

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

**Thursday, March 24, 2011**

**Volume 4  
REVISED**

**JOINT REVIEW PANEL**

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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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Page 310, line 8

5 Under this project for the  
6 environmental impact statement, the guidelines set  
7 a -- sort of a limit on what we consider to be the  
8 realm of credibility, and that was stipulated one  
9 in one million years and consider what would be the  
10 worst release under that very unlikely scenario,  
11 and that is considered the limit of credibility.

Should have read:

5 Under this project for the  
6 environmental impact statement, the guidelines set  
7 a -- sort of a limit on what we consider to be the  
8 realm of credibility, and that was stipulated **as**  
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10 be the worst release under that very unlikely  
11 scenario, and that is considered the limit of  
12 credibility.

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1 Courtice, Ontario

2

3 --- Upon commencing at 8:34 a.m./

4 L'audience débute à 8h34

5 --- OPENING REMARKS:

6 MS. MCGEE: Good morning. Bonjour  
7 mesdames et messieurs. Welcome to the public  
8 hearing of the Darlington New Nuclear Power Plant  
9 Project Joint Review Panel.

10 Mon nom est Kelly McGee. Je suis  
11 la co-gestionnaire de la Commission d'examen  
12 conjointe du projet de nouvelle centrale nucléaire  
13 de Darlington et j'aimerais aborder certains  
14 aspects touchant le déroulement des audiences.

15 I would like to address certain  
16 matters relating to today's proceedings.

17 We have simultaneous translation.  
18 The headsets are available at the reception at the  
19 back of the room. The English is on Channel 1. La  
20 version française est au poste 2.

21 Please keep the pace of your  
22 speech relatively slow so that the translators can  
23 keep up.

24 Les audiences sont enregistrées et  
25 transcrites textuellement. Les transcriptions se

1 font dans l'une ou l'autre des langues officielles  
2 compte tenu de la langue utilisée par les  
3 participants à l'audience publique.

4 Les transcriptions et les  
5 enregistrements audio seront disponibles sur le  
6 site web de l'Agence canadienne d'évaluation  
7 environnementale.

8 A written transcript is being  
9 created for these proceedings and will reflect the  
10 official language used by each speaker. Audio  
11 files and transcripts will be posted on the  
12 Canadian Environmental Assessment Agency website  
13 for this project.

14 To make the transcripts as  
15 meaningful as possible, we would ask everyone to  
16 identify themselves before speaking.

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

20 If you are scheduled to make a  
21 presentation at this session, please check in with  
22 Julie Bouchard, a member of the Panel Secretariat  
23 at the back of the room.

24 Please also speak to the Panel  
25 Secretariat staff if you are a registered

1 intervenor and want the permission of the Chair to  
2 have a question put to a presenter or if you are  
3 not registered to participate but now wish to make  
4 a statement.

5 Any request to address the panel  
6 must be discussed with the Panel Secretariat staff  
7 first. Opportunities for either questions to a  
8 presenter or a brief statement at the end of a  
9 session will be provided if time permits.

10 Please ensure that your proposed  
11 question relates to the presentation that has just  
12 been made.

13 Thank you very much.

14 CHAIRPERSON GRAHAM: Thank you  
15 very much, Kelly.

16 Good morning, everyone.

17 I guess what I want to start out  
18 with this morning, I want to say that in fairness  
19 to everyone, and not to rush the importance of  
20 these hearings, I think we have to alter a few  
21 things. And I would like to make some suggestions.

22 And altering it, I mean altering  
23 the published agenda just slightly.

24 First of all, OPG made a  
25 presentation late yesterday or the last on the

1 agenda yesterday on emissions, and I intend to go  
2 into that first thing this morning and have the  
3 routine questions from the panel members and from  
4 intervenors and from CNSC and so on and government  
5 officials.

6                               Because of the importance of  
7 health and safety, we feel that it is necessary --  
8 I feel that it is necessary to postpone the aquatic  
9 biota and habitat agenda and DFO's presentation  
10 that is on today.

11                              I feel that by the time we get  
12 done with emissions, by the time we do the  
13 municipal affairs with the different municipal  
14 representatives who have taken time as outside  
15 intervenors to come in, and then go to health,  
16 which is going to be a very important topic this  
17 afternoon, that is going to fill the agenda and may  
18 even go into tonight. And we will go into tonight  
19 if we have to.

20                              My colleagues have numerous  
21 questions on aquatic biota and habitat. We have  
22 read the submissions of DFO and so on and we will  
23 ask for their cooperation in rescheduling that.

24                              The co-chairs -- the co-managers,  
25 I should say, will negotiate -- not negotiate, but

1 will address when aquatic biota and Fisheries and  
2 Oceans will be on, whether it's first thing  
3 tomorrow morning or what, I'm not sure yet. I'm  
4 not at liberty because there has to be -- people's  
5 schedules have to be looked at.

6                   So with that, I trust that  
7 everyone realizes and appreciates that we can't  
8 rush these hearings. We have to make sure that all  
9 the questions get asked, all the people are  
10 satisfied that they have the correct answers.

11                   And I think in the fairness of  
12 time, we just have too big an agenda today to deal  
13 with those three important subjects. And one of  
14 them had to take a -- not a backseat, but had to  
15 take a postponement.

16                   So I thank you very much and look  
17 for your cooperation.

18                   So with that, we will go into the  
19 agenda on emissions.

20                   As submitted yesterday, Mr.  
21 Sweetnam. We have your presentation. So I will  
22 now open the floor to panel members and we'll start  
23 with Madame Beaudet, if you're ready.

24 --- QUESTIONS BY THE PANEL TO OPG:

25                   MEMBER BEAUDET: Thank you, Mr.

1 Chairman.

2 Good day, everyone.

3 I'd like to look at the air  
4 quality. For the period that covers construction  
5 and the operation of the first two units, there are  
6 some exceedances. In the TSD about human health,  
7 it is felt that because the frequency is very low  
8 that there is not a significant adverse effect.

9 However, if we look at each  
10 component where there are some exceedances, whether  
11 it's a particle or other things, we have to look in  
12 terms of accumulation of things. I mean, if you  
13 look at one item individually, it may be  
14 acceptable. But when you look at certain reception  
15 points, and I'm thinking R15, R19, R20, the  
16 operations or living conditions for these sites  
17 have to have suffered the accumulation of all these  
18 elements.

19 We're not talking here necessarily  
20 of cumulative effects because cumulative effects  
21 have a very definite definition. It's the addition  
22 of things from different projects.

23 But I'm talking of the  
24 accumulative effect here of the construction  
25 activities and operation activities. And I would

1 like to have your comments on that, please?

2 MR. SWEETNAM: Albert Sweetnam,  
3 for the record.

4 I will ask Jennifer Kirkaldy of  
5 SENES to respond to this question.

6 MS. KIRKALDY: Good morning. This  
7 is Jennifer Kirkaldy for the record.

8 I can comment a little bit about  
9 the air dispersion modelling and the assumptions  
10 that we went into the calculations. With respect  
11 to health effects, I may refer to my colleague, Dr.  
12 Harriet Phillips.

13 So for the site preparation  
14 activities which is where you're referring to, we  
15 had the predicted exceedances. And again, I would  
16 like to go back to the fact that we did model what  
17 we consider to be a bounding scenario.

18 So we had a good deal -- we had  
19 the maximum activity on the site that we projected  
20 could actually happen on that site with a large  
21 amount of activity projected at the time to happen  
22 in the northwest quadrant of the site, which is one  
23 of the reasons that you see some of the exceedances  
24 at R15.

25 With respect to R20, it is located

1 right adjacent to the South Service Road. So it is  
2 experiencing the effects of local traffic.

3                   So with respect to the project,  
4 those are the activities that are affecting those  
5 particular receptors. But in addition, the numbers  
6 that lead to these exceedances are not strictly  
7 related to the project.

8                   We were very conservative in our  
9 analysis in that we did add in a large component of  
10 background air concentrations.

11                   So our model assumed not only the  
12 activities that were happening directly on the site  
13 as a result of the soil excavation and the traffic  
14 related to all of the movement on the site, but it  
15 also included the emissions that would be related  
16 to the continued operation of the Darlington site,  
17 the continued operation of the St-Mary's plant, the  
18 ongoing traffic along Highway 401, as well as a  
19 component of background air concentration for those  
20 components we didn't include in our model.

21                   So the numbers that you see in the  
22 report do reflect sort of a truly maximum number  
23 that may occur during those maximum activities in  
24 order to ensure that we did capture a bounding  
25 assessment.

1                   So just to put it into a bit of  
2 perspective as to what those numbers actually  
3 represent, again as the project proceeds if the  
4 soil excavation were somewhat less we would maybe  
5 expect to see some of those frequencies decrease.

6                   I might refer to Dr. Phillips to  
7 comment with respect to health effects.

8                   DR. PHILLIPS: Good morning.

9                   My name is Harriet Phillips and I  
10 work with SENES Consultants and I did the human  
11 health risk assessment related to chemicals for the  
12 project, for the record.

13                   In terms of what you're really  
14 talking about is additive effects, so the additive  
15 effects of, let's say, nitrogen dioxide and SO<sub>2</sub>  
16 effects together.

17                   As Ms. Kirkaldy talked about, the  
18 frequency of these occurrences are very small and  
19 because we've used the same met-set and so on,  
20 having the same concentrations occurring at the  
21 same time for each of the chemicals is not a likely  
22 scenario.

23                   In addition, if we look at in  
24 terms of nitrogen dioxide and sulphur dioxides,  
25 they have similar end points where the respiratory

1 effects are the end point. And we can see that  
2 it's really only for NO<sub>2</sub> that we have predicted any  
3 exceedances, and these are short frequency.

4 And as Ms. Kirkaldy talked about,  
5 a lot of that is related actually to traffic events  
6 and not really to the actual construction occurring  
7 on the site.

8 In terms of fine particulate  
9 matter, which of course is a concern in terms of  
10 health effects, the levels -- the background levels  
11 which we look at and add to the effects they are  
12 already occurring at levels that are above  
13 potential health effects. And what the project is  
14 adding to that is not a very large amount.

15 And, therefore, because it occurs  
16 sort of infrequently and if we go to a once-through  
17 cooling option where there will be less dust, less  
18 dirt being excavated, it's possible that those  
19 effects will actually be a lot less, the  
20 predictions. And therefore we do not think there  
21 will be a substantial change in health effects in  
22 those receptor areas that you discussed.

23 MEMBER BEAUDET: I know Health  
24 Canada is supposed to come this afternoon but I'll  
25 jump a bit in the schedule regarding them, because



1 to have discussion with the actual agency so that  
2 we could clarify precisely what they're meaning  
3 from that perspective.

4                               When we identify that there are  
5 potential certain days, limited numbers of times  
6 that this would take place, we just want to  
7 understand clearly what that would look like and  
8 how we would be in a position to implement it.

9                               So I think from the perspective of  
10 the recommendation, it seems like a reasonable  
11 recommendation. It's more how do we clarify that  
12 and could we have that dialogue so that we can be  
13 more precise ensuring that we meet the  
14 recommendation.

15                              MEMBER BEAUDET: So you are open  
16 to adjust your schedule when this -- because I know  
17 in this area -- I mean, this -- there's some smog  
18 alert that can be problematic. So you are open to  
19 discuss this possibility?

20                              MS. SWAMI: The assessment that we  
21 completed indicated there are very few days  
22 actually when there are smog alerts in the  
23 Clarington area and we don't see this as a  
24 significant impact to our project.

25                              So we want to just be clear and

1 understand what they are referring to because  
2 clearly we want to protect the health of our  
3 workers, as well as the public. But we just don't  
4 see that same significant impact that would be  
5 implied by this recommendation.

6                   So we'd like to get that clarified  
7 for implementation of whatever that may be. But it  
8 looks to us to be an extremely limited problem, if  
9 there is even a problem. And so given what we know  
10 today, we would rather have discussions with DFO.

11                   MEMBER BEAUDET: Thank you.

12                   MR. SWEETNAM: Albert Sweetnam,  
13 for the record.

14                   Just to add a small point to that,  
15 we would, as well, like to understand whether they  
16 had considered the fact that there would be a full  
17 dust abatement program at the site and whether if  
18 that program was working well, based on their own  
19 evaluation, whether they would still have similar  
20 concerns on the smog base.

21                   MEMBER BEAUDET: Thank you.

22                   I think ---

23                   MS. SWAMI: If I may, I think I  
24 said DFO, I meant Health Canada.

25                   MEMBER BEAUDET: Yes.

1                               So we can check with them later  
2 this afternoon I think when they present their  
3 brief.

4                               I'd like to change the subject to  
5 effluents, conventional effluents. As you know,  
6 we've had some difficulties in getting information  
7 on that. And for me, I know you're using the PPE  
8 and you have agreed to respect the standards.

9                               And so we have the list of  
10 chemicals that possibly will be rejected. We don't  
11 have information on the loads or anything like that  
12 so it is a little bit difficult to judge on the  
13 significance of the impact and I think many briefs  
14 have come to the same conclusion.

15                              Considering that you will meet the  
16 standards, we would like to know if the PPE  
17 represents the worse case scenario or if the  
18 standards represent the worse case scenario?

19                              You probably have more information  
20 for the Candu but, you know, we have here  
21 technologies that have standards from other  
22 countries. And so we'd like to be able to judge  
23 exactly. When you have a PPE, is it the worse case  
24 scenario?

25                              Because the industries, I believe,

1 and correct me if I'm wrong, you will always go to  
2 what the standards ask, you know, you'd go to the  
3 limit, you won't go less.

4 So how bad is the situation?

5 That's what I'm trying to get.

6 MS. SWAMI: Laurie Swami, for the  
7 record.

8 So in our industry, the worst case  
9 that we propose, we always design within a margin  
10 to the limits. It is not the expectation that we  
11 would emit at the limit. That's not the process  
12 that OPG uses and it's certainly not the process  
13 that the regulatory agencies would allow us to do.

14 So when we create the plant  
15 parameter envelope, we create a bounding scenario  
16 to test what the environmental impact would be with  
17 a full understanding that these plants will operate  
18 within, by some margin. Depending on what the  
19 parameter is there would be different margins that  
20 would apply.

21 And in terms of radioactive  
22 emissions that's a clear one where you have a limit  
23 that we could all emit to, but within the industry  
24 across the board, we don't emit at that limit; we  
25 emit much, much less. And so Dr. Thompson talked

1 yesterday about the public dose limit as an example  
2 where the limit is 1000 microsievverts and we're  
3 talking about much, much lower numbers in the range  
4 of 5 microsievverts. And our existing plant would  
5 be .7 microsievverts on an annual basis. So it's  
6 not our intent to operate at the standard.

7                               When we talk about meeting the  
8 regulatory limits, I think the MOE yesterday  
9 provided us an excellent example of how the process  
10 would work. We would work to what are the standard  
11 -- or what is their expectation for performance.  
12 We would then design a system to meet that  
13 performance. They would then review it to ensure  
14 that the design was adequate and once that was  
15 confirmed they would actually issue us an approval  
16 to allow us to proceed with that design or that  
17 type of effluent-management system. So that's the  
18 process that we would use going forward.

19                               MEMBER BEAUDET: For conventional  
20 elements as well?

21                               MS. SWAMI: That's correct.

22                               MEMBER BEAUDET: Thank you.

23                               CHAIRPERSON GRAHAM: Thank you,  
24 Madam Beaudet.

25                               Mr. Pereira?

1                                   MEMBER PEREIRA: Thank you, Mr.  
2 Charirman.

3                                   I'd like to start with a question  
4 which relates to a statement in your introduction  
5 in which you say, "All appropriate permits and  
6 approvals will be obtained."

7                                   The word "appropriate" is -- to me  
8 is a bit vague. I am also aware that at one point  
9 in the lead-up to this hearing there was a lack of  
10 understanding of where the jurisdictional  
11 boundaries lay with respect to regulation under the  
12 *Nuclear Safety and Control Act* and provincial  
13 mandates.

14                                   Can OPG indicate whether there is  
15 clarity now on where those boundaries are? And  
16 I'll go to CNSC after you've responded.

