he reckoned a total of 74,000  
3 becquerels per annum. That's what he reckoned but  
4 this is -- we're not talking about new reactors.  
5 We're talking about existing reactors. This is  
6 what people get already, okay?

7                                   So my question is, is 74,000  
8 becquerels per year, is that safe? Is that okay?  
9 Because these are not my figures; these are your  
10 figures, okay. This is figures commissioned by the  
11 CNSC.

12                                   Well, it's a good question. So I  
13 tried to dig around to find out if that were safe  
14 or not.

15                                   Well, just a few weeks ago, the  
16 CNSC recommended a tritium groundwater design limit  
17 of 100 becquerels/litre.

18                                   Hats off to you guys; that's an  
19 amazing, amazing decision to make. And although I  
20 have brickbats for CNSC, I also have roses for them  
21 too. When they do the right thing, you will get my  
22 kudos, okay.

23                                   And going down to 100 becquerels a  
24 litre for -- even although it's a design limit and  
25 even although it's for groundwater, you know, give

1 congratulations where it's due, Chairman, and  
2 that's what I'm going to do. I'm going to give  
3 congratulations to CNSC.

4                   So let's use that 100 becquerels a  
5 litre. Well, the average Canadian drinks 550  
6 litres of water of year, and this is data from  
7 Health Canada. So willy-nilly, that means if you  
8 drink 550 litres of water a year at 100 becquerels  
9 a litre, so we're talking about 55,000 becquerels a  
10 year that's considered safe.

11                   Is it? Well, already people near  
12 Pickering are getting more than that. And I'm only  
13 using your own figures; none of this is invented by  
14 me.

15                   This is before any plant is built  
16 and we are going to double this? We're going to  
17 build another big plant? Hubris, gentlemen, hubris  
18 -- ladies and gentlemen, sorry.

19                   So I just mentioned tritium limits  
20 and then we look at the design guide for  
21 groundwater which CNSC have just put out, which is  
22 100 becquerels/litre. The European Union has the  
23 same, but the ODWAC recommendation -- I'm not sure  
24 if there's any people here from ODWAC this morning  
25 -- but it said initially 100 but then going down to

1 20 and other stage they've got guidance levels of  
2 18 and 15 becquerels per litre.

3                               So we're going in the right  
4 direction but I still think that we should be  
5 getting down to 20 becquerels a litre, the point  
6 being that what I'd like to see is before we design  
7 reactors, the four types of reactors which are  
8 under consideration here, I'd like to see how they  
9 answered this question.

10                              Can they operate within a 100  
11 becquerels per litre? Can they? I don't know, but  
12 I'd certainly like to see that addressed.

13                              And here's the question; do OPG's  
14 proposals for the ACR or for the EC-6 meet this  
15 criterion? Well, I don't know, it's up to them to  
16 answer that.

17                              Now, I'm going to talk about more  
18 important and that is the evidence for increased  
19 leukemias near nuclear facilities.

20                              I'm going to talk about the German  
21 KIKK study -- come back to that in a minute -- a  
22 U.K. case studies in about 60 -- six zero -- of the  
23 studies worldwide on increased leukemia incidences  
24 in the studies, in particular the KIKK study.

25                              I use the work "KIKK" as an

1 acronym. It's a German acronym meaning,  
2 "Häufigkeit von Krebs bei Kindern in der Umgebung  
3 von Kernkraftwerken". You got that? Say after  
4 me...

5 (LAUGHTER/RIRES)

6 DR. FAIRLIE: But it is important.  
7 It's one of the biggest studies that I've seen in  
8 terms of epidemiology studies.

9 It took five years, a whole team  
10 of epidemiologists from the University of Mainz,  
11 every single one of them pro-nuclear, and they  
12 found -- and it was commissioned by the German  
13 government, paid for by the German government --  
14 and they found 120 percent increased risk of infant  
15 leukemias and 60 percent increase of embryonic  
16 cancers within five clicks of the reactors. This  
17 is all German reactors, all 60 of them.

18 These increases were strongly  
19 linked to proximity and the validity of these  
20 results has been accepted by the German government.

21 Now, to me, this is cast iron  
22 evidence; this is good, solid, hard stuff. It's  
23 the kind of evidence, as scientists, that we look  
24 for and that we should base our policies on.

25 Are we? Not as far as I can see;

1 not a word of KIKK in the environmental analysis.

2 This is a chart from the KIKK  
3 study, from -- well, one of the two KIKK studies,  
4 the case study. It's a regression analysis showing  
5 the relationship of distance to risk, and the solid  
6 line is leukemias and the dotted line below it is  
7 solid cancers.

8 And there's a couple of data  
9 points there; 2.19 for the relative risk for  
10 leukemia and 33 for certain kinds of solid cancers  
11 here. As you can see, the basic point here is an  
12 escalating risk close to the reactors.

13 A good question to ask would be,  
14 "Well, all right, if that's what the Germans find,  
15 I mean is that backed up by studies elsewhere?"  
16 Well, yes, it is.

17 In fact, Laurier and his team at  
18 IRSN in France, they have listed over 60 studies in  
19 these two reports, from 2008 -- well, 1999. I was  
20 gobsmacked when I realized this.

21 There's no other area of human  
22 activity or toxicology which even -- or toxic  
23 poisons, which even approaches the number of  
24 60 studies. Even in lead studies or toxic organic  
25 chemicals or bio-dangers there's nothing like

1 anywhere approaching 60 studies.

2 And what do these studies show?

3 Well, in one word, there are increases near nuclear  
4 power stations.

5 This is a study done by a  
6 colleague of mine, Dr. Körblein, and myself, and  
7 published in an academic journal, which showed that  
8 if we take the 26 biggest and latest datasets and  
9 look at the ones where there's an increase observed  
10 and where there's no increase observed, you can see  
11 there's 19 observed and 7 not observed. That's the  
12 number of datasets.

13 But if you restrict that to  
14 statistically significant studies, now there's only  
15 -- there's less than 5 percent probability that  
16 this will occur by chance, then there are six  
17 studies and one where there's no increase observed.

18 Now, laypeople, including perhaps  
19 members of the panel, might say, "Well, look, Ian,  
20 there's some studies that don't find anything".  
21 Yes, but they don't really mean very much.

22 The thing is, that absence of  
23 evidence is not evidence of absence. All that  
24 means is that you have not picked up the increase;  
25 that's all it means. Your data wasn't good enough

1 to pick up the lowest signal-to-noise ratio.

2                   It means that your study wasn't  
3 big enough in terms of the data points to find the  
4 increase because this is what you're really doing  
5 is you're trying to find a signal and a lot of  
6 static, and sometimes you find it and sometimes you  
7 don't.

8                   If you don't find it, it doesn't  
9 mean it's not there; it just means you haven't  
10 picked it up.

11                   And that's why academic journals  
12 publish positive results because you've picked up,  
13 You've got it. You found something. If you  
14 haven't found anything, that doesn't mean anything.

15                   The problem is that many of the  
16 studies quoted by CNSC and OPG, they talk about  
17 some of the studies in Canada that haven't found  
18 anything.

19                   No, they did find things but the  
20 datasets used or the conclusions that they had were  
21 not statistically significant. The increases were  
22 not statistically significant.

23                   But that doesn't mean -- when that  
24 happens, what you should say is, "We found an  
25 increase, but we need to harden-up the data".

1 That's what they should say but they don't. They  
2 say, "We didn't find an increase". That's what  
3 they say.

4                                 Now, that is scientifically wrong.  
5 In fact, it's got a name attached to it; it's a  
6 Type 2 error in an epi study. And the area of  
7 cancer statistics near nuclear power stations is  
8 just littered with Type 2 errors and it makes me  
9 angry because it's not good science.

10                                Basically, if you look at this  
11 evidence, there's a steady pattern of leukemia  
12 increases near nuclear power stations and we should  
13 act on that.

14                                This is the Globe & Mail from when  
15 I presented data on this back four years ago and it  
16 published this showing the 5-klick and 10-klick  
17 perimeters around the nuclear power stations?

18                                I'm going to talk about principles  
19 now.

20                                The guidelines said that the  
21 Proponent should illustrate and use the  
22 precautionary principle and the principle of  
23 sustainable development. Well, there's one that's  
24 an even more important principle that they should  
25 have used which is overlooked and that is the

1 justification principle of ICRP.

2 ICRP, as you probably know, in  
3 this forest of acronyms that we have in this area,  
4 is the International Commission on Radiological  
5 Protection; quite a senior august body.

6 I don't know always agree with  
7 them, but they've got three principles for proposed  
8 practices which will result in radiation exposures.  
9 You've got to justify them. You've got to optimize  
10 the exposures and you've got to limit them. That's  
11 the three principles, right?

12 The most important is  
13 justification. What does that mean?

14 Well, you've got to weigh up the  
15 advantages and the disadvantages. And,  
16 particularly, you've got to weigh up the economic  
17 and social benefits and match them with the health  
18 detriments from the proposed practice.

19 Sounds like common sense, doesn't  
20 it? This is the kind of thing you would expect  
21 people to do, and I would have hoped that the EA  
22 would do that but it hasn't done it. OPG hasn't  
23 done it. CNSC hasn't stipulated that.

24 It's the law in Europe. It's the  
25 law and if people wonder which law it is, it's the

1 Euratom Directive 96/29. Go look it up. And it's  
2 totally absent from your documents.

3 But there two other principles and  
4 that's sustainable development, where you meet the  
5 needs of the present without compromising future  
6 generations, and the guidelines. The joint  
7 guidelines state that OPG must include the extent  
8 to which the project contributes to sustainable  
9 development.

10 A ditto precautionary principle,  
11 as ratified by the Supreme Court here, we don't use  
12 uncertainty as an excuse for inactivity. And when  
13 you try, you do implement provisions just in case.  
14 You err on the side of caution and I have to say  
15 that neither of those principles I have seen really  
16 are observed in the EIS documents.

17 I'm not going to talk a lot about  
18 alternatives because colleagues of mine are going  
19 to be discussing it, but I'm going to say very  
20 briefly that the guidelines state, the federal  
21 guidelines state that the Proponent must identify  
22 and discuss other technically and economically  
23 feasible methods.

24 However, OPG said -- and, also,  
25 they must explain how they developed the criteria

1 and how they identify the project based on relative  
2 consideration of all the benefits and costs and  
3 some justification by the back door.

4 OPG point-blank refused. "No,  
5 we're not going to do it." They said, "It would be  
6 in breach of the Ontario government's request to  
7 make preparations for a nuclear plant".

8 Well, here we go; the feds and the  
9 provincials. I think that the feds have got  
10 priority over the -- they're the government, which  
11 should really be, you know, their requirements  
12 should take precedence over provincial. The point  
13 about it is that the guidelines make it very clear  
14 that we should be looking at alternatives. The  
15 joint federal guidelines say we should be looking  
16 at these alternatives. And the OPG's refusal  
17 undermines the whole EA process. If you don't take  
18 the EA process seriously, why should other people?

19 My main recommendations: You  
20 should be using the justification and precautionary  
21 principles. You should -- the government -- the  
22 federal government should set up a permanent  
23 committee on tritium with NGR representatives,  
24 because tritium is a serious problem here in  
25 Canada.

1                   There should be epidemiology  
2 studies carrying out near Pickering and Darlington.  
3 We should be advising local people of these risks,  
4 of what's happened in Germany. We should tighten  
5 tritium limits further, and in particular, we  
6 should implement the full ODWAC report in Canada  
7 and Ontario.

8                   I'm going to finish by what a  
9 famous -- an American philosopher said. He --  
10 although he lived in Rome for many years, he said  
11 that governments who are unable to learn from  
12 history are -- they are condemned to repeat it.  
13 Think about that ladies and gentlemen, when you're  
14 making your final proposals.

15                   For those people who are  
16 interested in what I've said, there's a whole pile  
17 of references here at the end. Thank you very much  
18 for listening to me. Thank you.

19                   CHAIRPERSON GRAHAM: Thank you  
20 very much, Dr. Fairlie, for coming this morning.  
21 And I want to commend you, you're right on 30  
22 minutes, just right on. So, anyway, now the panel  
23 will -- the floor will open questions to panel  
24 members, and I'll start off first with Mr. Pereira.  
25 --- QUESTIONS BY THE PANEL:

1                   MR. PEREIRA: Thank you, Mr.  
2 Chairman. I'll start with a question on the  
3 studies that have been done and the multiple  
4 reports that Dr. Fairlie talked about of increased  
5 leukemia in the vicinity of nuclear facilities, and  
6 cancers in other studies.

7                   I turn to CNSC staff and ask for  
8 their comments on the outcomes and conclusions of  
9 these studies.

10                  DR. THOMPSON: Patsy Thompson, for  
11 the record.

12                  Mr. Pereira, one of the  
13 undertakings that we will be providing on Wednesday  
14 addresses these -- these studies, but for -- for  
15 the time being, what I would like to say is that  
16 the studies that have been done internationally on  
17 multiple sites and sites where only one -- one  
18 plant exist have shown that leukemia clusters occur  
19 equally where there are no nuclear facilities at  
20 all. And so the state of the science -- of the  
21 medical science related to leukemia is that  
22 leukemia and other childhood diseases tend to  
23 cluster, but not just around nuclear facilities.  
24 They cluster, you know, a lot of places where there  
25 are no industrial plants or nuclear facilities.

1                   The studies have shown -- the KIKK  
2 study was followed up with a study funded by the  
3 German government of a group of international  
4 experts to review the findings of those studies  
5 because the -- the leukemia cluster observed around  
6 the German nuclear facilities lasted over time, and  
7 that's been observed in a couple of other places in  
8 the UK to better understand what could be the  
9 reason for those clusters.

10                   In all cases the -- those studies  
11 are ecological studies. There is no exposure  
12 information on populations living on those  
13 facilities, so distance is used as a surrogate for  
14 exposure, and in all cases the studies have shown  
15 and the conclusions have been that these leukemia  
16 clusters could not be attributed to radiation  
17 exposures, and they occur in places where there are  
18 no nuclear facilities. But the -- the report we  
19 will be providing on Wednesday will provide more --  
20 more studies with references.

21                   MEMBER PEREIRA: Thank you. So  
22 for --

23                   DR. FAIRLIE: I can't hear what is  
24 being said. I -- I only picked up about a half of  
25 what she said. Yes, I'll say. Could -- could I

1 ask for the proponents or the regular to speak more  
2 clearly, so I can hear what's being said. I'm  
3 sorry about that.

4 CHAIRPERSON GRAHAM: Thank you,  
5 that's noted. Maybe just move the mic a little  
6 closer. Thank you. Mr. Pereira, go ahead.

7 DR. THOMPSON: I will do my best  
8 to speak more loudly, and if -- if it's still a  
9 problem, please set me know.

10 The -- the CNSC will be providing  
11 a report on epidemiological studies that have been  
12 done in Canada and elsewhere on Wednesday. We have  
13 reviewed in detail the numerous studies that have  
14 been done in relation to the KIKK work, as well as  
15 other studies that have been done in the UK. In  
16 all cases the findings of those -- of those reports  
17 have been that there is no evidence that the  
18 leukemia clusters that do last over time are  
19 related to radiation exposures. In all cases the  
20 studies that have been done, especially the KIKK  
21 one, were reviewed by an international group of  
22 experts because people wanted to -- to know what  
23 was causing the leukemia cluster, and -- because it  
24 had lasted over time.

25 That group of experts concluded

1 that there was no relationship between radiation  
2 exposure and leukemia, and the groups have also  
3 found, and the Laurier studies and others have  
4 shown that leukemia and other childhood diseases  
5 tend to cluster, and those clusters are found both  
6 near nuclear facilities and away where no nuclear  
7 facilities exist. So it's a phenomenon that's been  
8 observed in many places, not just around nuclear  
9 facilities, but the -- the medical reasons or the  
10 explanations, the mechanisms for -- for leukemia  
11 clustering are not well known.

12 CHAIRPERSON GRAHAM: Just perhaps  
13 our technical staff could provide Dr. Fairlie with  
14 a -- with the earphones, and it might be easier to  
15 hear, so -- so that we'll accommodate him. I think  
16 we're on -- English is on channel 1, French is on  
17 channel 2. So I would ask that the technical  
18 people bring forward a set of translation earphones  
19 for Dr. Fairlie. So could someone do that for me,  
20 please?

21 UNKNOWN SPEAKER: Mr. Chairman,  
22 could our expert rebut the -- the comment from  
23 CNSC?

24 DR. FAIRLIE: I'll comment on it.

25 CHAIRPERSON GRAHAM: Mr. Pereira

1 was asking a question, and did you get your results  
2 first, then I will go to -- but just before you do  
3 that, did somebody bring you the earphones?

4 They're coming. Thank you.

5                               While we're waiting, perhaps you  
6 do want to speak, sir.

7                               MR. FAIRLIE: First of all,  
8 Chairman, thank you very much for the -- the loop.  
9 I'd like to comment very briefly on what CNSC said.

10                              Essentially what the -- many  
11 nuclear scientists reject the findings -- that the  
12 -- the idea that there could be -- leukemia is  
13 caused by the radiation from nuclear power stations  
14 by pointing to the very low doses. And they say  
15 that these tiny doses, which was investigated from  
16 these -- from the nuclear power stations, cannot  
17 result in these risks. Well, that's true, and the  
18 reason why is because these -- their estimates are  
19 wrong. That's the whole point, and as I said to  
20 you, the tiny estimates that they have for the --  
21 for the exposures coming from the nuclear power  
22 stations, are way out.

23                              For a start I have written on the  
24 -- a hypothesis for explaining these increased  
25 leukemias, and it is that it's the pregnant woman

1 who lived nearby who get the doses, their embryos  
2 and fetuses. And their embryos and fetuses are  
3 very, very radio sensitive, and there is no  
4 estimate of the doses to these embryos and fetuses.

5                   However, if we look back in the  
6 1950s and look at the studies of Alice Stewart  
7 you'll see that she found that tiny doses given to  
8 pregnant women, when they had obstetric x-rays,  
9 caused a doubling of childhood leukemias -- tiny  
10 doses. And that's what I'm saying is happening  
11 here, except it's not x-rays, it's internal  
12 emitters from the women who live near nuclear  
13 reactors.

14                   Now, none of that is -- is  
15 acknowledged or discussed by the nuclear  
16 scientists, which I think is a real pity. It's  
17 basically avoiding the issue. Instead, they say --  
18 they spread the nonsense around by saying that  
19 other areas find they are increased leukemias.  
20 It's true that leukemia incidence is not  
21 heterogeneous. It -- sorry, it's not homogenous.  
22 It is heterogeneous. It's patchy and we don't know  
23 why, but to say that that means that just because  
24 they're near a nuclear power station and all that's  
25 just a fluke result, it's just -- it really is a

1 very shallow approach, extremely shallow. And most  
2 -- most of the scientists that I know regard it as  
3 a laughable response especially to when you've got  
4 studies showing very large increases. The better  
5 the study, the larger the increase.

6                   Now, it's true that CNSC said that  
7 many of their studies were ecological studies that  
8 were weak. That's true and that's why I only used  
9 26 of them because I didn't -- most of them really  
10 weren't very good. They call them ecological  
11 because all you do is look at the national and  
12 provincial data; open up a book and take the  
13 numbers. They're don't actually look -- try and  
14 figure out what the -- what the exposures were.  
15 And I tend to downplay those ones, but where you've  
16 got big studies or med analysis, and there have  
17 been some, you should look hard at that evidence  
18 and take it on board.

19                   I would very much hope that CNSC  
20 would take these points on board and I understand  
21 that on Wednesday they're going to be bringing out  
22 a report for the panel. I will look at that report  
23 with great interest and if the panel would like to  
24 have my views on it, I am more than willing to send  
25 them.

1                   CHAIRPERSON GRAHAM: Thank you  
2 very much. Mr. Pereira?

3                   MEMBER PEREIRA: Thank you very  
4 much. I'll go on to a point made by Dr. Fairlie in  
5 his presentation, but also on page 15 of the PMD  
6 1.104 in which he discusses possible uncertainties  
7 that can arise in radiation dose estimates. How do  
8 measures for protection of workers and the public  
9 in Canada make provision for these postulated  
10 uncertainties in internal dose estimates?

11                  DR. THOMPSON: Patsy Thompson for  
12 the record. We have read the PMD from Safe and  
13 Green Energy carefully and on page 15 the  
14 uncertainties that are identified have actually  
15 been the subject of many verifications through the  
16 years. The -- the models that are described --  
17 that are talked about in terms of air dispersion  
18 and -- and the other models that align to identify  
19 an exposure and then a dose, have been validated  
20 through a number of studies. For example, we have  
21 required that the models used by licencees and  
22 proponents be conservative and we have on a number  
23 of occasions compared the predicted values --  
24 measurements in the environment with actual  
25 measurements from monitoring information. And in

1 the vast majority of cases, the predicted values  
2 are much, much higher than values measured in the  
3 environment through years of environmental  
4 monitoring data. That's one point I would like to  
5 make.

6                   And so the results from the models  
7 over-estimate doses to members of the public and  
8 what I would say as well is that the critical  
9 groups or members of the public that are used in  
10 assessments, have lifestyles and diets and other  
11 things that would cause them to be exposed to a  
12 greater extent than members of the public who  
13 actually live around nuclear facilities. So that's  
14 an additional level of conservatism and careful --  
15 as a precaution in the work that is being done.  
16 And this has been verified on a large number of  
17 occasions with actual monitoring information.

18                   And the -- in addition, there are  
19 requirements in the Radiation Protection  
20 Regulations under the *Nuclear Safety and Control*  
21 *Act* that doses be a very small percentage as low as  
22 reasonably achievable in relation to the dose  
23 limits. And that is the case and in the case of  
24 the proposed new nuclear power plants at  
25 Darlington, the dose estimates are very

1 conservatively estimated for an infant, close to  
2 the site, is 5.3 microsieverts, which would not be  
3 detectable in relation to variations in background.  
4 So it is a conservative estimate and those doses  
5 are very small.

6 MEMBER PEREIRA: And just for  
7 clarification, that does relate to internal doses  
8 as well?

9 DR. THOMPSON: The vast majority  
10 of that dose is from tritium.

11 MEMBER PEREIRA: Just to continue  
12 on the question of dose estimates, in Appendix B of  
13 PMD 1.104, a question is raised, with respect to  
14 non-targeted effects of radiation exposures, SAGE  
15 recommends that estimates of doses be factored  
16 upwards to include a precautionary allowance for  
17 such effects. Are such allowances included at  
18 present in the estimation of radiation doses in  
19 Canada?

20 DR. THOMPSON: Patsy Thompson for  
21 the record. In the PMD the 2009 report is quoted  
22 and the report does say that essentially non-  
23 targeted effects have been studied for at least 20  
24 years in terms of bystander effects and -- and  
25 effects that are called genomic instability. And



1 the SAGE presentation, there's information on  
2 tritium releases at the generating stations and  
3 some estimate of the increases in tritium releases  
4 in the new nuclear -- proposed nuclear facility --  
5 generating station. Does CNSC have any comments on  
6 the consequences of those releases and impact on  
7 doses to people in the vicinity of the station? I  
8 note the new limit on drinking water has been  
9 issued by the CNSC, but are there any thoughts that  
10 you have on intakes for nuclear energy workers and  
11 the public as a consequence of the predicted or  
12 postulated increased releases of tritium?

13 DR. THOMPSON: Patsy Thompson for  
14 the record. The doses that have been estimated as  
15 part of the project are a few microsieverts for  
16 members of the public and those would be adults and  
17 infants that are because of their lifestyles, are  
18 potentially the most exposed and would essentially  
19 represent higher exposures than what the general  
20 public would be exposed to -- and levels.

21 We have monitoring data on all the  
22 workers and all the workers have tritium exposures  
23 that are quite low, and this information will be  
24 included in one of the undertakings we'll be  
25 bringing on Wednesday.



1 ill health.

2 Thank you.

3 CHAIRPERSON GRAHAM: Thank you.

4 Mr. Pereira?

5 MEMBER PEREIRA: Thank you for  
6 that request for clarification.

7 And the question of Becquerel  
8 uptake has been brought up before in information  
9 requests, I believe by SAGE.

10 Can CNSC staff comment on that  
11 issue of how we estimate the impact on people and  
12 what sort of measurements we take?

13 DR. THOMPSON: Patsy Thompson, for  
14 the record.

15 All the data -- what is measured  
16 in the environment, air, water, soil, vegetables  
17 that people eat, and milk are in Becquerel's per  
18 litre, or Becquerel's per gram, or whatever the  
19 appropriate representation of the media is.

20 The impression that is given is  
21 that Becquerels of tritium add the values that are  
22 provided in the report would cause health effects.

23 The CNSC has reviewed the hundreds  
24 of studies that have been published in the peer  
25 review literature and there are no effects on

1 genetic, cancer and other cellular effects unless  
2 there are millions of Becquerel's per litre of  
3 exposure. This data has been reviewed, it's been  
4 peer reviewed and it's part of one of the reports  
5 that CNSC has produced.

6                   And for tritium, we know that the  
7 millions of Becquerels per litre required to cause  
8 effects would equate to about a dose of 500  
9 milliSieverts.

10                   So the dose of 500 milliSieverts,  
11 which is equal to several million Becquerels per  
12 litre, is the lowest dose at which effects are seen  
13 in the biological systems.

14                   All the epidemiological studies  
15 that have been done with -- cohort studies also  
16 show that doses below 100 milliSieverts have not  
17 detected incidents or mortality of cancer.

18                   MEMBER PEREIRA: Thank you.

19                   I'll turn to ---

20                   DR. FAIRLIE: Sorry, I wonder if I  
21 could -- I'll be very brief again, if I may.

22                   It's Dr. Ian Fairlie, for the  
23 record.

24                   CHAIRPERSON GRAHAM: Yes, I know  
25 we want to get everything on the record we can but

1 I think we have to get the panel to go -- I'll  
2 allow this ---

3 DR. FAIRLIE: Thank you.

4 CHAIRPERSON GRAHAM: --- and then  
5 we have to carry ---

6 DR. FAIRLIE: Dr. Thompson said  
7 that there are no measurable effects below 100  
8 milliSieverts. Well, that is utter rubbish,  
9 poppycock.

10 I don't know many scientists who  
11 work for official bodies like UNSCEAR or RCRP or  
12 you name it -- BEIR7 -- who would make such an  
13 outrageous statement.

14 The point is, I would point Dr.  
15 Thompson to the RERF studies, the lifespan studies  
16 in Japan, which consistently have found people who  
17 were exposed below 100 milliSieverts, but even  
18 below 50 milliSieverts, they have increased risks  
19 of various cancers.

20 Now, basically, what we're arguing  
21 about is the Linear No-Threshold hypothesis of  
22 radiation's effects and whether that continues all  
23 the way down to zero.

24 Well, all of the world's  
25 recognized radiation authorities accept that. They

1 use the Linear No-Threshold to be able to operate  
2 their regulatory systems, and yet here we have a  
3 government scientist saying "No, we don't believe  
4 that there are effects below 100 milliSieverts".

5 Well, that is absolute rubbish,  
6 ladies and gentlemen.

7 I feel quite ashamed about the  
8 fact that you hear it from a reputable government  
9 scientist.

10 DR. THOMPSON: If I could point  
11 out ---

12 CHAIRPERSON GRAHAM: Mr. -- just  
13 one moment, Dr. Thompson.

14 I just want to say that while we  
15 appreciate your views I don't -- as a Chair, I find  
16 it difficult to allow personal attacks on opinions.  
17 Make your points of view and we'll go from there.

18 So, Dr. Thompson, would you care  
19 to -- and I don't want to get into a debate. We  
20 want to get all the evidence we can. But Dr.  
21 Thompson, I'll give you that, and then we'll go  
22 onto Mr. Pereira again.

23 Thank you.

24 DR. THOMPSON. Thank you. Patsy  
25 Thompson, for the record.

1                               I just wanted to add that the CNSC  
2 does use, and will continue to use, the Linear No-  
3 Threshold relationship, but we also recognize that  
4 it is a conservative representation of what we know  
5 about radiation risk.

6                               MEMBER PEREIRA: Thank you.

7                               I'll turn to Ontario Power  
8 Generation now.

9                               In PMD 1.104 on pages 21 and 22,  
10 SAGE discusses the effect of dilution on the level  
11 of tritium contamination in lake water from the  
12 cooling tower and once-through condenser cooling  
13 options.

14                              Question to Ontario Power  
15 Generation. How does tritium leak into the  
16 condenser cooling water stream? What are the other  
17 contaminants that could also be leaking into the  
18 condenser cooling water stream? And, finally, what  
19 measures does OPG plan to take to minimize this  
20 leakage of contaminants?

21                              MS. SWAMI: Laurie Swami, for the  
22 record.

23                              The condenser cooling water system  
24 at our current plants, there are releases from our  
25 radioactive liquid waste management system, as an

1 example, which is used to collect and process  
2 material before it is released to the environment  
3 in very, very low concentrations.

4                   Those systems for the new nuclear  
5 plant, we are looking to improve our performance in  
6 this area by including with the new design end-of-  
7 pipe cleanup systems to reduce and remove  
8 impurities that may be released through the  
9 condenser cooling water system.

10                   And so that we would not  
11 anticipate to have as significant discharges,  
12 however, for modelling purposes, we took a bounding  
13 approach so that we could assess what the full  
14 impact would be for our facilities for these types  
15 of emissions.

16                   So that's the type of thing that  
17 would be released through the condenser cooler  
18 water system.

19                   Leaks and -- as you mentioned,  
20 there are potential for leaks into the cooling  
21 water system.

22                   The cooling water system is  
23 separated into two systems. One is the service  
24 water system, which provides cooling to heat  
25 exchangers, et cetera, inside our facilities. That

1 system would have some limited -- very limited  
2 contact with potentially tritiated systems, and  
3 that could potentially be released.

4                   And in the past we have had some  
5 experience where there has been releases through  
6 the service water systems. As a result of that, we  
7 have changed some of the designs for heat  
8 exchangers so there's not as much of a direct or a  
9 potential for direct contact between the two  
10 fluids.

11                   And so we've made those  
12 modifications and we would anticipate similar  
13 modifications in the new designs as well, that  
14 there would be an understanding of how to reduce  
15 the amount of leak during operation.

16                   And so, of course, that would be  
17 through our operations and maintenance programs, we  
18 would ensure leaks -- tight leak checking programs,  
19 ensure that we take equipment out of service and  
20 make sure that it's not leaking to the service  
21 water or cooling water systems.

22                   I believe that was the full  
23 question.

24                   MEMBER PEREIRA: Just -- just a  
25 clarification then. The -- the estimate of Tritium

1 from the cooling water system thus provided in your  
2 environmental impact statement, is that largely  
3 what your estimate would come from, the radioactive  
4 liquid management system?