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

19                                   We understand that the CNSC is the  
20 lead agency for regulating nuclear power plants in  
21 Canada. We also understand that there are many  
22 regulatory agencies involved in our work going  
23 forward. We heard from the MOE yesterday. They  
24 talked about their permit to take water, their  
25 certificates of approval and we understand that we

1 will be seeking those approvals. We provided a  
2 list of all of the approvals that we believe, at  
3 this point, we will need and we plan to obtain  
4 those approvals.

5 We also understand that both the  
6 federal, provincial regulators -- we understand  
7 we'll be working together to ensure that there is a  
8 cohesive understanding of what the limits would be,  
9 as an example, or what the requirements will be so  
10 that the jurisdiction will be clarified as who's  
11 got what as a lead agency.

12 MEMBER PEREIRA: Thank you.

13 And CNSC, could you confirm that  
14 you're now satisfied that there's a good  
15 understanding?

16 MR. HOWDEN: Barclay Howden  
17 speaking.

18 Yes, I can. Under the NSCA, we  
19 are the lead and as the federal agency, areas where  
20 we don't have jurisdiction, the other jurisdictions  
21 stand. In areas of where there might be shared  
22 jurisdiction in terms of protection of the  
23 environment, we work with the other agencies to  
24 assure a harmonized regulatory approach.

25 We have been working very closely

1 with all the federal and provincial agencies to  
2 make sure everyone is clear on what their  
3 jurisdiction is and we've made a commitment to OPG  
4 that we would continue to work very closely to make  
5 sure that there aren't any conflicts and if some  
6 appear to arise, we will work very quickly to  
7 resolve those. So we've made those commitments and  
8 so far this project has gone very well.

9 We also have the experience of all  
10 the other projects that are being regulated right  
11 now and this is the process that we follow.

12 MEMBER PEREIRA: Thank you.

13 The second question concerns a  
14 statement in the overhead on thermal emissions and  
15 it says, "The design of the diffuser will be  
16 optimized to ensure no deleterious effects." The  
17 words "ensure no deleterious," those are very  
18 strong words. We heard a discussion on what  
19 deleterious means in the legislation. Did you mean  
20 this to be as strong as it is, "no deleterious  
21 effects," or are you intending to indicate a level  
22 of risk?

23 MR. J. PETERS: John Peters, for  
24 the record.

25 Thank you for that question around

1 clarity, and the point we were trying to make is  
2 that we have studied our diffuser and we have  
3 operated the diffuser we have at Darlington for  
4 many, many years. We actually have real measured  
5 values at the edge of the diffuser and we -- so we  
6 know the thermal regime that is present in the lake  
7 today from the operation of that plant and we are  
8 very confident that the emissions that we are  
9 having as thermal emissions do not cause  
10 deleterious effects to fish or the aquatic habitat  
11 based on the detailed design review and  
12 verification process.

13                               What we have talked about in new  
14 nuclear is to build upon that experience and  
15 further improve and refine the design to ensure  
16 continued and high-quality performance in this  
17 regard.

18                               MEMBER PEREIRA: Would CNSC care  
19 to comment on that and perhaps maybe Environment  
20 Canada?

21                               DR. THOMPSON: Patsy Thompson, for  
22 the record.

23                               I'll ask Don Wismer to complete my  
24 answer, but our understanding to date is that there  
25 is still uncertainty in terms of the potential

1 interaction between the thermal plume and what we  
2 know about the aquatic habitat where the proposed  
3 location is. I'll ask Mr. Wismer to complete.

4 MR. WISMER: It's Don Wismer.

5 The notion of risk or hazard will  
6 depend on the extent that there's an overlap  
7 between critical habitat for round whitefish and  
8 temperatures that exceed criteria for effects. And  
9 the round whitefish action plan is to help us  
10 understand where that critical habitat is and if  
11 it's in an exposure area. And also through the  
12 plan and working with Environment Canada, we're  
13 defining the final criteria that will be used to  
14 determine if you're over a threshold or not, and  
15 also the method of analysis to deal with the data.

16 We've had some previous experience  
17 35 kilometres west of Darlington at Pickering with  
18 this same issue working with OPG and Environment  
19 Canada, so there's a bit of a precedent there that  
20 we can build from. But I think you should hear  
21 from Environment Canada on their definition of  
22 deleteriousness. It's in their PMD, but it's  
23 really their definition.

24 MEMBER PEREIRA: Thank you.

25 Environment Canada?

1                                   CHAIRPERSON GRAHAM: Yes,  
2 Environment Canada?

3                                   MR. LEONARDELLI: Sandro  
4 Leonardelli with Environment Canada, for the  
5 record.

6                                   I think we need to take a look at  
7 a number of issues when speaking to this. Don is  
8 correct that it's going to depend on whether  
9 there's a deleterious effect will depend not only  
10 on the temperatures of the thermal plume, but  
11 whether there's any critical habitat or fish in the  
12 area that could be affected by that.

13                                  So we've emphasized in our  
14 submission and yesterday in our dialogue that the  
15 round whitefish action plan will help to define the  
16 actual spawning areas.

17                                  Now, the reason that we speak  
18 about the round whitefish is because it's an  
19 important species ecologically. It's also the most  
20 thermally sensitive within the vicinity of the  
21 Darlington project. So if we can protect,  
22 thermally, the most sensitive life stages of the  
23 round whitefish by protecting that most sensitive  
24 species and life stage, then we are protecting  
25 other fish species as well in the area.

1                   There are different layers of  
2 complexity involved in this because we have to look  
3 at both the existing case and the future case which  
4 would factor climate change as something that needs  
5 to be factored.

6                   In doing our analysis of the  
7 thermal plume modeling, you have to understand  
8 there's been an evolution throughout the review  
9 process. OPG submitted an additional report in  
10 November that explained how they might further  
11 optimize their diffuser design.

12                   So those are options that they're  
13 putting on the table as methods that could  
14 potentially further reduce the thermal impact. So  
15 that's one factor to consider, the location of the  
16 habitat as well. The placement of the diffusers is  
17 another factor.

18                   But in our analysis, we said that  
19 if you take a look at that initial mixing zone, the  
20 temperatures that could be expected may potentially  
21 be deleterious if there is round whitefish habitat  
22 in the area. And we've emphasised through our  
23 submissions and the sufficiency reviews throughout  
24 the review process that more detailed high  
25 resolution modeling would give us better

1 information in regards to that.

2                               So the modeling that was done by  
3 OPG is not of a resolution that we can put in our  
4 entire faith in saying that there will or will not  
5 be a thermal impact.

6                               So that's one of the reasons we've  
7 been asking for the more detailed modeling.

8                               Within that initial mixing zone if  
9 there is round whitefish habitat there, we  
10 anticipate that there is a likely effect upon the  
11 round whitefish.

12                              Beyond that, as you go outside of  
13 that initial mixing zone, out to what they call the  
14 "edge of the mixing zone," the modeling that they  
15 provided, again, granted it's not high resolution,  
16 the modeling that they provided indicated that  
17 there were relatively infrequent temperature  
18 exceedances that would pose a concern for the round  
19 whitefish.

20                              However, if you look at the data  
21 year that they modeled for a warm year, the ambient  
22 temperatures in the lake become warmer naturally.  
23 So when you add a thermal discharge in addition to  
24 the naturally warmer temperatures of the lake,  
25 you're starting to get more frequent occurrences of

1 -- potentially, more frequent occurrences of the --  
2 where you're violating the thermal criteria.

3                   So that's why we've emphasised the  
4 need for a more detailed model that incorporates  
5 climate change as a consideration to see what the  
6 impact might be with a different temperature regime  
7 that will be occurring naturally within the lake.

8                   So those are some of the  
9 considerations. I'm sure I've missed a couple so  
10 I'll ask Duck Kim if there's anything in addition  
11 that we want to answer to that.

12                   MR. KIM: Duck Kim, for the  
13 record.

14                   Sandro Leonardelli, I think,  
15 covered the majority of the concerns that we have.

16                   I just wanted to make it clear  
17 under the *Fisheries Act*, as mentioned yesterday by  
18 Mr. Dobos in our presentation that the *Fisheries*  
19 *Act* does not recognize a mixing zone.

20                   So despite the provincial  
21 regulation and regulatory framework for mixing  
22 zones that cannot apply in the case of the  
23 *Fisheries Act* in terms of determining the  
24 deleteriousness of a discharge.

25                   However, having said that, as

1 mentioned earlier by both Mr. Wismer and Mr.  
2 Leonardelli, the habitat of where the round  
3 whitefish spawning occurs is critical in defining  
4 whether there is an effect or not.

5 I hope that clarifies. Thank you.

6 MEMBER PEREIRA: Thank you very  
7 much.

8 OPG, do you want to come back on  
9 that?

10 MR. PETERS: Thank you. John  
11 Peters, for the record.

12 There was a number of general  
13 statements made in these comments. And in general,  
14 OPG is not going to suggest that these are not  
15 general concerns that we have not considered. We  
16 have considered all the general issues.

17 And I guess the first most  
18 important point to make is that OPG recognizes the  
19 *Fisheries Act*, recognizes that we have to remain  
20 fully in compliance with it and our intent is to  
21 fully achieve with the agency's involvement in all  
22 of the commitments that we have made around these  
23 issues in detailed design and in further work on  
24 round whitefish through the round whitefish action  
25 plan that we will demonstrate best practice here

1 and high performance with regards to our knowledge  
2 and understanding and interactions with the aquatic  
3 habitat that we have studied in detail at the  
4 Darlington site.

5                               So that's a general statement I  
6 want to make.

7                               The other thing I need to clarify  
8 for the record is that the Pickering Nuclear  
9 Generating Station, while it does interact with  
10 round whitefish which is a species of concern in  
11 this discussion, we just keep reminding people that  
12 the intake and the diffuser at Pickering is a  
13 surface water intake and diffuser and bears no  
14 resemblance to the performance or the design that  
15 is currently in place at Darlington, has been well  
16 studied and has been used to model all the work we  
17 have for new nuclear based on real measured data  
18 actually occurring in the lake rather than a  
19 theoretical concern which we accept theoretically  
20 needs to be studied.

21                              The specifics are well understood  
22 here and we're very confident through the  
23 mitigations that we are proposing to work with the  
24 agency's to perform and confirm as the best  
25 solution here will fully achieve all of our

1 objectives.

2 MEMBER PEREIRA: So you are still  
3 standing by the commitment to ensure no deleterious  
4 effects?

5 MR. PETERS: That is correct.

6 MEMBER PEREIRA: Thank you.

7 CHAIRPERSON GRAHAM: Thank you  
8 very much, Mr. Pereira.

9 Madame Beaudet, any further  
10 questions on that?

11 Very good then.

12 CNSC, do you have some questions  
13 you might want to add or provide to the panel?

14 DR. THOMPSON: Mr. Graham, no. I  
15 think you had suggested that aquatic and aquatic  
16 habitat be further discussed when DFO presents and  
17 I think that might be more appropriate.

18 CHAIRPERSON GRAHAM: But you don't  
19 have anything then on the emissions?

20 DR. THOMPSON: That's correct.

21 CHAIRPERSON GRAHAM: Okay, thank  
22 you.

23 Then we'll now -- I guess  
24 government -- Environment Canada have made -- have  
25 asked a question and so on. Mr. Leonarderelli --

1 sorry, I'm not very good at some of these  
2 pronunciations.

3                                    Anyway, Environment Canada, do you  
4 have some other questions or comments?

5 --- QUESTIONS BY THE INTERVENORS:

6                                    MR. LEONARDELLI: Sandro  
7 Leonardelli, for the record.

8                                    It's a two-part question. OPG has  
9 indicated in correspondence that they cannot  
10 provide groundwater tritium concentrations onsite  
11 due to uncertainties about the final grading of the  
12 site. So it's a factor in doing the modeling.

13                                   My question is though, will OPG be  
14 providing groundwater tritium concentrations --  
15 rather predictions, for the offsite local study  
16 area for the future case that factors the combined  
17 releases of the project and the existing Darlington  
18 Nuclear Generating Station? That's the first part.

19                                   CHAIRPERSON GRAHAM: OPG?

20                                   MR. SWEETNAM: Albert Sweetnam,  
21 for the record.

22                                   I'll refer this question to  
23 Jennifer Kirkaldy.

24                                   MS. KIRKALDY: Jennifer Kirkaldy,  
25 for the record.

1                   We did do air dispersion modeling  
2 of tritium releases from both the existing facility  
3 plus the combined facility and I believe that  
4 information was provided in IR 268 if I'm not ---

5                   MR. LEONARDELLI: IR 268, that's  
6 correct.

7                   MS. KIRKALDY: Yeah, if not  
8 mistaken.

9                   The air dispersion calculations  
10 were then used in a calculation and I'll refer to  
11 Dr. Chambers to describe how that is done to  
12 calculate what the groundwater -- the tritium in  
13 groundwater concentrations would be as they're used  
14 in a dose calculation.

15                  DR. CHAMBERS: Dr. Doug Chambers,  
16 for the record, SENES Consultants, Director of Risk  
17 and Radioactivity.

18                  Thank you, Jennifer.

19                  Yes, in the environmental  
20 assessment we described the use of a model  
21 developed for the Canadian Standards Association  
22 with reference to M-288.1.

23                  This is a model that was developed  
24 through the Canadian Standards Association process  
25 with a matrix of input, including people from

1 Health Canada and Environment Canada. And the  
2 guidelines in CSA-N-288.1 are intended to provide  
3 conservative estimates of concentrations in the  
4 environment, other than taken up through the food  
5 chain into people.

6                   And I can discuss the model at  
7 detail, if you like, but it's well referenced in  
8 the EIS.

9                   In the re-submission of 268 at the  
10 request of Environment Canada, we went back and did  
11 some additional calculations on 21 locations where  
12 we have tritium in well water, and we had  
13 corresponding predictions of air concentrations.  
14 And we were interested in seeing how well the model  
15 responded, even though it's a fairly simple model.

16                   And basically for the 21  
17 situations that we looked at, the -- when you took  
18 account of the fact that the detection level of 15  
19 to 20 Becquerels per litre confuses things,  
20 basically if you take the ratio of the predicted  
21 concentration and divide it by the actual  
22 measurements that we have, that ratio ranges from  
23 80 percent to 200 percent. That means that the  
24 model is overestimating most of the time.

25                   MR. LEONARDELLI: A follow-up to

1 that, if I may.

2 CHAIRPERSON GRAHAM: Mr.

3 Leonardelli, yes, go ahead.

4 MR. LEONARDELLI: The -- the  
5 offsite -- the -- we have this information. We've  
6 seen it. We just received some recently, end of  
7 last week, so we're still evaluating it, but the --  
8 for the onsite data that he's referring to, that's  
9 for the existing situation, and it's -- it's  
10 showing how the modelling is predicting relative to  
11 what they're finding onsite.

12 My questions are pertaining to the  
13 future situation, the future scenario, when you  
14 have to combine releases from the two facilities.  
15 It's of interest both for onsite and also for  
16 offsite.

17 And in terms of offsite, it  
18 becomes a factor or a consideration when designing  
19 the radiological environmental monitoring program.  
20 So I haven't seen any data for future predictions,  
21 so that's -- that's the number one concern.

22 The air concentration data that  
23 would have been provided that shows the dispersion  
24 offsite, we have looked at that, but what's missing  
25 is, is it hasn't been converted to the predictions

1 for future ground water concentrations.

2 CHAIRPERSON GRAHAM: OPG, can you  
3 enlighten us on your future predictions?

4 MR. SWEETNAM: Albert Sweetnam for  
5 the record.

6 I think the question was, will we  
7 be doing the predictions? They answer is, yes, we  
8 will -- we will be providing this information to  
9 environmental Canada and the other agencies.

10 CHAIRPERSON GRAHAM: Just  
11 enlighten me when. I mean, do I give this an  
12 undertaking or --

13 MR. PETERS: John Peters for the  
14 record.

15 The documentation that we provide  
16 in the EIS covers much of this material in various  
17 ways. The specific issue Mr. Leonardelli is  
18 talking about is the effects that we've  
19 acknowledged will occur as a result of site  
20 excavation and planning -- will lead to changes in  
21 ground water flow and direction and levels. It is  
22 very difficult for us to say with precision what  
23 those flows and levels will be, although we've  
24 indicated generally what they are. And we are  
25 committed both in REMP terms, Radiological

1 Environmental Monitoring Program, for the long term  
2 to verify -- to upgrade the REMP to reflect any  
3 changes once we actually are aware of the new  
4 layouts and levels of flows in the ground water at  
5 the end of the construction phase.

6                   And so we are committed to that  
7 long-term performance monitoring program and what -  
8 - the only reason we were reluctant to confirm  
9 upfront what those predictions would be -- they are  
10 very low today, and we assume they will remain very  
11 low.

12                   CHAIRPERSON GRAHAM: But it -- I'm  
13 a little confused. What you're saying, though, is  
14 you don't have any further predictions in what  
15 you've provided or that after construction starts,  
16 you'll be able to verify the predictions or there  
17 are other predictions?

18                   I think this is a confusing bit  
19 that I -- that I'm not clear of.

20                   Mr. Sweetnam has said that we'll  
21 provide it. Provide it when? Is it an  
22 undertaking?

23                   I -- we've got about four  
24 different issues that I'm not clear on. Maybe  
25 you'd like to clarify that a little better.

1 Ms. Swami?

2 MS. SWAMI: Laurie Swami for the  
3 record.

4 Yes, we'll take this as an  
5 undertaking, and we'll provide a date this  
6 afternoon session when we can provide that  
7 information.

8 CHAIRPERSON GRAHAM: Yeah. I need  
9 to know the undertaking, and then I want to confirm  
10 with Mr. Leonardelli that he's satisfied with that  
11 undertaking, and then --

12 MR. LEONARDELLI: Yes, we're  
13 satisfied with the undertaking. We're --

14 CHAIRPERSON GRAHAM: So -- yeah,  
15 but I'm not sure what the undertaking is yet, so --

16 MR. LEONARDELLI: It's -- okay.  
17 To clarify --

18 CHAIRPERSON GRAHAM: I need some  
19 wording from -- from OPG.

20 MS. SWAMI: Laurie Swami.

21 We will, using our models, predict  
22 offsite tritium and ground water levels to provide  
23 to Environment Canada.

24 CHAIRPERSON GRAHAM: With  
25 projections?

1 MS. SWAMI: That is correct.

2 CHAIRPERSON GRAHAM: And  
3 predictions, okay. Is that satisfactory?

4 MR. LEONARDELLI: Yes, that is,  
5 yeah, for the first part of the question.

6 CHAIRPERSON GRAHAM: And you --  
7 it's number 18, and you'll come back this afternoon  
8 with a date; is that correct?

9 Very good. Thank you.

10 Go ahead, Mr. Leonardelli.

11 MR. LEONARDELLI: A related issue  
12 was the predicted soil concentrations for  
13 radionuclides across the local study area. Only  
14 one location was modelled for soil concentrations  
15 after 60 years of project operations, and that  
16 location was in Oshawa.

17 We would like to see additional  
18 data for the local study area. It's related to the  
19 same kind of modelling, dispersion modelling, and  
20 then how it settles into the soil.

21 CHAIRPERSON GRAHAM: Clarify, are  
22 you looking for more monitoring areas or more data?

23 MR. LEONARDELLI: Predictions,  
24 future predictions for the local study area that  
25 would be offsite within the immediate area of the -

1 - of the facility.

2 CHAIRPERSON GRAHAM: OPG clear on  
3 that? This is offsite.

4 MS. SWAMI: Laurie Swami for the  
5 record.

6 When we predict the public dose,  
7 we use a number of factors for calculating what the  
8 public dose would be, and we implicitly include  
9 that in the models that are run for that type of an  
10 assessment. We do sampling.

11 Our radiological environmental  
12 monitoring program today would be well over 2,500  
13 samples on a yearly basis that look at all factors  
14 that contribute to the public dose.

15 We could -- we could use that data  
16 to provide sort of the predicted estimates of what  
17 it would be in the future based on what the  
18 emission levels would be from the new plants.

19 This, of course, is all included  
20 in the radiological environmental monitoring  
21 program today.

22 CHAIRPERSON GRAHAM: Is that the  
23 data you -- is that data acceptable, or is there  
24 additional? Just state what you're -- what --

25 MR. LEONARDELLI: It sounds like

1 they'd be able to provide the type of analysis  
2 we're looking for.

3                   The idea is to get a sense of what  
4 -- where the deposition would be occurring at, what  
5 levels. And the idea being now that there's two  
6 facilities. There may need to be revisions to the  
7 radiological and environmental monitoring program.

8                   So that type of information helps  
9 inform where they might need to do additional  
10 sampling, for example.

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

13                   We have an established  
14 radiological environmental monitoring program to  
15 assess the public dose current operations.

16                   We have committed to expand that  
17 program as necessary to address any of the new  
18 nuclear facilities.

19                   We don't see an expansion into  
20 where we would have to take samples, as we've  
21 already established a sampling program that is  
22 based on the predicted effects of a nuclear plant  
23 in the study -- the local study area certainly, and  
24 that the difference that we may be talking about in  
25 terms of what additional things would be -- would

1 be monitored in a radiological environmental  
2 program would be if there was a different  
3 technology where we would want to confirm what the  
4 emissions are in the environment.

5 We would do that early on phase to  
6 just do a broader scope of work. We would then  
7 assess what the dose impacts would be, look to  
8 optimize that program after a number of years of  
9 operation, and then move into a standard REMP  
10 program.

11 This is all established through  
12 CSA standards on how we would go about modelling  
13 and monitoring for public dose, a well-established  
14 program, a well-understood program.

15 I think we feel confident that the  
16 program that we have in place today accurately  
17 reflects the public dose impact which is what this  
18 program is designed to do.

19 Down the road, we will be looking  
20 also at implementing N288.4 which will allow us to  
21 look at the risk assessments associated with  
22 ecological risks as well.

23 CHAIRPERSON GRAHAM: With what Ms.  
24 Swami's just given us, Mr. Leonardelli, what  
25 additional information would you like to have so we

1 can make sure that everybody's getting everything  
2 that's needed?

3 MR. LEONARDELLI: Yeah. Our  
4 interest is in predicted levels for possible  
5 revisions to the REMP in the future. Do not, in  
6 any way, take my question as a criticism of the  
7 existing radiological environmental monitoring  
8 program. I just want to make that clear.

9 CHAIRPERSON GRAHAM: So, OPG, have  
10 you -- should that be another undertaking or is  
11 that included in this one?

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

14 We have committed to doing this  
15 work as part of the follow-up and mitigation  
16 program. It was certainly recommendations from the  
17 CNSC and from Environment Canada to monitor the  
18 radiological environmental program as appropriate  
19 for this project, and we certainly plan to  
20 undertake that work.

21 CHAIRPERSON GRAHAM: Mr.  
22 Leonardelli, if I could just call on CNSC to make a  
23 comment maybe they might be able to clarify it and  
24 then we'll come back to you?

25 MR. LEONARDELLI: All right.

1 Thank you.

2 CHAIRPERSON GRAHAM: Just remain  
3 there.

4 MR. LEONARDELLI: Okay.

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

7 I just wanted to clarify that the  
8 modeling that was done again was using the plant  
9 parameter envelope and the bounding scenarios. We  
10 did provide a recommendation to the Joint Review  
11 Panel that once a design has been chosen that the  
12 modeling be done to guide the design of the  
13 monitoring program.

14 And as Ms. Swami said, this is  
15 aligned with the new Canadian Standards Association  
16 document N288.4 that was published in 2010 where  
17 modeling is the basis for design and monitoring  
18 programs.

19 But at this stage, not having a  
20 chosen design, remodeling the plant parameter  
21 envelope would provide little additional  
22 information.

23 CHAIRPERSON GRAHAM: Mr.  
24 Leonardelli?

25 MR. LEONARDELLI: My only comment

1 would be I believe the recommendation as made by  
2 CNSC focused primarily on tritium. I don't recall  
3 that there was any specifics about other  
4 radionuclides. So perhaps that might be something  
5 that gets incorporated. I mean ---

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

8 The recommendation was for all  
9 radionuclides.

10 MR. LEONARDELLI: Okay.

11 DR. THOMPSON: And we emphasized  
12 tritium in a relation to groundwater but it was for  
13 all radionuclides.

14 MR. LEONARDELLI: Very good.  
15 Thank you for that assurance.

16 Thank you.

17 CHAIRPERSON GRAHAM: I just want  
18 to make it perfectly clear. Are you satisfied now  
19 that the information you're looking for you're  
20 clear on what's already been provided and what  
21 you're looking for is now on the record? Are you  
22 satisfied?

23 MR. LEONARDELLI: Sandro  
24 Leonardelli, for the record.

25 I believe so. We still have to

1 submit a sufficiency review in writing of the  
2 responses that we've recently received. So if we  
3 have any further thoughts, we'll reflect it in  
4 that.

5 Thank you.

6 CHAIRPERSON GRAHAM: Thank you.

7 Do my colleagues wish to follow-up  
8 on any of this?

9 Madame Beaudet?

10 MEMBER BEAUDET: I think for the  
11 REMP, we had many briefs that suggest it should be  
12 revised, the actual one should be revised. And I  
13 think we need some direction in what sense you  
14 agree that it should be revised and based on what  
15 elements.

16 I think we're getting scattered  
17 information here from CNSC, Environment Canada,  
18 Health Canada also has that recommendation. And it  
19 doesn't have to be now but I think I would like to  
20 hear from OPG how you intend to revise the REMP and  
21 what terms there will be the additional things that  
22 you will look at?

23 MS. SWAMI: Laurie Swami, for the  
24 record.

25 I'll refer somewhat to what Dr.

1 Thompson mentioned that once a technology is  
2 selected, the mix of radionuclides that are emitted  
3 on a routine basis may change. May change. I  
4 don't want to suggest that there's going to be  
5 significant change.

6                   And what we would anticipate would  
7 happen is that in the early phase of the monitoring  
8 program, we would have to look at a larger suite of  
9 radionuclides to confirm whether there was  
10 emissions or not.

11                   So there's two programs, there's  
12 an emissions monitoring program at site and there's  
13 also the off site monitoring program.

14                   So we would want to confirm what  
15 the exact nature of the mix would be. We would  
16 then use that as input to our public dose  
17 calculations and we would assess the necessity of  
18 continuing to monitor those radionuclides on an  
19 ongoing basis. So we would look to that type of  
20 changes.

21                   As time goes on and we've talked a  
22 little bit about the standard that's recently being  
23 issued for CSA N288.4, as with our current program,  
24 we would look to modifying that as necessary  
25 through that type of an assessment.

1                   So that's one thing that if you  
2 look to the REMP from 2009, we've already put that  
3 into our report that that would be something we're  
4 going to be starting to consider going forward.

5                   So it's not that we wait for a new  
6 nuclear project to come along and say "Okay, now's  
7 the time to change." This is an ongoing continuous  
8 improvement program where we look to things that  
9 need to be changed as a reflection of new  
10 standards, of new ways of doing business.

11                   So that's already in our program  
12 to do those changes, so it's not something new and  
13 different.

14                   So essentially we look to what is  
15 the reactor technology; what could there be a  
16 change that that would result to in emissions. We  
17 look at what the new standards would require in  
18 terms of risk assessment and how we would apply  
19 that in the environment and we'd modify our program  
20 accordingly.

21                   MEMBER BEAUDET: Thank you.

22                   CHAIRPERSON GRAHAM: Thank you  
23 very much, Madame Beaudet.

24                   And you're clear on Undertaking  
25 18, the wording and so on. Okay.

1                   So we'll now go to intervenors.  
2   The first one will be Lake Ontario Waterkeeper.

3                   The floor is open to your  
4   questioning, Mr. Mattson.

5                   MR. M. MATTSON: Good morning, Mr.  
6   Chairman. Mark Mattson for Lake Ontario  
7   Waterkeeper.

8                   Thank you to Environment Canada  
9   for raising the issue of cumulative impacts. We  
10   won't ask any questions on that as he covered that  
11   and I think the answers were pretty clear from OPG.

12                  My question, Mr. Chairman,  
13   revolves around the discussion of the word  
14   "deleterious" and OPG's evidence that the tritium  
15   and thermal plume will not cause deleterious  
16   effects.

17                  The question is that the *Fisheries*  
18   Act, Section 36(3), as OPG is aware -- and this  
19   question's to Mr. Peters -- is a quasi-criminal  
20   statute with potential -- \$1 million a day and six  
21   months in jail for breach. And the definition is  
22   well-defined in the criminal courts. And BC Court  
23   of Appeal and Ontario Court of Appeal have both  
24   ruled on it.

25                  CHAIRPERSON GRAHAM: Could you get

1 to your question, please?

2 MR. M. MATTSON: Yes.

3 And the statute Mr. Peters says  
4 cannot deposit a deleterious substance into waters  
5 frequented by fish and deleterious effects are  
6 dealt with in sentencing.

7 So I'm wondering if Mr. Peters has  
8 a legal opinion to back his evidence that he's  
9 putting before this quasi-judicial panel here  
10 today, and if so he could provide it to us, or if  
11 he's just mistaken in terms of his distinction  
12 between a deleterious substance and a deleterious  
13 effect?

14 CHAIRPERSON GRAHAM: OPG?

15 MR. J. PETERS: John Peters, for  
16 the record.

17 We have done the scientific work  
18 that we've been reporting here. We've filed all  
19 the evidence that the panel has asked for. And we  
20 do not believe that there is a deleterious  
21 substance being admitted to the lake in this  
22 particular instance based on that information.

23 CHAIRPERSON GRAHAM: Thank you.

24 Mr. Mattson?

25 MR. M. MATTSON: Yes, Mr.

1 Chairman, I have no follow-up. Just to make it  
2 clear that Mr. Peters did change now, that he does  
3 not believe there is a deleterious substance being  
4 deposited into Lake Ontario, and I'll accept that  
5 answer.

6 That's his evidence. Thank you.

7 CHAIRPERSON GRAHAM: Thank you.

8 The next one is the Canadian  
9 Environmental Law Association.

10 Oh, the Department of Environment  
11 has -- if you don't mind, let them go ahead and  
12 then I'll come to you?

13 Department of Environment.

14 MR. KIM: I'm sorry, Mr. Chair.

15 Duck Kim for the record again.

16 In terms of the question that  
17 Ontario Waterkeepers have posed regarding the  
18 deleteriousness of tritium, we rely on the  
19 international guidelines for the radiological  
20 guidelines by NCRP for issues related to the  
21 harmful effects to biota due to radionuclides.

22 And so on that basis we can -- at  
23 this point, without further evidence, we can concur  
24 with OPG that the levels of tritium that are being  
25 deposited in Lake Ontario may not, at this point,

1 be considered deleterious.

2 So our department relies on  
3 enforcement policy and they have environmental --  
4 oh, the area, right -- sorry, I've just been passed  
5 on a note.

6 Based on the environmental risk  
7 assessment that's been conducted on the biota in  
8 Lake Ontario, including fish, we feel that there is  
9 little risk, radiological risk, to the biota there.

10 CHAIRPERSON GRAHAM: Thank you  
11 very much.

12 The Canadian Environmental Law  
13 Association, I thank you for relinquishing your  
14 position there for a moment, thank you.

15 MS. McCLENAGHAN: Thank you, Mr.  
16 Chairman.

17 I have two questions also related  
18 to ---

19 CHAIRPERSON GRAHAM: Take the time  
20 to lower the microphone, it's a little awkward for  
21 you there and maybe someone could assist?

22 MS. McCLENAGHAN: Thank you. Is  
23 that better?

24 I have two questions also related  
25 to the topic we've just been discussing and my

1 questions may be framed in a less sophisticated  
2 manner. But I think these are the questions people  
3 would have in mind, and so I'm going to put them in  
4 a way that I hope we can get an answer.