5 MS. SWAMI: Laurie Swami for the  
6 record. Essentially, that would be correct.

7 MEMBER PEREIRA: Thank you. Go  
8 back to the CNSC staff for your final question.

9 In Chapter 8 of PMD 11 of 4, SAGE  
10 recommends that a case control epidemiology study  
11 be set up to seek information on possible adverse  
12 effects from persistent exposure to Tritium. Have  
13 any studies of this type been conducted on human  
14 health effects from long-term exposure to Tritium  
15 -- studies in Canada?

16 (SHORT PAUSE)

17 DR. THOMPSON: Patsy Thompson for  
18 the record. There are a number of studies that  
19 have been done of Canadian nuclear power -- power  
20 reactor workers. These studies are cohort studies  
21 which are recognized as being more robust than the  
22 case control studies. And those studies include  
23 all doses received by nuclear power reactor workers  
24 and these doses include Tritium. And these studies  
25 have shown that the workers are healthier than the

1 general population and we have not detected an  
2 increase incidence in any cancer.

3                   We also have, over the last two or  
4 three years, conducted a large number of work on  
5 Tritium. And one of the recommendations that CNSC  
6 staff has done is that an international study --  
7 cohort study be conducted of workers in countries  
8 where Tritium exposure is -- has been monitored so  
9 that we increase statistical power of studies with  
10 Tritium. That's one of the recommendations we have  
11 approached other countries to join in this  
12 international initiative, but the Canadian studies  
13 that have been done of our workers with Tritium  
14 exposure showed no increased risk of cancer.

15                   MEMBER PEREIRA: Thank you. For  
16 this cohort study that you referred to, would this  
17 -- the reports on that study be part of the  
18 submission on Wednesday or is this a separate one?

19                   DR. THOMPSON: Patsy Thompson for  
20 the record. The cohort studies done on the  
21 Canadian nuclear power reactor workers are included  
22 in -- in the report we will be providing on  
23 Wednesday.

24                   MEMBER PEREIRA: Thank you very  
25 much. Thank you, Mr. Chairman.

1                   CHAIRPERSON GRAHAM: Thank you,  
2 Mr. Pereira. Madame Beaudet?

3                   MEMBER BEAUDET: Thank you, Mr.  
4 Chairman. I'd like to go back to the KIKK study.  
5 And my understanding is the International  
6 Scientific Commission that reviewed this study came  
7 to the conclusion that there was some flaws and  
8 that they should go ahead and do more studies on  
9 genetics with the population that they believed  
10 were affected.

11                   This being said, the study, to my  
12 understanding, the international scientific study  
13 didn't say that you could come to the conclusion  
14 that there would be effect if you are near nuclear  
15 power stations, but it doesn't say that if you are  
16 near this, no effect. And it goes back to what you  
17 said, that absence of evidence is not evidence of  
18 absence. And for me, the KIKK study doesn't  
19 conclude anything that we can rely on,  
20 unfortunately, because we still don't know that --  
21 for me, that's high, right, those two studies.

22                   And you may agree or not, but it  
23 brings me to one of the principle that you have  
24 brought about in -- in your PMD written submission  
25 about the precautionary principle. And so where

1 there is some evidence, you have to take some  
2 caution or prudent approach. But if there is  
3 scientific uncertainty, it's not an excuse for  
4 inactivity. And I'd like you to comment on this  
5 paradox that decision makers have to deal with.

6 CHAIRPERSON GRAHAM: Dr. Fairlie?

7 DR. FAIRLIE: Well, it's true that  
8 there is a great controversy over the KIKK study  
9 and I was very saddened when the international  
10 commission, who are all pro-nuclear to -- to a  
11 percent, disagreed with its results. Clearly, the  
12 findings of the KIKK study were a great  
13 disappointment to them. They had set it up, in  
14 fact, to find exactly the opposite and the results  
15 came as a real surprise. But what can one say?  
16 Either you admitted that -- that these leukemia  
17 increases were the results of some facet of the  
18 nuclear power stations, in which case you would  
19 have to backtrack from nuclear power, and they  
20 didn't want to do that, so instead they criticized  
21 the study.

22 But any objective analysis of that  
23 study by independent scientists shows that the  
24 study actually was a very good study, one of the  
25 best. This was a -- a crack team of

1 epidemiologists, amongst the best in the world.  
2 And for this international commission to heap scorn  
3 on it, to me, was a travesty of science. It's  
4 politics getting in the way of science. I feel  
5 very sorry about that.

6                   It's -- I think it's better to try  
7 hard to keep to what the science says and keep your  
8 politics out of it. You may find that funny coming  
9 from me, I suppose, to say that, but I am genuinely  
10 guided by hard science and I do agree with many of  
11 the comments made by the CNSC that -- in a sense,  
12 that many of the epi studies aren't really very  
13 good. It's true, they aren't. But some of them  
14 are good and you tend to be -- one should be guided  
15 by them, including by the KIKK study.

16                   And by the way, I'd like to add  
17 one thing. CNSC said that -- in answer to the  
18 question by Mr. Pereira, that there was no evidence  
19 of increased leukemias amongst nuclear workers.  
20 Well, that's exactly the opposite of what happened.  
21 I'm sorry, but if the -- the Zablonski study, which  
22 was a big meta-analysis, actually did find large  
23 increases in leukemias amongst nuclear workers. It  
24 did. Relative risks were huge. I mean fifty-fold.  
25 And they were astonishing, the results. They're

1 still trying to work out why the increases are  
2 there, so for the CNSC to say, No, there weren't  
3 any increases, is a travesty of the situation. I'm  
4 sorry. I'm not being personal here. I'm just  
5 pointing out what the evidence said.

6 CHAIRPERSON GRAHAM: Madame  
7 Beaudet?

8 MEMBER BEAUDET: I'm still waiting  
9 for an answer about the precautionary principle.

10 DR. FAIRLIE: Say it again.

11 MEMBER BEAUDET: What about the  
12 precautionary principle?

13 DR. FAIRLIE: That one should err  
14 on the side of caution and given the fact of  
15 scientific controversy, should one still act? Is  
16 that your question?

17 MEMBER BEAUDET: Yes.

18 DR. FAIRLIE: Yes, I think one  
19 should. Erring on the side of caution means that  
20 either side could be right on this and where do you  
21 draw the line? Do you act towards the benefit of  
22 the economic health of the nuclear industry or  
23 towards the benefit of the public health? That's  
24 what we're down to here. What's more important,  
25 having economic growth or looking after young

1 babies and their health? I suggest to you that  
2 perhaps we should have a heavier weighting towards  
3 public health.

4 MEMBER BEAUDET: You were bringing  
5 back my next question, which is the ICRP principles  
6 and the justification of a project. I've done many  
7 commissions, as I said before, over two dozens now  
8 and more, and very often you have to look -- in  
9 this case our mandate is more to address the  
10 significance of any residual adverse effects.

11 On many instances, and you were  
12 referring to that when you discussed about the  
13 choice of alternatives, you have to look if the  
14 adverse effects outweigh the positive effects. And  
15 here we can look at health, and you say we should  
16 tend to judge more the projects with a health  
17 environment than socio-economic benefits. We've  
18 had many presentations here that are very  
19 interested in the socio-economic benefits, and we  
20 receive all opinions and in the preparation of our  
21 reports we have to evaluate, also, the positive  
22 effects of socio-economic benefits. So I'd like to  
23 hear from you, how do you keep the balance?

24 DR. FAIRLIE: That's a good  
25 question, and basically it's the fundamental

1 question faced by all of you. How do you bound the  
2 good bits and the bad bits?

3                               Conventionally there are -- well,  
4 there are a number of approaches, but the  
5 conventional one, which is normally used, is a cost  
6 benefit analysis. I'll repeat that, cost benefit  
7 analysis, whereby you put a monetary value on your  
8 economic and social benefits. And that's  
9 relatively easy. More tricky is putting an  
10 economic value on health detriments. Now, what you  
11 can do, and has been done in the past, is you recon  
12 the number of fatal cancers which will occur from X  
13 number of years of operation of the nuclear power  
14 stations, and put a value on those lives lost. As  
15 you can imagine, that's hugely controversial. Some  
16 people will put some values, other people much  
17 higher value.

18                               In United Kingdom, that's my  
19 expertise, the value which is only used is £100,000  
20 per life lost, that -- which would translate to  
21 roughly speaking about \$150,000 -- Canadian dollars  
22 per life. Well, that's a bit brutal, and  
23 mercenary, and I'm not sure about the ethics of  
24 that, but one could try and just to see what the  
25 results were. It was a lot -- but you could still

1 put in the caveats along with it, that's one  
2 approach, you could do that.

3                   It has -- I'm not saying that it's  
4 the best way or it's without its flaws, it does  
5 have flaws, as I say, but it's -- it's a way of  
6 addressing the issue and trying to get to grips  
7 with it, at the very least to do a first-run  
8 analysis to run it by.

9                   Now, of course, it's not done.  
10 And the United Kingdom, which is supposed to be  
11 doing a justification, they don't do it. Similarly  
12 in Europe, they don't do it. Although they're  
13 required by law to do it, they don't. And the  
14 reason why is because they would have to admit that  
15 the operation of nuclear power stations would  
16 result in death, and that is politically  
17 unacceptable, it would appear to me, so they don't  
18 do it.

19                   But I think that they should. In  
20 other words, they should try and lay out honesty  
21 and with candour, with transparency, this is what  
22 is likely to occur, and this is the value we're  
23 putting on it, but we think that the economic and  
24 social benefits are better than that, outweigh  
25 those. At the very least it would have the merit

1 of honesty.

2 CHAIRPERSON GRAHAM: Madame  
3 Beaudet?

4 MEMBER BEAUDET: It may sound --  
5 sorry, Mr. Chairman, thank you. It may sound  
6 brutal, but it is done internally in many  
7 countries.

8 DR. FAIRLIE: Yes, I know, yes.

9 MEMBER BEAUDET: I'd like to go to  
10 your recommendation and hear from CNSC about the  
11 third one, case control epidemiological studies  
12 should be set up to a certain possible adverse  
13 health effect in treating contaminated areas.

14 I know we will get as an  
15 undertaking, Wednesday, I think, a review of the  
16 studies done so far. Would this element be  
17 considered already and is there a proposal that it  
18 will be an ongoing activity. And I seem to have  
19 understood by one of the answer to my colleague,  
20 Mr. Pereira, earlier, that you work more with the  
21 source consequence approach. Is it possible to  
22 know, also, when you will present your -- your  
23 review if the non-targeted effects on radiation are  
24 taken into account?

25 CHAIRPERSON GRAHAM: Dr. Thompson?

1 DR. THOMPSON: Patsy Thompson, for  
2 the record.

3 The work that has been done to  
4 date are cohort studies and case control studies.  
5 They include -- the total doses that were  
6 considered include Tritium exposure. And those  
7 studies are done in relation to mortality and  
8 cancer incidents.

9 In terms of non-targeted effects,  
10 since the non-targeted effects or if they do  
11 contribute to cancer, will be reflected in the  
12 cancer incidents. It's indirectly taken into  
13 consideration. Non-targeted effects can only be  
14 studied in experimental settings with exposures and  
15 tracing of where the -- the exposure goes from --  
16 in cells that have not been directly exposed. And  
17 these studies are being done essentially to help  
18 improve our understanding of the mechanisms -- the  
19 cellular mechanisms that cause cancer. But they're  
20 indirectly taken into consideration when we look at  
21 incidents of cancer, because if they do contribute  
22 to cancer, then they would be captured.

23 MEMBER BEAUDET: Thank you. I'd  
24 like to go now to PMD 1.3 of -- that's the PMD of  
25 CNSC on page 54. The third paragraph you say that

1 -- oh, sorry. You mention here that a deficiency  
2 in the IS was that OPG submits annual radiological  
3 environmental monitoring program reports to CNSC,  
4 and with respect to groundwater, we have some data  
5 on well water Tritium concentrations that are  
6 analyzed every month, and we have -- we are given  
7 here some average numbers. It's below 2.3  
8 Becquerel per litre to 22.5 Becquerel -- 22.5  
9 Becquerel per litre, sorry. Now, this is already  
10 above the standard of the Ontario government. It's  
11 not with the CNSC because you have 20 -- you have  
12 100 Becquerel per litre.

13                               But first of all, this is an  
14 average. Have you looked at maximums and minimums?  
15 I mean, can we have an idea what are the maximums?

16                               DR. THOMPSON: Patsy Thompson, for  
17 the record.

18                               We -- we do have that information.  
19 We could provide the range of values. What I would  
20 like to clarify is that the 20 Becquerels per litre  
21 is not the Ontario drinking water standard at this  
22 time. The Ontario drinking water standard at this  
23 time is 7,000. The Ontario Drinking Water Advisory  
24 Council has made recommendations to the Ontario  
25 government, and the government has not acted on

1 that recommendation yet.

2 MEMBER BEAUDET: Yeah, I realize  
3 that, but the reactor, if it goes ahead, will be  
4 constructed in many years from now. And I thought  
5 we had the assurance, if the standards change, you  
6 will apply the future standards and not the actual  
7 one; am I correct?

8 DR. THOMPSON: Patsy Thompson for  
9 the record.

10 That's correct. The expectation  
11 is that the -- the proponent or future licensee  
12 would comply with standards at that time. We will  
13 provide the range of values for -- for Tritium in  
14 ground water. The CNSC has made recommendation to  
15 the level of 100 Becquerel's per litre in  
16 groundwater because of the behaviour of tritium in  
17 the atmosphere, where it can be entrained with rain  
18 and snow to the ground and contaminate the  
19 groundwater.

20 We made that recommendation,  
21 recognizing that drinking water supply plants  
22 around nuclear facilities are all below 20, so our  
23 concern was with the groundwater around the sites.

24 MEMBER BEAUDET: Have you done a  
25 similar exercise for milk and vegetables?

1                   Because I believe OPG does also  
2 give information in -- I don't know if it's monthly  
3 reports, but at least there's an annual report we  
4 can find on the Internet site where they have, as  
5 well, figures for milk.

6                   Have you done a similar exercise  
7 as for well water?

8                   DR. THOMPSON: Patsy Thompson, for  
9 the record.

10                  Yes, we have. And one of the CNSC  
11 tritium report's that are posted on the CNSC  
12 website, and that we can provide to the panel, is a  
13 compilation of all the monitoring information that  
14 includes milk, vegetables and air and water that  
15 are being monitored around all Canadian nuclear  
16 facilities. So we have that data, and it can be  
17 provided to the panel.

18                  MEMBER BEAUDET: I'd like to go to  
19 OPG now because I believe there's a recommendation  
20 from SAGE where Recommendation E, that the people  
21 who live near CANDU power station should be advised  
22 not to consume food and fruit from their own garden  
23 and orchards.

24                  And, I believe, in the case of  
25 Darlington, you did have to notify a farm near the

1 site -- and correct me if I'm wrong -- that they  
2 should not use the vegetables from their garden.

3                   And also on what -- what is the  
4 threshold -- what's the limit for you to decide to  
5 advise people that they -- because you must have a  
6 protocol for that, that you decide to advise the  
7 farmers around the site whether -- let's say  
8 Darlington, we're studying Darlington -- whether  
9 they should stop to consume or to sell their  
10 produce?

11                   MS. SWAMI: Laurie Swami, for the  
12 record.

13                   I'm not familiar with your  
14 reference to notifications by OPG to not consume  
15 products in the local area. I'm not familiar with  
16 that, and I can -- I can find out more information  
17 about that, but I'm not familiar with that.

18                   MEMBER BEAUDET: I've read it  
19 somewhere. I'm sure you have done -- with the  
20 massive amount of documents, and it could be when I  
21 was looking at one of the report's you have on your  
22 Internet site. I'll make an effort also to try to  
23 find -- but there is a reference somewhere where  
24 you said to a farmer to stop consume.

25                   Maybe CNSC can enlighten us on

1 that.

2 MS. SWAMI: Perhaps I could also  
3 mention that OPG does not make notifications for  
4 restricting consumption of products. The  
5 provincial government would make those  
6 determinations, based on their preset limits under  
7 their emergency response protocols.

8 So in the event that there is an  
9 event, an unlikely event, that that may be, OPG  
10 becomes responsible for ensuring we control and  
11 contain on site, and the province takes on the  
12 responsibility for that aspect of an event.

13 So it's not something that OPG  
14 would typically do. So I'm not sure where the  
15 reference will be, but we'll look for that and  
16 we'll find that.

17 MEMBER BEAUDET: So you mean that  
18 for normal operation -- it would be only for  
19 malfunction and accident cases? For normal  
20 operation, there's no advisory?

21 MS. SWAMI: Laurie Swami.

22 There would not necessarily be a  
23 need for an advisory because our -- and we've had a  
24 lot of discussion today about the concentrations  
25 that we measure and that we use that to assess what

1 the public dose would be. There would be little  
2 evidence to suggest that we should provide that  
3 type of an advisory.

4                               These numbers are fairly low level  
5 and when they're used in dose calculations -- for  
6 example, the Darlington dose was .7 microSieverts  
7 for 2009. There would be very little reason to  
8 believe that there would be a critical group close  
9 to the facility that would receive a higher dose as  
10 a result of consuming products, as that's part of  
11 our program, to look at what the public dose  
12 calculations and how we assess what the impact is  
13 from our operation.

14                              MEMBER BEAUDET: To help you in  
15 your research, I think it refers to location  
16 point 15. I'm not sure, but I think it was  
17 reception location 15, R-15.

18                              MS. SWAMI: Thank you.

19                              MR. ETCHES: Mr. Chairman, may I  
20 ask that the reference that Ms. Beaudet is  
21 referring to be -- make sure it's brought forward  
22 to the panel's attention.

23                              Thank you.

24                              MEMBER BEAUDET: I thought it was  
25 normal operation, so I didn't take the reference

1 down, but I'll try to see in my notes as well.

2 MR. ETCHES: Yeah, if we could ask  
3 if it's brought to the panel's attention.

4 Thank you.

5 MEMBER BEAUDET: My last point is,  
6 is there -- I know you have a very well-organized  
7 communication action plan, and we did discuss last  
8 week that, you know, you would advise people in  
9 case of malfunction, or incidents -- obviously  
10 accidents as well, but the last recommendation  
11 here, to advise local residents of times and dates  
12 when OPG intends to open reactors for refueling or  
13 other reasons or there's an outage.

14 How well is the local population  
15 informed with respect to these activities?

16 MS. SWAMI: Laurie Swami, for the  
17 record.

18 I just will make one comment on  
19 refueling. CANDU reactors do not go through a  
20 refuelling outage. We fuel online, and so they're  
21 fuelled on a daily basis. There's no opening  
22 similar to what would be experienced with PWRs or  
23 BWR -- I'm sorry -- pressurized water reactors or  
24 boiling water reactors. It's a very different  
25 design concept for the CANDU design, and so this is

1 an on-going activity that takes place.

2 For outages, we do, do maintenance  
3 outages on a periodic basis and we typically tell  
4 the municipalities of interest if there was a  
5 situation where we wanted to ensure people knew  
6 more about our operations.

7 When we had our vacuum building  
8 outage, as an example, at Darlington, we came  
9 forward to a number of the committees that we've  
10 talked about previously, the Durham Nuclear Health  
11 Committee, the advisory committees, whether it's  
12 the Pickering CAC or the Darlington Site Planning  
13 Committee, we would come forward with some of the  
14 special considerations during that type of a large  
15 outage so that they would be aware of the types of  
16 things that are taking place.

17 But, typically, for reactor  
18 refueling that's not typically something we would  
19 have a significant discussion with the community  
20 about as it's on-going daily.

21 MEMBER BEAUDET: Thank you, Mr.  
22 Chairman.

23 CHAIRPERSON GRAHAM: Madam  
24 Beaudet, just for clarification, I think you were  
25 looking for something from the staff. I think

1 they're just referring that.

2 So we have and Undertaking 33, I  
3 realize that, but is there going to be another one?

4 And I'll deal with Undertaking 33  
5 first; for CNSC to provide a range of values for  
6 well water, tritium concentration, and compilation  
7 reports referring to vegetables and milk.

8 Can I give that Undertaking 33 so  
9 that you could provide that?

10 And timeframe, what would you  
11 think?

12 DR. THOMPSON: Patsy Thompson, for  
13 the record.

14 For the report, we can certainly  
15 provide it tomorrow. For the groundwater values,  
16 we'll try for Wednesday.

17 CHAIRPERSON GRAHAM: Okay, the  
18 second one, I think, came out of Madame Beaudet's  
19 questioning, was to find references with regard to  
20 advisory under normal operations. That would be to  
21 OPG, and I'm going to give that Undertaking Number  
22 34.

23 When could you advise us that that  
24 would be provided?

25 MS. SWAMI: Laurie Swami.

1 I could suggest Wednesday, but it  
2 sounds like we have a lot coming back on Wednesday.  
3 Is Thursday a better date?

4 CHAIRPERSON GRAHAM: Certainly,  
5 that's fine.

6 To the intervenor, you had asked a  
7 question with regard to undertakings. You  
8 understand the procedure and I think these two  
9 undertakings will cover what -- what you're  
10 requiring.

11 UNKNOWN SPEAKER: Thank you,  
12 Chairman.

13 CHAIRPERSON GRAHAM: Okay. With  
14 that, I think maybe -- I suggest that before we go  
15 to the floor, CNSC, OPG, government agencies and  
16 then intervenor questions, we will take a 15-minute  
17 break and the Chair will reconvene at 11:05.

18 ---Upon recessing at 10:51 a.m. /

19 L'audience est suspendue à 10h51

20 ---Upon resuming at 11:07 a.m. /

21 L'audience est reprise à 11h07

22 CHAIRPERSON GRAHAM: Would  
23 everyone please take their seats so we can get  
24 going again.

25 (SHORT PAUSE/COURTE PAUSE)

1                   CHAIRPERSON GRAHAM: We will now  
2 proceed to the next order of the day with regard to  
3 the presentation and that -- now, we'll go to OPG  
4 to see if they have any questions for SAGE. Oh,  
5 just one moment, I'm sorry, I didn't notice the  
6 SAGE people are not here yet.

7                   (SHORT PAUSE/COURTE PAUSE)

8                   CHAIRPERSON GRAHAM: Take your  
9 time, no problem. I just didn't notice you -- if  
10 you'd like to come back up, please.

11                  MR. BRADY: Sir, if you're looking  
12 for Dr. Ian Fairlie, he's just been apprehended by  
13 the media and he'll be here shortly.

14                  CHAIRPERSON GRAHAM: Well, okay.  
15 We're going to start and I'll start with OPG and  
16 Dr. Fairlie can join us when he gets done his  
17 interviews. So OPG, do you have any questions that  
18 may be relevant either to SAGE or to staff on the  
19 subjects that came up this morning.

20                  MS. SWAMI: Laurie Swami, we have  
21 no questions.

22                  CHAIRPERSON GRAHAM: Thank you  
23 very much. CNSC, I'm wondering if your questions  
24 are to Dr. Fairlie then we will have to wait, but  
25 do you have questions? Oh, Dr. Fairlie's back;

1 very good. That's perfect. So just -- I have  
2 gone, sir, in the order that we go. First is to  
3 OPG to see if they have questions to the  
4 intervenor. They have no questions. The next on  
5 the order is to go to CNSC staff to see if they  
6 have questions to the intervenor and I'll ask Dr.  
7 Thompson if you have questions.

8 DR. THOMPSON: Patsy Thompson for  
9 the record. We have no questions, sir.

10 CHAIRPERSON GRAHAM: Thank you  
11 very much. Then the next is government  
12 participants, either federal or provincial  
13 government. Environment Canada, you're here and  
14 other government agencies, if you have any  
15 questions. If not, I see no one at the microphone  
16 so now we will go to registered intervenors and we  
17 have four registered intervenors that have  
18 registered so that's what we'll take this morning.  
19 And we have unregistered intervenors and I've been  
20 very lenient in allowing those and there are two,  
21 and I'm going to allow those, but no other ones.  
22 So we'll go from there and the first one is  
23 Canadian Environmental Law Association, Theresa  
24 McClenaghan.

25 Madam McClenaghan, the floor is

1 yours.

2 --- QUESTIONS BY INTERVENORS:

3 MS. McCLENAGHAN: Thank you, Mr.  
4 Chairman. My question is actually a brief one for  
5 CNSC. There was reference this morning to the  
6 guidance on 100 becquerels per litre in groundwater  
7 as a new guideline. And I'm wondering where we can  
8 find that because it wasn't discussed last week.  
9 And when I looked for it recently I didn't find it  
10 on the CNSC website and also when it was  
11 established and exactly what is it? Is it a  
12 guideline; is it a proposed standard; what is it?

13 CHAIRPERSON GRAHAM: Dr. Thompson.

14 DR. THOMPSON: Patsy Thompson for  
15 the record. The rationale for the design criteria  
16 of 100 becquerels per litre in groundwater is  
17 documented in the CNSC synthesis report on tritium  
18 studies and that report is posted on our website.  
19 There is a plan to formally consult the public on  
20 that guideline and I'm not sure what date the  
21 consultation will start, but it's in the next few  
22 weeks and we have a commitment to report back to  
23 the Commission on the results of consultation on  
24 that proposed design criteria for groundwater, I  
25 believe in September. So the consultation will

1 happen between now and September so we can report  
2 back to the Commission. Thank you.

3 CHAIRPERSON GRAHAM: Thank you.  
4 Is that clear that it's recognized in the tritium  
5 study that Dr. Thompson's referred to? Mr.  
6 Mattson, Lake Ontario Waterkeepers. The floor is  
7 yours, sir.

8 MR. MATTSON: Thank you, Mr.  
9 Chairman, and through you I have a question for the  
10 Canadian Nuclear Safety Commission and also just  
11 thanking Dr. Fairlie for coming to Canada and  
12 providing that important evidence to this hearing.

13 To Dr. Thompson, there's been a  
14 lot of discussion about the Ontario Drinking Water  
15 Advisory Council recommendation in Ontario for  
16 tritium at 20 becquerels per litre. That  
17 recommendation came out of some public processes  
18 that many, many intervenors and scientists and  
19 stakeholders were involved in. And this morning,  
20 Dr. Thompson again noted that it hasn't been  
21 adopted officially by the Ontario Government and  
22 that 7,000 becquerels per litre is still the law  
23 and there's a recommendation to move to 100.

24 Could Dr. Thompson explain to the  
25 public and to the panel, why Ontario should not

1 adopt the 20 becquerels per litre standard that  
2 came out of the Ontario Drinking Water Advisory  
3 Council report? Thank you.

4 CHAIRPERSON GRAHAM: Thank you for  
5 that question. Dr. Thompson, if you'll respond.

6 DR. THOMPSON: Patsy Thompson for  
7 the record. The -- we -- the CNSC did participate  
8 in the meetings of the Ontario Drinking Water  
9 Advisory Council and the -- all the statements  
10 we've made is that the CNSC would ensure that  
11 facilities comply with any standard that the  
12 province puts in place and that what is important  
13 to us, is that the rationale for whatever value the  
14 Advisory Council decided on was clear.

15 We have no idea why the Ontario  
16 Government has not launched a formal consultation  
17 process on the council's recommendation. We have  
18 met with the Ontario Ministry of Environment staff  
19 on that subject on a couple of occasions and have  
20 provided essentially environmental monitoring data  
21 for drinking water supply plants around our nuclear  
22 facilities as well as values on groundwater.

23 CHAIRPERSON GRAHAM: Thank you,  
24 Dr. Thompson. The third -- the third intervenor  
25 that wants to participate is Holly Bleggen. Are

1 you here? Yeah. Okay, then take the mike, please.

2 MS. BLEFGEN: Good morning. Good  
3 morning, panel. Holly Blefgen for the record for  
4 FARE. I'd like to ask Dr. Thompson and her team of  
5 advisers, what are their credentials, please?  
6 Since all the other intervenors have to provide  
7 theirs, we would appreciate acknowledgment of that.

8 CHAIRPERSON GRAHAM: I'll take  
9 that question as the Chair.

10 MS. BLEFGEN: Thank you.

11 CHAIRPERSON GRAHAM: We have not  
12 asked for any intervenor to provide their  
13 credentials. It is not part of -- we're not a  
14 court and we're not asking for credentials.  
15 Credentials were given this morning by the first  
16 intervenor, but it is not -- and I'm -- I guess if  
17 intervenors want to do that, they're cutting into  
18 their time and we're not a court of law and we are  
19 not asking for any intervenors or any participants  
20 to provide their credentials and that is our Rules  
21 of Procedure.

22 MS. BLEFGEN: Sorry, thank you.

23 CHAIRPERSON GRAHAM: The next one  
24 is Ms. Lloyd from Northwatch. Welcome back.

25 MS. LLOYD: Thank you, good

1 morning. Brennain Lloyd for Northwatch. Chair  
2 Graham, in response to Mr. Pereira -- I think it  
3 was Mr. Pereira's first question to the Canadian  
4 Nuclear Safety Commission. It may have been his  
5 second, Dr. Thompson stated something to the effect  
6 that the KIKK -- and I won't attempt the acronym --  
7 the study name, but the KIKK study that Dr. Fairlie  
8 had referred to, Dr. Thompson stated, I think,  
9 fairly abosolutely that this had been refuted by  
10 other studies, and I'm wondering if Dr. Thompson  
11 could give us the reference for at least the top  
12 one or two or three studies that she's referring  
13 to.

14 CHAIRPERSON GRAHAM: Dr. Thompson.

15 DR. THOMPSON: Patsy Thompson.

16 Excuse me. Patsy Thompson for the record. I  
17 believe what I said is that given the importance of  
18 the findings of the KIKK study, that the German  
19 government through their radiological regulator,  
20 the Nuclear Radiological Commission, requested that  
21 an international group of experts review the  
22 studies that had been done, and that group of  
23 experts concluded that there was no evidence for a  
24 link between the leukemia clusters that had been  
25 observed that were lasting through time and

1 radiation exposures.

2                                   And there's been studies, and we  
3 can provide those references, that indicate that  
4 leukemia clusters exist in many places in the  
5 world, both close to nuclear facilities and in  
6 places where there are no nuclear facilities.

7                                   MS. LLOYD: I'm wondering, Mr.  
8 Graham --

9                                   CHAIRPERSON GRAHAM: Ms. Lloyd.

10                                  MS. LLOYD: -- if we could just  
11 for this immediate discussion have from Dr. -- Dr.  
12 Thompson name, date, and authors for the first  
13 study she just referred to that was commissioned by  
14 the German government. She seems to be referring  
15 to a particular study.

16                                  CHAIRPERSON GRAHAM: Dr. Thompson,  
17 do you want to take that as an undertaking, or what  
18 -- would you like to respond?

19                                  DR. THOMPSON: Sir, if I could,  
20 the undertaking, I can't remember what number, that  
21 we will be bringing on Wednesday includes those  
22 references, and we can provide the report at that  
23 time.

24                                  CHAIRPERSON GRAHAM: That's  
25 correct. We're just going to look up the number so

1 that Ms. Lloyd will be able to cross-reference that  
2 when the -- when the information is provided on  
3 Wednesday.

4 DR. THOMPSON: I believe it's  
5 number 30.

6 CHAIRPERSON GRAHAM: Number 30.  
7 So, Ms. Lloyd, when the -- when number 30 is  
8 provided on Wednesday, you should have that. If  
9 not, you know the procedure of coming back.