5                   And it may be that the responses,  
6 in part, that they'll be dealt with by the  
7 undertakings we just heard about, but I'd like to  
8 ask the questions so that the answers are  
9 communicated in ways that we can all understand  
10 when the additional work is done.

11                   So the first one is, there was a  
12 discussion and presentation about tritium emissions  
13 and then there's been discussions today about other  
14 radionuclides, so I'm wondering what other  
15 radionuclides are emitted or expected to be emitted  
16 in routine operations and in spills for the four  
17 technologies that have been under consideration, in  
18 addition to tritium?

19                   CHAIRPERSON GRAHAM: OPG?

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

22                   The plant parameter envelope  
23 provides the radionuclides that will emitted on a  
24 routine basis from each of the reactor  
25 technologies. That has been submitted to the Joint

1 Review Panel and is available.

2 An assessment of spills was  
3 completed in the technical support documents on  
4 malfunctions and accidents, and as well as  
5 summarized in the environmental impact statement.

6 MS. McCLENAGHAN: But those  
7 radionuclides are what?

8 MS. SWAMI: There's a long list of  
9 radionuclides. I would ---

10 CHAIRPERSON GRAHAM: Ms. Swami,  
11 just identify yourself.

12 MS. SWAMI: Oh sorry. Laurie  
13 Swami.

14 There is a long list provided in  
15 the PPE and the other work that's been done. It  
16 would -- I mean, we can pull that out and I can  
17 read each one of them if that's helpful.

18 CHAIRPERSON GRAHAM: Maybe just  
19 reference where that might be, where they could  
20 find that. That might be adequate.

21 Do you have an additional question  
22 ---

23 MS. McCLENAGHAN: Yes, I have ---

24 CHAIRPERSON GRAHAM: --- while  
25 they're finding the information for this one?

1 MS. McCLENAGHAN: Yes. Thank you,  
2 Mr. Chairman, I have one other question.

3 And that is to ask, according to  
4 OPG's calculations if they can summarize in  
5 quantitative terms how the total tritium emissions  
6 to air and water would change in the future with  
7 respect to the four technologies under  
8 consideration?

9 In other words, it's similar to  
10 the question from Environment Canada comparing  
11 today to the future, but have they compared it  
12 across the four technologies, and can there be a  
13 concise explanation of how that would change?

14 CHAIRPERSON GRAHAM: Has that  
15 analysis been done, Ms. Swami?

16 MS. SWAMI: I'm sorry, I was  
17 looking for the PPE reference and I really missed  
18 the question. If it could be repeated? I'm sorry.

19 MS. McCLENAGHAN: Yes. The ---

20 CHAIRPERSON GRAHAM: I apologize,  
21 maybe I'm rushing things. Have you got an answer  
22 to the first yet on the PPE?

23 MS. SWAMI: Momentarily, we'll  
24 have an answer ---

25 CHAIRPERSON GRAHAM: I think it

1 should be ---

2 MS. SWAMI: --- they were trying  
3 to give it to me, so ---

4 MEMBER BEAUDET: I think that the  
5 best place to find it, if you allow me to say so,  
6 is when you revised the value of the PPE with the  
7 EC-6.

8 MS. SWAMI: Yes. And the  
9 reference there is -- I'm sorry -- is a November  
10 submission of the plant parameter envelope that we  
11 provided to the Joint Review Panel.

12 I don't have the precise reference  
13 on the registry for that, but it is certainly  
14 listed on the registry. And if you look to Tables  
15 4.3 and 4.4 of the plant parameter envelope, you  
16 will find the specifics of what the radionuclide  
17 mix is.

18 CHAIRPERSON GRAHAM: Your last  
19 question for now.

20 MS. McCLENAGHAN: Thank you, Mr.  
21 Chairman, I'll look there.

22 I'm asking if OPG, based on the  
23 calculations they've done, can advise in a concise  
24 way how total tritium emissions to air and water  
25 will change compared to current operations in the

1 future with up to four new reactors, across the  
2 four technologies?

3 CHAIRPERSON GRAHAM: OPG?

4 MS. SWAMI: We're checking for the  
5 IR number currently -- Laurie Swami, for the record  
6 -- but we have provided what the total emissions of  
7 tritium would be from each of the reactor  
8 technologies.

9 Again, this is in the plant  
10 parameter envelope and we used it for the bounding  
11 analysis that was completed after EC-6 was added to  
12 the assessment -- is provided and is available in  
13 our August 30<sup>th</sup> submission to the Joint Review  
14 Panel, which provided the assessment of the EC-6 as  
15 part of our program.

16 CHAIRPERSON GRAHAM: That clear?

17 MS. McCLENAGHAN: I'll look there,  
18 Mr. Chairman, and we'll have further opportunities  
19 with health evidence ---

20 CHAIRPERSON GRAHAM: Sure.

21 MS. McCLENAGHAN: --- this  
22 afternoon. Thank you.

23 CHAIRPERSON GRAHAM: Thank you.

24 The last one, Northwatch. Ms.  
25 Lloyd?

1 MS. LLOYD: Thank you and good  
2 morning. Brennain Lloyd from Northwatch.

3 My question is with respect to  
4 emissions, and we heard from Ontario Power  
5 Generation yesterday evening what sounded to me  
6 like a pretty categorical statement that they  
7 operate safely and well within the regulatory  
8 requirements.

9 My recollection is that that was a  
10 comment on the second bullet on Slide 8, which was  
11 discussing their extensive experience in  
12 controlling expected emissions at source.

13 Onsite, I don't have access to  
14 many of their compliance reports, but I did take a  
15 look at the one that is available online from the  
16 Ministry of the Environment and that's the  
17 compliance or the non-compliance reports for 2009.

18 And it showed that at Pickering  
19 and Darlington there were eight incidents of non-  
20 compliance, including incidents of acute lethality,  
21 temperature exceedences, suspended solids and  
22 morpholine.

23 And I'm wondering if Ontario Power  
24 Generation could explain the -- or discuss with us  
25 the categorical nature of their statement that they

1 are always within regulatory requirements and the  
2 2009 non-compliance events?

3 And, in addition, I think it would  
4 be helpful if either Ontario Power Generation or  
5 the Ministry of the Environment provided the panel  
6 with their non-compliance reports over a longer  
7 period of time than just 2009.

8 CHAIRPERSON GRAHAM: OPG?

9 MS. SWAMI: Laurie Swami, for the  
10 record.

11 There are, from time to time,  
12 exceedences or events that take place at our  
13 facilities that we report to the Ministry of  
14 Environment as required through the reporting  
15 program. These are fairly small reporting-type  
16 events.

17 Where you refer to eight incidents  
18 of acute toxicity in 2009, I'm not sure the  
19 reference to the number eight ---

20 MS. LLOYD: If I could, Mr. Chair,  
21 it's eight incidents, two of them of them were with  
22 -- two of them were acute lethality. I'm just  
23 going by the MOE compliance reports posted on-line  
24 for 2009, and I looked only at the water discharge.

25 MS. SWAMI: Laurie Swami.

1 I can explain each one of those  
2 events, if that's helpful to the panel. Our  
3 program is to monitor and to ensure that we're  
4 within compliance. As I mentioned, there are times  
5 when we have not been in compliance and we seek to  
6 modify our programs to ensure compliance.

7 A few years ago, as an example,  
8 acute toxicity from our radioactive liquid waste  
9 management system due to conventional contaminants  
10 was a problem under the MISA regulations, which  
11 were a new regulation that was introduced after our  
12 plants were in operation.

13 As a result of that, we  
14 implemented many changes in our systems to ensure  
15 that we could be in compliance. It is a measure at  
16 our active liquid waste discharge prior to going  
17 into the receiving water body, and that's where the  
18 control point is for that particular toxicity test.

19 As a result of those changes,  
20 we've been able to bring ourselves into compliance,  
21 to a large extent, almost 100 percent of the time.

22 On occasion, we have found that --  
23 rarely, but it does happen, that you have a toxic  
24 result, based on the sampling program that's in  
25 place. And when we have those events, we learn

1 from those events. We take into consideration  
2 changes that are required in our systems to prevent  
3 those from happening again.

4 And that's the way we deal with  
5 compliance to regulatory issues, that once we have  
6 an event, we sit down, we learn from that, and we  
7 implement the necessary changes to ensure  
8 compliance going forward.

9 CHAIRPERSON GRAHAM: And you  
10 report them, I believe, and the reports are on-  
11 line, as Ms. Lloyd had learned from those?

12 MS. SWAMI: Absolutely. We report  
13 to the Ministry of Environment. These reports are  
14 shared with the CNSC, so that we are very open and  
15 transparent, to ensure that everyone understands  
16 what has happened at our facilities and that we  
17 discuss these also with the public through our  
18 Community Advisory Council, or the Darlington Site  
19 Planning Committee.

20 And we use those to ensure that we  
21 have input, not only from regulatory agencies, but  
22 the public, in ensuring that we're meeting the  
23 expectations of the general population as well.

24 CHAIRPERSON GRAHAM: I guess the  
25 difference of opinion was always the fact that

1 there were some in 2009. That's where the  
2 confusion arises, I believe.

3 Ms. Lloyd, you have another  
4 question?

5 MS. LLOYD: Well, if I could just  
6 clarify, Mr. Graham.

7 I think I'm raising an example of  
8 where the quite categorical statements made by OPG  
9 yesterday are, in fact, not as categorical after a  
10 quick and easy check on the compliance record for  
11 2009.

12 What I would encourage the panel  
13 to request is a fuller report on non-compliance  
14 events, and I think that would have to come from  
15 OPG or MOE.

16 For Northwatch to do it, we would  
17 have to do an Access to Information to get anything  
18 more recent than 2009, and I have a December 2008  
19 Access to Information request outstanding with MOE,  
20 so I don't think I'd get it back in time, and I  
21 think that would be helpful.

22 I think if we're going to have a  
23 discussion of emissions, and the Proponent's  
24 compliance with regulatory requirements, we need to  
25 at least have a very limited look at their non-

1 compliance history, and that's not been provided.

2 CHAIRMAN GRAHAM: If I may refer  
3 to my panel members; is this information that we  
4 need? And, if it is, we'd ask for an undertaking.  
5 Is this further information we need?

6 Mr. Pereira? You don't think so?

7 Madam Beaudet?

8 MEMBER BEAUDET: I think if we use  
9 this information, it would have to be compared also  
10 with other companies. I don't think -- I think we  
11 have to assess how OPG world fare compared to their  
12 peers.

13 MS. LLOYD: But their peers aren't  
14 asking for an approval from you, Madam Beaudet.  
15 Only OPG ---

16 MEMBER BEAUDET: No, they're not,  
17 but ---

18 MS. LLOYD: --- is asking for your  
19 approval.

20 MEMBER BEAUDET: They're not.

21 MS. B. LLOYD: And they have put  
22 on the record that they comply with the regulatory  
23 requirements, and I think you need to examine at  
24 least their track record to date.

25 MEMBER BEAUDET: I agree with you

1 partially, because I think what we have to look at  
2 -- all industries do have incidents, and we have to  
3 put it in the full picture.

4                               They all do. It doesn't matter  
5 how well they try.

6                               MS. LLOYD: Unfortunately, yes.

7                               MEMBER BEAUDET: And I think we  
8 would have to look at it also in terms of -- I  
9 mentioned the other day, the sustainable  
10 development reports. OPG has targets, and how well  
11 they do it, how well they were established. And I  
12 think we would have to look with the information  
13 that we already have. I think this is an issue  
14 that we will have to examine and see, at the end  
15 of, let's say, this week or next week, if we need  
16 that information.

17                              CHAIRMAN GRAHAM: Thank you very  
18 much, Ms. Lloyd. Thank you very much, Madam  
19 Beaudet.

20                              This, I believe, concludes this  
21 segment. Now we go to land use, and perhaps we'll  
22 adjourn until 10:00, for a short recess.

23 --- Upon recessing at 09:51 a.m./L'audience est  
24 suspendue à 09h51

25 --- Upon resuming at 10:02 a.m./L'audience est

1 reprise à 10h02

2 CHAIRMAN GRAHAM: Okay, we'll  
3 start this part of the panel hearings with a  
4 presentation from OPG regarding land use.

5 Ms. Swami?

6 --- PRESENTATION BY MS. SWAMI:

7 MS. SWAMI: Laurie Swami, for the  
8 record.

9 The focus of the presentation this  
10 morning is on land use, as it relates to the  
11 project, so we also have a number of technical  
12 specialists available to respond to your questions  
13 this morning, this includes Chris Tyrell, a  
14 professional planner, and the technical lead for  
15 the land use studies; Jim Gough, a traffic engineer  
16 and technical lead for the traffic and  
17 transportation components of the EIS; Andy Kier, a  
18 professional planner who compiled the population  
19 data used in the EIS; and Donna Pawlowski, manager,  
20 social aspects and environmental assessment for the  
21 project.

22 To consider the potential effects  
23 of the project on land use and related aspects --  
24 most notably, traffic, operations and safety -- we  
25 began with reviews of the existing relationship

1 between the Darlington site and the local and  
2 regional planning framework, the population  
3 distribution throughout the region, and the  
4 transportation network in the relevant study area.

5                   We evaluated the compatibility of  
6 the current operating site with the municipal  
7 official plans, and other land uses in the areas,  
8 and we assessed the capacity of the transportation  
9 infrastructure to meet existing demands.

10                   To determine how this relationship  
11 might change in the future as a result of the new  
12 nuclear project, plus other unrelated development,  
13 we prepared detailed population growth projections  
14 for the region and the individual communities  
15 within it.

16                   We consulted with Clarington,  
17 Oshawa, and the Region of Durham concerning  
18 municipal growth initiatives and projections. We  
19 also explored with these municipalities and the  
20 Ontario Ministry of Transportation their plans for  
21 improving transportation infrastructure, an  
22 invaluable forum for information exchange  
23 concerning development plans, programs and  
24 individual undertakings was the Darlington Planning  
25 and Infrastructure Information Sharing Committee; a

1 group initiated by OPG but supported by a number of  
2 other agencies with a common interest.

3                   Finally, we determined how the new  
4 nuclear project would combine with unrelated growth  
5 and development in the study areas over the life of  
6 the project and evaluated the effects of the change  
7 on land use, traffic and the transportation  
8 network.

9                   Our work in this regard was peer  
10 reviewed by arms-length experts within the EA team  
11 and by fully independent peer reviewers acting for  
12 Clarington and Oshawa. This peer-review process  
13 contributed to improvements in our work and  
14 concluded with confirmation of the methods used and  
15 conclusions reached.

16                   And important aspect of our land-  
17 use and traffic studies was the development of  
18 detailed and accurate predictions of future growth  
19 and population. We took great care in preparing  
20 the population forecasts because they were also a  
21 data input to several other studies supporting the  
22 EIS.

23                   Particularly, the population  
24 projections were a key parameter for the modeling  
25 that was carried out to evaluate the efficiency at

1 which the local community could be evacuated in the  
2 event of an emergency.

3                                 For this purpose, we developed  
4 detailed estimates for the area within the 15-  
5 kilometre zone of the Darlington site. As well,  
6 population data was required for modeling the  
7 economic effects of the project that are  
8 represented in the socio-economic studies and for  
9 assessing effects on human health. For these  
10 applications, we considered the data out to a 100  
11 kilometres from the site.

12                                 The population projections used in  
13 the EIS for the region and the local study area are  
14 based on the best and most relevant information  
15 available.

16                                 At the regional level, they were  
17 derived from the data in the region's Growing  
18 Durham Report from November of 2008. This document  
19 is the region's framework for growth management as  
20 required by provincial growth for the Greater  
21 Golden Horseshoe developed under the *Place to Grow*  
22 *Act*.

23                                 At the more local level, the  
24 projections were developed for each land-use  
25 planning area in the constituent municipalities

1 taking into account land-use classifications,  
2 density objectives and development staging.

3 Growing Durham provided population  
4 projections in five-year increments to 2031 for  
5 each of its municipalities and for the regional  
6 population as a whole to 2056. Growth projections  
7 to 2084 were extrapolated based on 2031 to 2056  
8 growth rates.

9 Consistent with the precautionary  
10 approach, we maintain the aggressive levels of  
11 growth reflected in the 2056 forecast in our  
12 projections beyond the date.

13 The macro-level population data  
14 that is to a distance of about 100 kilometres from  
15 the site were used for the socio-economic analysis  
16 and in the assessment of health effects on the  
17 public. The more detailed micro-level data to 15  
18 kilometres from the site were used for emergency-  
19 response planning.

20 As a point of reference, we note  
21 that the population within 3 kilometres of the  
22 Darlington site today and predicted for 2025 is  
23 less than 100 people. The population in the 10-  
24 kilometre emergency planning zone today is  
25 approximately 113,000 people increasing to about



1 emergency is not jeopardized.

2                                 We note that the municipalities  
3 are obliged by provincial regulation to circulate  
4 development proposals for lands in the vicinity of  
5 the nuclear facility to OPG. And we will work with  
6 municipal planners in a manner consistent within  
7 the *Ontario Planning Act* process to preclude  
8 incompatible land uses in the area of the  
9 Darlington site.

10                                We also note that OPG has  
11 concluded a host-community agreement with the  
12 Municipality of Clarington that provides a  
13 framework for addressing shared issues and  
14 interests with respect to the Darlington new  
15 nuclear project. We are working toward a similar  
16 agreement with the Region of Durham.

17                                The Darlington site is already  
18 well serviced by roads and highway infrastructure.  
19 It is located immediately adjacent to Highway 401  
20 and three interchanges onto the local area road  
21 network. This site is accessed by a well-spaced  
22 grid of regional and municipal arteries.

23                                Transportation system improvements  
24 are already planned to accommodate the traffic that  
25 will result from anticipated municipal development

1 in the local and regional areas.

2                   These include extension of GO rail  
3 service east to Bowmanville, an improved  
4 interchange on Highway 401 at Holt Road, widening  
5 of Highway 401 and the extension of Highway 407  
6 East including the East-Durham link to Highway 401.

7                   It is notable that the recent  
8 provincial announcement regarding the timing of the  
9 407 easterly extension corresponds with the  
10 timeline used in our transportation studies.

11                   Our assessment builds on the  
12 planned provincial, regional and municipal road  
13 improvements. These impending improvements have  
14 been established through a planning process carried  
15 out by the respective agencies and are a sound and  
16 reasonable basis for our EA analysis.

17                   Our analysis has identified a  
18 network-improvement plan that can be progressively  
19 implemented to meet the project needs. The site  
20 access improvements are largely of intersection  
21 modifications including traffic signals at various  
22 locations; for example, the ramp intersections at  
23 Highway 401 interchanges.

24                   These proposed improvements will  
25 occur primarily south of Highway 401 reflecting the

1 fact that this highway will be the primary access  
2 route to the site. Once Highway 407 and the East-  
3 Durham link are in place, they will also serve as  
4 effective routes to the site further reducing  
5 traffic on the regional and municipal roads.

6 An important mitigation measure  
7 identified in the EIS is the traffic management  
8 plan. This plan will be designed in consultation  
9 with Clarington, Oshawa and Durham and implemented  
10 progressively in response to changing conditions  
11 throughout the project to ensure that the demands  
12 are managed and specific effects are mitigated.

13 OPG accepts CNSC's recommendation  
14 number 26 regarding the nature of the traffic  
15 management plan. OPG continues to work with MTO,  
16 the Municipalities of Clarington and Oshawa and the  
17 Region of Durham to address their transportation  
18 issues as conditions evolve.

19 A comprehensive evaluation of the  
20 Darlington site as required by CNSC regulatory  
21 document RD-346 has confirmed its suitability for a  
22 new nuclear power generating station.

23 An important feature of this  
24 suitability is the fact that the population within  
25 the primary emergency planning zone can be

1 effectively evacuated in the event of an emergency.

2                                 Independent of the EA studies, OPG  
3 commissioned an internationally recognized  
4 specialist firm to undertake an evacuation study  
5 relative to the Darlington site and the new nuclear  
6 project.

7                                 As part of this study, evacuation  
8 time estimates concluded that the entire population  
9 of approximately 113,000 people within 10  
10 kilometres of the site can be safely evacuated in  
11 less than nine hours on any day of the week,  
12 including during inclement weather conditions.

13                                 The same planning, organization  
14 and processes will also be effective in evacuating  
15 at greater distance should it be required.

16                                 The evacuation has been reviewed  
17 by local emergency responders and agencies that has  
18 been adopted by EMO for planning purposes. It is  
19 considered to be a significant advancement in the  
20 understanding of the subject and to represent  
21 leading-edge science in emergency planning.

22                                 The study will be reviewed and  
23 updated as appropriate to consider changing  
24 conditions in the community.

25                                 The time estimates were calculated

1 based on current and projected population data. As  
2 noted on the previous slide, OPG will monitor  
3 development in the vicinity of the Darlington site  
4 and work closely with the municipality to control  
5 incompatible land uses that may threaten the  
6 ability to effectively evacuate the area.

7                   While our studies have confirmed  
8 that the local community can be safely evacuated in  
9 the event of a nuclear emergency, the  
10 responsibility for emergency planning and response,  
11 and specifically protective actions, decisions, for  
12 the public resides with Emergency Management  
13 Ontario.

14                   While OPG has the responsibility  
15 to address onsite emergencies, EMO has the  
16 legislative mandate to formulate an emergency plan  
17 with respect to nuclear facilities and to ensure  
18 that the related emergency plans within the  
19 municipalities conform to the provincial plan.

20                   The Provincial Nuclear Emergency  
21 Response Plan provides the means through which  
22 nuclear emergencies are responded to. OPG is a key  
23 stakeholder in the PNERP with respect to all of its  
24 nuclear facilities.

25                   The Region of Durham and local

1 municipalities of Clarington, Oshawa, are key  
2 stakeholders with respect to operations at the  
3 Darlington site.

4 Requirements of the PNERP are  
5 practised regularly by the different organizations,  
6 both independently and jointly.

7 OPG has been assured by EMO and  
8 the Durham Emergency Planning Office that they will  
9 provide emergency planning support to the new  
10 nuclear project as they do for the existing  
11 operations at the site.

12 We understand that EMO will be  
13 making its own presentation concerning emergency  
14 response provisions for the Darlington site.

15 To summarize, the new nuclear  
16 project is fully compatible with the land use  
17 planning structure in the Municipality of  
18 Clarington and the Region of Durham.

19 Existing operations at the  
20 Darlington site are, and new nuclear also will be,  
21 consistent with other existing and future uses in  
22 the area. Growth in the local communities has been  
23 fully considered in how land use in the vicinity of  
24 the Darlington site is likely to evolve in the  
25 future.

1                   Similarly, growth and population  
2 patterns are reflected in the assessment of effects  
3 on the transportation system and on the ability to  
4 react to emergencies.

5                   The new nuclear project will not  
6 have a significantly adverse effect on land use and  
7 transportation systems and safety in the local and  
8 regional areas. We are confident that should it  
9 ever be necessary to do so, the areas around the  
10 site can be effectively evacuated in response to an  
11 emergency, and that future growth and development  
12 will not compromise the ability to do so.

13                   Finally, OPG continues to be and  
14 will remain actively engaged with the regional and  
15 local municipalities to optimize opportunities to  
16 further address potential effects on land use and  
17 its related aspects, including traffic management  
18 and emergency evacuation.

19                   Thank you, and we would be happy  
20 to respond to your questions.

21                   CHAIRPERSON GRAHAM: Thank you  
22 very much, Ms. Swami.

23                   Before we go into questions, I  
24 think perhaps it would be appropriate if we heard  
25 from Ontario Municipal Affairs and then we would

1 combine the questions with both their presentation  
2 and OPG's.

3                                 So with the indulgence of everyone  
4 here, I would like to welcome Municipal Affairs  
5 Ontario, and if you would introduce the two  
6 speakers? The apple -- I can't accept gifts as a  
7 Chair, but that's quite all right.

8                                 Anyway, you may proceed.

9     --- PRESENTATION BY MR. CHRISTIE:

10                                MR. CHRISTIE: Thank you and good  
11 morning.

12                                My name is Mark Christie and I'm  
13 the Manager of Community Planning and Development  
14 with the Ministry of Municipal Affairs and Housing  
15 with the MSO Central Region Office.

16                                Beside me is Herb Schachter (ph),  
17 the senior counsel with Municipal Affairs and  
18 Housing.

19                                So on February 4<sup>th</sup> of this year,  
20 our Deputy Minister, William Forward, sent in a  
21 letter, including a written submission outlining  
22 what are the Ministry's interests in the Darlington  
23 project. That written submission summarizes in  
24 general what our interests are as you move forward  
25 with the project.

1 I'm going to take just a few  
2 minutes to quickly run through and summarize what  
3 was in that package.

4 I'm going to start by first saying  
5 that what I'm going to be setting out for you is  
6 really expectations and considerations as we move  
7 forward, not particular comments on the nature of  
8 the application that's currently before us, but  
9 rather, as we move forward, what we, as a ministry,  
10 may expect to be undertaken and considered as you  
11 move forward with the project.

12 I'm going to start with an  
13 overview of the planning system in the Province of  
14 Ontario, to give you a quick overview of it, and  
15 what our interests are within that system.

16 So the *Planning Act* is the basis  
17 of Ontario's land use planning system. It defines  
18 the approach to planning and assigns or provides  
19 for roles of key participants. It is the  
20 legislative basis for the processes central to the  
21 exercise of land use planning in the Province of  
22 Ontario.

23 The *Planning Act* sets out a set of  
24 general interests or provisions in Section 2 which  
25 are provincial interests for land use planning in

1 the province.

2 Further, the Act provides for  
3 provincial policy statements to be set by the  
4 province that set out in more detail policies and  
5 interests of the province.

6 The Act requires the decisions and  
7 advice on land use by decision makers must and  
8 shall be consistent with provincial policy  
9 statements.

10 The land use planning system in  
11 the province is a provincially-led policy system,  
12 and what I mean by that is that the province sets  
13 out policies that all players in the system must  
14 adhere to and is implemented by the three levels of  
15 government, implemented by the provincial level at  
16 a policy level, the regional and local governments  
17 as well.

18 The province put in place, in  
19 2005, a provincial policy statement that sets out,  
20 under Section 3 of the *Planning Act*, our particular  
21 interests. It is the key element in the Ontario  
22 land use planning system.

23 The PPS provides direction on  
24 matters of provincial interest related to land use  
25 planning and development and promotes the

1 province's policy-led planning system.

2                   The PPS recognizes the complex  
3 interrelations among economic, environmental and  
4 social factors and planning and embodies what we  
5 call good planning principles.

6                   The *Planning Act* requires that all  
7 decisions affecting a planning matter "shall be  
8 consistent with the policies of that plan."

9                   The PPS provides direction on,  
10 among other matters, three key elements: building  
11 strong communities and efficient land use and  
12 development patterns for housing and  
13 infrastructure; the wise use and management of  
14 resources, agriculture, mineral and aggregates,  
15 natural heritage, water, cultural heritage and  
16 archaeology and; last, protecting for the health  
17 and safety from natural hazards and manmade  
18 hazards.

19                   The way that we implement  
20 provincial policies and the most effective way to  
21 do this is through the official plans of regional  
22 and local municipalities. It is through the  
23 preparation of municipal official plans that  
24 provincial interests are identified and appropriate  
25 land use designations and policies are adopted to

1 protect those interests.

2                                 As part of what we do, we rely on  
3 the technical expertise of our partner ministries.  
4 Municipal Affairs and Housing is the voice for the  
5 province as it relates to land use planning and to  
6 assist us in undertaking that, we rely on the  
7 technical expertise of partner ministries such as  
8 the Ministry of Natural Resources, the Ministry of  
9 the Environment on various technical matters that  
10 would connect to land use matters.

11                                 Today I'm only going to be  
12 speaking to the land use issues and I understand  
13 that other ministries will be presenting to you on  
14 technical matters within their jurisdictions.

15                                 The provincial planning statement  
16 is meant to be read in its entirety. It is a  
17 document that sets out balances.

18                                 So I'm going to run through with  
19 you some of the relevant policies in the PPS that  
20 we think need to be addressed as you move forward  
21 with this project. And it's important to take  
22 these into account as a whole picture rather than  
23 as individual comments.

24                                 So first I'm going to take you to  
25 PPS Policy 161. This relates to infrastructure and

1 the development of infrastructure in the province  
2 and it states that:

3                                 "Infrastructure shall be  
4                                 provided in the coordinated,  
5                                 efficient and cost-effective  
6                                 manner to accommodate  
7                                 projected needs and the  
8                                 planning for infrastructure  
9                                 shall be integrated with  
10                                planning for growth so that  
11                                it is available to meet  
12                                current and projected needs."

13                                The planning for the nuclear  
14 project needs to be integrated with planning for  
15 the growth to ensure the electrical generating  
16 capacity is available to meet current and future  
17 demand. That would be the test under the PPS.

18                                The growth plan for the Greater  
19 Golden Horseshoe which was released in 2006 sets  
20 out the distribution of population and employment  
21 for the Greater Golden Horseshoe to the year 2031,  
22 a 20-year time horizon.

23                                The nuclear project should  
24 consider the province's growth plan forecast, and  
25 as you heard from OPG they have in fact done that

1 to date.

2 In addition, planning for the  
3 nuclear project should also ensure that the  
4 detailed fiscal and cost assessment analysis for  
5 each phase of the project is undertaken to ensure  
6 that it is cost-effective to the province and to  
7 future generations of Ontarians.

8 This was also a measure set out in  
9 the PPS.

10 With respect to transportation,  
11 Policy 1656 of the PPS contains transportation  
12 policies, including the transportation and land use  
13 considerations that should be integrated into all  
14 stages of the planning process.

15 In this case there are three  
16 nearby Highway 401 interchanges, Courtice, Holt and  
17 Waverly that provide access to Darlington nuclear  
18 site and also a planned Highway 407 east and  
19 eastern link.

20 The EIS anticipates that the  
21 nuclear project will add traffic to these existing  
22 roadways in may contribute to the ongoing physical  
23 demands of the road system.

24 The EIS recommends that  
25 collaboration occur with applicable agencies to

1 ensure implementation of a traffic management plan  
2 and to design and implementation of offsite  
3 improvements to reduce disruption and maintain safe  
4 traffic conditions during the site preparation and  
5 construction phases.

6                   As well, it says it's going to  
7 ensure and plan for the emergency needs of  
8 transportation system and adequately account for  
9 those needs as the transportation system moves  
10 forward.

11                   There has been contact with  
12 Ministry of Transportation and as I understand it  
13 they have provided technical comments to the panel  
14 and they will provide additional comments and be  
15 presenting individual findings on those matters.

16                   MMBH encourages and Ministry  
17 encourages you to work with MTO and other agencies  
18 to ensure that the existing transportation system  
19 does provide for safe and efficient movement and  
20 facilitate the movement of people and goods within  
21 the local and regional context.

22                   Section 2.1 of the PPS sets out  
23 what are the natural heritage interests of the  
24 province. Specifically, the interests are the  
25 diversity and connectivity of natural features in

1 an area and the long-term ecological function and  
2 biodiversity of natural heritage systems.

3                                 These should be maintained and  
4 restored and where possible improved. Recognizing  
5 linkage between and among natural heritage  
6 features, surface water features and groundwater  
7 features.

8                                 The EIS states that the residual  
9 effects -- adverse effects may include the loss of  
10 approximately 40 to 50 hectares of terrestrial  
11 habitat, that being wetlands, unclassified  
12 wetlands, some woodlots and other features; the  
13 permanent loss of nesting habitat of bank swallow,  
14 the potential bird strike mortality with cooling  
15 towers if that's the route they choose and periodic  
16 and short term disruption to all life travelled in  
17 an east-west corridor, again, if the towers are  
18 used.