10 MS. LLOYD: Thank you.

11 CHAIRPERSON GRAHAM: When I closed  
12 the registry or closed for intervenors, a late  
13 comer just has been brought to my attention now  
14 that Mr. Kalevar asked to go on the record, and,  
15 Mr. Kalevar, in the spirit of cooperation, I'm  
16 always interested in your questions, we'll allow  
17 one question, sir.

18 MR. KALEVAR: Thank you very much.  
19 My question is to Dr. Fairlie, through you, of  
20 course. We have had a considerable talk about  
21 carbon tax across the world. We actually have a  
22 carbon tax in BC now, and I was wondering, would  
23 you be in favour of having a nuclear waste tax  
24 across the world?

25 CHAIRPERSON GRAHAM: Thank you.

1 Mr. Kalevar -- or Mr. Fairlie -- or Dr. Fairlie I  
2 mean to say. Pardon me.

3 DR. FAIRLIE: That's an  
4 interesting point. I hadn't thought of that  
5 before, but I -- put it this way. I think that  
6 nuclear waste is far, far more dangerous to the  
7 world than carbon is, and if anyone challenges  
8 that, then all one has to do is point to the  
9 nuclear waste which is burning right now in Japan.

10 It's for that reason that I'm  
11 carrying around with me a pocket dosimeter to make  
12 sure that here, in Courtice, Ontario, that we are  
13 not receiving radioactive emissions which have  
14 crossed over the Pacific and could be here today.  
15 Just for everybody's assurance, it's not. We're  
16 all right.

17 But coming back to the question,  
18 it's a good -- it's a good hypothetical question,  
19 and I think that there's no reason why we shouldn't  
20 have a nuclear waste tax. Yes, I would go for  
21 that.

22 CHAIRPERSON GRAHAM: Thank you for  
23 your hypothetical question, hypothetical answer.  
24 Thank you very much. We have two -- again, bending  
25 the rules but trying to be -- show fairness. We

1 have two unregistered questioners that are not  
2 intervenors and so on but do have questions, and in  
3 the spirit of that, we'll allow one question to  
4 each one. Joe Hayward is the first one, and, Mr.  
5 Hayward -- or Ms. Hayward, I should say, the floor  
6 is yours for a question.

7 MS. HAYWARD: Thank you -- thank  
8 you very much. My question is addressed to the  
9 Canadian Nuclear Safety Commission, Dr. Thompson.  
10 In light of your responses to scientific  
11 uncertainty surrounding possible dangers of  
12 radiation near nuclear reactors, how can you  
13 clarify to us your mandate as a government  
14 regulator?

15 CHAIRPERSON GRAHAM: Thank you,  
16 Ms. Hayward. Dr. Thompson, do you wish to respond?

17 DR. THOMPSON: Patsy Thompson for  
18 the record. The mandate of the Canadian Nuclear  
19 Safety Commission is documented in the *Nuclear*  
20 *Safety and Control Act*, and the mandate of the  
21 commission is to license to ensure that the  
22 environment and the health and safety of people are  
23 protected.

24 The basis for the technical  
25 assessments that CNSC staff does in developing

1 recommendations for the commission to consider when  
2 making licencing decisions, take into consideration  
3 scientific uncertainties so that we can provide  
4 sound advice to the commission.

5                   In the case of -- specifically of  
6 Tritium, for example, the commission directed CNSC  
7 staff to undertake the Tritium Studies Project  
8 because of the numerous questions that were being  
9 posed to the commission on the knowledge or lack of  
10 knowledge of Tritium and its health effects. And  
11 the reports we have provided document the areas of  
12 scientific knowledge as well as the areas where  
13 uncertainties reside, and we have provided  
14 recommendations for additional research to clarify  
15 some of the areas of uncertainty.

16                   We've also said that given the  
17 very low doses of radiation from Tritium around  
18 nuclear facilities, that those uncertainties are  
19 not of a nature that would make the operation of  
20 nuclear facilities unsafe.

21                   CHAIRPERSON GRAHAM: Thank you  
22 very much. We'll now go to Sheila Nabigon or  
23 Nabigon for her question.

24                   MS. NABIGON: Thank you. My  
25 question is directed to OPG. Thank you. Given

1 that the model of nuclear reactors has not yet been  
2 chosen, I actually find it strange that the  
3 Environmental Hearings are happening before that  
4 model is chosen. But specifically my question has  
5 to do with the 100 becquerels per litre emissions  
6 limit.

7 Can OPG guarantee that they would  
8 be able to operate whatever model is chosen within  
9 that limit?

10 CHAIRPERSON GRAHAM: Ms. Swami.

11 MS. SWAMI: Laurie Swami for the  
12 record. I just asked my colleague to check. I  
13 believe that we have answered that through one of  
14 our information requests previously, and our intent  
15 is to meet all of the regulatory requirements as  
16 they exist going forward, and should the design  
17 objective be approved through the consultation  
18 program that Dr. Thompson referred to, we, of  
19 course, would have to meet that limit as well.

20 CHAIRPERSON GRAHAM: Thank you  
21 very much. The Chair was aware of your answer, but  
22 for the benefit of some people it may not have been  
23 available for all of the documentation, then I  
24 appreciate your answer.

25 Now, that is the end of the

1 presentation by SAGE. I want to thank Dr. Fairlie  
2 for coming this morning for a long trip. I wish  
3 him a safe trip back. I want to thank the other  
4 members of SAGE for coming before us with the  
5 information and their intervention, and thank you  
6 very much.

7                                 With that, we will move to the  
8 next intervenor, which is Lake Ontario Waterkeepers  
9 under PMD 11-P1.164 and PMD 11-P1.164A, and I want  
10 to welcome Mr. Mattson and his group this morning,  
11 and as I had said to one of the questioners earlier  
12 this morning, there is no need to have the  
13 credentials of your intervenors and the people that  
14 are assisting you this morning. Everyone's  
15 opinions are accepted as they state them and to the  
16 best of their knowledge.

17                                 And with that, I'll ask you to  
18 proceed, Mr. Mattson.

19 --- PRESENTATION FROM LAKE ONTARIO WATERKEEPERS:

20                                 MR. MATTSON: Thank you, Mr.  
21 Chairman.

22                                 You have all our reports. They  
23 were filed in February, and I'm sure you've read  
24 them. And you will also be having the presentation  
25 on the screen. We have 20 slides that sort of

1 assist you to follow the argument this morning.

2 My name is Mark Mattson and I'm  
3 here representing Lake Ontario Waterkeeper. I'm  
4 the President of Waterkeeper and an environmental  
5 lawyer with 20 years experience in criminal,  
6 environmental and energy law.

7 I'm joined here by Krystyn Tully,  
8 my Vice-President, and Joanna Bull, who you've also  
9 met, counsel.

10 Our experts, Dr. Peter Henderson  
11 is at the end of the table, David Dillenbeck, Mr.  
12 Wilf Ruland here, and Dr. Henry Cole and Doug  
13 Howell are both joining us on the phone this  
14 morning.

15 In our presentation today we will  
16 provide an introduction to Lake Ontario  
17 Waterkeeper, an overview of the decisions being  
18 made, the context in which these decision will be  
19 made and the significant adverse environmental  
20 effects of the Darlington New Nuclear Power  
21 Project.

22 Each of our experts will summarize  
23 their chief concerns in one or two minutes and we  
24 will conclude the presentation, at which time we're  
25 happy to answer questions.

1                                   If I could, I'll turn it to  
2 Krystyn Tully.

3                                   MS. TULLY: Lake Ontario  
4 Waterkeeper is a registered Canadian charity.  
5 Waterkeeper's goal is swimmable, drinkable,  
6 fishable Lake Ontario in every community in the  
7 watershed for every person in the watershed.

8                                   Our organization was born out of  
9 the Walkerton water tragedy. In Southwestern  
10 Ontario in the year 2000, seven people died and  
11 2,500 people fell ill after drinking tap water  
12 contaminated with e-coli.

13                                  Mr. Mattson and I participated in  
14 the subsequent inquiry and during that process we  
15 discovered this truth; if one person had enforced  
16 one rule effectively, just one time, seven people's  
17 lives would have been saved.

18                                  Lake Ontario Waterkeeper exists to  
19 ensure that similar tragedies will never harm the  
20 residents of our own watershed as they swim, drink  
21 or fish near Lake Ontario.

22                                  Lake Ontario Waterkeeper's primary  
23 objective is to protect Lake Ontario. This means  
24 protection fish, fish habitat, water quality, air  
25 quality, public access and navigation rights, as

1 well as due process.

2                                   Due process is important. It's  
3 not possible to restore and protect the Lake  
4 Ontario watershed without also guaranteeing the  
5 substantive and the procedural rights for the  
6 people who live here.

7                                   To this end, Waterkeeper has  
8 participated in every major environmental  
9 assessment or licensing decision in the last  
10 decade, including every major CNSC hearing and  
11 decision that has affected our watershed.

12                                   In 10 years, we have worked on 200  
13 separate issues in more than a dozen communities,  
14 spanning 1,000 kilometres of shoreline.

15                                   We do not believe that anyone has  
16 all of the answers. We believe that through due  
17 process, scrutiny, transparent decision making,  
18 good science and meaningful public consultation,  
19 the right answer will emerge and this belief brings  
20 us here today.

21                                   MR. MATTSON: Mr. Chairman, as  
22 said at the beginning of the hearing, this is the  
23 most important environmental assessment hearing in  
24 Canadian history and to nuclear power. There has  
25 never been a federal site specific environmental

1 assessment hearing of a new nuclear power plant.

2 OPG's proposal will change the  
3 face of Lake Ontario for the next century. This  
4 hearing is the federal government's one and only  
5 opportunity to review all of the environmental  
6 impacts of OPG's proposal from cradle to grave.

7 The decisions made by this panel  
8 will determine whether Lake Ontario is adequately  
9 protected for more than 100 years.

10 So what are those decisions? In  
11 order to begin building a new nuclear power plant,  
12 OPG must obtain a licence to prepare a site, and  
13 before it can issue that licence this panel must  
14 first conduct a thorough and complete environmental  
15 assessment of the new nuclear power plant.

16 This environmental assessment must  
17 consider the environmental effects of the new  
18 nuclear power plant from the first days of site  
19 preparation through plant operations and finally  
20 decommissioning and storage. These activities will  
21 last approximately 150 years.

22 The environmental assessment  
23 decision is made by the Minister of the  
24 Environment. So this panel's first duty is to  
25 answer the following question. What should the

1 Joint Review Panel recommend to the Minister and  
2 responsible authorities with respect to the  
3 environmental impacts of the project?

4                               If this panel recommends that  
5 OPG's project be approved and the Minister of  
6 Environment accepts this recommendation, then the  
7 panel's second duty is to answer the following  
8 question. Should this project be granted a *Nuclear*  
9 *Safety and Control Act* licence to prepare the site?

10                              Let's look at these two decisions.  
11 First, the environmental assessment decision; this  
12 is three-part test. One, will the project cause  
13 environmental effects? If yes, can those effects  
14 be mitigated through mitigation measures and/or  
15 alternative means of carrying out the project? If  
16 no, can the significant unmitigated adverse effects  
17 be justified?

18                              Given Lake Ontario Waterkeeper's  
19 mandate to protect Lake Ontario, as well as our  
20 experience with environmental assessments and  
21 impacts on the lake, the Canadian Environmental  
22 Assessment Agency provided funding for independent  
23 expert evaluation of the environmental effects of  
24 OPG's proposal to help you make these decisions.

25                              Our experts have reviewed OPG's

1 proposal with a view to helping the panel answer  
2 these important questions. Will the project cause  
3 environmental effect? Yes. Can those effects be  
4 mitigated through mitigation measures and/or  
5 alternative means? Possibly. Can the significant  
6 unmitigated adverse effects be justified? We say  
7 no.

8                   If OPG is able to convince this  
9 panel and the Minister of Environment that adverse  
10 environmental effects can be mitigated or  
11 justified, then this panel looks at the second  
12 decision, and that is the licence to prepare a  
13 site, the licensing hearing, which we've heard a  
14 lot about, but they have to get through the first  
15 test.

16                   The question is, has OPG made  
17 adequate provision for the protection of the  
18 environment? We suggest the answer is clearly no.

19                   OPG has demonstrated its  
20 unwillingness to make adequate provision for the  
21 protection of the environment by ruling out close-  
22 cycle cooling, universally regarded as the least  
23 environmentally damaging cooling water option.

24                   None of OPG's site layout  
25 proposals include a no-fill option. OPG has

1 suggested that it would prefer to kill fish than to  
2 have a visual reminder of the presence of a nuclear  
3 power plant near the 401.

4 OPG has demonstrated that it is  
5 unprepared to make adequate provision to protect  
6 the environment. They've initiated the  
7 environmental assessment process without making key  
8 decisions, including selecting a reactor  
9 technology.

10 Our experts, as well as the  
11 presenters from DFO, Environment Canada, Transport  
12 Canada have all stated that these decisions are  
13 crucial to identifying the actual environmental  
14 effects of the Darlington New Nuclear Power  
15 Project.

16 Furthermore, OPG has deferred most  
17 of the important environmental studies to future  
18 licensing processes and is not prepared to discuss  
19 these issues in this environmental assessment  
20 process.

21 For these reasons we cannot afford  
22 to licence OPG's proposal at this time.

23 I'll turn it to Krystyn.

24 MS. TULLY: The environmental  
25 assessment and licensing decisions are incredibly

1 important to our community. The staff from Lake  
2 Ontario Waterkeeper who appear before you today  
3 were born and raised in this watershed.

4 First and foremost, you need to  
5 understand that Lake Ontario is one of the Great  
6 Lakes, one of the most important bodies of fresh  
7 water in the entire world.

8 Lake Ontario is the drinking water  
9 supply for nine million people from two countries.  
10 Lake Ontario supports subsistence, commercial and  
11 recreational fisheries.

12 For more than a century we have  
13 been unkind to Lake Ontario. Canada and the U.S.  
14 identified seven areas of concern where historic  
15 and chronic pollution, as well as inappropriate  
16 development, led to severe environmental  
17 degradation.

18 As much as 80 percent of habitat  
19 in Western Lake Ontario is gone because of water  
20 level regulation and development. Ongoing  
21 pollution from industry and other human activities  
22 continues to pump more contaminants into our air  
23 and our water. Everything that leaves the existing  
24 and the proposed nuclear power plants, via in  
25 wastewater discharges or spills, ends up in our

1 drinking water reservoir.

2                                   Attitudes towards the Great Lakes  
3 have changed dramatically since the first  
4 generation of nuclear power plants were built here.  
5 We understand now the importance of protecting what  
6 we have left and to taking steps to win back what  
7 we have lost.

8                                   Every decision that is made that  
9 affects our watershed, including these decisions  
10 here, must be made with the ultimate goals of our  
11 community in mind. Luckily, our community's  
12 purpose and the purpose of the *Canadian*  
13 *Environmental Assessment Act* are one and the same,  
14 namely, to take actions that promote sustainable  
15 development and thereby achieve or maintain a  
16 healthy environment. We do not always have much to  
17 maintain in Lake Ontario's most degraded areas; we  
18 do have much to achieve.

19                                   By identifying environmental  
20 impacts from existing nuclear power plants in Lake  
21 Ontario, we are able to predict some of the likely  
22 adverse environmental effects of the new Darlington  
23 nuclear power plant. We considered wastewater  
24 emissions because Pickering and Darlington nuclear  
25 power plants have a history of compliance problems

1 under the province's industrial wastewater  
2 programs.

3                                 We considered spills because in  
4 the last two years alone, Darlington and Pickering  
5 spilled close to 300,000 litres of water containing  
6 contaminants such as tritium and hydrazine directly  
7 into Lake Ontario. Often when these spills occur,  
8 the contaminated water is not contained on site.

9                                 We considered fish impingement and  
10 entrainment, which occur when fish are trapped  
11 against cooling water intake screens or when fish  
12 eggs and larvae are sucked up with the cooling  
13 water.

14                                The existing Pickering and  
15 Darlington nuclear power plants are known to  
16 destroy as many as one billion fish eggs and larvae  
17 per year through impingement and entrainment.

18                                We considered air emissions  
19 because the CANDU reactors at Darlington are known  
20 air polluters. They emit contaminants such as  
21 ammonia, benzene, greenhouse gases, hydrazine,  
22 suspended particulate matter, total hydrocarbons,  
23 as well as tritium.

24                                To assist us in our review of the  
25 Darlington new nuclear power plant, Lake Ontario

1 Waterkeeper employed a team of qualified  
2 independent experts.

3 MR. MATTSON: And I would now ask  
4 Joanna Bull, our counsel, to highlight our experts'  
5 conclusions regarding the potential environmental  
6 effects of the Darlington new nuclear plant.

7 This is evidence based on  
8 objective scientific expertise. It is based on  
9 OPG's submissions to the panel prior to February  
10 2011. Our experts did not have the opportunity in  
11 this process to address the new information that  
12 has become available in light of the crisis in  
13 Japan.

14 Joanna?

15 MS. BULL: The most important  
16 adverse environmental effects can be divided into  
17 four broad categories: cooling water, lake  
18 filling, cumulative effects and emissions. We have  
19 expert evidence in all four areas.

20 Waterkeeper's complete analysis  
21 and the full reports prepared by our experts have  
22 been provided to this panel and that's document PMD  
23 11-P1.164. I will highlight the key findings in  
24 those reports for you now.

25 Once-through cooling is the most

1 environmentally destructive cooling water option.  
2 It kills more fish than any other cooling  
3 technology. At the proposed new Darlington plant,  
4 that would be up to 46,000 fish per year.

5                   It entrains more fish eggs and  
6 larvae than any other option. Entrainment rates at  
7 the proposed plant would be 66 percent higher than  
8 at the existing Darlington station.

9                   Once-through cooling sends massive  
10 amounts of warmed water into Lake Ontario, more  
11 than any other option. It restricts navigation  
12 more than any other option, making boating  
13 dangerous.

14                   OPG wants to fill up to 40  
15 hectares of Lake Ontario with excavated soil and  
16 rock. The destruction would be concentrated in the  
17 nearshore area that includes critical fish habitat.

18                   Some of this material could be  
19 contaminated, causing further harm to fish habitat  
20 when it is deposited into the lake. There are  
21 alternatives to filling in the lake and there is  
22 insufficient evidence in the EIS to support a  
23 conclusion that any lake fill is necessary no  
24 matter which cooling technology is selected.

25                   Citing costs, OPG did not consider

1 alternatives to lake fill, including removing  
2 construction waste and soil to offsite disposal  
3 facilities; using the northwest landfill to store  
4 excavated fill and for construction lay down;  
5 moving existing features on the site to create more  
6 space on the property, the most obvious of these is  
7 the existing rail line; varying the placement of  
8 the reactors or decreasing the number of reactors  
9 to allow the plant to fit on the existing site.

10                   The Darlington new nuclear project  
11 creates a number of pathways for pollution to enter  
12 air and water. Pollutants are emitted through  
13 routine emissions, spills, air emissions, storm  
14 water runoff, sewage discharges, dust and erosion,  
15 improperly managed waste, and as biosides added to  
16 cooling water.

17                   OPG has not identified potential  
18 pollutants, the standards that would be use to  
19 evaluate them or the measures that will be taken to  
20 ensure they do not enter or negatively impact the  
21 environment. This is a fundamental failing of  
22 OPG's proposal.

23                   The *Canadian Environmental*  
24 *Assessment Act* requires this panel to consider  
25 cumulative effects. These are the environmental

1 impacts of OPG's project in conjunction with other  
2 facilities and undertakings in the area.

3 This includes the existing  
4 Darlington station, the planned Durham incinerator  
5 and adjacent St-Mary's Cement. They represent the  
6 combined impact on the area as a whole from  
7 multiple sources of pollution, habitat loss and  
8 wildlife destruction.

9 Our experts have raised the  
10 failure to consider cumulative impacts in detail as  
11 a serious flaw in this proposal.

12 MR. MATTSON: Mr. Chairman, I'd  
13 like to introduce you now to the experts who  
14 prepared the reports on these four issues: cooling  
15 water, lake fill, air and water emissions, and  
16 cumulative effects.

17 Dr. Peter Henderson is Senior  
18 Research Associate, Department of Zoology,  
19 University of Oxford and ecological consultant and  
20 research scientist with 26 years experience,  
21 including expertise on ecological effects of  
22 nuclear power plant cooling systems.

23 Dr. Henderson, welcome to Canada  
24 today.

25 Dr. Henderson, you found once-

1 through cooling will have the greatest negative  
2 environmental effect. Can you explain to the Chair  
3 and the panel?

4 DR. HENDERSON: Dr. Henderson, Mr.  
5 Chairman.

6 My work focuses really on the  
7 method of condenser cooling. The number of aquatic  
8 animals and plants killed increases with the volume  
9 of water extracted and discharged back to the lake.

10 Of the possible technologies,  
11 once-through cooling uses the greatest volume of  
12 water and, therefore, has the greatest impact on  
13 aquatic life.

14 Via good design, as shown by the  
15 present Darlington plant, some mitigation of  
16 impingement losses is possible.

17 However, entrainment losses, the  
18 death of small organisms that pass through the  
19 system and go back to the lake, and in particular  
20 the early life stages of fish, cannot be so  
21 mitigated.

22 Lake Ontario is presently in an  
23 unstable ecological state. So it is difficult to  
24 quantify the impact of once-through cooling.  
25 Further, a nuclear power plant would impact the

1 lake over a long period, 60 years or more.

2 This increases the risk of gradual  
3 degradation in an important system which future  
4 generations would reasonably expect to improve.  
5 Indeed, if the lake does improve, the impacts of  
6 once-through cooling will actually increase.

7 Now, best available technology for  
8 new build power plants in United States is closed-  
9 cycle cooling or the equivalent level of  
10 protection. I believe that this is a wise starting  
11 point to protect the aquatic environment and it  
12 should be the way forward for any plant being  
13 constructed in Canada today.

14 Thank you, Mr. Chairman.

15 CHAIRPERSON GRAHAM: Thank you.

16 Mr. Mattson, do you want to  
17 introduce your next ---

18 MR. MATTSON: Thank you, Dr.  
19 Henderson.

20 Yes, thank you, Mr. Chairman.

21 Doug Howell, 40 years experience  
22 as a fisheries biologist, including almost 30 years  
23 with the Ontario Ministry of Natural Resources.

24 Mr. Howell, are you there?

25 MR. HOWELL: I am.

1                   MR. MATTSON: Mr. Howell, you  
2 agree in your evidence that once-through cooling is  
3 the worst cooling water option for fish and you've  
4 also concluded that lake fill will directly destroy  
5 fish habitat and that there are alternatives to  
6 lake fill.

7                   Please explain how the lake fill  
8 will destroy fish habitat.

9                   MR. HOWELL: In my opinion, the  
10 most significant anticipated impact on fish habitat  
11 resulting from this project is the infilling of up  
12 to 400 -- excuse me, up to 40 hectares of Lake  
13 Ontario.

14                   This could result in the  
15 destruction of nearshore habitat, the most  
16 productive area in most aquatic ecosystems. I  
17 believe there are options available to OPG  
18 regarding how the reactors can be arrayed and how  
19 excavated materials can be managed that will reduce  
20 or eliminate the need to infill the lake.

21                   Obviously, any infilling out from  
22 the shore will impact those highly productive areas  
23 and should be avoided if at all possible.

24                   I also want to reinforce my  
25 support for the comment made by the previous expert

1 in that the once-through cooling option being  
2 considered by OPG is the most damaging to fish and  
3 fish habitat and emphasize that that is true both  
4 during its installation and its operation over the  
5 extended period of time that it will be here.

6 MR. MATTSON: Thank you, Mr.  
7 Howell.

8 Dr. Cole, are you with us on  
9 teleconference?

10 DR. COLE: Yes, I am.

11 MR. MATTSON: Dr. Cole has over 40  
12 years experience as an environmental scientist,  
13 including six years as a senior scientist and  
14 section chief of the U.S. EPA's Office of Air  
15 Quality, Planning and Standards. He has particular  
16 expertise in air pollution, meteorology and air  
17 quality monitoring.

18 Dr. Cole, welcome. You found a  
19 failure to properly consider plume trapping in  
20 OPG's proposal. Can you explain this to the panel?

21 DR. COLE: Yes, I can. Mr.  
22 Chairman, panel, thank you for the opportunity.

23 I reviewed the modelling sections  
24 of the TSD documents and I found that the Applicant  
25 fails to address the adverse shoreline dispersion

1 phenomenon known as "plume trapping". This  
2 condition occurs commonly in the spring and summer  
3 during periods of stable onshore flow. The inflow  
4 of highly stable marine air literally puts a lid  
5 over the lower atmosphere, one that severely  
6 restricts vertical dispersion and traps pollutants  
7 emitted below the lid. Such plume trapping can  
8 cause very high concentrations downwind of the  
9 source. The problem is most pronounced when solar  
10 heating of the surface is limited such as overcast  
11 conditions.

12                   The applicant's TSD states that:  
13 *"Emissions from stacks and building vents would be*  
14 *drawn into this shallow layer by a building wake*  
15 *effects."*

16                   Also the spills and some of the  
17 other emissions that have been discussed earlier  
18 would also be emitted into the shallow lawyer. The  
19 applicant, however, fails to acknowledge that these  
20 emissions would be subject to plume trapping.

21                   Moreover, in my judgment, the  
22 applicant's modeling approach is likely to  
23 overestimate mixing heights associated with stable  
24 onshore slow. Such errors would cause the model to  
25 underestimate actual concentrations and the

1 downwind extent of elevated concentrations. The  
2 EIS guidance requires modeling to incorporate the  
3 impacts of site-specific characteristics on  
4 dispersion. This is the site of a major  
5 discontinuity between water and land, yet the  
6 applicant fails to provide any discussion or  
7 analysis on the ability of the modeling methods and  
8 inputs to capture the adverse effects of plume  
9 trapping.

10 In summary, the current air  
11 assessment is deficient and should be withdrawn  
12 until these issues are solved. Thank you.

13 MR. MATTSON: Thank you, Dr. Cole.  
14 The next expert is Mr. David Dillenbeck. Mr. David  
15 Dillenbeck is an aquatic biologist with 21 years  
16 experience with the Ontario Ministry of  
17 Environment. His expertise included the impact of  
18 discharges of materials to aquatic environments and  
19 surface water quality. Mr. Dillenbeck, you have  
20 extensive experience with environmental approvals.  
21 You found considerable gaps in OPG's application;  
22 can you explain to the panel?

23 MR. DILLENBECK: Thank you. Mr.  
24 Chairman, Key information and plans regarding  
25 discharges, storm water, substances of concern,



1 monitoring program to continuously evaluate the  
2 impact of all of the discharges from the New  
3 Nuclear Darlington site on Lake Ontario. And  
4 finally, although several sets of criteria for the  
5 assessment and evaluation of surface waters for the  
6 protection of aquatic life were acknowledged, there  
7 was not a commitment from the proponent to be bound  
8 by any or all of them. Thank you.

9 MR. MATTSON: Just to follow up,  
10 based on your experience, Mr. Dillenbeck, at the  
11 Ministry of Environment, would you feel comfortable  
12 issuing an approval to a project with this many  
13 gaps in evidence?

14 MR. DILLENBECK: Based on my  
15 experience, I would not recommend the issuance of  
16 an approval for this project as proposed.

17 MR. MATTSON: Thank you. The  
18 final expert report filed with you, Mr. Chairman,  
19 is by Mr. Wilf Ruland. Mr. Ruland is a  
20 hydrogeologist specializing in landfill-related  
21 groundwater and surface water contamination  
22 problems, pits and quarry proposals, applications  
23 for permits to take water and groundwater  
24 contamination emanating from major industrial  
25 properties. Welcome, Mr. Ruland. You've called in

1 your proposal -- OPG's proposal, "A *plan to have a*  
2 *plan.*" Can you explain to the panel?

3 MR. RULAND: Yes, thank you. I've  
4 been working for over 20 years as a water scientist  
5 in Ontario and a big part of my work is reviewing  
6 environmental assessments of proposals which could  
7 affect groundwater and/or surface water quality.

8 I have reviewed many environmental  
9 assessments and environmental impact assessments or  
10 statements over the last 20 years.

11 The New Nuclear Darlington  
12 proposal is the biggest most significant in terms  
13 of its potential impacts on water quality; the  
14 biggest and most significant project I've ever been  
15 asked to do a review of.

16 And I'll tell you, I was expecting  
17 the Cadillac of environmental assessments. I was  
18 expecting an environmental assessment nonpareil,  
19 but that's not what I found.

20 Any major landfill expansion  
21 proposal in Ontario would be subject to a more  
22 rigorous environmental assessment than the EIS we  
23 have before us for the Darlington New Nuclear  
24 proposal. And it should be noted that this proposal  
25 can have an impact on the environment which is

1 orders of magnitude, a factor of hundreds to a  
2 thousand times greater than such a landfill would.  
3 The environmental assessment that's been done  
4 simply is not adequate for a project of this  
5 magnitude.

6                   In terms of water impacts, the EIS  
7 is built around a major assumption, namely that  
8 numerous impact management plans which have yet to  
9 be developed; these plans don't exist yet, but the  
10 assumption in the EIS is that all of these  
11 different plans which have yet to be developed and  
12 treatment and discharge criteria which have yet to  
13 be specified, are going to be perfectly effective  
14 in reducing water quality impacts to negligible  
15 levels. And this assumption is then used to screen  
16 various impacts out from consideration in the EIS.  
17 This is not a precautionary approach to  
18 environmental assessment; it's not a rational  
19 approach to environmental assessment

20                   Finally, an issue that's caused me  
21 considerable concern is the fact that the proposed  
22 New Nuclear Darlington facility is going to be  
23 right beside an operating quarry, the St. Mary's  
24 Quarry and yet the environmental impact statement  
25 and assessment doesn't consider potential impacts

1 of the quarry on the proposed nuclear plant. This  
2 would include impacts like vibration from blasting,  
3 subsidence due to dewatering of the quarry causing  
4 a drop in ground water levels which can lead to the  
5 -- the land slowly subsiding; induced seismicity  
6 and also security issues, the fact that we're going  
7 to have a third party carrying out blasting over a  
8 period of decades within 500 metres of a nuclear  
9 facility. That subject alone, the quarry, would  
10 have justified a TSD of its own. There's nothing  
11 in the EIS at all.

12 I consulted my peers about this,  
13 wondering if I was maybe off the mark on this.  
14 They've been unanimous in saying the quarry should  
15 have been looked at in great detail. Thank you  
16 very much.

17 MR. MATTSON: Thank you, Mr.  
18 Ruland. Mr. Chairman, members of the panel. On  
19 the first day of the hearing, Lake Ontario  
20 Waterkeeper raised as a preliminary issue, the fact  
21 that OPG had not provided enough information to  
22 adequately assess the environmental effects of the  
23 Darlington New Nuclear project. We stand by this  
24 submission after hearing all the evidence from last  
25 week.





1 presentation to the panel. We invite the panel,  
2 OPG, CNSC staff, government representations and  
3 members of the public to ask questions at your  
4 will, Mr. Chairman. And I'd be happy to help  
5 direct your questions to the appropriate expert.  
6 Thank you.

7 CHAIRPERSON GRAHAM: Thank you  
8 very much, Mr. Mattson, for your presentation this  
9 morning. And as the first presenter, you were  
10 right on the 30 minutes, and we appreciate your  
11 concise presentation.

12 We'll now turn the questioning to  
13 -- open the floor to questions from the panel  
14 members, and Madame Beaudet, you're the first for  
15 questions.

16 --- QUESTIONS BY THE PANEL:

17 MEMBER BEAUDET: Thank you, Mr.  
18 Chairman. I'd like to first look at the subject of  
19 consultation. You mention that you are worried  
20 that the two last units will be without  
21 consultation in 15 years from now, but I'd like to  
22 go back to your point you made last week, and  
23 that's very important for us to know exactly what  
24 happened; that the public was not consulted by  
25 Ministry of Energy.

1                   My understanding, and you correct  
2 me if I'm wrong, the Minister of Energy did consult  
3 a great number of groups, stakeholders, Aboriginal  
4 groups for the mixed plan, but did not consult the  
5 ordinary people; is that what you meant?

6                   MR. MATTSON: Madam Beaudet, no, I  
7 think what I was in the questioning of the Minister  
8 of Energy representative, there has been  
9 consultation and we were part of a hearing called  
10 the IPSP, but the Minister of Energy pulled that  
11 hearing before it began hearing evidence. And so  
12 that then turned into the LTAP or the supply --  
13 Long-term Energy Plan, which now has gone back to  
14 the OPA, Ontario Power Authority, who will prepare  
15 the plan and put it back out for public  
16 consultation. That will go before the Ontario  
17 Energy Board where we'll have the opportunity to  
18 review and submit comments on the evidence.

19                   So it's not that we -- it's not  
20 that public consultation has been avoided, it's  
21 that the decision hasn't been made yet to go  
22 forward, and that the public consultation process  
23 still is in front of us next year.

24                   MEMBER BEAUDET: But to your  
25 knowledge, were ordinary people, like we have here

1 in the room every day, were they consulted?

2 MR. MATTSON: That's a good  
3 question. The Ontario Energy Board and the Ontario  
4 government has quite extensive consultation and  
5 they actually have a fairly sophisticated public  
6 process once it goes to a hearing. And there's  
7 money for costs for experts and for counsel at the  
8 Ontario Energy Board. It's under oath and cross-  
9 examined, and the public can participate in those  
10 processes.

11 To date the consultation has been  
12 fairly ad hoc, but it's because of the stopping and  
13 starting nature of the actual proposal, as far as  
14 Ontarians are concerned, it's still unclear what  
15 the actual proposal will look like and what the  
16 public is being asked to comment on.

17 MEMBER BEAUDET: Thank you.  
18 Another point is about the plume trapping. I  
19 believe the PNLL experts are supposed to come back  
20 with a point they had raised with the breeze coming  
21 from the lake that wasn't included. And I'd like  
22 to try to understand if there's a difference with  
23 what your expert is talking about.

24 MR. MATTSON: Dr. Cole? We lost  
25 Dr. Cole?

1 DR. COLE: Can you hear me?

2 MR. MATTSON: Yes.

3 DR. COLE: Can you hear me?

4 CHAIRPERSON GRAHAM: Yes, we can,  
5 Dr. Cole. One of the panel members, Madam Beaudet,  
6 had a question, did you get her question?

7 DR. COLE: Yes, I did.

8 CHAIRPERSON GRAHAM: Would you  
9 care to respond?

10 DR. COLE: Yes. The modeling that  
11 was done uses a model called the air model. It's a  
12 fairly good model, but it is very badly equipped to  
13 handle a coastal situation. And, in fact, the  
14 choices that were made by the modellers would tend  
15 to over-estimate the mixing height. The reason for  
16 that is that the air flowing past the plant, and  
17 flowing inland, is passing over a very cold body of  
18 water relative to the air temperature during spring  
19 and summer. The applicant, however, used values  
20 for several critical parameters, including surface  
21 roughness, including solar heating, that are more  
22 typical of well inland positions and would not well  
23 characterize the lake air, which is extremely  
24 stable and which caps the atmosphere.

25 MEMBER BEAUDET: Thank you. I'd

1 like to hear OPG comment on that please, and then  
2 CNSC.

3 MS. SWAMI: Laurie Swami, and I'll  
4 ask Jennifer Kirkaldy to provide OPG's results on  
5 this matter.

6 MS. KIRKALDY: Yes, Jennifer  
7 Kirkaldy, for the record.

8 This is an issue that we've been  
9 talking about at some length, and we've actually  
10 dealt with it in several information requests that  
11 have gone back and forth between the panel and  
12 ourselves.

13 I'd like to emphasize, Dr. Cole  
14 does talk out -- in his submissions with respect to  
15 the plume trapping issue, and effectively it is  
16 related to the fumigation issue we've talked about  
17 at some length. The source of -- with respect to  
18 the fumigation issue, the sources that you're  
19 really quite concerned about are as we talked about  
20 a tall source on the lakeshore, such as a coal  
21 generating station, you might have a tall stack  
22 source that can get trapped within this boundary  
23 layer effect that comes because of the differential  
24 between the -- the temperature at the lake and land  
25 interface. What can happen in that fumigation

1 effect is that this tall source can get trapped  
2 under this boundary layer and get forced down to  
3 the ground, causing elevated concentrations.

4                   With respect to the source  
5 characteristics at the Darlington site, these  
6 buildings are very, very large buildings. And the  
7 sources on top of these buildings are relatively  
8 small. In essence they would not escape a building  
9 wake effect, so they, in essence, would get mixed  
10 throughout the entire volume of these buildings.

11                   We did do -- in our dispersion  
12 modeling, we actually modeled these as volume  
13 sources in order to properly account for that  
14 effect, so that what you would find is that the  
15 highest air concentrations are going to be right  
16 adjacent to the building and then they would  
17 decrease it as distance goes from the building.

18                   Further to that, in response to  
19 various questions that came up after the June 22<sup>nd</sup>  
20 meeting and in further information requests, and if  
21 I could refer you to Information Request 282.

22                   We did look in a fair amount of  
23 detail, where we compared different model  
24 configurations of the site, and did comparative  
25 modeling between measured tritium concentrations at

1 the site boundary, and compared that to our model  
2 predictions.

3                   What we found is that the tritium  
4 concentrations predicted with this volume source  
5 approach, using the air mod dispersion model, gave  
6 us very conservative predicted concentrations, so  
7 that we are very confident going forward that we're  
8 not under-predicting our predicted concentrations.

9                   Further ---

10                   DR. COLE: May I respond?

11                   MS. KIRKALDY: --- the other  
12 factor that I would just like to add is that, in  
13 fact, we -- the meteorological data used in the air  
14 dispersion model is from an on-site meteorological  
15 tower, and so it does actually capture these lake  
16 breeze effects in terms of the frequency and wind  
17 speeds of the winds directly at the Darlington  
18 site.

19                   MEMBER BEAUDET: And this was  
20 included in your evaluation.

21                   Because what I understand here is  
22 Lake Waterkeeper experts believe that fumigation  
23 and plume trapping is different phenomena.

24                   DR. COLE: I could comment on  
25 that.

1 MEMBER BEAUDET: Yes, please.

2 CHAIRPERSON GRAHAM: Dr. Cole?

3 DR. COLE: Yes, they are two very  
4 different phenomena.

5 The fumigation would apply to tall  
6 stacks, elevated sources. What we're talking about  
7 here are the emissions that occur on the building,  
8 or from building stacks, vents, spills, et cetera,  
9 and those would be trapped.

10 I don't disagree with the fact  
11 that the highest concentrations would be found in  
12 the wake just beyond the building. However,  
13 because you've got a lid over the atmosphere, those  
14 high concentrations would extend further inland,  
15 several kilometres, maybe even five kilometers  
16 inland, resulting in higher concentrations beyond  
17 the fence line.

18 The issue isn't just the maximum  
19 concentration the issue is where will high  
20 concentrations occur; who will be exposed? And so  
21 that's one thing.

22 As far as the, so-called, on-site  
23 meteorological station, that's located two  
24 kilometers inland, plus, if you look at the way  
25 that the air mod calculates a mixing height, and

1 the application that was done, the method used,  
2 they took upper air data from Buffalo and then  
3 extrapolated information and assumptions that apply  
4 to a land base air rather than marine air, and  
5 that's what leads to the over-estimation of mixing  
6 height.

7                                   And it's a little bit difficult to  
8 go through all of this over the phone, et cetera,  
9 but just let me summarize: It's important to  
10 distinguish, as Member Beaudet said, between  
11 fumigation and plume trapping. They are two  
12 different phenomena. One affects elevated sources  
13 the other affects the level sources.

14                                   And, secondly, both the model and  
15 the assumptions that were used would tend to over-  
16 estimate the height of the lid over the atmosphere.  
17 This would be especially severe on overcast days,  
18 days where sunshine -- heating of the surface is  
19 limited.

20                                   And we've provided some  
21 photographic evidence from the literature that  
22 indicate just that condition.

23                                   MEMBER BEAUDET: You say that  
24 fumigation would happen with high level sources, so  
25 you would agree then with OPG, because there is

1 only -- the sources are low, so that you would  
2 agree that there is no fumigation?

3 DR. COLE: Madam Beaudet, could  
4 you please repeat that? I have trouble hearing  
5 that.

6 MEMBER BEAUDET: You mentioned  
7 that fumigation would occur if you have high level  
8 sources, but what we've heard here from OPG's  
9 expert is that we have low level sources.

10 So can I assume that you agree  
11 with OPG's statement that there is not a problem of  
12 fumigation? We'll start with fumigation first.

13 CHAIRPERSON GRAHAM: Dr. Cole,  
14 identify yourself each time.

15 DR. COLE: Yes.

16 CHAIRPERSON GRAHAM: Thank you.

17 MR. COLE: I'm sorry, what? I'm  
18 having a little trouble hearing.

19 CHAIRPERSON GRAHAM: I just  
20 said that ---

21 DR. COLE: Hello?

22 CHAIRPERSON GRAHAM: --- identify  
23 yourself when you go to speak so we have it for the  
24 transcripts. That's all.

25 DR. COLE: Okay. This is

1 Dr. Cole, for the record.

2 Fumigation would occur if there  
3 were an elevated source. The emissions I'm taking  
4 about are the ones that are acknowledged as coming  
5 from buildings, short stacks over the height of a  
6 tall building, and vents and surface emissions  
7 would be trapped.

8 MEMBER BEAUDET: Thank you.

9 I'd like to hear from CNSC on this  
10 please.

11 DR. THOMPSON: Patsy Thompson, for  
12 the record.

13 As modeling experts have reviewed  
14 the work that was done by OPG, and we have also  
15 been involved in the development or the revision of  
16 Canadian Standards Association standard for  
17 calculating doses to members of the public that has  
18 an atmospheric dispersion component to it, and the  
19 Canadian standard is developed for Canadian  
20 facilities essentially, and in Ontario they're all  
21 close to a lake, and in New Brunswick close to the  
22 ocean.

23 And the Canadian Standards  
24 Association model essentially states that shoreline  
25 fumigation -- further conditions typical of nuclear

1 facilities, low buildings, low stacks, and with the  
2 meteorological conditions, would not be an issue.

3 MEMBER BEAUDET: I think, yes, we  
4 agree on that, but that doesn't solve the problem  
5 plume abatement.

6 DR. THOMPSON: Patsy Thompson, for  
7 the record.

8 Our understanding is -- and it's  
9 been validated for a number of sites, that the  
10 predictions from the models used for this work, as  
11 for other work for other facilities, over-estimates  
12 air concentrations of the typical radionuclides  
13 discharge or release from facilities through the  
14 stacks.

15 And the point that Dr. Cole was  
16 making, that one of the issues is where the highest  
17 concentration will be found at any one time, I  
18 think that one of the elements that needs to be  
19 taken into consideration is that for dose  
20 assessment purposes it's the annual average  
21 exposure that is important because the dose is  
22 calculated on an annual basis and is related to  
23 risk, and the models have been found to be  
24 appropriate for these assessments at nuclear  
25 facilities, and we have ample data showing that the

1 models are conservative and tend to over-predict  
2 air concentrations.

3 MEMBER BEAUDET: Dr. Cole, when  
4 you talk of plume trapping, do you refer to high  
5 level source or low level source, like we have  
6 here, the proposal by OPG?

7 DR. COLE: This is Dr. Cole.  
8 It refers to low level  
9 emissions ---

10 MEMBER BEAUDET: And you would  
11 still have ---

12 DR. COLE: --- either captured and  
13 brought to the surface by wake effects, surface  
14 emissions, or vent emissions which are near the  
15 surface. So we're talking about low level  
16 emissions, not elevated emissions.

17 MEMBER BAUDET: Thank you.  
18 ` My next topic is aquatic habitat  
19 and biota.

20 There has been two important  
21 proposals, as you know, one that would refer to the  
22 two-metre depth control line and another one where  
23 the discharge and intake structures would be set in  
24 the lake at a 20-metre depth. It doesn't cover the  
25 entrainment and impingement, but I'd like to hear

1 from you, what is your reaction on those mitigation  
2 measures proposed.

3 MR. MATTSON: I'm going to let  
4 first Doug Howell comment.

5 CHAIRPERSON GRAHAM: Identify  
6 yourself each time.

7 MR. MATTSON: Mark Mattson,  
8 counsel for Waterkeeper.

9 I'm going to ask Mr. Howell first  
10 to talk to the two-metre depth and then maybe Dr.  
11 Henderson can speak to the other impacts that  
12 you've spoken to, Madam.

13 Mr. Howell.

14 DR. HOWELL: Thank you, Mark.  
15 Doug Howell for the record.

16 In regard to the two-metre  
17 proposal, I have only become familiar with that in  
18 the last 24 to 48 hours and I haven't had a chance  
19 to really give it a lot of thought. But my  
20 preliminary reaction is that those shallow water  
21 zones within Lake Ontario are just as important to  
22 the overall fish and other biology that exist in  
23 those areas as shallow water zones in any aquatic  
24 system and, therefore, should be considered  
25 extremely valuable and any move to treat them as

1 less valuable than other high priority portions of  
2 the lake should be given very, very careful  
3 consideration.

4 MR. MATTSON: Thank you, Mr.  
5 Howell.

6 Dr. Henderson, could you address  
7 the other question with respect to the discharge to  
8 the 20-metre depth.

9 DR. HENDERSON: Peter Henderson.

10 Madam Beaudet, just to get -- so I  
11 understand your question, you're asking whether  
12 there will be different levels of impacts if the  
13 intakes and outfalls were situated at a 20-metre  
14 depth as opposed to 10 or something like that.

15 Well, the answer, I think, in  
16 terms of both impingement and entrainment, is that  
17 you would entrain and impinge different numbers and  
18 possibly different species. However, I don't have  
19 the data of the distribution of organisms at  
20 different depths to make a proper reasoned  
21 argument. So it would change things but I don't  
22 know to what extent.

23 However, from my experience at a  
24 power plant proposal in Wisconsin I worked on  
25 recently, Elm Road there, where they sampled very

1 carefully at a number of different depths to  
2 identify the appropriate depths to position an  
3 intake there still was considerable entrainment,  
4 and in that case not impingement because they were  
5 going to use wedge wire screens to eliminate  
6 impingement, but there was going to be considerable  
7 entrainment at 20 metres.

8                               But I don't know -- I can't be  
9 more precise, I'm sorry.

10                              MEMBER BEAUDET: Thank you.

11                              I believe we have people from DFO  
12 and Environment Canada in the room. Am I correct?  
13 Yes.

14                              And I think this would be a good  
15 opportunity to go, if I may, if Mr. Mattson allows  
16 me, to go with clarification from the ministries.

17                              We did ask some questions last  
18 week with respect to the *Fisheries Act* and I think  
19 it would be interesting today to pursue this line  
20 of thought.

21                              Can I -- is it possible for DFO  
22 representative to come to the microphone please?

23                              CHAIRPERSON GRAHAM: DFO and  
24 Environment Canada are both here and if you're at  
25 the microphone if you'd identify yourself before

1 you speak it would be appreciated.

2 MR. HOGGARTH: It's Tom Hoggarth,  
3 for the record, from DFO.

4 MEMBER BEAUDET: Now, I'd like to  
5 ask you, has there been any *Fisheries Act*  
6 authorization for the actual Darlington site?

7 MR. HOGGARTH: No, there has not.

8 MEMBER BEAUDET: And why would  
9 that be?

10 MR. HOGGARTH: I'm not too sure of  
11 the exact date when the Darlington plant was put  
12 in, but our habitat policy didn't come into force  
13 until 1985, is when it was written, and then up  
14 until 1997 the Province of Ontario was looking  
15 after the habitat protection provisions of the  
16 *Fisheries Act*. So we had no file to -- my  
17 understanding is we had no file to review and  
18 therefore no authorization was given.

19 MEMBER BEAUDET: How do you check  
20 if OPG's in compliance with the *Fisheries Act* then?

21 MR. HOGGARTH: At the moment the  
22 existing Darlington plant is not in compliance with  
23 the *Fisheries Act* for Section 32 of the *Fisheries*  
24 *Act* for the mortality of fish. They're not in  
25 compliance. They do not have an authorization for

1 that.

2 MEMBER BEAUDET: Would it be  
3 possible for the panel to have an example of what  
4 an authorization would look like?

5 MR. HOGGARTH: Absolutely. One of  
6 the Co-Chairs had talked to us and we're getting a  
7 bunch of authorizations and we'll send you examples  
8 of them.

9 CHAIRPERSON GRAHAM: Madam  
10 Beaudet, I think to keep everything in order we're  
11 going to give that an undertaking.

12 And that will be Undertaking  
13 Number 35 for DFO to provide that information.

14 MR. HOGGARTH: Examples of  
15 authorizations?

16 CHAIRPERSON GRAHAM: Yes, all the  
17 examples of authorization as it pertains to the  
18 Darlington nuclear site.

19 MR. HOGGARTH: A timeline?

20 CHAIRPERSON GRAHAM: Timeline?

21 MR. HOGGARTH: Just a  
22 clarification on that. Is it an example of one  
23 that pertains to the Darlington or just an example  
24 of an authorization?

25 MEMBER BEAUDET: Well, you say

1 there isn't any for Darlington.

2 CHAIRPERSON GRAHAM: That's right.

3 There isn't any for Darlington, so an example of an  
4 authorization.

5 MR. HOGGARTH: Absolutely. I  
6 think we can probably do that by tomorrow.

7 CHAIRPERSON GRAHAM: Thank you  
8 very much. That is Undertaking Number 35.

9 Thank you very much.

10 Madam Beaudet?

11 MEMBER BEAUDET: I believe the  
12 representative from Northwatch last week had  
13 brought to our attention that there was non-  
14 compliance for OPG in the Environment Canada  
15 record, and I did say that there were other  
16 industries that do not comply, and we did check  
17 that record and there are other industries that do  
18 not comply.

19 I was trying earlier to put this  
20 document on my screen but, you know, memory bars  
21 are not as good as paper. But, anyway, I was  
22 wondering if a member of the staff could put that  
23 on the screen for the seven non-compliance of OPG  
24 please.

25 Because I think it's important now

1 that we've heard that there's no authorization for  
2 Darlington under the *Fisheries Act* and I would like  
3 when that comes on the screen ---

4 CHAIRPERSON GRAHAM: Yes, I have  
5 indication it's going to take ---

6 MEMBER BEAUDET: --- to ask OPG if  
7 they can explain the non-compliance please.

8 CHAIRPERSON GRAHAM: I have  
9 indication it's going to just take a moment and it  
10 will be brought up for the benefit of the panel and  
11 everyone.

12 MEMBER BEAUDET: I'm not making a  
13 trial here of the Proponent because the list in  
14 that registry is very long, there are other  
15 companies that have non-compliance incidents.

16 (SHORT PAUSE)

17 MEMBER BEAUDET: So this is the  
18 list of all the non-compliances from different  
19 industries across Canada. It's a pity we can't  
20 really see.

21 But, anyway, with regards to OPG  
22 right in the middle there, you have about seven  
23 non-compliances, and I believe that in the case of  
24 four there's toxic lethality and it's probably at  
25 Bruce. So I'd like some explanation from OPG

1 please.

2 MS. SWAMI: Laurie Swami.

3 Is it possible to get a hardcopy?  
4 Because what I can see on the screen lists  
5 facilities, addresses and our sector but it doesn't  
6 list what the non-compliance actually is so that I  
7 can speak a little more carefully.

8 MEMBER BEAUDET: I agree that it's  
9 not possible to see the data.

10 We can come back later today with  
11 that and get you a paper copy.

12 MS. SWAMI: Thank you.

13 MS. LLYOD: If I could, Mr. Graham  
14 -- Brennain Lloyd from Northwatch.

15 Just a point of clarification;  
16 this is Ministry of the Environment non-compliance  
17 report discharge to water 2009. And there is a PDF  
18 version also available online, which may be more --  
19 which may be easier to manage in terms of looking  
20 at it -- the panel looking at it in the course of  
21 this review. Thank you.

22 CHAIRPERSON GRAHAM: Thank you for  
23 that information. Madam Beaudet?

24 MEMBER BEAUDET: So we will get  
25 back later on this. And my last point was

1 referring to -- there's no page numbers on your  
2 presentation slides, but for me it would be page 8,  
3 which is this figure.

4                   On the St. Lawrence River, you  
5 must have heard that there is -- I can't call it a  
6 project. It's implementation of different  
7 activities to try to correct the damage that was  
8 done to the St. Lawrence River. It was called  
9 "Plan Saint-Laurent".

10                   And I was wondering if your  
11 organization has also a similar venue where you  
12 would go to each region and try to work with the  
13 regional population, the different environmental  
14 groups and also have the industry working together  
15 with you to try to correct some of the concerns  
16 that you have here with toxic releases or habitat  
17 loss or whatever. I wonder if you have a similar  
18 venue for Lake Ontario?

19                   MR. MATTSON: Thank you for the  
20 question. Mark Mattson, counsel for Lake Ontario  
21 Waterkeeper.

22                   The opportunity to work in the  
23 communities with government on remedial action  
24 plans, for example, have -- they've sort of been  
25 under-resourced in the last decade or so. There

1 was a very, as probably most Canadians know, there  
2 was a real effort 20 years ago with the remedial  
3 action protection plans and the remediation of  
4 harbours and communities and toxic sites. And  
5 there's four on Lake Ontario on the Canadian side.

6 But there's still a whole lot of  
7 grassroots efforts out there, and you're correct,  
8 we've had here watching this proceeding, members  
9 from Oshawa, Port Hope, Belleville and Hamilton,  
10 who we work with currently in their communities to  
11 try and restore fishable, swimmable, drinkable  
12 water. So very much so there's a lot of grassroots  
13 movement and there are efforts by government,  
14 federally and provincially, to reach out them. But  
15 there just -- there seems to be a lacking in  
16 resources to really make it happen. And hopefully  
17 that will change in the next decade.

18 I know our partners on the  
19 American side have received over 500 million in the  
20 last six months to work on these issues. So we're  
21 very hopeful that that will take place. There's  
22 certainly the desire for it.

23 MEMBER BEAUDET: Would you be  
24 involved in follow-up programs?

25 MR. MATTSON: Well, we might be.

1 I mean, we're a charity, so we don't really do  
2 lobbying, we only participate in democratic or  
3 quasi judicial processes, so there are some  
4 projects that, you know, other organizations that  
5 we work with or local communities, who just sort of  
6 take the lead as opposed to Lake Ontario  
7 Waterkeeper, but we are involved in a bunch right  
8 now, and they're a lot of work, but they're really  
9 rewarding, so we'd be involved to the extent that  
10 the government or the processes wanted us to be.

11 MEMBER BEAUDET: Thank you. Thank  
12 you, Mr. Chairman.

13 MR. MATTSON: Mr. Chairman, could  
14 I just one more response to --

15 CHAIRPERSON GRAHAM: Yes, Mr.  
16 Mattson.

17 MR. MATTSON: --- to the Member  
18 Beaudet. There has been a lot of discussion about  
19 the *Fisheries Act* and I just -- just so we can be  
20 clear about one thing, there's a difference between  
21 Section 36(2) and 36(3).

22 The 36(2), I believe, is the  
23 operating or work undertaking that that may result  
24 in damage to fish habitat, which you can get  
25 authorization for.

1                   And the Section 36(3), which is  
2 when there's acute toxicity or it's found, which is  
3 a definition of deleterious substances deposited in  
4 the waters frequented by fish, that's a criminal  
5 offence, quasi criminal offence. You can go to  
6 jail, and fines up to a million a day.

7                   So there's no authorization for  
8 that, that's something that would be enforced by,  
9 you know, the independent enforcement  
10 organizations, from Environment Canada or DFO, or  
11 the Ministry of Environment. So it's not something  
12 you get an authorization for, although Dr. Thompson  
13 is correct, that the pulp and paper industry has  
14 managed to get a regulation.

15                   MEMBER BEAUDET: It was very clear  
16 in my mind. Thank you.

17                   CHAIRPERSON GRAHAM: Thank you.  
18 With that it is now 12:30 and I'm going to declare  
19 a recess for one hour. And the Chair will resume  
20 at 1:30.

21 --- Upon recessing at 12:30 p.m./L'audience est  
22 suspendue à 12h30

23 --- Upon resuming at 1:31 p.m./L'audience est  
24 reprise à 13h31

25                   CHAIRPERSON GRAHAM: Good



1 maybe that would be a better document to refer to  
2 so that everyone can see it very clearly. And that  
3 is their 2009 Industrial Sewage Monthly Summary  
4 Report, which lists all of the different sectors.  
5 And you can pull it out by sector, and that  
6 probably is easier for people to refer to when  
7 looking at this information.

8                   And I can, you know, in an  
9 undertaking, speak most directly to each one of the  
10 events that's listed here. But I'll just go back  
11 to what our process is, if there is one of these  
12 smaller events, we take these very seriously. We  
13 work with whichever regulator. In this case it's  
14 the Ministry of Environment, to understand what  
15 caused the excedents to take corrective action to  
16 prevent recurrence to the extent that we can, and  
17 to make sure that we are responding and ensuring  
18 that we continue to meet compliance requirements.

19                   The various events that are  
20 listed, some of them are certificate of approval  
21 issues, and some of them are MISA compliance  
22 issues. And so those all require us to report  
23 them, to take appropriate corrective action, and to  
24 address that through our normal program, the  
25 environmental program that we have under ISO 14001.

1 But nonetheless, we will take an undertaking to  
2 explain each one of them.

3 CHAIRPERSON GRAHAM: Thank you.  
4 Two things. First of all, I'll give it Undertaking  
5 No. 36. And indication of when you'd like to  
6 respond to that?

7 MS. SWAMI: Laurie Swami.  
8 Thursday would be adequate time, I believe.

9 CHAIRPERSON GRAHAM: That's fine.  
10 Satisfactory, Madam Beaudeat? Very well.

11 So now, we'll be back on the  
12 agenda, and Mr. Pereira, some questions you have  
13 for Lake Ontario Waterkeepers.

14 MEMBER PEREIRA: Thank you, Mr.  
15 Chairman. In fact, my questions are all directed  
16 at the Ontario Power Generation, but related to  
17 issues raised by Lake Ontario Waterkeeper.

18 On page 16 of PMD 1.164 Lake  
19 Ontario Waterkeeper insisted a near-shore area of  
20 the Darlington site is considered to be a critical  
21 habitat for Emerald Shiner, Alewife, Round  
22 Whitefish and Lake Trout. Lake Ontario Waterkeeper  
23 states that any loss of a portion of this habitat  
24 must be considered to be significant.

25 What is OPG's position on these

1 assertions, as a cradle habitat and significant?

2 MS. SWAMI: Laurie Swami for the  
3 record. I'll ask Joanne Lane to describe the work  
4 that we've done in this area and our interpretation  
5 of this matter.

6 MS. LANE: For the record, my name  
7 is Joanne Lane. I'm a fish habitat specialist with  
8 Beacon Environmental on the OPG consulting team.  
9 Critical habitat by definition is a habitat that is  
10 crucial to the survival of the species and a lot of  
11 the work -- or all of the work that OPG has  
12 undertaken and completed shows that the habitat off  
13 the New Nuclear site is -- extends four kilometres  
14 to the east and west of the site.

15 Therefore, it's our conclusion  
16 that the habitat of the nuclear -- the New Nuclear  
17 area is not critical habitat since it is abundant  
18 along the north shore of Lake Ontario.

19 Furthermore, we have been working  
20 with DFO and Canadian Nuclear Safety Commission and  
21 the Ministry of Natural Resources to compensate for  
22 any habitat that will be removed by enhancing  
23 habitat that would be, once it's restored, more  
24 productive than the habitat off the new nuclear  
25 site. Thank you.

1 MEMBER PEREIRA: Thank you.  
2 Lake Ontario Waterkeeper, do you  
3 wish to comment on that?

4 MR. MATTSON: Thank you.  
5 Mr. Howell, are you on the line?  
6 No. So that was the evidence of Doug Howell,  
7 Director of the Ministry of Natural Resources and I  
8 guess we've lost him.

9 CHAIRPERSON GRAHAM: Perhaps I can  
10 suggest that we try and get Mr. Howell and we come  
11 back.

12 MR. MATTSON: Yes. I think he's  
13 waiting. Yes.

14 CHAIRPERSON GRAHAM: Is that okay.  
15 Mr. Pereira, maybe you have another question and we  
16 can come back again?

17 MEMBER PEREIRA: I'll go to  
18 another topic. On -- again, for Ontario Power  
19 Generation, on page 28 of PMD 1.164. Lake Ontario  
20 Waterkeepers states that besides losing potential  
21 fish habitats through lake infill work, fill  
22 material can harmful alter fish habitat outside the  
23 fill zone through spreading of contamination from  
24 the fill material. How does Ontario Power General  
25 intend to minimize the risk of such impact, the

1 spread of contamination beyond the fill zone?

2 MR. PETERS: John Peters for the  
3 record. As OPG has indicated in their previous  
4 testimony, we will use the Ministry of Environment  
5 guidelines for lake infill materials. They will be  
6 tested and we will comply with regulations to  
7 ensure no contaminated material is found in the  
8 lake fill portion of our land once completed.

9 MEMBER PEREIRA: Again, Lake  
10 Ontario Waterkeeper, any comment on that?

11 MR. PETERS: I'll turn it to Mr.  
12 Dillenbeck. Thank you, Member.

13 MR. DILLENBECK: I haven't seen  
14 any plans or evidence of testing that's been done  
15 on material to date so as far as we're aware we  
16 don't know that there's any data to support the  
17 proper -- the deposition of it in that location.