19                                 Comments specific to the  
20 environmental effects from a natural heritage  
21 perspective will be provided by the Ministry of  
22 Natural Resources and they will be commenting on  
23 the terrestrial natural heritage features and  
24 functions on wildlife habitat, species at risk,  
25 aquatic environment, including aquatic habitat and

1 aquatic biota and the lake filling.

2 MNR has confirmed that there are  
3 no significant wetlands or areas of natural  
4 scientific interest on the property.

5 With respect to water the PPS,  
6 Section 2.2 includes policies to protect, improve  
7 and restore the quality and quantity of water.

8 In this regard the Ministry has no  
9 specific comments and will rely on the Ministry of  
10 Environment to provide comments within the land use  
11 planning framework.

12 With respect to cultural heritage  
13 and archaeology. Section 2.6 of the PPS provides  
14 policies for cultural heritage and archaeology  
15 which state the significant built heritage  
16 resources and significant cultural heritage,  
17 landscapes shall be conserved.

18 We understand that the Darlington  
19 nuclear site includes archaeological built heritage  
20 and heritage landscapes. More specifically,  
21 there's a potential for the displacement of two  
22 archaeological sites associated with the historic  
23 19<sup>th</sup> century farmsteads as well as the presence of  
24 the historic Burk Cemetery establish by the pioneer  
25 family in the early 1880s.

1                   The PPS provides that development  
2 and site alterations shall only be permitted on  
3 lands containing archaeological resources or areas  
4 of archaeological potential is a significant  
5 archaeological resources have been served by  
6 removal or documentation or by preservation onsite.

7                   That's Section 2.62 of the PPS.  
8 We would ask that you have regard to that as you  
9 move forward.

10                   The Ministry encourages the  
11 Proponent to consult with the Ministry of Tourism  
12 and Culture with respect to the *Ontario Heritage*  
13 *Act* and the archaeological investigation as that  
14 proceeds.

15                   With respect to protecting public  
16 health and safety Section 3 of the PPS sets out a  
17 number of provisions.

18                   Section 3 states that:

19                                 "Protecting public health and  
20                                 safety and the policies  
21                                 provided are to reduce the  
22                                 potential for public costs or  
23                                 risk to Ontario's residents  
24                                 from natural and human-made  
25                                 hazards. Development shall

1 be directed away from the  
2 areas of natural or human-  
3 made hazards and where there  
4 is an unacceptable risk to  
5 public health or safety or  
6 property damage."

7 With respect to land use we  
8 encourage you to work with and engage with the  
9 Region of Durham and local municipalities in the  
10 planning policy and land use in the primary area  
11 and the continuous areas to ensure maintenance of  
12 effective emergency response.

13 Further, long-term planning  
14 undertaken by the local and regional municipality  
15 should ensure that Darlington nuclear facility and  
16 the sensitive land use, such as residences,  
17 educational and health facilities are appropriately  
18 designed, buffered or separated from each other to  
19 prevent adverse effects for odour, noise and other  
20 contaminants and to minimize the risk to public  
21 health and safety.

22 As you heard from OPG with respect  
23 to the insurance of maintenance of effective  
24 emergency response capability comments have been  
25 provided directly to the panel by the Ministry of



1 numbers on your document but it's the section that  
2 refers to protecting public health and safety. In  
3 this section, paragraph 1, 2, 3, 4, 5 you propose a  
4 buffer zone for -- especially for educational,  
5 health facilities, and residents, I'd like to hear  
6 you more on that concept.

7 MR. CHRISTIE: Thank you. Mark  
8 Christie.

9 The Provincial Planning Policy  
10 Statement talks to creating a balance of uses  
11 within a community and the concept is to look at  
12 providing appropriate separations between uses  
13 which may be incompatible.

14 It's not a fixed buffer number, as  
15 in you specify 30 metres. In some cases that may  
16 be -- what you would do if it's a particularly  
17 noxious substance from a chemical or from an  
18 industrial site but it's more the general practice  
19 of ensuring that one use does not have an  
20 incompatible -- is not incompatible with another  
21 use and there's no impacts from one use to another.

22 Good land use planning would look  
23 at, from a community basis, how you cluster and  
24 group particular uses, and the idea of buffer is to  
25 make sure that when you do that you account for the

1 adjacent uses.

2 MEMBER BEAUDET: Do you have any  
3 criteria to determine what could be the distance  
4 between, let's say, an industrial site or a nuclear  
5 site and the closest residence or closest school  
6 possible?

7 MR. CHRISTIE: So there's no  
8 specific criteria. They're generally established  
9 on a site-by-site basis.

10 There are provincial regulations  
11 that MOE establishes that set out particular set-  
12 backs from industrial uses, and there are other  
13 provincial regulations that set out fixed set-backs  
14 from particular uses.

15 The Ministry of Municipal Affairs  
16 do not have that. We work from a policy regime and  
17 there's no fixed regulatory set-back requirements.  
18 They are generally established through the regional  
19 or local governments through zoning bylaw -- sorry  
20 -- MOE guideline, not regulation.

21 MEMBER BEAUDET: So they're  
22 guidelines only?

23 MR. CHRISTIE: That's right. I  
24 believe they're called the Series D Guidelines.

25 MEMBER BEAUDET: You are aware

1 that there's a school near the site about one  
2 kilometre point something.

3 My second question regarding that  
4 is on the next page, third paragraph before last.

5 You have approved the Durham  
6 Regional Official Plan Amendment 128 with  
7 modification and certain refusal and on decisions  
8 and I believe your decision has been appealed by  
9 the Ontario Municipal Board. It may be premature  
10 now to ask you an update, if you can. We would  
11 appreciate.

12 And also, are there any elements  
13 that would relate to a proposed development by the  
14 Durham Region which has now a residential -- two  
15 residential units that are within the two  
16 kilometres of the border of the site of new  
17 Darlington?

18 MR. CHRISTIE: Thank you. Mark  
19 Christie.

20 The ROPA 128, the Regional  
21 Official Plan Amendment, which was approved by the  
22 province, is correct. It has been appealed by a  
23 number of parties and is now before the Ontario  
24 Municipal Board.

25 The document was appealed in its

1 entirety as well as site specific portions of the  
2 document, and therefore the decision made by the  
3 province is not yet in full effect.

4                   With respect to decisions, our  
5 decision and elements that may affect Darlington  
6 and growth of the region, we have made and  
7 expressed some concerns with respect to the  
8 forecasted growth and the extent of growth that's  
9 going to take place in the Region of Durham.

10                   The growing Durham numbers that  
11 have been provided that were used as the basis we  
12 feel are not -- or do not match the provincial  
13 numbers, and that was one of the concerns we  
14 flagged in our comments and in our decision.

15                   The forecasts are not greatly  
16 different between what the province has and what  
17 the region has, so for the purposes of moving  
18 forward with an energy project to service the  
19 people of Ontario, we don't believe that there's a  
20 great deal of difference that requires additional  
21 measures to be taken.

22                   With respect to potential growth  
23 in the contingency area, again, because the plan is  
24 not yet approved all development in that area would  
25 be held except those that have -- from an official

1 plan perspective, other than those that are already  
2 under application or are being dealt with by the  
3 municipality and would have to conform to the  
4 existing official plan that's in place.

5                   So it doesn't preclude -- our  
6 decision does not preclude development from taking  
7 place within those areas but rather requires them  
8 to conform to the existing plan rather than the new  
9 plan that we're trying to put in place.

10                   MEMBER BEAUDET: When you say that  
11 you consider that the growth would not be as  
12 important as predicted, did you take into  
13 consideration that we received, for instance, from  
14 the Ministry of Energy that the development with  
15 new Darlington would possibly be two units for some  
16 period of time? Was that taken into your  
17 consideration, not four but two?

18                   MR. CHRISTIE: Mark Christie.

19                   In the calculation, the forecast  
20 done by the province, I don't believe that we'd be  
21 looking at what the energy infrastructure proposed  
22 is as it relates to the forecast that has been  
23 provided. The forecasts are undertaken by the  
24 Ministry of Infrastructure for the province and  
25 they're set out in Schedule 3 of the growth plan.

1                   My understanding of the  
2 methodology, the creation of those forecasts, does  
3 not take into account what the projected  
4 infrastructure is for a particular area but rather  
5 other aspects of growth and how growth is occurring  
6 across the province.

7                   MEMBER BEAUDET: Thank you.

8                   CHAIRPERSON GRAHAM: Mr. Pereira?

9                   MEMBER PEREIRA: I just have one  
10 point for clarification.

11                   Under Protecting Public Health and  
12 Safety, in the fourth paragraph -- and I'll read  
13 it:

14                   "With respect to land use,  
15 MMAH encourages the proponent  
16 to engage and consult with  
17 the Region of Durham and  
18 local municipalities and  
19 planning policy and land use  
20 in the primary area and  
21 contiguous areas to ensure  
22 maintenance of effective  
23 emergency response  
24 capability."

25                   So this is an expectation that OPG

1 will consult and maintain effective emergency  
2 response capability? Is that the expectation or is  
3 it the responsibility on the municipalities to  
4 maintain their own response capabilities?

5 MR. CHRISTIE: Mark Christie.

6 I think it's a little bit of both.  
7 I will say to you that there's a -- the way the  
8 system is set up -- land use planning system is set  
9 up -- is that their authorities are delegated and  
10 responsibilities are delegated from province to  
11 region to local government.

12 There's an expectation that all  
13 three levels of government and proponents of  
14 development applications will be engaged in  
15 determining and how they would best meet the  
16 provincial policies that are set out.

17 So I'm going to suggest to you  
18 that it's a little bit of both. It is a  
19 requirement on OPG to ensure they meet the  
20 provincial policy statement and then the local  
21 policies that are then in place to support that,  
22 and similarly, the onus is on the region and the  
23 local municipalities to ensure that the appropriate  
24 emergency plans are in place as part of their  
25 exercise as well.

1                   MEMBER PEREIRA: But in terms of  
2 local development and local land use, that's more  
3 in the control of the municipalities, isn't it? So  
4 in a sense they have more control over emergency  
5 response -- influencing emergency response  
6 capability than the proponent?

7                   MR. CHRISTIE: Mark Christie.

8                   Yes, that's in fact correct. The  
9 approvals are with the regional and local  
10 government on that basis and therefore they are the  
11 ones that have ultimate control.

12                   The planning system is set up to  
13 be an open process, and as OPG identified, they're  
14 going to be monitoring planning applications that  
15 are going to be taking place within the area. So  
16 there is also an onus on them to ensure that where  
17 they feel there's an incompatible use that they  
18 should be voicing that opinion to the region and to  
19 the local municipality.

20                   MEMBER PEREIRA: Chairman, perhaps  
21 we could invite OPG to comment on that?

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

24                   We certainly understand the  
25 responsibilities that OPG has with respect to

1 emergency planning. We also understand that going  
2 forward, as we've talked about already, that we  
3 will be looking to the development that is planned  
4 in the area.

5                               We will be working with the  
6 municipalities and the Region of Durham to ensure  
7 that the use is compatible with the Darlington  
8 facility, where it's located, to ensure that  
9 emergency response planning will effectively  
10 continue for the life of the project.

11                           MEMBER PEREIRA: But is there any  
12 powers that -- who has the powers to control the  
13 extent of development? Like, because this can just  
14 morph gradually into a dense pack development.  
15 It's happened elsewhere, as we all know.

16                           How can we assure ourselves -- the  
17 panel actually -- that in 60 years time we'll have  
18 an area which is still very amenable to effective  
19 emergency response, meaning evacuation in the event  
20 there is a need for that?

21                           MR. CHRISTIE: Mark Christie.

22                           The land planning system again  
23 sets out who the approval agencies are for various  
24 application types that would move forward.

25                           Development applications -- site-

1 specific development applications are generally  
2 with either the region or the local municipality  
3 for approval and those are generally approved by  
4 local planning committees or council.

5                   The province does play a role in  
6 setting out what are the overall growth forecasts,  
7 and we obviously do engage to make sure the  
8 provincial policies are managed and dealt with.

9                   And there is a tribunal system,  
10 the Ontario Municipal Board system, that also  
11 allows for the public and others to become engaged  
12 if a decision is made that they feel is  
13 inappropriate.

14                   CHAIRPERSON GRAHAM: My question  
15 is along the same lines in your bullet on Overhead  
16 8 to OPG.

17                   Like, you talk about the  
18 population can be evacuated within 9 hours for a 10  
19 kilometre radius. What concerns me is the life of  
20 the plant 60 years out. None of us in this room  
21 will be here at that time, and will it still be  
22 able -- who maintains the overall plan that within  
23 the 10-kilometre radius, that same statement will  
24 hold 60 years from now to the population, and is it  
25 -- whose responsibility -- is it OPG's



1 legislation, or is it just a policy?

2                                   And that's what concerns me. I  
3 mean, I -- Pickering is an example. The population  
4 has grown. It's grown very close to the premises,  
5 a large population. If we remember, they didn't  
6 even want sirens installed.

7                                   I mean, there has to be some teeth  
8 in this, and I'm wondering, is -- who controls that  
9 type of -- that there is a plan, and it's followed,  
10 and it's very orderly and that we're -- everybody  
11 knows their role in that plan?

12                                   MR. CHRISTIE: So Mark Christie.

13                                   I'll start, and perhaps I'll ask  
14 Irv to jump in if I go offline a bit.

15                                   It is both a policy and regulatory  
16 -- the land use planning system is both policy and  
17 regulatory in nature.

18                                   At the provincial level, it is a  
19 policy set tone, generally within regional official  
20 plans, policies, that tone.

21                                   It gets down to the regulatory  
22 level when you're dealing with zoning bylaws, what  
23 you can actually set out, what is measured  
24 distances, and other things that would be  
25 regulatorily dealt with.

1                   So the answer is, it's primarily  
2 policy driven. There are opportunities within the  
3 planning use -- planning system to use regulatory  
4 frameworks to prevent and control, but it is a  
5 policy-based decision matrix.

6                   The primary reason for that, as  
7 identified before, is creating and striking a  
8 balance between the main elements of what are good  
9 land-use planning, the balance of social, economic,  
10 and environmental interests.

11                   And it's simple to do that within  
12 a fixed regulatory framework, and that's where the  
13 policy framework is in place for the Province of  
14 Ontario.

15                   CHAIRPERSON GRAHAM: Just one  
16 further question. This is to CNSC.

17                   What authority does CNSC have in  
18 issuing license and licensing as you go over the  
19 life of the plant to ensure that those policies are  
20 up to date and are being addressed and are not  
21 changed in -- in a way that would adversely affect  
22 the population?

23                   MR. HOWDEN: Barclay Howden  
24 speaking for the record.

25                   One of our regulatory

1 requirements, which are outlined in RD-346, is  
2 prior to construction, the proponent must  
3 demonstrate early confirmation from the provincial,  
4 regional, and municipal governments that the  
5 implementation of the respective emergency plans  
6 and related protective actions will not be  
7 compromised for the lifecycle of the proposed site.  
8 So that's the regulatory requirement at the  
9 beginning. But, again, it's up to the proponent to  
10 be able to provide that confirmation.

11                   During the lifetime of the plant,  
12 if conditions in the productive zone, which is the  
13 zone outside the exclusion zone, but where -- where  
14 emergency measures could be implemented, the  
15 expectation is the licensee monitors and mitigates  
16 anything as required.

17                   As well, they need to ensure  
18 during -- prior and during that any land-use  
19 planning that could actually start to impact on the  
20 site itself has to be evaluated.

21                   In the end, we don't have direct  
22 regulatory control over it, but it's through our  
23 connections -- regulatory connections with OPG.  
24 However, we don't operate in a vacuum.

25                   One of the things that we have

1 done is to ensure that we're fully up to date on  
2 what is going on in the Province of Ontario, is we  
3 have an MOU with Emergency Management Ontario,  
4 which requires the two organizations to consult on  
5 emergency planning within the province, so we'd be  
6 able to provide consultation information to them,  
7 and they would provide input to our own regulatory  
8 regime.

9                   The MOU also allows for exchange  
10 of information. It allows EMO's input into our  
11 licensing process. It allows includes joint  
12 training and drills as well. And, finally, it  
13 requires -- allows for early notifications of  
14 events. So that's the extent that we have.