18 MEMBER PEREIRA: Thank you. Any  
19 further comment OPG?

20 MR. PETERS: John Peters for the  
21 record. Again, we have provided in our  
22 documentation sample results from a number of sites  
23 across the New Nuclear portion of the property that  
24 illustrate the nature of the uncontaminated soils  
25 that we find on our site generally. And we have

1 also noted that there was a specific program that  
2 has been completed a number of years ago now, which  
3 we're referenced in our material, that was a clean-  
4 up program that addressed some surface  
5 contamination that was associated with the original  
6 construction of the Darlington site.

7                   MEMBER PEREIRA: Thank you. I'll  
8 go on to my next question. Again, for Ontario  
9 Power Generation, on page 26 of PMD 1.164 Lake  
10 Ontario Waterkeeper states that in terms of impact  
11 on Lake Ontario, the option of once through cooling  
12 is the most damaging option because of the  
13 entrainment, impingement, thermal and biocide  
14 impacts. Lake Ontario Waterkeeper's conclusion is  
15 that while design and other mitigation measures can  
16 reduce these impacts on the lake, they cannot be  
17 reduced to level comparable to that which can be  
18 achieved through one of the closed cycle cooling  
19 options. What is Ontario Power Generation's  
20 reaction to this conclusion?

21                   MR. PETERS: John Peters for the  
22 record. We have done an awful lot of work over the  
23 last 18 months to try and address the questions  
24 that have arisen around these issues and we -- we  
25 have specifically provided comments that related to

1 the USEPA, 316E requirements which are often  
2 referenced as being standards that are complied  
3 with in the States which justify cooling towers.

4 In our evidence, we've pointed out  
5 that there's a track two component to 316E which  
6 allows alternative cooling technologies to be  
7 evaluated and a comparison provided that  
8 demonstrates that they are equivalent to the 316E  
9 cooling tower option. And OPG has committed  
10 through the number of IRs that we filed to the  
11 panel, that we will comply with that track two goal  
12 and we've demonstrated that the current Darlington  
13 diffuser is almost there now in terms -- and it --  
14 and it's been operating for more than 20 years in  
15 the lake and demonstrates very high performance as  
16 a starting point for our mitigation strategies  
17 which we've filed.

18 MEMBER PEREIRA: Do you wish to  
19 comment on that Lake Ontario Waterkeeper?

20 MR. MATTSON: Member Pereira, as  
21 you know and we've heard many times, the closed  
22 cycle cooling was scoped out. It wasn't  
23 considered. They've looked at trying to mitigate  
24 some of the impacts on fish through once through  
25 cooling and, you know, I think their evidence is

1 pretty clear, that they think they can do it less  
2 bad than it might otherwise be, but it's still bad.

3                   And when you look at what they're  
4 comparing it to, aesthetics, concerns about, you  
5 know, people driving on the 401 and seeing a  
6 nuclear reactor. I mean, it just doesn't add up  
7 and I think it's been really poorly done and that's  
8 our evidence and we think that the environmental  
9 protection and significant environmental impacts  
10 here should be given priority and that OPG should  
11 be forced to consider mitigation that could protect  
12 fish habitat and that's our argument. Thank you.

13                   MEMBER PEREIRA: Thank you very  
14 much. Thank you, Mr. Chairman.

15                   CHAIRPERSON GRAHAM: Thank you. I  
16 just have one question and it goes back to once  
17 through cooling versus cooling towers. And we've  
18 heard, I guess, over the last few days about the  
19 fact that there needs to be ponds on the site and  
20 so on and the -- it reduces the footprint as far as  
21 being able to store excess fill and to be able to  
22 accommodate cooling towers. Could I have -- I ask  
23 Ontario Waterkeepers if -- if those ponds in those  
24 other locations are -- what would your comments be  
25 about those being relocated off-site, but being

1 part of making sure that they are being part of --  
2 of the aquatic and then the wildlife habitat, that  
3 there be enough restored and so on that if they  
4 weren't on the northeast corner, if they were put  
5 somewhere nearer to that, would that be -- would  
6 that still meet objectives or your group?

7 MR. MATTSON: Thank you, Mr.  
8 Chairman, and I think it's a really good question.  
9 If the project goes ahead and you accept that this  
10 is the appropriate site for the applicant's  
11 undertaking, then, you know, clearly mitigation in  
12 terms of habitat compensation, which is a well-  
13 known mitigation method under the *Fisheries Act* is  
14 available. I think Lake Ontario Waterkeeper's  
15 concern is that the first test, is whether or not  
16 this site -- the issues with respect to site and  
17 what's being built here really fits. I think our  
18 evidence -- we think the evidence clearly shows  
19 that, you know, what they're trying to fit into  
20 this site, really doesn't match. There's a lot  
21 more going on on this site than the site allows  
22 for. You know the cement quarry on one side, they  
23 have to -- they don't know where to put the fill.  
24 They want to build into the lake. There's not  
25 enough room for cooling towers. There's concerns

1 with respect to the community moving around the  
2 boundaries of the plant.

3 It just seems to be a poor site,  
4 but if you accept that this is the site for this  
5 project, then certainly Lake Ontario Waterkeeper  
6 would not in any way stand in the way of habitat  
7 mitigation and restoration. That would be a great  
8 idea.

9 Thank you.

10 CHAIRPERSON GRAHAM: Thank you.

11 Just one other question, because I  
12 know time is going and my colleagues have asked  
13 many of my questions.

14 Your organization, in the  
15 protection of water for Lake Ontario, do you have a  
16 counterpart on the American side? And, if you do,  
17 what is their relationship with regard to the  
18 nuclear industry there? I realize there's no new  
19 builds, but what is their relationship? Maybe you  
20 can just give us a small overview.

21 MR. MATTSON: Thank you, Mr.  
22 Chairman.

23 Mark Mattson, for the record.

24 The organization that we belong to  
25 is called The Waterkeeper Alliance, and I'm

1 Secretary of that organization. There are nine  
2 groups in Canada.

3 Lake Ontario Waterkeeper does work  
4 on both sides of the border, my organization, but  
5 there are a number of organizations in up-state New  
6 York, Hudson Riverkeeper being one of them, who  
7 work on these issues with respect to closed-cycle  
8 cooling and the NRC consideration for nuclear power  
9 plants.

10 I think PNN now mentioned the  
11 Indian Point plan, and one of our organizations,  
12 the Hudson Riverkeeper, was very influential in  
13 that. And, in fact, Dr. Peter Henderson came to us  
14 through recommendation from his work throughout the  
15 United States on cooling towers, or fishery  
16 mediation, from closed-cycle cooling. So, we work  
17 with them.

18 Our understanding of what's going  
19 on on the other side of the lake is that they are  
20 moving forward with these modern standards. We'd  
21 like to see the Canadian jurisdictions do the same,  
22 and that's one of the reasons we're here.

23 CHAIRPERSON GRAHAM: Thank you.

24 Now, just one other thing.

25 Mr. Pereira had a question and I'm wondering if the

1 gentleman is on the line that we were looking for.

2 Mr. Howell, are you on the line  
3 now?

4 MR. HOWELL: Howell here. I am on  
5 the line, thank you.

6 CHAIRPERSON GRAHAM: Okay. You  
7 may not have heard the question. Mr. Pereira ---

8 MR. HOWELL: I heard -- excuse me,  
9 Mr. Chairman. I was monitoring on the internet and  
10 I did hear the question and I did hear the initial  
11 response from OPG.

12 CHAIRPERSON GRAHAM: Now would you  
13 like -- I think Mr. Mattson was going to call on  
14 you, and Mr. Pereira, so do you have anything to  
15 add, sir?

16 MR. HOWELL: Yes. Henry Howell,  
17 for the record.

18 I would like to point out that the  
19 definition of critical habitat, as applied by OPG,  
20 is overly restrictive in my view.

21 Critical habitat includes habitat  
22 which is important to the survival and reproduction  
23 of fish. The fact that there is abundant critical  
24 habitat along the shoreline doesn't mean that the  
25 loss of any of it should be considered lightly.

1 CHAIRPERSON GRAHAM: Thank you.  
2 Mr. Pereira, is there anything  
3 further? Madame Beaudet?

4 If not, before we go, there's  
5 another segment to this, which I think everyone is  
6 now used to it, but before we go to the OPG, CNSC,  
7 government agencies and then intervenors, I'd just  
8 like to acknowledge that we are running a little  
9 behind schedule.

10 I'd like to acknowledge that with  
11 the patience of everyone here this afternoon, the  
12 schedule presented from various aboriginal groups,  
13 we're going to get to them just as quickly as  
14 possible, and we thank them for their patience in  
15 coming here today. We got a little behind this  
16 morning, but hopefully we'll be able to get to the  
17 aboriginal groups just as soon as possible, so  
18 thank you for your patience.

19 So, with that, I go to -- first of  
20 all, to OPG. Do you have any questions of Lake  
21 Ontario Waterkeeper's intervention?

22 MS. SWAMI: Laurie Swami. We have  
23 no questions.

24 CHAIRPERSON GRAHAM: Thank you.  
25 Then I'll go to CNSC.

1 Do you have any questions with  
2 regard to Lake Ontario?

3 DR. THOMPSON: Patsy Thompson.  
4 Similarly, we have no questions for the Lake  
5 Ontario Waterkeepers.

6 CHAIRPERSON GRAHAM: Thank you.  
7 Government agencies and government participants?

8 I understood that Environment  
9 Canada were here. We did hear from Fisheries and  
10 Oceans already. Environment Canada, Fisheries and  
11 Oceans -- anyone care to have questions of Lake  
12 Ontario Waterkeepers?

13 If that's the case, that I see and  
14 hear no one, now we will go to intervenors. I have  
15 four, and I am going to close the record now and  
16 not go any more than those four, in the essence of  
17 time and in respect for the next groups that are  
18 coming before us.

19 The first questioner is Mr. Tom  
20 Lawson. Mr. Lawson?

21 --- QUESTIONS BY THE INTERVENORS:

22 MR. LAWSON: Tom Lawson, Port  
23 Hope.

24 My question is for Dr. Thompson.  
25 This morning I heard her say that the mission of

1 the CNSC is the health and safety of the people.

2 I've been following the work of  
3 the CNSC for many years. I cannot remember a  
4 single case that went beyond giving a two-year  
5 instead of a five-year licence, which, to those of  
6 us who question the industry, is a joke.

7 The only thing I -- what I want  
8 her to let me know of, any case she knows of, other  
9 than Linda Keen lowering the boom over the  
10 isotopes, in which the CNSC has actually lowered  
11 the boom on the industry, or disciplined it in any  
12 way. She was fired, of course, by the Prime  
13 Minister, within a week, which to us said the  
14 mission is not the health and safety of the people,  
15 but the health and safety of the industry.

16 I'd like to hear Dr. Thompson's  
17 response, because she is here to -- it seems to be  
18 to ---

19 CHAIRPERSON GRAHAM: Dr.  
20 Thompson ---

21 MR. LAWSON: --- get Darlington to  
22 happen.

23 CHAIRPERSON GRAHAM: In fairness,  
24 I'm -- though that response, I don't know whether  
25 that's fair for Dr. Thompson to be answering,

1 because it was questioning CNSC in general and she  
2 is just a part of that.

3 If you want to respond,  
4 Dr. Thompson, you may, but, really, we're going to  
5 get into a debate on the role.

6 And, look, I respect you,  
7 Mr. Lawson, we've met on many occasions, but I just  
8 don't want to have staff of CNSC responding on --  
9 as only part of CNSC, to respond on the opinion of  
10 the way things are interpreted.

11 If Dr. Thompson, you want to,  
12 that's your prerogative, but I'm not calling on you  
13 to do so.

14 MR. LAWSON: Very well.

15 DR. THOMPSON: Mr. Chair, as you  
16 mentioned, I have only partial information.

17 Of course, the Commission makes  
18 the decisions, but I know of at least three  
19 occasions where, on advice of staff, the Commission  
20 took action.

21 The first action by the Commission  
22 that I am aware of was in -- I believe in 1998,  
23 when the Commission renewed the Pickering site  
24 licence for a period of six months, based  
25 essentially on environmental issues.

1                                   And, as you know, the Commission  
2 staff issued two separate orders on SRBT for the  
3 management of treating discharges to the  
4 environment. There are likely others, but I am not  
5 familiar with them.

6                                   CHAIRPERSON GRAHAM: Thank you for  
7 that.

8                                   I could have cited at least four  
9 or five different occasions, as a Commission, we  
10 have changed the recommendation from either CNSC  
11 staff or recommendation going for the licence.

12                                  Dr. Thompson referred to SRBT, but  
13 I could name many more. Just recently we changed  
14 the licence on an application for the processing of  
15 slightly enriched uranium, and Velayu, I think it's  
16 called, and we changed that.

17                                  So there are many instances that  
18 -- we are independent, and we do do -- we  
19 deliberate sometimes a long time before we issue a  
20 decision.

21                                  With that, I'll go to Anna Tilman,  
22 the International Institute of Concern for Public  
23 Health.

24                                  Ms. Tilman?

25                                  MS. TILMAN: Anna Tilman, thank

1 you. Thank you very much.

2 I have a question of Lake Ontario  
3 Waterkeepers, and it may defer to OPG.

4 One of the experts spoke about the  
5 emissions coming from a facility, and one of them  
6 in particular of interest is hydrazine.

7 I just want to note that hydrazine  
8 is a non-threshold carcinogen, and it has been  
9 recently designated as toxic under the *Canadian*  
10 *Environmental Protection Act*, for ecological  
11 concerns, and as the nuclear industry is a major  
12 emitter, 90 percent of hydrazine is to water,  
13 action is required. I wonder if Lake Ontario  
14 Waterkeepers can explain or elaborate a bit more if  
15 they know of this or any other action, and maybe  
16 OPG could respond to this.

17 CHAIRPERSON GRAHAM: I'll go to  
18 Lake Ontario Waterkeepers first because they're the  
19 intervenor and I think you referred to them, and if  
20 OPG wants to add, they can, but Lake Ontario  
21 Waterkeepers.

22 MR. MATTSON: Thanks, and I'd ask  
23 Krystyn Tully to speak to this. Thank you, Mr.  
24 Chairman.

25 MS. TULLY: Krystyn Tully for the

1 record. I believe that the reference that you are  
2 referring to is in a statement that I made about  
3 emissions coming out of the existing Darlington  
4 nuclear facility, which was one of the pieces of  
5 evidence that we looked at to try to anticipate  
6 what the impacts of the new Darlington facility  
7 would be, and those were the air emissions.

8                   And the hydrazine reference comes  
9 from a Certificate of Approval for Air Emissions  
10 that OPG had filed with the Ontario Ministry of the  
11 Environment that Lake Ontario Waterkeepers had  
12 filed some objections to because of some compliance  
13 issues with provincial air quality standards. And  
14 to my knowledge, the Ministry of the Environment  
15 has not issued that license yet, but OPG could  
16 probably speak to that.

17                   CHAIRPERSON GRAHAM: So, Ms.  
18 Tilman, that license hasn't been issued yet. Do  
19 you want some further clarification from OPG?

20                   MS. TILMAN: Yes, I definitely do  
21 because -- because --

22                   CHAIRPERSON GRAHAM: OPG, would  
23 you care to respond, and then we'll go to the next  
24 intervenor.

25                   MS. SWAMI: Laurie Swami for the

1 record. Hydrazine is used in our systems for  
2 chemical control in the boilers. It does result in  
3 some very low level of emissions. It's normally  
4 consumed within the process.

5                   We have a program in place to look  
6 at ways and means of reducing our hydrazine usage  
7 through -- either through chemistry control  
8 parameters or other types of activities. In the  
9 past, we have looked at alternatives to hydrazine  
10 and found that they were as difficult in the  
11 environment as hydrazine would be and so chose not  
12 to move to those other types of regimes for  
13 chemistry control.

14                   For the new nuclear project, we  
15 anticipate that hydrazine would be specified again  
16 unless there's some significant change in chemistry  
17 control over the next number of years. However, as  
18 part of that -- our new project, we anticipate also  
19 that we will install equipment that will remove the  
20 hydrazine before discharge, so this would be ion  
21 exchange, carbon filters, other types of equipment  
22 that are traditional engineering equipment that can  
23 be used.

24                   We plan to recycle our boiler blow  
25 down where this hydrazine could be, and we would

1 then recycle it, clean it up, reuse it in our  
2 boilers as much as possible, and only have small  
3 amounts of an emission that would meet all of the  
4 regulatory requirements specified for hydrazine,  
5 whether it's a designated substance or not.

6 CHAIRPERSON GRAHAM: Thank you.  
7 Mr. Kalevar.

8 MR. MATTSON: Mr. Chairman -- just  
9 -- can we get that page?

10 CHAIRPERSON GRAHAM: Okay, go  
11 ahead --

12 MR. MATTSON: Just the page  
13 reference to the report on hydrazine --

14 CHAIRPERSON GRAHAM: -- Mr.  
15 Mattson, identify yourself, sorry.

16 MR. MATTSON: Oh, sorry. Mark  
17 Mattson, Lake Ontario Waterkeepers. Just the page  
18 reference to the report on hydrazine, thank you.

19 CHAIRPERSON GRAHAM: Ms. Swami,  
20 do you --

21 MS. SWAMI: I'm sorry, Laurie  
22 Swami, I don't recall giving a page reference. I  
23 discussed our overall program within OPG. I'm not  
24 sure which page my --

25 MR. MATTSON: I thought you were

1 speaking about something in the evidence. Is there  
2 any evidence on this in the -- on the record?

3 MS. SWAMI: Laurie Swami for the  
4 record, and the description of the project for EA  
5 purposes assumes clean-up systems for -- for  
6 admission sources, so that would be considered. If  
7 you look to the emissions documentation, you would  
8 find discussions of hydrazine. One of the IRs that  
9 we filed has a reference to how we will deal with  
10 hydrazine in future.

11 IR -- I'm being passed a note. IR  
12 27 and IR 176 would have some discussion of this as  
13 well.

14 CHAIRPERSON GRAHAM: Thank you.  
15 Mr. Kalevar.

16 MR. KALEVAR: Thank you, Mr.  
17 Chairman. Kalevar from Just One World. It's  
18 rarely that I come to the mic and I feel tall, but  
19 Ms. Anna Tilman allowed me to do that today, so I  
20 just wanted to bring to that your attention.

21 (LAUGHTER)

22 MR. KALEVAR: Anyway, I think my  
23 question through you, Mr. Graham, is to either OPG  
24 or CNSC or anybody else if you like, is on Thursday  
25 afternoon about this time, Dr. Caldicott made a

1 statement, which I take seriously, and I don't know  
2 -- I was not here all the time, so I don't know if  
3 there was any rebuttal to that. But she said that  
4 Tritium cannot be held by any substance except  
5 gold, something to that effect if you recall.

6 I would really like to know if  
7 there is a rebuttal to that or not from either OPG  
8 or CNSC. If there isn't one, then they should say  
9 so. If there is one, let's hear it.

10 CHAIRPERSON GRAHAM: CNSC staff, I  
11 think they're conferring. Perhaps they may want to  
12 unless OPG wants to, but --

13 (SHORT PAUSE)

14 MR. KALEVAR: While they are  
15 conferring, I must say that the --

16 CHAIRPERSON GRAHAM: Mr. Kalevar,  
17 I'm going to get an answer -- if you want an  
18 answer, we're going to -- Dr. Thompson will  
19 respond.

20 DR. THOMPSON: Patsy Thompson for  
21 the record. I will provide a response but also  
22 provide the -- what I remember the context of Dr.  
23 Caldicott's comments. Tritium does diffuse through  
24 materials. Our experience with many materials,  
25 such as steel, is that the diffusion is very slow,

1 and it is a reasonably effective barrier.

2 But what I would say is that in  
3 the context of the section of the hearing last  
4 Thursday, the comments were made in relation to  
5 worker protective equipment that is used for  
6 workers entering areas where there are high Tritium  
7 levels, and those suits are very effective at  
8 preventing the ingress of Tritium in the suit as  
9 well as the respiratory protection is effective.

10 CHAIRPERSON GRAHAM: Thank you. I  
11 will go now to Theresa McClenaghan of CELA. Ms.  
12 McClenaghan.

13 MR. KALEVAR: If I may, Mr.  
14 Chairman, was that an undertaking to get back to us  
15 with some more information, or was that the final  
16 answer?

17 CHAIRPERSON GRAHAM: I gathered  
18 that as the final answer. She did -- she -- Dr.  
19 Thompson referred to suits and other materials, and  
20 that's the final answer. If you have another one  
21 later on, we'll address it.

22 MS. McCLENAGHAN: Thank you, Mr.  
23 Chairman. Theresa McClenaghan from Canadian  
24 Environmental Law Association. My question is for  
25 Dr. Cole. I wonder if he's -- do we know if he's

1 on the line, with your permission, Mr. Chair.

2 CHAIRPERSON GRAHAM: Dr. Cole, are  
3 you still there?

4 DR. COLE: I'm here. Can you hear  
5 me?

6 MS. McCLENAGHAN: Yes, thank you.

7 CHAIRPERSON GRAHAM: Yes, we can.  
8 There's a question coming forward from CELA,  
9 Theresa McClenaghan.

10 MS. McCLENAGHAN: Yes, thank you.  
11 It's in relation to the exchange earlier before the  
12 break where Dr. Thompson was making a point that  
13 it's the annual average of the -- of the releases  
14 that matters, and I'm wondering if you could  
15 comment on whether or not it's also relevant to  
16 consider the timing of the release or the dose?

17 DR. COLE: Well, I know there are  
18 standards for Tritium and other carcinogens that --  
19 where your concern would be annual concentration,  
20 long-term exposures, but there are other  
21 contaminants which either from this plant or in  
22 combination with emissions from other plants, where  
23 your 24-hour or 1-hour impingement standards would  
24 come into play.

25 So I think it's -- it's -- the

1 burden is on the applicants to show how -- how the  
2 uncertainty and how the issues that I've raised  
3 would affect their predictions at a 1-hour or 24-  
4 hour or -- and other things. Also, I would comment  
5 that given the frequency of unsure flow with both  
6 gradient flow and lake breezes on the northern  
7 shore of Lake Ontario, that that increases the  
8 number of hours where -- where you have exposures  
9 of some of these things like Tritium so that all of  
10 those things have to be considered.

11 MS. McCLENAGHAN: All right, thank  
12 you.

13 DR. COLE: In other words, the  
14 frequency of hourly and daily concentrations  
15 contribute, of course, to the annual concentration,  
16 and if you're under-predicting a large number of  
17 hourly concentrations, that could translate into  
18 under-prediction for annual concentrations.

19 MS. McCLENAGHAN: All right.  
20 Thank you.

21 DR. COLE: Especially if you're  
22 not capturing, in your meteorological record, all  
23 of the instances of lake breezes.

24 CHAIRPERSON GRAHAM: Okay. Thank  
25 you very much. That concludes the presentation

1 intervention by Lake Ontario Waterkeepers. I want  
2 to thank Mr. Mattson and his team for providing us  
3 with his intervention and with providing us with  
4 the answers from the panel members. And thank you  
5 very much for your participation, and safe travels.

6 Now, back to this afternoon's --  
7 starting off this afternoon, and the theme that  
8 we'll be dealing with this afternoon is Aboriginal  
9 Interests. And the schedule says as such: That it  
10 will be introduced, a ten-minute introduction by  
11 Ontario Power Generation. And then we'll go into  
12 the different intervenors.

13 So with that I will call on Mr.  
14 Sweetnam to introduce the Aboriginal issues part of  
15 these hearings.

16 --- PRESENTATION BY MR. SWEETNAM:

17 MR. SWEETNAM: Good afternoon,  
18 Chairman Graham and panel Members Beaudet and  
19 Pereira. My name is Albert Sweetnam, for the  
20 record. With me today are Laurie Swami, director  
21 of Licence and Environment. And Donna Pawlowski,  
22 manager of Social Aspects and Environmental  
23 Assessment. Also with us is Joe Heil, OPG's  
24 director of Aboriginal Relations. I will be  
25 presenting OPG's submission on Aboriginal

1 Interests.

2 OPG's Aboriginal Relations policy  
3 provides guidance within the company for building  
4 positive community-minded relationships that First  
5 Nations and Métis people, where the managing  
6 current operations or planning new projects.

7 Specifically our policy commits us  
8 to developing relationships on a foundation of  
9 respect for languages, customs, and political,  
10 social and cultural institutions of Aboriginal  
11 communities, and acknowledges Aboriginal and treaty  
12 rights as recognized and affirmed in the  
13 *Constitution Act 1982*.

14 The duty to consult with  
15 Aboriginal peoples rests with the Federal Crown.  
16 The proponents' responsibilities are identified in  
17 the EIS Guidelines. That said, OPG has a 12-year  
18 record of engagement with Aboriginal peoples who  
19 have interests in the Durham Region, near our  
20 nuclear facilities. We seek to ensure that our  
21 actions do not adversely affect Aboriginal or  
22 treaty rights, and we seek to establish long-term  
23 mutually beneficial relationships.

24 After three and a half years of  
25 research, engagement and dialogue, our conclusions

1 are that the project is unlikely to affect  
2 Aboriginal rights, Aboriginal title or treaty  
3 rights within the project study areas. Further,  
4 the project will not result in adverse  
5 environmental effects on Aboriginal communities.  
6 The closest community is 35 kilometres away, and  
7 most communities are over 100 kilometres away.

8                   Our research and engagement did  
9 not reveal any current use of lands, waters or  
10 resources by Aboriginal peoples, or evidence to  
11 suggest the presence of commercial fishing,  
12 traditional activities, harvesting, or dependence  
13 on country foods from, on or near the Darlington  
14 nuclear site.

15                   Some Aboriginal material culture  
16 was discovered on site, however, it was not of a  
17 nature or quantity to suggest historical Aboriginal  
18 settlements within the site area, or that the  
19 findings were of significance. Before reaching  
20 those conclusions, we sought to work with First  
21 Nations, Métis councils and Aboriginal  
22 organizations that may have a historical  
23 relationship with or interest in the lands within  
24 the project study areas. These relationships stem  
25 from past occupation and/or traditional land use





1 the broad and Métis community. And through our  
2 knowledge program, financial support to undertake a  
3 traditional, ecological knowledge study. That  
4 study was submitted to the GRP in October 2010.  
5 Considering the research undertaken, and the  
6 results of the engagement, there is no evidence of  
7 adverse effects from the project on Métis rights.

8                   As such, no accommodation is  
9 required. Further, there was no evidence that the  
10 project may adversely affect the ability of Métis  
11 people living in the vicinity of the project, to  
12 exercise their traditional way of life. As such no  
13 mitigation is required.

14                   That said, OPG is proud of the  
15 relationship we develop with the local Métis  
16 community and the Métis Nation of Ontario. For  
17 example, we have already agreed to consider the  
18 inclusion of Métis traditional knowledge in our  
19 public information programs at the Darlington site  
20 consistent with the MNO's submission to the JRP.

21                   One recurring area of interest  
22 identified through our engagement program was to  
23 share any archaeological studies of relevance to  
24 Aboriginal peoples. During an excavation in 2010,  
25 a small collection of Aboriginal material culture

1 was found. The archaeologists determined that it  
2 represented a transitory Aboriginal campsite dating  
3 back thousands of years. While such campsites are  
4 common to the Lake Ontario shoreline, it does  
5 represent a new documented contribution to the  
6 Aboriginal history of the project area.  
7 Accordingly, OPG halted the excavation and notified  
8 all Aboriginal communities. After a site visit,  
9 technical briefing, an appointment of Aboriginal  
10 archaeological liaison, the work resumed and was  
11 completed in late 2010 with no Aboriginal features  
12 identified.

13                                   A follow-up meeting was held in  
14 Alderville First Nation early this year, with a  
15 number of Williams Treaty community  
16 representatives. As indicated by the Williams  
17 Treaty First Nations, in their submissions, there  
18 are no further concerns with the work done to date  
19 and we have a plan in place for moving forward.

20                                   In summary, since 2006, OPG has  
21 undertaken extensive research, information sharing  
22 and engagement with all of the Aboriginal  
23 communities whose interests are in the lands near  
24 the project site and who wished to engage with us.  
25 There are concerns as with the general population,

1 regarding safety, protection of human health,  
2 environmental effects of the project and the long-  
3 term management of the used fuel and nuclear waste.  
4 There is also interest in knowing the project  
5 details as they become available, in employment,  
6 and business opportunities and in ongoing  
7 engagement.

8                                   As per OPG's Aboriginal relations  
9 policy, we are committed to building a long-term  
10 mutually beneficial working relationships with  
11 Aboriginal communities, both First Nation and  
12 Métis.

13                                   Approximate present and future  
14 operations. We will continue to discuss the  
15 identified areas of interest, build capacity within  
16 the community and explore employment and business  
17 opportunities. Thank you and we're happy to take  
18 any questions.

19                                   CHAIRPERSON GRAHAM: Thank you,  
20 Mr. Sweetnam. Generally, we go to panel members  
21 and then various stages, but I think it would be  
22 best this afternoon if we go directly to the  
23 Williams Lake Treaty First Nations and that's  
24 outlined in your PMD 11-P1.159 and I understand  
25 that Chief Marsden is here and, Chief, the floor is

1 yours. And just before I do that, I understand  
2 that Mississaugas have joined you at the table and  
3 we welcome you, but we'll start off with Chief  
4 Marsden. Thank you, Chair.

5 --- PRESENTATION BY CHIEF MARSDEN:

6 CHIEF MARSDEN: Thank you, Chair.  
7 Bonjour, and good afternoon to the Chair and the  
8 panel. I'd like to ensure that no one, under any  
9 condition, unless appointed, speaks for the  
10 Alderville First Nation, the Williams Treaty Bands  
11 and the Southeast Regional Bands for the Union of  
12 Ontario Indians. Likewise, we cannot speak for any  
13 other First Nations or groups or individuals. I'm  
14 also the elected Southeast Regional Grand Chief for  
15 the Union of Ontario Indians.

16 Alderville First Nation -- this is  
17 just my opening comments also. Alderville First  
18 Nation in the past has discussed with the OPG  
19 benefit sharing, jobs and careers in the expansion  
20 of the Darlington project. That has been going on  
21 now for a few years and there has not been no word  
22 since, I guess, last year when we met.

23 I'll get into our little  
24 presentation now. The Williams Treaty First  
25 Nations are comprised of the Chippewas of

1 Beausoleil First Nation, Georgina Island First  
2 Nation and Rama First Nation. The Mississaugas,  
3 the Alderville First Nation, Curve Lake First  
4 Nation and Hiawatha First Nation and Scugog Island  
5 First Nation.