15                   Now, we view EMO, from an  
16 emergency planning perspective, as the competent  
17 authority within the province.

18                   CHAIRPERSON GRAHAM: Thank you.

19                   With that, I will move onto  
20 government. Are there any government agencies that  
21 wish to have questions to either OPG or Municipal  
22 Affairs Ontario?

23                   If not, we will then move to  
24 interveners. You have one intervener, I believe,  
25 which is Lake Ontario Waterkeeper.

1 --- QUESTIONS BY THE INTERVENORS:

2 MR. MATTSON: Thank you, Mr.  
3 Chairman.

4 My question could be answered by  
5 both the municipal authorities and OPG. And that  
6 is, the lack of discussion about the quarrying  
7 operations directly to the east of the proposed  
8 Darlington new nuclear plant -- it's a major quarry  
9 with a license that extends for some 20, 30 years.

10 And I'm wondering about concerns  
11 about land use, impacts of quarrying, potential fly  
12 rock, et cetera, and how it impacts or could impact  
13 the siting of this facility because we've heard  
14 nothing about that.

15 Thank you.

16 CHAIRPERSON GRAHAM: I'll go first  
17 to OPG, and then I'll ask Municipal Affairs Ontario  
18 if they have anything to add.

19 MR. SWEETNAM: Albert Sweetnam for  
20 the record.

21 The license to prepare the site  
22 had reviewed the activities at the quarry.

23 And I'll ask Jack Vecchiarelli to  
24 give you more details.

25 MR. VECCHIARELLI: Jack

1 Vecchiarelli for the record.

2 That is correct. As part of the  
3 site evaluation studies, part one, external human  
4 induced events report was submitted and considered  
5 the impact of St. Mary's operations. We looked at  
6 the impact -- the potential impacts of blasting and  
7 the seismic effects on the site.

8 There is no foreseeable risk from  
9 blasting, and we concluded that any effects from  
10 seismic ground motion could be accommodated through  
11 standard conventional design.

12 CHAIRPERSON GRAHAM: Municipal  
13 Affairs Ontario, do you have something to add?

14 MR. CHRISTIE: Mark Christie.

15 I'll just add that the licenses  
16 for quarries and pits are issued and dealt with by  
17 the Ministry of Natural Resources. They may be in  
18 a better position to answer the specifics on the  
19 license for that particular pit or quarry.

20 In addition, from a land-use  
21 planning perspective, the land use is regulated or  
22 dealt with by the Regional Municipality of Durham.

23 CHAIRPERSON GRAHAM: And they will  
24 be appearing before us at another time. I think  
25 it's tomorrow on the agenda.

1                   So, Mr. Mattson, maybe you can  
2 present that question also at that time.

3                   Thank you very much. Thank you  
4 very much, Municipal Affairs Ontario, for coming  
5 today and presenting to us.

6                   Thank you, OPG, for that segment.

7                   Now, we'll move onto -- on the  
8 agenda, and we'll move to the next presenter on the  
9 agenda, which is --

10                   UNKNOWN SPEAKER: Mr. Chairman?

11                   CHAIRPERSON GRAHAM: -- the -- oh,  
12 I'm sorry. Madam Beaudet had a question, so,  
13 Municipal Affairs, if you'd come back, I -- she  
14 indicated to me, and I missed that.

15                   MEMBER BEAUDET: It's with OPG  
16 anyways, so --

17                   CHAIRPERSON GRAHAM: To OPG.

18                   MEMBER BEAUDET: You mentioned in  
19 your presentation that you had -- you had an  
20 agreement with the Municipality of Clarington.  
21 That agreement concerns, I suppose, future land-use  
22 planning. If not, I'd like to know if -- also the  
23 host municipality agreement, would that be an  
24 element that you would consider to discuss or to  
25 put on paper that they should restrict residential

1 development or sensitive use of the land within,  
2 let's say, 2 kilometres from your site? Is that a  
3 possibility?

4 CHAIRPERSON GRAHAM: OPG, would  
5 you like -- care to answer?

6 MS. SWAMI: Laurie Swami for the  
7 record.

8 We had many discussions with the  
9 host community of Clarington through the  
10 discussions on the host municipal agreement with  
11 respect to land-use planning, and I know that they  
12 will be a partner with us in this going forward.

13 We would be happy to share the  
14 elements of the community agreement with the --  
15 with the joint review panel. It has been shared  
16 with the -- in Clarington at their council, so that  
17 information is fully available.

18 MEMBER BEAUDET: Yes, please, we  
19 would appreciate that. Thank you.

20 CHAIRPERSON GRAHAM: Mr. Pereira,  
21 have you anything else?

22 MEMBER PEREIRA: No.

23 CHAIRPERSON GRAHAM: Madame  
24 Beaudet, do we need that as an undertaking or not?

25 Just when can you provide it?

1 MR. SWEETNAM: Albert Sweetnam for  
2 the record.

3 We can provide a copy of that  
4 agreement by Monday morning.

5 CHAIRPERSON GRAHAM: So we will  
6 give it a number then, Number 19 then.

7 Thank you very much.

8 CHAIRPERSON GRAHAM: Just don't  
9 leave yet because now the agenda has changed again.  
10 We have two more intervenors that want to ask  
11 questions, and I will go then now to CELA.

12 MS. McLENAGHAN: Theresa  
13 McLenaghan from CELA for the record.

14 Yes, I have two questions, if I  
15 may. The first is with respect -- and I am leaving  
16 the questions for beyond the 15-kilometre shadow  
17 evacuation to the emergency measures Ontario people  
18 as OPG suggested yesterday.

19 But two questions in respect of  
20 the items they did evaluate. The first is with  
21 respect to the nine-hour estimates in terms of  
22 evacuation, I'm wondering, those nine hours include  
23 evacuation to where, what distance from the plant?

24 CHAIRPERSON GRAHAM: OPG?

25 MS. SWAMI: Laurie Swami for the

1 record.

2                               That would be to the outside of  
3 the 10-kilometre zone. So the requirement is to be  
4 able to evacuate out of the 10-kilometre zone.

5                               CHAIRPERSON GRAHAM: Your next  
6 question?

7                               MS. McLENAGHAN: Is there a  
8 specific -- this is just a clarification on that  
9 before my other one.

10                              Is there a specific location that  
11 was considered in those calculations?

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

14                              Not a specific location. I think  
15 that the intervenor may be referring to the broader  
16 emergency plan where there are specific locations  
17 that people are evacuated to. Those are well  
18 outside of the 10-kilometre zone and quite far from  
19 the existing facilities. That's a different issue  
20 and it's something that would be discussed properly  
21 with Emergency Management Ontario.

22                              CHAIRPERSON GRAHAM: Perhaps we  
23 could do that then because they certainly have  
24 plans in place for the existing plant and maybe  
25 they could enlighten us.

1 Your next question?

2 MS. McLENAGHAN: And with respect  
3 to the 15-kilometre shadow zone that OPG has  
4 discussed, I'm wondering what the time estimate is  
5 for that evacuation?

6 CHAIRPERSON GRAHAM: Ms. Swami?

7 MS. SWAMI: Laurie Swami for the  
8 record.

9 So when you look at the estimates  
10 of the time, it looks at how long it would take  
11 people to get out of the 10-kilometre zone, and the  
12 intent of looking at the 15-kilometre shadow zone,  
13 if you would, this extra five kilometres, it  
14 assumes that people will start to move as well, and  
15 I think we can all appreciate that when there are a  
16 lot of people trying to move out of a particular  
17 area, it can cause congestion and traffic and  
18 things like that.

19 So it impacts how long it takes  
20 people to move within a zone and out of a zone.  
21 It's a fairly detailed analysis and, of course,  
22 that material has been filed and you have to look  
23 detailed into the actual assessment to get a better  
24 picture of how all of these things factor in.

25 CHAIRPERSON GRAHAM: That material

1 is available, so perhaps maybe you might want to  
2 refer to that.

3 Do you have one more question?

4 MS. McLENAGHAN: Well, just a  
5 clarification, Mr. Chairman.

6 I'm contending right now with  
7 referring to the previous panel and the material  
8 referred to and it's very complex to get to the  
9 answer.

10 So rather than -- for the 10-  
11 kilometre, it was summarized in terms of a maximum  
12 time. I'm wondering; would the 15-kilometre,  
13 despite complexity, if it can be summarized as a  
14 maximum time that they've already evaluated?

15 CHAIRPERSON GRAHAM: Do you have a  
16 time evaluated there, Ms. Swami?

17 MS. SWAMI: Laurie Swami for the  
18 record.

19 No, we don't have a specific time.

20 CHAIRPERSON GRAHAM: Thank you.

21 The next one is Northwatch, Ms.  
22 Lloyd.

23 MS. LLOYD: Thank you, Mr. Chair.  
24 Brennain Lloyd from Northwatch.

25 My question is around the



1 there is substantiation that the EC-6 can  
2 accommodate a 500-metre exclusion zone.

3 MS. LLOYD: Dr. Vecchiarelli,  
4 Attachment 3, you said? I'll have a second look.  
5 I did just go through that document this morning.  
6 So I'll have a second look for the rationale that  
7 discusses it.

8 My second question is around the  
9 rationale that was provided for the other three  
10 potential reactors, and my question is for the ACR-  
11 1000, it sets the discussion in terms of the dose,  
12 but for the EPR, it talks about dose being set at  
13 seven days after an event for determination of the  
14 boundary. And then Westinghouse just adopts --  
15 appears to just have adopted -- for the  
16 Westinghouse discussion, it appears to have just  
17 adopted AREVA's and said it's comparable.

18 I'm not clear on why the site  
19 boundary determination is based on seven days after  
20 an incident or 30 days. There's two reference  
21 points, seven days or 30 days after an incident.

22 Can you help me understand that?

23 CHAIRPERSON GRAHAM: You're  
24 directing that to the Chair, I hope? Thank you.

25 MS. LLOYD: Mr. Graham, if you

1 could help me understand that?

2 CHAIRPERSON GRAHAM: Thank you  
3 very much.

4 I will direct you to someone that  
5 can.

6 MS. LLOYD: Thank you.

7 MR. SWEETNAM: Albert Sweetnam for  
8 the record.

9 A lot of this discussion will be  
10 detailed when we apply for the construction  
11 licence, but in the interim I'll ask Dr. Jack  
12 Vecchiarelli to provide some detail.

13 DR. J. VECCHIARELLI: Jack  
14 Vecchiarelli for the record.

15 So the requirement that has to be  
16 met in RD-337 is for a design basis accident that  
17 the dose be limited to 20 millisieverts for a 30-  
18 day dose.

19 And for all of the designs we  
20 considered, we had to make some rationalizations to  
21 take results that were analyzed in different  
22 jurisdictions over different time periods and we  
23 rationalized that the dose -- a 30-day dose at the  
24 500 metres can be met.

25 The particular details of the

1 discussion around the EPR is included in the Site  
2 Boundary Considerations Report, which is an  
3 accompaniment to the Exclusion Zone Determination  
4 Report submitted with the licence to prepare the  
5 site. And in there, basically you'll find  
6 arguments that indicate that most of the dose for  
7 that 30 days comes from the first week.

8                   And so any additional dose between  
9 seven days and 30 days is relatively small. And so  
10 we can use the EPR value for the dose at seven days  
11 and other supporting arguments to support the 500-  
12 metre exclusion zone with the EPR.

13                   CHAIRPERSON GRAHAM: Thank you.

14                   I guess the reports that Mr.  
15 Vecchiarelli has referred to, if you could check  
16 those, and if you have further questions when other  
17 presenters -- other topics come up, after you've  
18 reviewed them you can see if you have further  
19 questions.

20                   MS. LLOYD: All right.

21                   Ms. Swami did give me -- did point  
22 me in the direction of 105 on the Registry in  
23 response to an earlier question, and that was for  
24 the licence to prepare a site. I wasn't able to  
25 open it on the CEAA registry maybe just because of

1 bandwidth issues, so I've been using the document  
2 directly off OPG's site, but I haven't been able to  
3 find the site boundary documentation document that  
4 Dr. Vecchiarelli just referred to.

5                   So maybe if Ms. Swami wanted to  
6 provide me another sticky note with the place I  
7 could find the site boundary document? That would  
8 be helpful.

9                   CHAIRPERSON GRAHAM: I'll ask our  
10 Secretariat to see if they can assist you.

11                   MS. B. LLOYD: Okay. Thank you.

12                   CHAIRPERSON GRAHAM: And we'll go  
13 on.

14                   Now, thank you very much,  
15 Municipal Affairs. Don't forget your apple.

16                   (LAUGHTER)

17                   CHAIRPERSON GRAHAM: We will now  
18 move to the next presenter this morning. And I'd  
19 like to welcome the Municipality of Kincardine.  
20 And I believe the mayor is here, His Worship. And  
21 I'd like to welcome the mayor.

22                   Mayor Kraemer, the floor is yours.

23 --- PRESENTATION BY MAYOR KRAEMER:

24                   MAYOR KRAEMER: Well, for the  
25 record, I'm Larry Kraemer. I am the mayor of the

1 Municipality of Kincardine. And I would like to  
2 thank Chairman Graham and the Joint Review Panel  
3 for taking the time to hear my submission today.

4 I will be speaking in support of  
5 the OPG application to build new nuclear power  
6 station in the Region of Durham; Clarington more  
7 specifically. And I will be speaking mostly from  
8 the social aspects and as a representative of the  
9 council and Municipality of Kincardine and our  
10 people.

11 Well, we'll start with I think  
12 with the slide show. Will it be able to be seen

13 Thank you.

14 And this is just a view of our  
15 harbour and while it doesn't show it from there, if  
16 you're on the beach just a couple of -- maybe 100  
17 metres from there, you can see the plant in the  
18 distance from downtown in the Town of Kincardine.

19 Many of the people from the GTA  
20 think that Kincardine's in the north, but we're  
21 actually pretty near due west of the city. I have  
22 a population of approximately 12,800 and a total  
23 square area of 252 square miles and the largest  
24 centers in our municipality are the Town of  
25 Kincardine and the Village of Tiverton. Our major

1 industries are nuclear, agriculture, retail and  
2 tourism.

3                               That's an aerial view of the town.  
4 It's approximately 10 miles from the station. And  
5 that's the station as it stands today.

6                               Kincardine is probably -- the  
7 Municipality of Kincardine and Bruce is probably --  
8 is the oldest, longest serving nuclear-host  
9 community in Canada. Our experience started with  
10 Candu's first full-scale power station and it was  
11 built by AECL. And it came into service -- full  
12 service in '68 and continued in operation until  
13 1984.

14                              And there are two stations; both  
15 of them are four-unit stations. And they are both  
16 approximately the same size as the existing station  
17 at Darlington. It's just a little bit bigger in  
18 its generating capacity.

19                              We engage in a regular  
20 communication with the industry. We have a series  
21 of different ways that we do it with the  
22 Municipality of Kincardine, the County of Bruce,  
23 Canadian Association of Nuclear Host Committees;  
24 all of which Kincardine is a member of.

25                              We regularly are in communication

1 Ontario Power Generation, Bruce Power, Nuclear  
2 Waste Management Organization, Canadian Nuclear  
3 Safety Commission and the Canadian Nuclear  
4 Association.

5                               We also are host to Western Waste  
6 Management Facility which is responsible for all of  
7 Ontario's low and intermediate level nuclear waste  
8 as well as interim storage of spent fuel from our  
9 own site.

10                              And Kincardine, we believe, is  
11 leading by example. We work with industry to  
12 develop solutions. And to that end, we approached  
13 OPG to explore options for a permanent solution for  
14 low and intermediate level waste and we believe  
15 next year, there will be a Joint Review Panel which  
16 will be looking at an EA for this.

17                              We approached the industry. It  
18 was a local led initiative to find a permanent  
19 solution for low and intermediate level waste  
20 streams from the Province of Ontario from only OPG-  
21 owned installations and part of that initiative had  
22 us communicating very regularly with our own  
23 people.