6                                   As you may be aware, the  
7 Darlington New Nuclear power plant project is  
8 located within the traditional territories of our  
9 First Nations and we have a vested interest in  
10 insuring that our Aboriginal and treaty rights are  
11 honoured in this regard. In particular the  
12 Mississaugas of Alderville, Curve Lake, Hiawatha  
13 and Scugog Island First Nation are geographically  
14 situated within the area of the proposed Darlington  
15 New Nuclear power plant project and as such I have  
16 been asked -- being tasked in making  
17 representations outlining our overall concerns  
18 regarding the expansion of the Darlington nuclear  
19 power plant as follows:

20                                   The Darlington New Nuclear -- New  
21 Nuclear power plant project proposes to add four  
22 new nuclear reactors at the existing plant which  
23 includes the site preparation, construction,  
24 operation and maintenance including the management  
25 of conventional and radioactive waste, decommission

1 and eventually abandonment of the same.

2                                 We have met with the Ontario Power  
3 Energy -- OPG, and the Canadian Nuclear Safety  
4 Commission on several occasions. OPG and the CNSC  
5 representatives provided us with a general overview  
6 of the project and answered our questions regarding  
7 the project to the best of their knowledge at- the  
8 given time and followed up with further information  
9 as required, which we appreciate.

10                                While we were generally satisfied  
11 with the information and the assurances made  
12 regarding the project, there remained several  
13 matters of concern that we would like noted by the  
14 way of our written submission presented to you  
15 February 18, 2011, and supplemented by this oral  
16 submission. Our general concerns are related to  
17 the assurance of the protection of, the mitigation  
18 and handling of accidents and disasters, water  
19 quality and quantity, migratory birds, wildlife,  
20 species at risk, fish and fish habitat, aquatic  
21 life, archaeological matters as required and  
22 employment and trading opportunities for all our  
23 members.

24                                We understand that the plant  
25 parameter envelope is a bounding approach developed

1 to evaluate the potential safety and environmental  
2 effects of the multiple reactor designs being  
3 considered for the site before a reactor design has  
4 been selected. And then there's -- see OPG update  
5 for information request from the VRP, September 16,  
6 2010.

7                   The proponent indicates that its  
8 environmental impact statement that at this stage,  
9 a final reactor technology vendor has not been  
10 selected. And another point on that piece is from  
11 the discussion earlier, was up to a million fish  
12 have been killed at the Pickering site and I think  
13 it's up to 62 million eggs destroyed. So that's  
14 where that cooling component comes into play.

15                   And we also understand from a  
16 review of the written submissions of the  
17 Environment Canada, the bounding approach also  
18 limits meaningful evaluation of the alternative  
19 means of carrying out the project which is  
20 important in developing proactive plans to minimize  
21 or avoid adverse effects; incorporate environmental  
22 factors in the promotion of sustainable  
23 development.

24                   So this goes on and on, but it --  
25 we touched on the fish habitat and we do fish off

1 the shores of the lake itself, but -- however, I'm  
2 going to get right to our feeling have changed.  
3 However, in light of the nuclear crisis currently  
4 unfolding at Japan's Fukushima plant and rising  
5 concerns in the global community concerning the  
6 disaster and containment plans of nuclear  
7 facilities, we wish to advise that we support and I  
8 did send a letter of support, a minimum of a six-  
9 month review of the Darlington nuclear project.  
10 Presently there is no detailed plan for preventing  
11 air pollution, waste water pollution or the  
12 destruction of the fish habitat. I did send in a  
13 letter there, I think last week that this hearing  
14 should have been postponed, but the way the  
15 Commissioners are of -- the Nuclear Commission,  
16 they're a body that should listen to concerns of  
17 First Nations, of the people of this area and, you  
18 know, the whole country. But we voiced our concern  
19 now that it should have been postponed because of  
20 the disaster in -- over in Japan. We voiced our  
21 concern with the nuclear waste shipment that's  
22 going to happen from the Bruce Power Plant. And  
23 again, you know, no one's listening to us and I'd  
24 like some answers on a few of these issues. So  
25 that's all I'll say now, Mr. Chair.

1 CHAIRPERSON GRAHAM: Thank you  
2 very much, Grand Chief. I said Chief, but it's  
3 Grand Chief; congratulations on that.

4 CHIEF MARSDEN: Thank you.

5 CHAIRPERSON GRAHAM: No, we  
6 appreciate your comments. Now, I'm looking for  
7 some advice, the Chair is, to the presenters today.  
8 There are three different presenters, three  
9 different Aboriginal groups. Do you want to do  
10 them altogether or would you like to deal with one  
11 -- each one individually? It's at your discretion.  
12 So Grand Chief, perhaps I'll ask you first because  
13 since you're the -- since the floor is yours.

14 CHIEF MARSDEN: Southeast Regional  
15 Grand Chief. Oh, it depends. I'm okay either way.  
16 If the rest of my friends here want  
17 to --

18 CHAIRPERSON GRAHAM: Pardon me?  
19 Just press the microphone.

20 CHIEF KAHGEE: Chief Kahgee for  
21 the record.

22 Individually would be my  
23 preference.

24 CHAIRPERSON GRAHAM: That's  
25 perfect. Okay. So we've had your intervention and

1 I will refer now to panel members for questions.  
2 Madame Beaudet first?

3 --- QUESTIONS BY THE PANEL:

4 MEMBER BEAUDET: Mr. Chairman,  
5 good day.

6 I'd like to address a few points  
7 that you've raised in your written submission. One  
8 is employment. And I know with the federal  
9 government you get some subsidies or a grant for  
10 training of your young people. And I'd like to  
11 know if you have any programs to address future  
12 employment of young people in the nuclear industry  
13 or if the subsidies you get are -- are not  
14 segregated and you are the ones who choose what  
15 subject they -- they should address?

16 CHIEF MARSDEN: Thank you. For  
17 your information, it's a treaty right for  
18 education; that we don't consider that as to be  
19 subsidies. But we did -- when the Darlington plant  
20 was originally built, I -- I believe Alderville  
21 First Nation had at least 15, 20 in the  
22 construction and so that's what we were hoping for  
23 with this new project, was that members would have  
24 the opportunity, who's into that trade, to  
25 participate.

1                   But we also had the members of  
2 Darlington out and we talked about careers for our  
3 students, which we did pass on to our education  
4 departments. So I know there's a few looking into  
5 engineering and so on, so, yes, we've been  
6 following up on that part.

7                   MEMBER BEAUDET: Thank you. The  
8 other thing is you're -- you're probably aware that  
9 there has been -- well, you were invited to the  
10 stage 4 excavation for the Brady site and there was  
11 some artifact that was found and I believe it is  
12 kept at the moment with -- with the consultant that  
13 did the dig for OPG.

14                   I'd like to have your feelings.  
15 What happens usually? Do you get some of these  
16 artifacts and do you get -- do you have a museum  
17 where you can keep them? What -- I'd like to try  
18 to follow --

19                   CHIEF MARSDEN: Yeah.

20                   MEMBER BEAUDET: -- what happens  
21 and how well the public can visit and -- and  
22 understand, you know, the history of -- of the  
23 site.

24                   CHIEF MARSDEN: Through the Chiefs  
25 of Ontario, we've been -- the last 15 years

1 possibly, we've been -- see, all the large  
2 artifacts -- I think it's held up by Parks Canada,  
3 so everything goes into that department, where  
4 they're housed in basements all over the place from  
5 what we're understanding -- universities. They're  
6 boxed up. But at this present time, we do not have  
7 a proper facility to house these, but I know  
8 there's proposals to have these facilities built.

9                   MEMBER BEAUDET: So I understand  
10 you don't have any artifacts that goes back to you  
11 at the moment, is that --

12                   CHIEF MARSDEN: No.

13                   MEMBER BEAUDET: -- what you're  
14 saying?

15                   In the list of general concerns  
16 that you've -- you have in your written submission,  
17 there are a few issues that, you know, we've been  
18 addressing over the -- the days that we've been  
19 having with the public hearing. And we did address  
20 to some extent species at risk and migratory birds  
21 and -- and wildlife, et cetera, and also aquatic  
22 life. I'm not saying we've completed everything,  
23 but we -- we are in the progress of looking more  
24 carefully at these issues.

25                   And the interest, I think with

1 your presentation or your participation, would be  
2 to find out if -- you said you were fishing  
3 offshore.

4 CHIEF MARSDEN: M'hm.

5 MEMBER BEAUDET: And we'd like to  
6 know if you have current use of -- of land for  
7 traditional purposes in the area?

8 CHIEF MARSDEN: Well, for fishing,  
9 it's in a report with the low level waste  
10 management project that was from -- developed from  
11 Port Hope, so our fishing activities are all in  
12 that report, but we do not have any commercial  
13 fishing. We just enjoy it as family outings, you  
14 know, so --

15 MEMBER BEAUDET: Thank you. Thank  
16 you, Mr. Chairman.

17 CHAIRPERSON GRAHAM: Mr. Pereira?

18 MEMBER PEREIRA: Thank you, Mr.  
19 Chairman.

20 In -- in your submission, you  
21 express some concerns about deferral of key --  
22 review of key environmental aspects, you know,  
23 after the licence to construct stage.

24 I'd like to turn to the CNSC and  
25 invite them to comment on the timing and the -- and

1 the controls that are in place with respect to the  
2 licensing process; in particular, their impression  
3 that much will be done after the licence to  
4 construct.

5 DR. THOMPSON: Patsy Thompson for  
6 the record. I'll -- I'll try to speak more loudly.  
7 I think it's still an issue.

8 The -- should the project go -- go  
9 ahead, the proposed licence has a number of hold  
10 points for programs to be developed, reviewed and  
11 approved either by the Commission or -- or at the  
12 -- the staff level.

13 And moving forward to a -- a  
14 construction licence application, there would also  
15 be a number of programs, including follow-up  
16 programs, that would be linked to the site  
17 preparation licence, the construction licence, and  
18 the operating licence.

19 We have been -- have had  
20 engagements with First Nations and there is an  
21 expectation that through the CNSC participant  
22 funding program that Aboriginal groups and other  
23 groups would be able to have funding to be able to  
24 review and participate in subsequent public  
25 hearings of the CNSC if the project goes ahead.

1                   MEMBER PEREIRA: So the -- the  
2 approval and oversight of different elements in the  
3 environmental protection program that arises from  
4 this environmental assessment will be controlled  
5 through a staged licensing process with public  
6 participation?

7                   DR. THOMPSON: Patsy Thompson for  
8 the record. That's correct. We have also in the  
9 past been directed by the Commission to work with  
10 various groups in terms of developing elements of  
11 follow-up programs. And you will note that one of  
12 the staff recommendations to the JRP is to have a  
13 group where participants come together to aid in  
14 the development of the follow-up program. That's  
15 an avenue as well that's available.

16                   MEMBER PEREIRA: Another one of  
17 the concerns you -- you spoke about a number of  
18 concerns, but you make an observation that three of  
19 your concerns are related to the aquatic  
20 environment and impact on fish and fish habitat,  
21 disruptions in the lakebed, and harmful alteration  
22 of the habitat. And some of these aspects are  
23 related to the proposed recourse to once-through  
24 cooling -- condenser cooling system.

25                   Do you have any thoughts on

1 alternatives to that that might reduce the impact  
2 on fish and fish habitat?

3 CHIEF MARSDEN: Well, that, I'm --  
4 I'm not sure. It's just the -- the design that  
5 we're going on of the Pickering nuclear site.

6 There was a commissioner -- a  
7 spokesperson for the Commission who said, quite  
8 clearly, we are talking about a lot of fish and  
9 that's what I was talking about, the one million  
10 fish and the 62 million fish eggs. The fish  
11 include northern pike, Chinook salmon and rainbow  
12 smelt -- are killed when they're trapped on intake  
13 screens or suffer cold water shock after leaving  
14 warmer water that's discharged into the lake. Now,  
15 that's Pickering. So we haven't seen anything on  
16 the Darlington site, what their plans are.

17 MEMBER PEREIRA: The Ontario Power  
18 Generation have made a number of presentations to  
19 us on the proposal for Darlington and it is a  
20 design which is conducive to reducing the impacts  
21 on fish. But I'll let Ontario Power Generation  
22 speak to that.

23 MS. SWAMI: Laurie Swami for the  
24 record. There's a significant difference between  
25 the Pickering design and the Darlington design at

1 our existing facility. The Pickering design is a  
2 surface water intake and discharge system, and that  
3 means that we just take water directly off the  
4 surface of the lake; whereas, the Darlington -- the  
5 existing Darlington facility has taken into  
6 consideration improvements over time of the various  
7 nuclear installations and has specifically had it  
8 designed to reduce impingement through reducing the  
9 flow rate that goes into the intake structure, so  
10 that there's less impingement at the Darlington  
11 site, significantly less impingement. And the  
12 discharge channel itself has a different design  
13 from the Pickering site in that it has a diffuser  
14 which essentially mitigates the thermal plume from  
15 the -- from the discharge itself and -- and  
16 mitigates that through design.

17                   As part of the Darlington new  
18 nuclear project our proposal that we've submitted  
19 in a number of IR requests or information request  
20 responses is that we're committed to taking this  
21 much improved Darlington design and looking at  
22 options to further make improvements to reduce  
23 impingement and entrainment through the design  
24 phase rather than waiting for the results.

25                   We have studied what the potential

1 impingement would be, how we could make those  
2 improvements. We've committed to continuing those  
3 studies once we -- you know, if this approval is  
4 granted we would continue those studies to  
5 understand where the habitat is, what the potential  
6 impact is on round whitefish.

7                               Using that information we would  
8 appropriately place the intake structure to avoid  
9 habitat where the round whitefish may be and  
10 looking to make the best improvements we could to  
11 the intake as well as the discharge from the new  
12 nuclear facility.

13                               CHAIRPERSON GRAHAM: Thank you.

14                               Mr. Pereira?

15                               With that, I have just two  
16 questions.

17                               Just for your information, Chief  
18 Marsden, that the other day when we had an  
19 intervention here from the Ontario government I had  
20 asked a question -- there's an undertaking coming  
21 forward that's due on April 1<sup>st</sup> -- about special  
22 training programs for young Aborigines, not just  
23 to take part on a construction site but to get a  
24 career, whether it's, as I've said, a trade school  
25 or a university, is there going to be any special

1 provincial programs.

2                                 Because my experience in new  
3 Brunswick with the First Nations that I used to  
4 represent, we did try and get programs like that at  
5 the provincial level.

6                                 So it might be with interest that  
7 you follow that after April 1<sup>st</sup> to see what the  
8 response is. I have no idea what the Province of  
9 Ontario is planning, or will do, or has done, but  
10 that's available. So I just invite you to look at  
11 that because that is always a concern of mine, is  
12 getting people not only just ordinary jobs but good  
13 jobs and permanent jobs.

14                                 So with that, I had another  
15 question with regard to the artefacts and so on.  
16 Has there ever been a move to have some sort of  
17 provincial type museum for native artefacts,  
18 Aboriginal artefacts, so that you have control of  
19 those rather than letting Parks Canada have them,  
20 as you say, in some basement somewhere but having  
21 them displayed for all people to appreciate?

22                                 Has there ever been a movement  
23 afoot to do that, either locally at a site like  
24 this or on a provincial basis?

25                                 CHIEF MARSDEN: Thank you, Chair.

1                                   As far as I know, there has been  
2 no movement on the provincial side to develop a  
3 site for the First Nations artefacts that have been  
4 found.

5                                   But one of the problems we had,  
6 even with the -- there was a few number of  
7 artefacts that were found at this site, but it was  
8 the way we were notified after, oh, you can bring  
9 your monitors in, you know, after these artefacts  
10 were found, so it's always almost after the fact  
11 instead of having our people there right from the  
12 beginning.

13                                  And for your information, Chair,  
14 one of our members, John Beaver, he's deceased now,  
15 but there's an educational award that Ontario Hydro  
16 has to honour this man, and he's from Alderville,  
17 so we've had people high up in that industry.

18                                  CHAIRPERSON GRAHAM: Thank you  
19 very much.

20                                  If my colleagues don't have any  
21 questions I will now move to OPG if they have any  
22 questions for the Williams Treaty First Nations.

23                                  MR. SWEETNAM: No questions.

24                                  CHAIRPERSON GRAHAM: CNSC?

25                                  DR. THOMPSON: Patsy Thompson.



1 solicited I would like to ask OPG if these opinions  
2 were expressed and what they were?

3 I would also like to hear the  
4 opinion of our First Nations intervenors on this  
5 issue.

6 I realize this may be outside the  
7 scope of this exercise but it is an elephant in the  
8 room and it has direct relationship due to past  
9 occurrences on First Nations communities.

10 CHAIRPERSON GRAHAM: Thank you for  
11 that question. That is outside the scope of this  
12 hearing with regard to consulting on uranium  
13 mining.

14 The consultation, I believe, was  
15 with regard to a new build at Darlington. I don't  
16 know whether Mr. Sweetnam has anything further to  
17 add. But I doubt if you did consult on uranium  
18 mining but maybe you could tell us yes or no.

19 MS. PAWLOWSKI: Excuse me, Donna  
20 Pawlowski, for the record.

21 The consultations were with  
22 respect to this project as defined. At times some  
23 individuals, as Mr. Etches did, raised questions  
24 about uranium mining and mineral exploration and we  
25 explained, as you indicated, that they were beyond

1 the scope of this project, and also directed them  
2 to the draft EIS guidelines and the opportunity to  
3 comment on what the project scope was for the  
4 purposes of this EA.

5 So that's how we addressed any  
6 comments with respect to uranium mining or mineral  
7 exploration.

8 In our discussions -- and Chief  
9 Marsden and Mississaugas can speak for themselves  
10 -- no one raised with us any concerns with respect  
11 to other parts of the fuel cycle.

12 CHAIRPERSON GRAHAM: Thank you.

13 Chief Marsden, do you have  
14 anything further to add?

15 CHIEF MARSDEN: I know the site on  
16 Highway 7, Sharbot Lake site, we had members from  
17 Alderville and I believe Curve Lake they did  
18 participate in a blockade up there. So we new  
19 there was a potential mining act going on in that  
20 area but we let our feelings be known.

21 CHAIRPERSON GRAHAM: Thank you.

22 Then I'll refer now to Mr.  
23 Kalevar, of Just One World for a question.

24 MR. KALEVAR: Thank you.

25 Mr. Chairman, through you to the

1 Chief -- Chaitanya Kalevar from Just One World.

2 Chief Marsden, I would like to  
3 know if -- how shall I say -- the *Environmental*  
4 *Assessment Act* or the many Acts that define the  
5 role of this Commission in any way offend your  
6 treaty rights?

7 CHAIRPERSON GRAHAM: Chief  
8 Marsden?

9 That's a very difficult question I  
10 know and if you want to give ---

11 CHIEF MARSDEN: Yes, thank you for  
12 the question.

13 CHAIRPERSON GRAHAM: It is a  
14 difficult one.

15 CHIEF MARSDEN: We define  
16 ourselves a sovereign nation and we're still trying  
17 to develop that position with the two governments.

18 CHAIRPERSON GRAHAM: Thank you for  
19 that answer.

20 That concludes -- I believe my  
21 notes tell me that that concludes your  
22 presentation.

23 We thank you very much for coming  
24 today and providing us with, first of all, your  
25 written intervention and also being present to

1 answer questions of the panel.

2 We will now proceed to our next  
3 intervenor, the Mississaugas of New Credit First  
4 Nation under PMD 11.P1.238.

5 Mr. Laforme (ph) I believe. That  
6 is the name I have but if that's not the name  
7 introduce yourselves -- I apologize.

8 --- PRESENTATION BY MS. KING:

9 MS. KING: Aaniin -- it means  
10 hello.

11 I'm Carolyn King, and I'm with the  
12 Mississaugas of the New Credit First Nation, and  
13 I'm working with the First Nation under their duty  
14 to consult and accommodate and my title is on the  
15 papers. It's kind of a long title. But with me is  
16 Arland LaForme. He's a councillor. Our Chief is  
17 in Toronto today co-hosting an environmental  
18 conference, so we're standing in for him. And with  
19 me, I have brought Jenny LaForme, she's sitting  
20 behind me. She's one of our young people in  
21 carrying our future.

22 So what I -- we've submitted our  
23 information to the -- to the panel, and I think  
24 maybe what I wanted to do was just reiterate some  
25 of our concerns, but first I want to say that -- I

1 want to acknowledge our fellow First Nations and  
2 Aboriginal people here who are here today to state  
3 their concerns or their opinions or defend  
4 themselves.

5                                   And we're the Mississaugas of the  
6 Credit, so we are closer down toward the Toronto  
7 area, and now we live adjacent to the Six Nations  
8 in Brant County and right adjacent to the Town of  
9 Hagersville and adjacent on three sides by the Six  
10 Nations of the Grand River Territory.

11                                   And that -- our traditional land  
12 is in this area, Toronto north. And you know that  
13 from one of the submissions that I put in that it  
14 shows the movement. We are of the Anishinabe  
15 people, and that we have moved from the north into  
16 the southern area, so those -- I wanted to share  
17 and make sure that you know who we were.

18                                   And today I bring with me, to grab  
19 courage to say some of the things I'm going to say,  
20 my Eagle Feather, which I get from my First Nation,  
21 an acknowledge for my involvement and my leadership  
22 in the community.

23                                   And if you don't know what an  
24 Eagle Feather is to a First Nation person, it is  
25 like getting the Order of Canada, so it's an



1                   So I will comment later about the  
2 way we're described in our archaeological side of  
3 things.

4                   But from our -- our logo here, we  
5 have our name, Mississaugas of the New Credit as we  
6 are today because we moved from the Credit River in  
7 Mississauga there to where we are -- or I should  
8 say in Halton area there to where we are today, and  
9 so now we call ourselves New Credit. So every time  
10 you pass that City of Mississauga, that's the  
11 Mississauga Indian Land, and they have asked us and  
12 took our name for their city.

13                   The Credit River, when you drive  
14 over that, that is our name. We're People of the  
15 Water and People of the Land, so I hope that makes  
16 a difference in your next trip and you know who  
17 that is and who it represents. Unfortunately, they  
18 forget where they get their name, where they get  
19 their water from, and where they get their land  
20 from, from all of our people sitting here and all  
21 the people who are out there in the different areas  
22 of Ontario or and on this continent.

23                   The Mississaugas of the Credit,  
24 our name is in a circle, represents the Circle of  
25 Life and all of the -- and how all things are

1 connected, and I'll say that again, how all things  
2 are connected. You can't do one thing without  
3 affecting something else. So we truly in our life  
4 know that.

5                               It's blue to represent the water.  
6 Our eagle is our totem of the people who moved from  
7 the Credit following Peter Jones to where we are  
8 today. We have many other totems that people have  
9 representing -- and for the Mississauga and the  
10 Anishinabe, the fish, the water, the animal, water  
11 animals. The pipe that's on the bottom of that  
12 shows our -- that was the pipe given to our  
13 traditional Chief back in the 1700 -- 1800s to  
14 recognize his leadership, and he was trying to get  
15 our land, make sure that we didn't lose our land;  
16 that we owned it because the new people coming in,  
17 they wanted ownership of the land.

18                               So in our case, he went to the  
19 Queen of England of the day, and they give him a --  
20 and asked for that. He wanted a deed to our land.  
21 He wasn't successful in getting it, and that's  
22 documented in the history, in the writings of the  
23 Reverend Peter Jones and their trips to try to  
24 secure our position in this -- in our land.

25                               So the pipe was given to him in

1 acknowledgement of his leadership, and it became --  
2 it has served as the Parliamentary Mace. It has  
3 served as a Parliamentary Mace sitting at the AFN  
4 tables, and in 2012, it will serve that person  
5 again -- place again when they hold Grand Council  
6 and they talk about the issues of the First Nations  
7 people.

8                   The fires -- the red fire flames  
9 that you see on our logo, it shows -- that's our  
10 alliance with the Potawatomi, the Ojibway, and the  
11 Odawa. We came together as an alliance to protect  
12 ourselves and to survive in this country based on  
13 the -- the push that was coming in for the settlers  
14 and the making of this country under the -- what we  
15 call colonial rule, and that we fought off -- we  
16 fought with our brothers the Iroquois.

17                   So we came together under an  
18 alliance, and it's called the Three Feathers -- or  
19 Three Fires, and you'll see that they are still in  
20 existence today. The Three Fires Alliance comes  
21 together in a -- in the traditional sense. They  
22 live on all parts of this continent, and we come  
23 together to strengthen ourselves culturally,  
24 spiritually, and as a people.

25                   So in my submission -- in my

1 writing on behalf of the First Nation, I wanted to  
2 -- to make sure you know who we were and honour our  
3 map. We have a what we call a -- in recent days,  
4 due to the duty to consult and accommodate, we put  
5 a line on the -- line on the map showing our --  
6 what would be called our traditional territory, and  
7 that's based on what we call 10,000 years of  
8 traditional use and treaty.

9                   The Mississaugas of the Credit  
10 have 20 some odd treaties about the sharing of  
11 land, the giving up of land, the use of land. So  
12 those are just the things that when we talk about  
13 where our rights are here, it involves all of these  
14 -- these lands because some of those treaties do  
15 cover up all this -- all this area.

16                   Most of our people, Mississauga  
17 body of water and that land represents all the  
18 waters that flow into the Lake Ontario, the head of  
19 the lakes.

20                   So we are -- we are concerned  
21 about this development, and maybe even more  
22 concerned with what's happening across the ocean  
23 and the kind of impact that's happening there, the  
24 devastation of those people, and I can only relate  
25 to our people, what happened to our people when

1 things came -- came through to us, disease and  
2 things like that. Maybe it's not as astronomical  
3 and at one point, but the impact of settlement on  
4 our people.

5                               So I want to make a comment about  
6 -- I've shared with your our -- our maps, our  
7 history book. It talks about our movement, our  
8 land use here, and also about our recent land  
9 claims settlement for the -- what's called the  
10 Toronto Purchase, which covers from the Toronto  
11 area -- that's just a map out of there showing the  
12 land that we were talking about and surrendering.

13                              All of the Toronto area, block all  
14 the way up to Lake Simcoe and another ten-acre  
15 block. So we've just settled and received  
16 compensation for that shortfall. So this is just  
17 to give you an idea that we are recognized. As  
18 other First Nations in the country, we're  
19 legislated people recognized as a First Nation  
20 government for the small reserve lands that we  
21 have.

22                              So my comment to the panel is that  
23 we are not in support of any activity that will  
24 have a negative impact on any of our lands. This  
25 may include impacts on the natural environment,



1 and pretty high level, but that's our concern.

2                   During the past year we had met  
3 with OPG representation; myself I'm new at -- back  
4 at working for the First Nation and so I've been in  
5 their duty to consult and accommodate, I've been --  
6 had the opportunity and you might say the honour to  
7 sit at the table and express our side of the -- the  
8 process here. So I thank you for that and we're  
9 learning things.

10                   One of the things I want to say is  
11 that we have a vision statement that talks about  
12 protecting -- what we are starting to follow, our  
13 First Nation, the Mississaugas and the New Credit  
14 First Nation look to our Anishinabe roots to guide  
15 our region for the future as a strong, carrying,  
16 connected community who respects the earth's gifts  
17 and protects the environment for our future  
18 generations.

19                   Our identity includes our history,  
20 language, culture, beliefs and traditions, which we  
21 strive to incorporate into our programs and  
22 services that is offered here in our community.

23 One of the things that I -- I come to realize is  
24 that the way that archaeological report is written,  
25 it downplays, diminishes our things. What if you

1 found my eagle feather there? If you didn't know  
2 how important it was to me, you would write it off.  
3 So there are things in the ground that you may not  
4 know and when we talk about things like little,  
5 there's words in there that diminish our things.  
6 And whether there's one or there's 20, one thing  
7 matters and makes a difference. And in some of our  
8 environmental fights for the Mississaugas New  
9 Credit, we've been up against the Ministry of  
10 Environment -- Ontario Ministry, in the landfill  
11 site that is adjacent to us. And one of the things  
12 I learned there -- we have a BCR. Our highest  
13 order of decision making in our communities under  
14 the *Indian Act* is called the Band Council  
15 Resolution that states our position.

16                   So what if we say no? I ask  
17 everybody in this room, what if we say no? What  
18 are you going to do? When you disrespect our  
19 highest order, we're lost. We have no place to go,  
20 but to protest. That's the only alternative we got  
21 and so when we express our opinion, and we say no,  
22 we expect some kind of answer; some kind of action  
23 to support that.

24                   So my last -- last parts in here.  
25 Before any development activity is planned for the

1 site, we requested to ensure that all the required  
2 archaeological investigations are carried out. In  
3 the case where existing facilities may have been  
4 constructed prior to the current legal  
5 requirements, and maybe back then, maybe even non  
6 -- very little, they would have just dug them up  
7 and took them away and kept them somewhere in a  
8 box. So I might tell -- I might answer that  
9 previous question. There is some work underway.  
10 Neil Ferris out of the University of Western  
11 Ontario, they are trying to put a regional  
12 repository together. So when I asked the question,  
13 when I went to the archaeological meeting and I got  
14 the tour and went and saw the site. When I touched  
15 those things, there were important to me. I  
16 couldn't even sleep after, yet they're taken up and  
17 put in a box somewhere; put a nice little label on  
18 it and say, we picked them up and we put them away  
19 for you. It affects some of our people.

20                               So archaeology work done prior to  
21 -- may not have done as good a job as they should  
22 have done because they weren't require to. You  
23 know, they always tend to get the minimal  
24 requirement. So there are new standards in Ontario  
25 and I'm assuming that they're going to be looking

1 at that. This is our ancestral lands and we  
2 believe that there is great potential to lose  
3 significant Aboriginal archeological value here.

4                   And when our people, the people  
5 who are living here, our brothers here from  
6 Alderville, Hiawatha, the Mississaugas of Scugog,  
7 when they're here and they may want to use this  
8 land for hunting, they would just be going on that  
9 land. They wouldn't be asking permission; it's  
10 their traditional land and they feel like they own  
11 it. But there's fences, there's barriers, there's  
12 rules and regulations; we no longer have access.  
13 So -- not that we may want to have access to a  
14 nuclear site, but access gets limited in various  
15 ways.

16                   We have treaty rights to be able  
17 to move around this land and the society of today  
18 does not honour those rights. Most of the time  
19 they just don't know it. And as newcomers come  
20 into this country, they do even -- they know even  
21 less about us as an indigenous people and what we  
22 can do.

23                   So when we talk about -- access is  
24 always an issue, you know, for me and what I see,  
25 you know, when you can't go there to our -- our

1 original lands. And one of the things I said --  
2 talked about, it's significant, someone here is  
3 deciding for us what is significant for us. When  
4 they write of no significance, do they really know,  
5 because they're not Aboriginal. Are they picking  
6 up my eagle feather, you know. And to say that we  
7 don't live there because we must just be walking  
8 through and we dropped it. Just to say, therefore,  
9 you didn't live there. Our people, based on  
10 treaty, based on 10,000 years of existence here,  
11 have lived here and used this land. They may not  
12 have stayed in one place -- so when you use the  
13 word transient, doesn't it make us look like we  
14 just wandered around doing nothing or wandering  
15 around with -- our people, we're surviving. That  
16 was their way.

17                               So I just want to make you aware  
18 of some of those ways that were described that are  
19 diminished. We feel diminished on those -- on  
20 those points. So with that, Chi Miigwetch. Thank  
21 you for listening.

22                               CHAIRPERSON GRAHAM: Thank you  
23 very much, Ms. King. I appreciate the complete --  
24 the sincere expression you had of your symbols and  
25 what you believe in. Mr. Pereira, do you have

1 questions?

2 --- QUESTIONS BY THE PANEL:

3 MEMBER PEREIRA: Well, just to  
4 follow up on your comments on the archeological  
5 work, are there any more considerations that OPG  
6 has in extending archeological work or have you  
7 more or less completed what you see as being the  
8 areas that -- that were planned for investigation?

9 MS. PAWLOWSKI: Donna Pawlowski  
10 for the record. We have one additional site that  
11 will be undergoing a stage four excavation later  
12 this year and at the last meeting we had at  
13 Alderville with the Williams Treaty First Nations  
14 we talked about the timing of that and the protocol  
15 and process that we jointly would like to put in  
16 place to ensure that everybody is aware of that  
17 activity well before it begins so there's no last  
18 minute surprises. If there's any further questions  
19 about that, we have the archeologist here as well.

20 MEMBER PEREIRA: Okay. Do you  
21 have any questions about the archeological  
22 investigation? They have their resources to.  
23 Next, yeah.

24 CHAIRPERSON GRAHAM: Yes, Ms.  
25 King, do you have any questions to OPG that you

1 might have following what Mr. Pereira asked?

2 MS. KING: Okay. Just in my --  
3 you know, since I've gotten back to working with  
4 the First Nation out of this position, I've been --  
5 had the opportunity to go to several different  
6 meetings and have raised the concern and I've  
7 raised this at the archeological meeting and I've  
8 raised it at the provincial meeting, that the way  
9 that our artifacts and our use of the land is  
10 considered, I think is -- they need to up -- up the  
11 ante here in that we do have a say. And when -- I  
12 went to the meeting -- the archeology meeting and  
13 there was, I think, if I'm -- I'm not mistaken, 23  
14 artifacts found on the site and 61,900 and some odd  
15 Euro-Canadian. I see the interpretation of that,  
16 would they say, well, they aren't there. So it's  
17 just the way they interpreted and I had an  
18 archeologist say to me -- not this one, he said,  
19 well, the Mississaugas live lightly on the land.  
20 In the archeological assessment they do not  
21 consider that. It was just like you weren't there  
22 because we were good environmental people and leave  
23 no footprint, not like 61,000 pieces of garbage.  
24 We're just not -- then we're deemed to be not there  
25 because we didn't throw all our garbage out there

1 on the land. So see that evaluation of it, I think  
2 needs to be reconsidered and how their terms and  
3 how they evaluate our existence on the land.

4 MEMBER PEREIRA: Thank you for  
5 that comment.

6 OPG, do you want to comment  
7 further on that?

8 MS. PAWLOWSKI: Donna Pawlowski,  
9 for the record.

10 I'll ask Rob Peel, the  
11 archaeologist who's been working on the site, to  
12 speak to the ranking, so to speak, of the site with  
13 respect to other sites in Ontario.

14 MR. PEEL: Yes, hi. Robert Peel  
15 with Archaeological Services. We're responsible  
16 for the physical and heritage culture resources for  
17 the project.

18 The Brady site was an unusual  
19 site, in that when it was discovered and throughout  
20 the assessment process, no Aboriginal artefacts  
21 were discovered. They were only recovered during  
22 the stage-four mitigation of what we had assumed at  
23 that point was a Euro-Canadian site.

24 And in the plough zone excavation  
25 of these deposits we were getting thousands of

1 Euro-Canadian material and unfortunately the  
2 processing of these artefacts took a fairly long  
3 time and it was quite awhile before we realized  
4 that we had Aboriginal material on the site. And  
5 the other thing too is that it was coming from the  
6 plough zone from a disturbed context.

7                   As soon as we realized that we had  
8 this Aboriginal site of significance in terms of  
9 the fact that we were discovering this material, we  
10 halted excavation and set up this monitoring  
11 procedure so that when we actually excavated the  
12 in-situ features, we could determine whether or not  
13 we had an Aboriginal feature, and under the  
14 monitoring of, I guess it was Jeff Beaver, we could  
15 excavate it.

16                   So the other issue is the term  
17 "significance" is unfortunately charged with some  
18 emotion. In the planning process, significance is  
19 usually a tool that we use or a device that we use  
20 to consider a resource in terms of whether we have  
21 enough information on it or not.

22                   In the case of the artefacts that  
23 we found at the Darlington site, we found  
24 everything that we could possibly find in the  
25 surface collections of these sites during the

1 earlier investigations and there was no additional  
2 potential for finding more material, you know, like  
3 an in-situ site, of which we would definitely  
4 contact First Nations folks.

5                               So it's a term that implies, you  
6 know, do we go further with the investigation or  
7 not based on what we know.

8                               CHAIRPERSON GRAHAM: Thank you,  
9 Mr. Pereira.

10                              Do you care to have any other  
11 comment Ms. King?

12                              MS. KING: I'll make one comment.

13                              I think we need -- the starting  
14 point is that all of Canada is treaty land. At one  
15 time all of our people lived on all of this land in  
16 various places, maybe in small numbers and maybe in  
17 clusters and maybe moving around, but from the  
18 starting point you need to know that our people  
19 were here.

20                              CHAIRPERSON GRAHAM: Thank you.

21                              Madam Beaudet?

22                              MEMBER BEAUDET: Thank you, Mr.  
23 Chairman.

24                              There was a lady who was supposed  
25 to come and present today. She represents

1 Aboriginal Affairs with the Green Party of Canada  
2 and we can understand that she can't be here, but  
3 there was a question I wanted to ask her but I  
4 think you will probably be able to answer me.

5 Her spirit name is Opichi, which  
6 means robin, and she said that robins who have  
7 territorial disputes sing to each other, which I  
8 thought is a lesson we should all learn.

9 But she also mentions the  
10 Anishinaabe Nation and I believe you are also an  
11 Anishinaabe Nation.

12 MS. KING: Yes.

13 MEMBER BEAUDET: And what I wanted  
14 to know from her is I'm sure there is an  
15 interesting meaning also to this word and I would  
16 like you to explain to us what Anishinaabe means.

17 MS. KING: It means the people.

18 MEMBER BEAUDET: That's all.

19 MS. KING: The original people.  
20 The Inuit, that word means the people. The Six  
21 Nations, the Haudenosaunee, it means the people.  
22 So it's a description of us, the people. We double  
23 up on it by saying the Inuit people or the  
24 Anishinaabe people. So it just means the people.

25 MEMBER BEAUDET: Thank you.

1                   You also refer on many occasions  
2 with your presentation that you were occupying the  
3 land according to your culture and different  
4 activities, which are very different from permanent  
5 settlers. I think we can understand that.

6                   Currently, are there any  
7 activities that you feel this project will impinge  
8 on near the facility -- the existing facility of  
9 Darlington and the new project?

10                   MS. KING: I think use of any  
11 trails and waterways around there. Just like I  
12 said, remember we're the land people, we're the  
13 water people. So the water is what made our life.  
14 You know, maybe not so much today, and we're trying  
15 to bring those things back.

16                   But just for example, we live in  
17 Hagersville, which is south of Hamilton, and we're  
18 18 -- I call it -- miles from Nanticoke generating  
19 plant and we fish and go there to hunt and fish and  
20 our people, both Six Nations and the Mississaugas  
21 of the New Credit, we've had to make arrangements  
22 with the hydro to get access for hunting purposes  
23 there because there's lots of deer around those big  
24 open spaces.

25                   The other thing is it affects the

1 water that we fish in. I heard the earlier one  
2 about where the intakes are and where they expel  
3 the water out. In that case warm water goes out  
4 and we're restricted from fishing there because  
5 it's rich in fish, but also it changes our fish --  
6 the type of fish that we can get there.

7                   So my husband and I, we're fisher  
8 people and it has changed the way that we use that.

9                   And the settlement and the  
10 Nanticoke plant and the hydro plant that's put up  
11 there, they changed the amount of water in the  
12 stream. We can't even go there in the springtime  
13 to go smelt fishing anymore. I mean, because it's  
14 a traditional use, it's the way that we went and  
15 did that. Every year buckets of smelts when we got  
16 them and they're no longer. The water trickles  
17 through that little creek.

18                   And our water -- just other waters  
19 -- any one of my Nations here can say that their  
20 water and their use of it has been impacted and I  
21 think this could do the same thing. Those streams  
22 that we would have fished in that had fish they're  
23 down to trickles and they're polluted, unusable.

24                   So either we move to a different  
25 lifestyle or we move some place else. It seems

1 like the land just keeps being taken up on us.

2                                   And we're people who turn on the  
3 light every morning too. We realize that there has  
4 to be a merging of energy but does it have to be  
5 nuclear energy. And I'm concerned about uranium  
6 and all the impacts on that. I'm sure -- Jenny is  
7 here with her baby coming up, like, what's going to  
8 happen to their future? I may be gone by all that  
9 time but she's got a new baby coming in like  
10 shortly and the concerns about what that life is  
11 going to be for the next generation for her family.

12                                   So I think it does affect us in  
13 the way that we use water, fishing for sure, and  
14 how we've had to change our lives for it. And how  
15 can you keep asking us to keep changing forever,  
16 and ever, and ever, until we don't exist? Is that  
17 what everybody wants?

18                                   MEMBER BEAUDET: Thank you.

19                                   CHAIRPERSON GRAHAM: Thank you,  
20 Madam Beaudet.

21                                   I just have a question to OPG. I  
22 know you've done a lot of site -- looking at the  
23 site and the plough method and so on that you  
24 referred to, but will you -- in the future are you  
25 committed to employ Aboriginals, especially the

1 Mississaugas of New Credit First Nation, to be  
2 present when site preparation is going on so that  
3 if anything is found -- anything further is found  
4 that they are there to identify and work with you?  
5 What is your plan there?

6 MS. PAWLOWSKI: Donna Pawlowski,  
7 for the record.

8 We have, as I mentioned earlier,  
9 discussed with the Williams Treaty First Nations at  
10 our meeting in Alderville earlier this year that as  
11 we move into the next excavation we're working very  
12 closely and we'll have an Aboriginal, which will be  
13 Jeff Beaver will be the Aboriginal liaison monitor  
14 there during that excavation.

15 As we move -- and we have not yet  
16 begun to discuss the steps that we will take as we  
17 move into site preparation, but we would -- I would  
18 anticipate we would follow a similar provision to  
19 work, first, closely with the Williams Treaties  
20 First Nations, and Mississaugas of New Credit have  
21 always been welcomed as part of that group of  
22 people that -- of First Nations that we meet with  
23 as we talk about the potential disturbance of any  
24 aboriginal features on the site.

25 Does that answer your question,

1 sir?

2 CHAIRPERSON GRAHAM: Well, I guess  
3 what I'm asking is to find out if you will include  
4 the Mississaugas of New Credit First Nations in  
5 further site preparations as long as a licence is  
6 issued.

7 Will that be part of your plan, to  
8 include not only the groups that you have so far,  
9 but also expand your -- because of the territory  
10 and so on, that it's referred to today to expand  
11 that?

12 MS. PAWLOWSKI: Donna Pawlowski,  
13 for the record.

14 I'll say yes, they would. I'll  
15 say yes.

16 CHAIRPERSON GRAHAM: Thank you.

17 Ms. King?

18 MS. KING: At the meeting -- after  
19 the meeting we went to, we -- we are the  
20 Mississaugas, because we live over 100 kilometres  
21 away, in our current home, that we agreed that Jeff  
22 Beavers could represent us at the table, so that --  
23 trying to save money or people's time, to get up  
24 there, and we support that he's -- he would protect  
25 our interests as well.

1 CHAIRPERSON GRAHAM: I'm just  
2 trying to get you a few more paid jobs, that's all.

3 MS. PAWLOWSKI: We're looking for  
4 them.

5 CHAIRPERSON GRAHAM: Anyway, thank  
6 you very much.

7 Now, the procedure, the way we go  
8 here, proceed here, I now go to OPG with regard to  
9 questions that they might have to this intervenor.

10 OPG, do you have any questions?

11 MR. SWEETNAM: No questions at  
12 this time.

13 CHAIRPERSON GRAHAM: CNSC, do you  
14 have questions?

15 DR. THOMPSON: Patsy Thompson.  
16 No, sir, thank you.

17 CHAIRPERSON GRAHAM: Government  
18 agencies, provincial or federal, that may be here,  
19 would they have questions? I see none.

20 Intervenors? Do we have any  
21 intervenors? No.

22 If I see none then, I will then  
23 thank Ms. King, and your First Nation, for  
24 appearing before us today.

25 We thank you for -- I'm always

1 very interested in what your symbols are, and very  
2 much aware of the feather, very much aware of that,  
3 because of my involvement back in New Brunswick,  
4 but to have your flag explained and so on, we  
5 appreciate that knowledge that you shared with us.

6                   So, we wish you a safe trip back.  
7 You can remain at the table until we hear the next  
8 intervenor, but we thank you very much for coming.

9                   With that, we move to the last of  
10 the intervenors for this part of the hearings  
11 today, other than the written one which we'll deal  
12 with later.

13                   We'll now move on the schedule to  
14 the -- I should say, first of all, does anybody  
15 want a break? You're okay? You would like a  
16 break?

17                   If you'll excuse us, we're going  
18 to take a 15-minute break and we'll be back at  
19 3:30. Thank you very much.

20 --- Upon recessing at 3:18 p.m.

21 --- Upon resuming at 3:32 p.m.

22                   CHAIRPERSON GRAHAM: Thank you,  
23 and we will start this afternoon's hearings, or the  
24 continuation, I should say, and we have the Saugeen  
25 Ojibwe Nation presentation, under PMD 11-P1.212.

1 And Chief Kahgee?

2 Chief Kahgee, the floor is yours,  
3 and welcome to these hearings.

4 --- PRESENTATION BY CHIEF KAHGEE:

5 CHIEF KAGHEE: Aaniin, bonjour.

6 (Native language spoken)

7 Good afternoon.

8 I'd first like to acknowledge the  
9 Mississauga New Credit and the William Treaties  
10 First Nations for welcoming me to their territory  
11 today.

12 Good afternoon, Mr. Chair, and  
13 members of the panel.

14 My name is Randall Kahgee. I'm  
15 the Chief of the Saugeen First Nation and here  
16 representing the Saugeen and Ojibwe nations, which  
17 is comprised of our First Nation and the Chippewas  
18 of Nawash Unceded First Nation.

19 I'm joined here today by counsel  
20 Paul Jones on my left, and with our legal counsel  
21 Alex Monem on my right.

22 I'm just going to break for a  
23 brief moment from my written text, and I'd like to  
24 acknowledge Chief Ralph Akiwenzie, who is no longer  
25 with us. He has made his journey to the spirit

1 world.

2                                   He was to be with me here today  
3 and present with me. These are issues that Chief  
4 Akiwenzie was deeply passionate about, in making  
5 sure that our voice was not only heard, but part of  
6 informed decision-making on these issues moving  
7 forward, and understanding that First Nations, who  
8 are true partners, and had to be true partners in  
9 these decisions and not simply interest groups or  
10 museum pieces, or those who bring beads and  
11 blankets to the conversation.

12                                   He was a firm believer in the  
13 promises and understanding of our treaties, and  
14 promoted that through every aspect of his life, and  
15 was one of the longest-serving chiefs in this  
16 country.

17                                   It was an honour and a privilege  
18 to know him, and I know he has appeared before the  
19 Commission on a number of different occasions  
20 throughout many, many years.

21                                   Just prior to coming here today, I  
22 had the honour and privilege of reading submissions  
23 that both he and my late uncle, Chief Richard  
24 Kahgee, made in the very early '90s on waste  
25 issues, so I'm trying to draw inspiration from

1 that. So I just wanted to acknowledge that, just  
2 for a brief moment.

3 We have our written submissions on  
4 OPG's current application. You know that our  
5 submissions speak to one specific issue.

6 The environmental assessment is  
7 based on two very different options for the  
8 disposal of nuclear waste that would be generated  
9 from this project. OPG has asked that you approve  
10 this project on one of two different bases: One,  
11 that OPG will deal with all of its nuclear waste  
12 on-site; two, that OPG will send its nuclear waste  
13 off-site, particularly to the western waste  
14 management facility or a future facility in SON  
15 traditional territory.

16 I'm here today to say clearly that  
17 you should not approve this project on the basis of  
18 any plan to ship waste to SON territory.

19 OPG, as part of its project design  
20 for this review, has assumed and taken for granted  
21 that there will be an option for sending all low  
22 and intermediate nuclear waste generated from the  
23 new Darlington reactors to facilities within SON  
24 traditional territory.

25 OPG says that it prefers to send

1 all the waste to the western waste management  
2 facility, in much the same way it currently ships  
3 waste from its current reactors. But OPG wishes to  
4 remain flexible, to allow it to make final  
5 decisions based on commercial expedience.

6                   While OPG acknowledges that  
7 shipping waste to the west waste management  
8 facility is not a long-term solution, OPG does not  
9 specify what it plans to do with new waste  
10 generated for permanent disposal.

11                   However, OPG speculates that this  
12 waste, once stored at the western waste management  
13 facility, may eventually be disposed of in a new  
14 facility proposed by OPG at the same time. OPG has  
15 proposed a deep geological depository for low and  
16 intermediate level wastes.

17                   OPG goes on to say that if the  
18 current DGR proposal is not large enough, it could  
19 be expanded in the future to accommodate new waste  
20 accumulating from the new Darlington reactors and  
21 that private agreements with Kincardine could be  
22 modified to allow for such a thing.

23                   This is how OPG has dealt with the  
24 whole question of low and intermediate-level  
25 nuclear waste, continue to do what it has always

1 done, and anticipate that its new DGR will be  
2 approved and built in a way that can deal with all  
3 this new waste.

4 OPG says that if necessary, it  
5 could store waste onsite if all of this failed.

6 I'd like to provide you with a  
7 very brief background of serious nuclear waste  
8 problems already facing SON and how OPG's current  
9 proposal will only compound these problems.

10 The Bruce nuclear complex,  
11 including the OPG-owned Western Waste Management  
12 Facility, stands in the heart of SON traditional  
13 territory.

14 SON residential communities lie  
15 within 20 kilometres of the site. SON ancestors  
16 are buried within the boundaries of the complex.

17 And the facility is directly on  
18 the -- and -- directly on and substantially  
19 interacts with Lake Huron, the traditional waters  
20 of SON, where we continue to exercise and rely on  
21 subsistence and commercial, Aboriginal, and treaty  
22 fishing rights.

23 The Bruce nuclear reactors have  
24 been generating nuclear waste for over 40 years and  
25 will continue to do so for decades into the future.

1 All of those wastes are stored at the facility.

2 In addition, OPG's Western Waste  
3 Management Facility has been in operation since the  
4 1970s. It takes all low and intermediate-level  
5 waste from all commercial reactors in Ontario to be  
6 stored within our territory.

7 It's currently approved to roughly  
8 double in its current capacity.

9 Every day, nuclear wastes of every  
10 type are accumulating in our territory through the  
11 operation of the Bruce power plant.

12 More wastes are transported  
13 through and into our territory from all the other  
14 nuclear power plants in Ontario for storage at the  
15 Western Waste Management Facility. These are all  
16 temporary storage solutions.

17 We, as Canadians, have yet to  
18 settle and agree on a long-term permanent solution  
19 to our ever-growing nuclear waste problem.

20 SON did not ask for these  
21 problems. In fact, all of the decisions that led  
22 to Bruce -- to the Bruce power plant and the waste  
23 storage facilities being housed in our territory  
24 were made without any involvement of SON.

25 SON was never consulted on the

1 decision to house nuclear reactors at the Bruce  
2 site.

3 SON was never consulted on the  
4 many decisions that allowed nuclear wastes from  
5 throughout the province to be brought in and stored  
6 in our territory.

7 SON was never consulted on the  
8 original idea to develop plans to house a permanent  
9 disposal facility for nuclear waste within our  
10 territory.

11 We were never consulted on any of  
12 these decisions, and we do not accept them.

13 Still, we accept our  
14 responsibility to be part of the solution to the  
15 nuclear waste problem because we must.

16 We have Anishinabek who lived  
17 here, cared for, and relied on this territory since  
18 time in memorial and have had a treaty relationship  
19 with the Crown for countless generations.

20 Our treaties are solemn agreements  
21 with the Crown that formalize our nation-to-nation  
22 relationship and secure the protection of our  
23 relationship to the land and waters and a  
24 sustainability of that relationship for future  
25 generations.

1                   Our people must do everything  
2 possible to ensure the health and integrity of the  
3 lands and waters because they are our future.

4                   We're the only people living in  
5 the region that cannot pick up and move away if the  
6 unthinkable happens.

7                   And as we know, we are now  
8 witnessing the horrific events in Japan. The  
9 unthinkable does happen.

10                  As we have said to this Commission  
11 before, how we deal with the legacy of nuclear  
12 waste will not only define the future of SON, but  
13 Canada as well.

14                  We are now about to begin the most  
15 significant public review of nuclear waste  
16 management issues since The Seaborn Panel.

17                  We are about to begin a review of  
18 Ontario Power Generation's proposal to build a DGR  
19 at the Bruce site.

20                  The proposed DGR will be for the  
21 permanent disposal of low and intermediate-level  
22 nuclear wastes, including categories of wastes that  
23 raise the exact same kinds of issues as used fuel,  
24 wastes that are long-lived and highly radioactive  
25 that will require careful management over many

1 thousands of years.

2                                 SON has played a central role in  
3 shaping the review of the DGR project. We have  
4 done so because we hope that it will become a  
5 robust and meaningful consideration of the DGR  
6 project and how it relates to the serious nuclear  
7 waste management problems facing our territory, the  
8 social aspects of these problems, and their impact  
9 on SON rights, interests, and way of life.

10                                 Critical issues surrounding how  
11 this project has been developed and planned are  
12 already emerging, issues that the review will need  
13 to investigate carefully and fully.

14                                 They include the social  
15 acceptability of the project, including how this  
16 project was originally developed and who should  
17 properly be considered the host community for the  
18 project, the relationship of the DGR project to  
19 other future projects, in particular, the  
20 possibility of a DGR for fuel waste at the same  
21 time -- at the same site, sorry.

22                                 The inclusion of intermediate-  
23 level nuclear wastes in the project that raise many  
24 of the same technical and social questions as fuel  
25 wastes do to their toxicity and long-lived nature,

1 the need or advisability they apply to the project,  
2 the principles of adaptive phase management as  
3 adopted by NWMO in relation to its proposal for a  
4 geological depository for nuclear fuel wastes.

5                   We've already seen that Canada's  
6 commitment to the high principles of adaptive phase  
7 management have not and will not be fully applied  
8 to the planning and design of the DGR, and we have  
9 to ask, why not?

10                   And finally the panel for the DGR  
11 review will be charged with the unique mandate of  
12 taking evidence on these and other matters as they  
13 relate to impacts on SON rights and interests in  
14 order to support consultations between SON and  
15 Canada relating to the nuclear waste problems  
16 facing our people.

17                   For these many reasons, SON will  
18 demand a robust and meaningful review of the DGR  
19 project.

20                   If the review becomes a narrow  
21 technical view of the project, it will be a  
22 failure.

23                   If it becomes a rushed and  
24 perfunctory exercise, it will be a failure.

25                   And if its outcomes are pre-judged

1 or if it looks that way to the Saugeen Ojibwa  
2 Nation people or the rest of the public, it will be  
3 a failure, and it will not be accepted.

4                               These are not idle fears. We  
5 should remember that despite the importance and  
6 historical significance of this project, it was  
7 never assumed by the CNSC or by OPG that it would  
8 be subject to a public hearing.

9                               That decision was only made by the  
10 Commission after a public hearing in Kincardine  
11 where many, many people expressed their deep  
12 concerns about the project, including SON.

13                              This panel has been put into an  
14 awkward position. They've been asked to approve  
15 the OPG's current proposal to build new reactors at  
16 Darlington in part on the basis of plans to ship  
17 its nuclear waste to the Western Waste Management  
18 Facility for storage and eventually to the proposed  
19 DGR for permanent disposal.

20                              OPG has outlined this option to  
21 dispose of new Darlington waste in the DGR. It has  
22 already described how it will revisit the hosting  
23 agreement with Kincardine to allow the DGR to fill  
24 up and to commence a new EA to expand the facility  
25 as necessary to accommodate Darlington wastes.

1                   CNSC staff appear to accept this.  
2   CNSC's panel member -- document of January 31<sup>st</sup>,  
3   2011 states, and I quote: "If the low and  
4   intermediate-level nuclear waste is transferred to  
5   the Western Waste Management Facility, it's likely  
6   that no additional storage buildings will need to  
7   be constructed at the Western Waste Management  
8   Facility since the bulk of the waste would be  
9   generated after 2018, when the low and  
10  intermediate-level waste geological depositories is  
11  assumed to be in operation."

12                   On Thursday, Mayor Kraemer came  
13  before you to present in great detail about the DGR  
14  project. He told you how our -- about how robust  
15  their community consultation and development work  
16  has been, told you about NWMO and the commitment to  
17  the principles of adaptive phase management, and he  
18  told you about polling the demonstrated local  
19  support.

20                   He told you all of this because,  
21  and I quote, "I believe that what the long-term  
22  plan is will be significant to some of the  
23  decisions that may be made by the review panel."

24                   This is precisely the problem.  
25  This is not a review of the DGR project. This is

1 not an inquiry about the future of the Western  
2 Waste Management Facility or the future of nuclear  
3 waste management in Canada.

4 All of the issues in evidence that  
5 mayor -- the mayor raised are contentious and  
6 fundamental questions about the project and will be  
7 the subject of great scrutiny once the panel review  
8 for that project begins.

9 Nothing has yet been investigated,  
10 and nothing about the project has yet been finally  
11 decided.

12 Mayor Kraemer, OPG, and even the  
13 CNSC staff ask you to consider pre-judge outcomes  
14 to these questions, and approve the Darlington  
15 project on this basis. We do not accept plans that  
16 assume and take for granted the right to continue  
17 to ship waste to our territory. We ask this panel  
18 to not approve this project on the basis of any  
19 plans or assumptions about OPG's ability to send  
20 nuclear waste to SON Territory. Either to the  
21 Western Waste Management facility or any other  
22 future facility in our territory.

23 We ask that this panel not even  
24 consider these options and this assessment for what  
25 other project should be approved. SON has never

1 been consulted on the early and profound decisions  
2 to store nuclear waste from all reactors in Ontario  
3 within its traditional territory. SON was not  
4 consulted on the siting decision for OPG's proposed  
5 DGR project, for the long-term centralized disposal  
6 of all low and intermediate level wastes in Ontario  
7 within our traditional territory. And currently  
8 there are no alternative plans for centralized  
9 storage and final disposal of low and intermediate  
10 level nuclear wastes in Ontario.

11                                 There are deeper concern that  
12 projects like the Darlington new build and  
13 regulatory decisions that would approve such  
14 projects put even greater pressure on our territory  
15 to be the repository of all nuclear wastes for the  
16 province. Such an outcome is simply unacceptable.

17                                 We ask of this panel to ensure  
18 that OPG's current project does not compound the  
19 problems facing SON and its territory. We ask that  
20 the decisions that are made here do not prejudice or  
21 prejudice the future decisions about nuclear waste  
22 management in our territory, including a review of  
23 the DGR project that is now beginning.

24                                 The old ways of doing business are  
25 over. The old colonial ways of making government



1 Migwetch for your time.

2 CHAIRPERSON GRAHAM: Well, thank  
3 you very much for -- for your intervention and we  
4 now will move right into the panel questions. And  
5 Madam Beaudet.

6 --- QUESTIONS BY THE PANEL

7 MEMBER BEAUDET: Thank you, Mr.  
8 Chairman. I'd like to express our condolences to  
9 your people for the loss of an important member of  
10 your community.

11 I'd like to know first how did you  
12 hear about this project here and our public  
13 hearing? Were you consulted, were you on the list  
14 of the Crown consultation or OPG consultation list?

15 CHIEF KAHGEE: The short answer is  
16 no, we weren't on the list of those First Nations  
17 to be consulted. We learned about it through a  
18 dialogue with OPG quite by accident, and we took a  
19 closer look at what was being proposed and realized  
20 that it's something that did touch on our  
21 interests.

22 MEMBER BEAUDET: I'd like to refer  
23 to PMD 1.3 of CNSC document on the EA evaluation,  
24 and on page 32 and 33, table 2. This table was  
25 made from the document submitted by OPG, but I find

1 that it's -- it's a good summary, if I'm allowed to  
2 use this table to -- to work from.

3                   We did ask previously, this  
4 question, I believe, of the technical meeting, if  
5 there was space for the waste to be managed on  
6 site, and we were answered yes, but then, as you  
7 know, I was concerned last week that the land was  
8 getting smaller and smaller with the different  
9 proposals from all of the PMDs we have received,  
10 and on this table here, it's a complete, I believe  
11 -- we'll check that first -- that it's a complete  
12 list, if everything is stored on site, these would  
13 be the storage requirements that is listed here,  
14 and the storage specification in terms of square  
15 metres; is that correct?

16                   MR. SWEETNAM: Albert Sweetnam for  
17 the record. That's correct, yeah.

18                   MEMBER BEAUDET: And with the  
19 constraints that we are gradually building with  
20 less infill, possibly, and brackets, (cooling  
21 towers) would you -- could OPG confirm that you  
22 still have the space for storage of low and  
23 intermediate fuel and used fuel on site forever?

24                   MR. SWEETNAM: Albert Sweetnam,  
25 for the record. That's correct.

1                   MEMBER BEAUDET: Thank you. My  
2 question -- I'm coming back to our guest here. On  
3 page 2, and then I think you explain a little bit  
4 more on page 8 about facilities within your  
5 territory that you -- with your involvement, but  
6 not your consultation. And I'd like to have  
7 definitions of that and to make sure that we  
8 understand well.

9                   CHIEF KAHGEN: I've just conferred  
10 with legal counsel and that's a typo, and that will  
11 reflect in his next billing.

12                                   (Laughter/Rires)

13                   It should be without. It's a  
14 typo, it should be without.

15                   MEMBER BEAUDET: Okay. Thank you  
16 very much. Mr. Chairman.

17                   CHAIRPERSON GRAHAM: We'll try and  
18 find a few more and maybe it'll be free.

19                   CHIEF KAHGEN: There's too many.  
20 Present company excluded, of course.

21                   CHAIRPERSON GRAHAM: Thank you,  
22 Madam Beaudet. Mr. Pereira.

23                   MEMBER PEREIRA: Just a question  
24 of clarification from CNSC staff on the -- the  
25 longevity of the waste that is stored in the lower

1 level and intermediate level waste facility. How  
2 long does this waste stay active, so in other  
3 words, how long do the storage buildings have to  
4 retain the material?

5 DR. THOMPSON: Patsy Thompson, for  
6 the record. I will ask Ms. Julie McKee to provide  
7 a response to that question.

8 MS. MECKE: Just for  
9 clarification, you're talking about the Western  
10 Waste Management Facility?

11 MEMBER PEREIRA: No, the low and  
12 intermediate level waste from Darlington, the new  
13 Darlington project, which, if it was held on site,  
14 how long does it stay active.

15 MS. McKEE: The facilities on  
16 site --

17 CHAIRPERSON GRAHAM: Pardon me,  
18 would you identify yourself for the transcription?

19 MS. McKEE: Sorry, Julie McKee,  
20 project officer, waste and decommissioning  
21 division.

22 If facilities were constructed on  
23 site, they would undergo a separate CNSC licensing  
24 process, first of all. And CNSC staff would  
25 suggest a licensing length for them. The length of

1 time on there would be for interim storage until  
2 there is some long-term facility available. CNSC's  
3 expectation would be of OPG to have an aging  
4 management program, which they would look at their  
5 structures over time, and again, staff would  
6 evaluate that.

7                   Again, through our licensing  
8 process, there would be public hearings on the  
9 facilities as well, and again, these would be  
10 checked again. And, again, as CNSC's ongoing  
11 compliance program, the facilities would be checked  
12 against this.

13                   MEMBER PEREIRA: So you don't --  
14 do you foresee any problems with storing all of the  
15 waste from the facility on the Darlington site?

16                   MS. McKEE: At this point, no, but  
17 again, we will go under a separate licensing  
18 process to evaluate that further.

19                   MEMBER PEREIRA: And just a final  
20 question. Would that involve the change and the  
21 scope of the environmental assessment for storage  
22 of all the waste on the site?

23                   MS. McKEE: The environmental  
24 assessment, as is the guidelines do include the  
25 storage of low and intermediate level waste on the

1 scope, so OPG, in their submission, their bounding  
2 scenario does look at the storage on the site in  
3 the scope.

4 MEMBER PEREIRA: Just to confirm,  
5 as Madam Beaudet said, when we did go through our  
6 technical discussions with OPG at the technical  
7 meeting, which it was a public meeting in June, we  
8 asked that very question.

9 If you do not presume that the new  
10 -- the waste management organization's fuel waste  
11 or the DGR were approved or were to receive this  
12 waste, could you store the waste on site?

13 And OPG did confirm that they  
14 would be able to host all of that waste on site for  
15 as long as was needed. That was something we  
16 confirmed way back in June.

17 CHAIRPERSON GRAHAM: And that was  
18 just -- to make it perfectly clear, that included  
19 also regardless that the scope has changed. Is  
20 that correct, Mr. Sweetnam?

21 MR. SWEETNAM: Albert Sweetnam,  
22 for the record.

23 Could you clarify what you mean by  
24 the scope being changed?

25 CHAIRPERSON GRAHAM: I'm referring

1 to such things as once-through cooling if it went  
2 to cooling towers and so on would there still be  
3 room?

4 MR. SWEETNAM: Albert Sweetnam,  
5 for the record.

6 Yes.

7 CHAIRPERSON GRAHAM: That's fine.  
8 Thank you very much.

9 Chief, do you have any other  
10 questions?

11 CHIEF KAHGEE: No questions at  
12 this time unless there's any from my colleagues.

13 CHAIRPERSON GRAHAM: We will --  
14 the procedure now is to go to the floor and the  
15 first from the floor is OPG.

16 Do you have any questions?

17 MR. SWEETNAM: Albert Sweetnam,  
18 for the record.

19 Mr. Chair, normally you have been  
20 saying are there any comments or questions. Would  
21 it be possible to make a comment rather than ask a  
22 question?

23 CHAIRPERSON GRAHAM: Certainly.

24 MR. SWEETNAM: Thank you.

25 OPG has considered SON's

1 submission to the panel and we fully appreciate  
2 their concerns. OPG and SON have been engaged on  
3 the EA for the DGR for nuclear waste since 2003.  
4 We have a protocol agreement in place respecting  
5 that.

6 OPG and SON have also been working  
7 collaboratively to develop a process to examine  
8 legacy issues surrounding the development of the  
9 Bruce nuclear site. Through those discussions we  
10 have come to understand SON's perspective,  
11 including their concerns regarding the sources,  
12 volumes and types of nuclear waste that may  
13 ultimately be stored at OPG's facilities in  
14 Kincardine.

15 OPG has identified two options for  
16 the interim storage of low and intermediate level  
17 radioactive waste that would be generated at the  
18 new nuclear plant, storage on site or transfer to a  
19 licence facility at another location.

20 OPG's preference continues to be  
21 to transfer the low and intermediate waste our  
22 existing licence western waste management facility  
23 in Kincardine.

24 OPG has confirmed and we have just  
25 reconfirmed that we can safely store the low and

1 intermediate level nuclear waste from the new  
2 project at the Darlington site for interim  
3 management until it can be transferred off site.

4 OPG's also confirmed that we can  
5 safely store the used fuel from the new nuclear  
6 project at the Darlington waste management facility  
7 until it can safely be transferred off site to a  
8 long term use fuel management facility.

9 While we respect the concerns  
10 raised regarding the relationship of this project  
11 to the other waste projects, we note that the DNND  
12 project does not depend on any individual  
13 alternative waste management option and can be  
14 considered independent of the Kincardine DGR.

15 Thank you.

16 CHAIRPERSON GRAHAM: Thank you,  
17 Mr. Sweetnam.

18 Chief Kahgee, do you have anything  
19 to -- any response?

20 CHIEF KAHGEE: Chief Andrew  
21 Kahgee, for the record.

22 As Mr. Sweetnam said, yeah, we  
23 have been working towards trying to define a  
24 process on how these issues will be addressed and  
25 scoped and we're confident that we will see through

1 that not only -- not because we want to but because  
2 we have to. These are very serious issues for our  
3 people. I can't emphasize enough the legacy that  
4 has been forced upon us.

5 I tend to stay away from languages  
6 on duty to consult and accommodate even though I  
7 was part of the legal team that helped develop that  
8 law. I think these are principles that are much  
9 broader than that. We are talking about  
10 reconciliation yet Canada as a country has signed  
11 onto a declaration. It speaks to these issues  
12 quite clearly. Canada as a country said that when  
13 it comes to these issues it's an issue of free  
14 prior informed consent.

15 We are quite comfortable and  
16 confident that we can come up with a solution for  
17 those waste that exist on site now, but to compound  
18 that any further without a further understanding  
19 and some resolve to that process is going to be  
20 very difficult for our people to have confidence,  
21 so whatever process we put forward to make sure  
22 that those issues are going to be properly scoped  
23 and addressed.

24 I applaud the elder that was here  
25 today when she spoke of the importance of our

1 relationship to the land. And I've shared this  
2 many times with the Commission, I know, Mr. Chair,  
3 you were at the CNSC hearings in September when I  
4 made that submission, I said if you understand the  
5 deep connection and the relationship to our land  
6 and the promises to us in the treaties you'd  
7 understand the importance of our involvement, not  
8 just as stakeholders but in shaping these processes  
9 and having a role to play in being decision makers  
10 in those processes. That is a completely  
11 fundamentally different message than saying we are  
12 adamantly opposed. But if you continue to park  
13 First Nations on the sideline then they have no  
14 options.

15                   As a country, as an industry, as a  
16 regulator, as First Nations we must find a solution  
17 to these problems. They are not going away. And  
18 SON is willing to be a partner in that conversation  
19 exploring those solutions. But make no mistake,  
20 unless we can get to that place of making that  
21 informed decision we can no longer allow our  
22 territory to be the stalking ground for all the  
23 facilities in Ontario. Nowhere in our treaties  
24 would it have ever been contemplated that's what it  
25 was for.

1 I'm a little discouraged that we  
2 don't have senior levels of government in this room  
3 today. When the elder spoke of that relationship  
4 and I shared in my submissions that nation to  
5 nation government to government relationship, those  
6 are solemn agreements, they aren't simply treaties  
7 of surrender. There's an understanding of sharing.

8 And our ancestors knew the need to  
9 protect was fundamentally important to them and  
10 that's the relationship to that land and those  
11 waters, because who we are as Anishinaabe is  
12 intertwined with that, our culture, our ceremonies.  
13 It's not just about putting things into a checkbox  
14 and thinking does that impact on Chief Kahgee's  
15 ability to go catch a fish. It's not that simple.

16 I had people in my community three  
17 years ago, the women who wanted to have a ceremony  
18 for the water because they were deeply concerned  
19 about what was happening to our water, not just for  
20 Anishinaabe but for everyone in this room water is  
21 life. In our culture the women have the  
22 responsibility to protect that. And they wanted to  
23 have a ceremony by the water but they couldn't  
24 because of all the development that was happening  
25 on the shoreline. They didn't feel secure.

1                   Our men had to step up and protect  
2 them so they could have that ceremony. I said "You  
3 go have that ceremony. We'll have men there with  
4 you to protect you."

5                   That is an impact. It's not just  
6 a simple technical box that we look good on a  
7 checklist and we check it off. We talk to Chief  
8 Kahgee about fishing rights; we talk to Chief  
9 Kahgee about his hunting rights. There's a  
10 relationship to the land. It's integral to who we  
11 are as Anishinaabe.

12                   I can't say it anymore patiently.  
13 It's a time like this I wish Chief Atkowins (ph)  
14 was here because he'd say it in the language  
15 because things get lost in translation when I speak  
16 to it in English. It's much more powerful in our  
17 language.

18                   And I encourage you, if you  
19 understand that connection and understand the  
20 importance of our treaties, that they are solemn  
21 agreements between nations with an understanding  
22 that what would matter most to us would be  
23 protected, then you can understand where we're  
24 coming from.

25                   As leaders Counsellor Jones and I

1 carry that responsibility. That's a responsibility  
2 that has been passed onto us as leaders. A  
3 responsibility we do not take lightly.

4                               When I think about the sacrifice  
5 our ancestors made in entering into those treaties  
6 so that we could all exist and be here today. How  
7 fragile Canada's freedom is, yet we continue to be  
8 marginalized, like the elder talked about. We are  
9 more than fluff and feathers. We are more than  
10 beads and blankets. We are more than trinkets. We  
11 are more than museum pieces on display. We are the  
12 people of this land. And there are many things  
13 that our people have endured and we are still here.  
14 And I can still talk to you in some of the  
15 language, and that in itself is a miracle, when you  
16 think about what our people have faced and the  
17 policies that this country has put forward to  
18 marginalize our people, to rip us of our identity;  
19 rip of our culture.

20                               We talk about territory, we don't  
21 talk about that idly. It's much broader than just  
22 our communal lands. Don't forget at one time it  
23 used to be illegal in this country to be outside  
24 the boundaries of the reserve after a certain time.  
25 How is that consistent with the treaty and the

1 promise made to my ancestors that I continue to do  
2 those things that matter most; go gather medicines;  
3 have ceremony; hunt; trap; fish; harvest.

4                   This is a broader conversation and  
5 one that we're hoping that people will engage with.  
6 That's a completely different message than saying  
7 we're opposed, but again I caution and I'll share  
8 it again, because I've said it many times now to  
9 the Commission, the first time to this panel, if  
10 you continue to park us on the sidelines, you are  
11 leaving us no options. We're coming here willing  
12 to accept responsibility for the legacy that we did  
13 not create, but we know we have to because there's  
14 those generations that are coming behind us so we  
15 have to speak for them and we have to protect them.

16                   And as I said in my submissions,  
17 if things went south in a hurry, where do my people  
18 go? That's their homeland; that's what sustains  
19 them as people; that's what sustained them for many  
20 generations. That was the promise from the Crown.  
21 That's what gets lost when we have these  
22 conversations so that conversation doesn't neatly  
23 fit into CNSC/OPG's technical box.

24                   So that's what I'll say to that.  
25 Aho Miigwetch.

1                   CHAIRPERSON GRAHAM: I sincerely  
2 want to thank you for your passion in this and just  
3 for your information, the officials may not be here  
4 today, but this is being webcast around the world  
5 and it's on the archives, I think, for what, three  
6 month? And hopefully someone of the officials that  
7 you'd like to have heard will either hear it --  
8 heard it today firsthand or look up the transcripts  
9 as the days go on, but we do accept your -- the  
10 passion with which you speaker because we know, to  
11 you and your people, how important it is. CNSC, do  
12 you have any questions?

13                   DR. THOMPSON: Patsy Thompson for  
14 the record, no, we don't, sir.

15                   CHAIRPERSON GRAHAM: Thank you.  
16 Government officials? Any government officials  
17 wish to speak? There are none. So then we go to  
18 intervenors? We have no intervenors or do we -- we  
19 do have two, I'm sorry. The first one is Anna  
20 Tillman. Ms. Tilman?

21                   --- QUESTIONS BY THE INTERVENORS:

22                   MS. TILMAN: Mr. Graham, if you'll  
23 allow me, I just want to say the passion of the  
24 last speaker leaves me almost wordless and that's a  
25 difficult thing for me at times.

1                   CHAIRPERSON GRAHAM: It must have  
2 been a good speech if it left you wordless.

3                   MS. TILMAN: Yes. And I hope it's  
4 more than people maybe listening online; it's  
5 acting for the future generations. But my question  
6 is, I'm puzzled, about the question of the storage  
7 of what is called low and intermediate level  
8 radioactive waste and the answers that I seem to be  
9 getting today from -- I guess it's OPG. I'm  
10 totally confused.

11                   First of all, the environmental  
12 impact statement, Section 2.620, 2.611 and of  
13 course, it stated, "*Consider two options for*  
14 *managing this waste.*" One was transporting the  
15 other was storing some of it onsite. Now, I hear,  
16 no, this can be -- we are confirming that waste can  
17 be stored on the Darlington nuclear site interim.  
18 I don't know interim now means. We don't know if  
19 there's two reactors or four. If there's four,  
20 that's 20 percent of all operating reactors in  
21 Canada. So I'm not sure what interim means. I  
22 find this extremely confusing.

23                   I understand there is a technical  
24 briefing now in June and I didn't know about that,  
25 but to me there is no clarity when we talk about we

1 can store this waste interim on the Darlington  
2 site. Can you please specify what does that mean?  
3 Sorry, but I don't understand.

4 CHAIRPERSON GRAHAM: Thank you,  
5 Ms. Tilman. OPG, would you care to respond?

6 MR. SWEETNAM: Albert Sweetnam for  
7 the record. When we talk about nuclear waste and  
8 interim solution, we're talking about a solution  
9 that is utilized until a long-term solution for the  
10 storage of the waste is found.

11 In Canada we've gone with a  
12 process of adapted phase management for fuel waste  
13 and this process is ongoing in terms of selecting a  
14 willing host community. And this is under federal  
15 statute. And when that facility is finally  
16 established, that would be the permanent location  
17 for fuel wastes in Canada.

18 So in the interim it would be the  
19 waste -- the fuel waste from the facilities are  
20 being stored at site, where they're generated. In  
21 terms of low and intermediate waste, low and  
22 intermediate waste first undergoes a reduction in  
23 waste through incineration and compaction to reduce  
24 the volume of waste and then it's stored on an  
25 interim basis at the moment, at the Kincardine

1 site. If we are not allowed to store it at the  
2 Kincardine site, it would be stored at the new  
3 Darlington New Nuclear project site on an interim  
4 basis until a permanent location is found to  
5 dispose of this waste.

6 OPG is -- is applying to the CNSC  
7 for and going through an EA for a DGR in  
8 Kincardine, associated with low and intermediate  
9 wastes. This will be addressed by a separate Joint  
10 Review Panel sometime in the future and at that  
11 point in time, if that DGR is approved for low and  
12 intermediate waste, we will address that at that  
13 time because that would be a -- a permanent  
14 location.

15 CHAIRPERSON GRAHAM: Thank you  
16 very much.

17 MS. TILMAN: I'm sorry, I don't  
18 think that answers my question.

19 CHAIRPERSON GRAHAM: Mr. Kavelor  
20 -- Kavelor, I'm sorry. I should be able to  
21 introduce by now, but anyway, Mr. Kavelor.

22 MR. KAVELOR: That is the least of  
23 your transgressions, Your Honour -- Mr. Chairman.  
24 My name -- really -- as I say, a rose by any other  
25 name, I'm Chaitany Kavelor; pronunciation is okay.

1                   CHAIRPERSON GRAHAM: Your question  
2 please.

3                   MR. KEVELOR: Okay. Chaitany  
4 Kavelor once again from -- just one word. I fully  
5 share the wonderful passionate expressions that the  
6 Chief provided before and I share his passion for  
7 the planet like he shares with his territory.

8                   Having said that, I would like to  
9 know through you, Mr. Chair, if the CNSC, OPG or  
10 the Chief know exactly the amount of nuclear waste  
11 that is sitting in Pickering, Darlington and Bruce?  
12 I would also like to know what is the age of that  
13 waste; what is the chemical composition of that  
14 waste, and perhaps what is the expected life of  
15 that waste? If you can get this broke down in  
16 detail, then at least we can begin to properly plan  
17 as the Chief very much wants to do, how to handle  
18 it. And it seems that information at least so far,  
19 has not come to my attention. Maybe it should be  
20 made abundantly clear and brought to the front. I  
21 don't know who is capable of doing that, but  
22 certainly CNSC should already have it. I -- that's  
23 what I expect.

24                   CHAIRPERSON GRAHAM: Thank you  
25 very much, Mr. Kavelor. I -- I guess we are

1 talking about Darlington; what's at Bruce; what's  
2 in storage and so in, CNSC puts out an annual  
3 report every year and I'm not sure whether that's  
4 covered that or what nuclear waste is covered for  
5 all the other facilities. I don't think anyone  
6 here can answer for Bruce today or for Pickering.  
7 We're talking about -- but there would be detail on  
8 that so, Dr. Thompson, is that covered in reports?  
9 Is that available in Ottawa, if it's in a safe if  
10 someone's looking for it?

11 DR. THOMPSON: Patsy Thompson for  
12 the record. I'll begin to respond and Ms. Julie  
13 Mecke will be able to complete the response. The  
14 low and intermediate level waste currently  
15 generated by the existing Darlington, Pickering,  
16 and Bruce reactors are managed and stored at the  
17 Western Waste Management Facility. The used fuel  
18 is stored and managed on the individual sites --  
19 existing sites.

20 As for the project being  
21 considered by the panel, the information that  
22 Madame Beaudet put up a few minutes ago is -- the  
23 compilation is on the pages of the CNSC PMD, but  
24 it's also available from Bruce Power, but I will  
25 ask Julie Mecke to provide more details.

1 MS. MECKE: Julie Mecke. Each  
2 year or each three years Canada produces an  
3 international report to the joint convention on the  
4 management of spent fuel and on the management of  
5 radioactive waste management. Our last report was  
6 published in October of 2008, and in section D of  
7 this report has all the inventory of used nuclear  
8 fuel and radioactive waste in Canada, and that  
9 report is also available from our website as well  
10 as from the International Atomic Energy Agency's  
11 website as well under the joint convention. And  
12 our next report will be published this year in  
13 October with updated inventories in it.

14 CHAIRPERSON GRAHAM: Thank you  
15 very much. I think that answers your question, Mr.  
16 Kalevar. Ms. Patricia Lawson, you have a question,  
17 I believe.

18 MS. LAWSON: Thank you. The --  
19 Pat Lawson. The issue of nuclear waste and how  
20 it's dealt with, I -- I believe anyone planning  
21 ahead would want to know of other historic areas  
22 where nuclear waste has been a huge problem, and so  
23 I am wanting to defend my life's work regarding the  
24 Ganaraska Watershed. I know that's in Port Hope  
25 and we're looking at another issue, but there has

1 never been a satisfactory answer to the nuclear  
2 waste in Port Hope.

3                   In fact, the disposal area chosen  
4 is the worst in Ontario. There was no other  
5 possibility, and I am horrified at the place that  
6 they intend the mound known as the Welcome Site in  
7 Port Hope is where they're going to put nuclear  
8 waste when they clean up Port Hope. And so I  
9 really welcome the comments made by the -- by the  
10 Chief, and I just want to say that the town I've  
11 lived in for 77 years, I've spent a lot of time  
12 over this issue of waste and this -- and I know the  
13 Ganaraska River from its whole source all the way  
14 down, and it's been poisoned by nuclear waste.

15                   CHAIRPERSON GRAHAM: Thank you  
16 very much for your comment, Ms. Lawson. That  
17 finishes the -- that finishes the presentation. I  
18 thank the Chief for coming. Safe travels with you  
19 -- you and your legal counsel. Maybe you can get a  
20 little better deal on the way back. Anyway, I  
21 thank you very much for you and your -- and  
22 representing your First Nation and a safe trip back  
23 and thank you for a passionate speech spoke from  
24 the heart, and believe it, we consider every  
25 intervention and thank you for yours.

1 CHIEF KAHGEE: Migwetch.

2 CHAIRPERSON GRAHAM: Now, the last  
3 item on the agenda was to be a -- was to -- okay, I  
4 will let my co -- I will let my co-manager read  
5 this. I didn't realize we had -- go ahead.

6 MS. MYLES: Thank you, Mr. Chair.  
7 Debra Myles, panel co-manager. The original  
8 submission from -- or the original schedule had  
9 Lorraine Rekmans, PMD P-1.148. It was originally  
10 scheduled as an oral presentation. Unfortunately,  
11 Ms. Rekmans could not be here, and we're going to  
12 deal with this as a written submission only, Mr.  
13 Chair. So if you would like to proceed in any way  
14 you like.

15 CHAIRPERSON GRAHAM: Thank you.  
16 My co-manager has read the PMD, which is presented  
17 by Lorraine Rekmans, PMD 11-P1.148, and I will open  
18 the floor the way we -- the way we will handle  
19 written submissions will be questions only from the  
20 panel, and I'll open the floor first to Mr. Pereira  
21 if he has any questions.

22 MEMBER PEREIRA: Thank you, Mr.  
23 Chairman. In reviewing the PMD, I notice a number  
24 of concerns raised by Ms. Rekmans. One of the  
25 first ones that I'd like to question is a concern

1 expressed concerning the area of Aboriginal  
2 consultation. She says she finds the consultation  
3 deficient and she requests that CNSC undertake  
4 comprehensive Aboriginal consultation with her  
5 effected Nation. Would CNSC staff like to comment  
6 on this concern and recommend a way forward to  
7 address the concern?

8 DR. THOMPSON: Patsy Thompson for  
9 the record. What I will say first is that the CNSC  
10 has a comprehensive approach to consultation with  
11 First Nations and Aboriginal groups. I would ask  
12 that Ms. Kimberly Mann explain the process that  
13 CNSC goes through to identify First Nations that  
14 need to be consulted on various projects, and then  
15 I will ask Mr. Andrew McAllister to give you the  
16 details as to the consultation that was carried out  
17 for this project.

18 MS. MANN: Hello. Kimberly Mann  
19 for the record. When CNSC began consultation on  
20 this project, they -- we looked at the potential  
21 Aboriginal groups that may be impacted by the  
22 project. We then looked at what OPG had already  
23 been -- their Aboriginal Consultation Program, and  
24 then we also contacted INAC to find out from them  
25 what groups may be contacted -- may be potentially

1 impacted by this project.

2 From there, we created a  
3 preliminary list of Aboriginal groups. That  
4 included the Williams Treaty groups and a number of  
5 other groups that may have interest in the project.  
6 Included in that, we also included the Union of  
7 Ontario Indians as they represent -- they're a  
8 political group that represent so many Bands across  
9 Ontario, and through there, they were able to  
10 advise any Bands of any interest to participate in  
11 this project, and anybody -- any group that showed  
12 interest, we were very inclusive. We continued  
13 sending them information on the project. Does  
14 that --

15 MR. McALLISTER: Andrew McAllister  
16 for the record. To add a bit more detail to what  
17 Ms. Mann said, in total, we sent seven different  
18 mail outs to the various chiefs and Métis council  
19 presidents dealing with the notification of the  
20 project, the public review period of the  
21 Environmental Impact Statement Guidelines and Joint  
22 Review Panel Agreement, issuance of the Final  
23 Environmental Impact Statement Guidelines and Joint  
24 Review Panel Agreement, along with details on the  
25 participant funding program and Aboriginal funding

1 envelope.

2                   The commencement of the public  
3 review period on the EIS and application for a  
4 license to prepare a site, we provided an interim  
5 update on the Joint Review Panel process and  
6 summary of consultation activities to date. A  
7 letter on the enclosure of the public review  
8 period, and a subsequent letter on the announcement  
9 of public hearings and hearing procedures, and then  
10 follow-up calls and e-mails were made as  
11 appropriate on those matters.

12                   We also had a regular e-mail  
13 Aboriginal distribution list where regular updates  
14 were sent to those contacts. Up to 23 e-mail  
15 updates have been sent depending on the particular  
16 group in question.

17                   And finally, at CNSC's suggestion  
18 or upon request, CNSC staff and other  
19 representatives of the Government of Canada have  
20 met with the Métis Nation of Ontario and Oshawa and  
21 Northumberland Métis Councils, most of the Williams  
22 Treaty signatories and their coordinator, the  
23 Mississaugas of New Credit First Nation, the  
24 Haudenosaunee Development Institute, and in total  
25 approximately 70 percent of our distribution list

1 we have met with in person, and you have on record  
2 those letters that you've received from the  
3 Aboriginal groups that have participated.

4 So that's just a bit more detail  
5 on what we've done to date on the Darlington  
6 project.

7 MEMBER PEREIRA: In the case of  
8 this particular comment, she's referring to  
9 consultation with Anishinaabe people. So would the  
10 groups that you met with have included part of that  
11 people or all of them?

12 MS. MANN: Kimberly Mann, for the  
13 record.

14 As Ms. King mentioned earlier,  
15 Anishinaabe means the people and under the Union of  
16 Ontario Indians there's also a website that refer  
17 to the Ojibwe as the people or the Anishinaabe, and  
18 under there, many of those groups are represented  
19 through the Union of Ontario Indians.

20 And so since the beginning of our  
21 consultation in 2007 they have been consistently  
22 advised of any participation; that they can advise  
23 us of any issues that they may have for the  
24 project.

25 MEMBER PEREIRA: Thank you.

1 I'll go onto another point. In  
2 her PMD Ms. Reckman (ph) refers to health studies  
3 and this -- in reading her comment, does it -- can  
4 you confirm it relates to the same studies that we  
5 were talking about this morning in the SAGE  
6 intervention?

7 This is to CNSC staff.

8 The second page of the ---

9 DR. THOMPSON: Just to confirm --  
10 Patsy Thompson for the record -- you're referring  
11 to the quotation in the paragraph that starts with  
12 "The operation of nuclear power plants in..."?

13 MEMBER PEREIRA: That is correct.

14 DR. THOMPSON: Our understanding  
15 is that those would be the studies that have been  
16 done, and we would not agree with the conclusions  
17 that are drawn in this part of the PMD, but we will  
18 provide in the undertaking the information that we  
19 have from the studies that have been conducted.

20 MEMBER PEREIRA: Thank you.

21 On the same page in her PMD Ms.  
22 Reckman talks about the Elliot Lake and the Serpent  
23 River watershed issues. You did speak about --  
24 CNSC staff did speak about that yesterday.

25 Could I have a quick review of

1 where this stands in terms of regulatory oversight  
2 for the record on this PMD?

3 DR. THOMPSON: Patsy Thompson, for  
4 the record.

5 Our understanding of the  
6 statements in that part of the CMD refer to the  
7 mines that have been decommissioned and are under  
8 licence from the -- decommissioning licence from  
9 the CNSC where those sites are subject to licensing  
10 and compliance activities from the CNSC and that  
11 there's a financial guarantee in place to cover all  
12 the work necessary to maintain these sites in good  
13 condition and for ongoing monitoring.

14 MEMBER PEREIRA: Thank you.

15 Thank you, Mr. Chairman.

16 CHAIRPERSON GRAHAM: Thank you,  
17 Mr. Pereira.

18 Madam Beaudet?

19 MEMBER BEAUDET: I believe my  
20 questions were answered from CNSC.

21 But I'd like to know from OPG when  
22 you draw your list I think you -- what were the  
23 criteria?

24 You seem to have drawn the list  
25 according to people that live close to the new

1 site, and correct me if I'm wrong, but necessarily  
2 the effects that would be in other regions with  
3 respect to the project like we saw some of the  
4 groups this morning and this PMD as well.

5 We're trying to comprehend what is  
6 meant by her nation, which is not necessarily on  
7 the list, was not consulted.

8 MS. PAWLOWSKI: Donna Pawlowski,  
9 for the record.

10 I'll explain how we identified who  
11 we would approach for this project. And then I'm  
12 going to ask Joe Heil to speak to the Anishinaabek  
13 Nation as a whole.

14 For the purposes of the Darlington  
15 new nuclear project we looked at the regional study  
16 area, which is approximately 50 kilometres from the  
17 site in all directions, and we sought to identify  
18 any potential -- any Aboriginal organization or  
19 community who may have had an interest within that  
20 geography, and that interest could have been from  
21 500 years ago or it could have been current, and  
22 that's how we ended up with a list that included  
23 Huron people, Mohawk people, Mississauga people, as  
24 well as the Métis people from more recent past.

25 So it was to look at where the

1 project is to be sited and the potential effects of  
2 the project within that regional study area and all  
3 of the potential Aboriginal communities who have an  
4 interest currently or in the past within that  
5 regional area.

6 Joe?

7 MR. HEIL: Joe Heil, for the  
8 record.

9 I pretty much agree with what the  
10 CNSC has said with respect Anishinaabek people.

11 Maybe I can add just a little bit,  
12 maybe one piece of clarification.

13 Typically myself, I'm from Oneida  
14 of the Thames, I'm a First Nations individual from  
15 there, and we are part of the Haudenosaunee Nation.  
16 We refer to ourselves as Hongwe Hongwe (ph), or the  
17 people also. So that's another way of saying the  
18 people with respect to the Iroquois group.

19 The Anishinaabek people typically  
20 are the people Chippewa -- common names you would  
21 know as Chippewa or Mississaugas or Ojibwes  
22 typically are in a certain region, and this woman  
23 hasn't actually indicated in what particular region  
24 that is.

25 So, as Donna has mentioned, we

1 have covered pretty much everyone we know that are  
2 Anishinaabek within this region.

3 Thank you.

4 MEMBER BEAUDET: Thank you.

5 Thank you, Mr. Chairman.

6 CHAIRPERSON GRAHAM: Thank you  
7 very much, Madam Beaudet, and thank you very much,  
8 Mr. Pereira.

9 This completes the agenda for  
10 today.

11 I want to thank everyone for  
12 coming.

13 Tomorrow we will start at 9:00  
14 a.m. and we'll start with a presentation from OPG  
15 with regard to management of nuclear waste,  
16 followed by various intervenors. So 9:00 tomorrow  
17 morning.

18 Thank you very much everyone for  
19 your participation today and your involvement.

20 We are now adjourned.

21 --- Upon adjourning at 4:36 p.m.

22

23

24

C E R T I F I C A T I O N

25

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