24                              We made international visits which  
25 we reported on television locally. We held a

1 series of community open houses right from the  
2 start and they're ongoing today. We had open  
3 debate and decisions at our council which was  
4 televised fully as well as a storefront to explain  
5 everything to our people and a series of polls.

6                   Some of those trips looked at the  
7 best examples of similar facilities around the  
8 world; the Zwiilag facility in Switzerland which is  
9 the top left, the right-hand one which is a model  
10 of Le Centre de l'Aube in France and Forsmark,  
11 Sweden which is a similar facility to ours which  
12 has both nuclear generating station as well as low  
13 and intermediate level storage facility. And we  
14 looked at some U.S. examples the same; more  
15 specifically, Barnwell, South Carolina and  
16 Carlsbad, New Mexico.

17                   And after visiting the  
18 international best examples, we did it in a manner  
19 that looked at both the technical aspect. We asked  
20 the experts that operated as well as the leaders of  
21 the communities and we ended every visit with a  
22 question that would advise us whether or not that  
23 we should proceed with it or not.

24                   And in every case, they all said  
25 that we should which led us to have a -- do polling

1 of all the residents of our area. And it was 74  
2 percent of decided voted in support of going ahead  
3 with the project. And this will lead to -- led to  
4 a hosting agreement in 2004.

5                   You know, one of the reasons I  
6 bring this forward is I believe that what the long-  
7 term plan is will be significant to some of the  
8 decisions that may be made by the Review Panel.

9                   Kincardine has been informed right  
10 from the very start of the Nuclear Waste Management  
11 Organization. We gave -- made presentations to the  
12 federal Natural Resources Committee that set the  
13 NWMO up and we've been involved with it right from  
14 the very beginning. And we support their work and  
15 the principle of adaptive phase management. And we  
16 believe that finding an informed, willing host  
17 community is achievable.

18                   We are members -- and I'm not  
19 going to speak too much to this, but we are members  
20 right from the beginning of the Canadian  
21 Association of Nuclear-Host Communities which  
22 represents all of the nuclear facilities in Canada  
23 and just a few slides showing those facilities.  
24 I'm not going to dwell on them.

25                   And we have experienced many

1 different things like the nuclear issue can be  
2 controversial. But all forms of electrical  
3 generation have both their risks as well as their  
4 detractors. And we just highlight the fact that  
5 not everyone is in support of it. But not everyone  
6 is in support of anything that's being done. And  
7 wind has been one of surprising opposition in our  
8 community; much more so than nuclear.

9                   Going in a little bit in our  
10 history, in the downturn of the economy in the late  
11 '90s, there was a decision made to temporarily  
12 close and possibly close Bruce A.

13                   That resulted in the biggest  
14 protest in our area. Groups were formed to fight  
15 the decision. There's a little picture of them as  
16 they organize and start getting signs out to fight  
17 closing of the local plant. So it just shows the  
18 level of support for nuclear in our area. The  
19 group fought it. It resulted in the largest  
20 protest in our area and it had a major negative  
21 impact on our economy.

22                   In Durham Region and in  
23 Clarington, it's not the only area of the province  
24 that's being looked at for expansion of the nuclear  
25 industry and there have been proposals. They're

1 now delayed because of the -- I think mostly  
2 because of economy and other factors socially.

3                   But a group in Kincardine formed  
4 to support the concept of building a Bruce C which  
5 would have been a third station. And they did some  
6 polling and I thought I'd just share that with you.  
7 And the results of the polls show that -- and it  
8 was done by IPSOS-REID -- that a support for new  
9 build in the community was 81 percent; that the  
10 concept was good news for the community if it  
11 proceeded; 84 percent, good news for jobs and local  
12 economy; 94 percent agreed.

13                   Bruce Power which is the  
14 leaseholder of the plant. It's owned by Ontario  
15 Power Generation but Bruce Power is the operator  
16 and would have been the operator in a Bruce C.

17                   Do they give back to the  
18 community, 82 percent of our residents agreed. And  
19 on the question of was Bruce Power good for the  
20 community, 86 percent agreed.

21                   And some of the economic benefits  
22 that we have experienced and we believe would be  
23 consistent if there was an expansion in Clarington,  
24 that it would result in new, direct and indirect,  
25 induced employment opportunities in the region and

1 local area, would result in new business activities  
2 and opportunities to increase associated spending,  
3 in project employment as well as increased project  
4 expenditures for goods and services.

5                   And that the stimulation of  
6 increased local and regional economic development  
7 would occur during each phase, very consistent with  
8 our experience.

9                   And not directly related to new  
10 build but related to a study that looked at  
11 refurbishment of existing plants, the recent study  
12 found that it would result in almost 25,000 new  
13 jobs, economic activity of over \$5 billion, and  
14 that it would do so for a term from 2014 to 2024  
15 and that the benefits would continue to pretty much  
16 2050.

17                   And we'd just like to acknowledge  
18 with this slide Ontario Power Generation's support  
19 of our community. They've been in our community  
20 for a long, long time. We have an excellent  
21 relationship with them.

22                   They've supported all sorts of  
23 local enterprises and local initiatives, everything  
24 from post-secondary education to bike parks,  
25 Scottish Festival -- I could fill slides and slides

1 and slides here, but I think one gets the message  
2 across good enough.

3                   So, in summary, and I'm going to  
4 need to correct a couple of things on this page,  
5 but nuclear power generation in our area,  
6 basically, has almost a 50-year safety record. And  
7 nuclear waste has been managed in our area for --  
8 it says, "over 50 years," but that's a typo, it  
9 should be "almost 50 years."

10                   The nuclear industry has made  
11 major contribution to our region's economy. And  
12 nuclear power has strong support in our community.

13                   We believe that permanent  
14 solutions to nuclear waste issues are achievable  
15 and, in fact, we are leading the way on that one.  
16 And we believe that Darlington new build will  
17 provide significant economic benefit to the Durham  
18 region and the province and that Ontario Power  
19 Generation's a very experienced nuclear operator.  
20 Them and their successor -- or predecessor company,  
21 operated for many, many years in our municipality  
22 and were always well-received.

23                   This next line should read, "OPG  
24 has safely managed nuclear waste for 40 plus  
25 years."

1                   OPG and host communities have  
2 regular and robust communication channels as was  
3 highlighted earlier in my presentation; it  
4 continues and we expect it to go on for quite some  
5 time.

6                   And OPG has made major investments  
7 in the local economy and is well-respected and, in  
8 our view, OPG is an excellent corporate citizen.

9                   So, in summation, the Municipality  
10 of Kincardine believes the Darlington new build  
11 project will be very positive for the province and  
12 based on our experience and past practice results,  
13 OPG will safely manage the construction operations  
14 and the waste management obligations of their  
15 current facilities and will continue to do so with  
16 the proposed new units at Darlington.

17                   And with permission of the Chair,  
18 there is a previous discussion that I would just  
19 like to highlight a little bit. It had to do with  
20 emergency management.

21                   We weren't going to put it in our  
22 presentation but with the discussion that just  
23 happened, it's really a team effort or a tiered --  
24 oh, I didn't wait for your permission, Mr. Chair,  
25 so -- okay.

1                   It's really a tiered  
2 responsibility and when you get outside of the  
3 fence, as we call it, the operators are responsible  
4 for emergency operations and emergency response  
5 within the confines of the plant.

6                   But as soon as you come out of the  
7 plant, then the municipalities take over. And  
8 there's a really good reason for that, it's they  
9 have the resources and they also have the equipment  
10 and the facilities to host them.

11                  I can't speak specifically to the  
12 Durham plan but I would expect it would operate  
13 similar to our own, and it's very robust, and it's  
14 a process of continual improvement.

15                  The expectation is, because of the  
16 municipality's proximity to the plant, that they  
17 would be the first responders and then it would  
18 then be tiered to response with, in our case, the  
19 county, but I would think that the Durham Region  
20 would be next here.

21                  And then there's a group of  
22 various assets that are brought forward, things  
23 like your fire stations, your public works people.  
24 We have a whole plan that sets up an emergency  
25 operation centre, an emergency communication

1 centre. And then it's coordinated between the  
2 plant, ourselves, Emergency Management Ontario and  
3 the county. And they're very robust.

4 And there's also like a tiered  
5 layer of responsibility identified, in our  
6 experience, starting at the province, but  
7 identified down through the various shareholders in  
8 the event, so, just in brief.

9 Thank you very much.

10 CHAIRPERSON GRAHAM: Thank you  
11 very much for those enlightening remarks and  
12 presentation.

13 I will go now to questions from my  
14 colleagues.

15 Madame Beaudet, do you have any  
16 questions? Madame Beaudet?

17 --- QUESTIONS FROM THE PANEL:

18 MEMBER BEAUDET: Thank you, Mr.  
19 Chairman.

20 From your presentation and the  
21 date you've given us, we have numbers. When you  
22 talk, you refer to the majority of the residents.

23 In your submission -- written  
24 submission which for the record is 11P1.117, on  
25 page 3, you say the majority of the residents

1 support the nuclear development in their community  
2 and now we have from the polling data and other  
3 percentages you've given us, confirms that it is  
4 true.

5                               But, yet, there is a minority that  
6 doesn't. And I would like to go a little bit  
7 further with you on that.

8                               Do you have a system at the  
9 municipality or is it with Bruce Power that has a  
10 complaint mechanism where people who are not happy  
11 with something -- what's the possibility of the  
12 population -- I know you have community programs,  
13 but it's open houses, et cetera.

14                              Do you have in place either a  
15 committee that regroups representation from  
16 citizens? Or is it at the municipality itself that  
17 you have a phone line where people can complain if  
18 there are things that are worrying them or, you  
19 know, there's too much noise or et cetera?

20                              MAYOR L. KRAEMER: Yes, Larry  
21 Kraemer, for the record.

22                              We have both. Our council  
23 sessions themselves are televised and are fully  
24 open to the public, except for those issues which  
25 are protected by provincial legislation.

1                   On our agenda we have an open item  
2 called "Public Forum" where anybody can come in  
3 front of council and state -- take three minutes  
4 and state whatever issue they may have. It is then  
5 directed to any committee or any place where it's  
6 felt to be best dealt with no matter what the issue  
7 is.

8                   The second way is any constituent  
9 can ask to be put on the agenda for the council and  
10 they are then allowed 10 minutes. They can make  
11 written submissions and they can directly engage  
12 our council.

13                   The other way is we have various  
14 committees. We have a Nuclear Liaison Committee  
15 which deals directly between our municipal council  
16 and the industry itself as well as our staff is  
17 very open to it.

18                   And then we have a website which  
19 keeps people very well-informed. And if there's  
20 any major developments then we use local  
21 advertising and local radio and local  
22 communications.

23                   MEMBER BEAUDET: And do you get  
24 many complaints and what is the nature? What are  
25 the percentages of different types of complaints?

1 Do you have statistics on that?

2                   MAYOR KRAEMER: Very, very few  
3 complaints about nuclear. The big hot-button topic  
4 with us right now is wind energy and we've had  
5 multiple major presentations and major concerns and  
6 a whole, I guess, group of people that feel  
7 strongly against the use of wind technology to  
8 generate electricity and are -- we -- that's been  
9 the big thing with us lately and we have special  
10 meetings come up to consider it further.

11                   It's not really -- it has been --  
12 the responsibility has been uploaded to the  
13 province by the province, but we have experienced  
14 major controversy over installation. We have 118  
15 wind turbines installed now and 2 or 3 more  
16 projects. It is a 100 times more prevalent in  
17 people's mind than any issues that -- like I said,  
18 nuclear is very, very strongly supported by our  
19 community.

20                   MEMBER BEAUDET: But what would be  
21 the complaints; what would be the nature of  
22 complaints, the few you get about the nuclear  
23 plant?

24                   MAYOR KRAEMER: It's been a long  
25 time since we really had any.

1                   I think the same type of things  
2   that you would hear around here.  There's a  
3   misconception about it.  There have been not so  
4   much complaints, I think concerns might be better,  
5   about the standard thing about radiation being out  
6   of plant and all that when, really, we have found  
7   life in our municipality no different than any  
8   other area of the province.

9                   MEMBER BEAUDET:  My second  
10   question would be on emergency preparedness, and  
11   you say you have a very robust system.

12                  MAYOR KRAEMER:  M'hm.

13                  MEMBER BEAUDET:  The facilities  
14   that you would provide in case of an evacuation for  
15   people to go to, what would they be; would they be  
16   schools?

17                  Can you elaborate a little bit on  
18   that?

19                  MAYOR L. KRAEMER:  The primary  
20   facility where people would be evacuated to is our  
21   Davidson Centre, which is our recreation centre;  
22   it's 168,000 square feet.  It's a warm-up centre.  
23   It also has cooking facilities and it's set up to  
24   host community events, but it is also the best  
25   place that we have.

1                   We have identified our fire  
2 stations as potential decontamination centres if  
3 that was ever needed. It's never, ever been  
4 needed, but that's it.

5                   We have a dedicated emergency  
6 operations centre that's completely set up with  
7 phone lines. It's hooked up to all of the  
8 emergency response assets that are local as well as  
9 direct communication with the EMO, Emergency  
10 Management Ontario.

11                   We also have an area of our  
12 administration centre that is set up -- or is  
13 identified as the primary communication centre  
14 should there be, you know, a need, for lack of a  
15 better term.

16                   MEMBER BEAUDET: I wasn't trying  
17 to check if you were prepared, it's just  
18 interesting to see, you know, exactly what to  
19 expect.

20                   MAYOR KRAEMER: We do have a very  
21 robust plan. If the panel wanted a copy of it, we  
22 could forward it to you, that's no problem.

23                   MEMBER BEAUDET: No, that's okay,  
24 thank you.

25                   CHAIRPERSON GRAHAM: Mr. Pereira?

1                                   MEMBER PEREIRA: Thank you, Mr.  
2 Chairman.

3                                   I'd like to switch to the reaction  
4 in your community to the transport of waste to the  
5 Western Waste Management Facility. Clearly,  
6 there's waste shipped in, low- and intermediate-  
7 level waste shipped in from Pickering and  
8 Darlington for storage at the Western Waste  
9 Management Facility.

10                                  What's the reaction of your  
11 community? Have there been any problems  
12 encountered with the transport of waste into the  
13 facility?

14                                  MAYOR KRAEMER: Well, thank you  
15 for the question. Larry Kraemer, for the record.

16                                  It's really a non-issue, and one  
17 of the big things about low- and intermediate-level  
18 waste, which is high in the media's radar right  
19 now, is the steam generators. They've become very  
20 high profile.

21                                  The technology and the  
22 understanding is so well understood and such a part  
23 of our community that there's really no issue  
24 whatsoever locally within the Bruce County  
25 communities.

1                   We had updates before it ever  
2 happened. Bruce Power came into county council and  
3 gave a full presentation of the plan including  
4 shipping routes and everything, and only because it  
5 was outside of the norm, we have shipments every  
6 day pretty well to the Bruce. There was  
7 presentations made to all community councils. Our  
8 council fully supported it, passed resolution in  
9 support of the plan.

10                   I don't know what else I can say,  
11 but it's very well accepted.

12                   MEMBER PEREIRA: Thank you that.

13                   I was not focusing on the steam  
14 generators but more the regular shipments of low-  
15 and intermediate-level waste. Have there been any  
16 incidents or transportation accidents that have  
17 caused concern in the community?

18                   MAYOR KRAEMER: Not within our  
19 community, no. Not within our community in my  
20 time.

21                   MEMBER PEREIRA: Thank you.

22                   I'll just follow-up on the line of  
23 questioning from Madam Beaudet.

24                   She talked about community  
25 concerns about nuclear power. In your surveys, you

1 report a high level of support for nuclear power --  
2 nuclear industry in your community.

3 Have you an idea of the positions  
4 of those who did not support it? What were there  
5 primary reasons why they wouldn't support nuclear?

6 MAYOR KRAEMER: No, I haven't.

7 I believe that they would be  
8 consistent though with what you may hear here.

9 I think, to me, most of it has to  
10 do with a misunderstanding of the technology. I  
11 don't speak as an expert on this, I speak as an  
12 elected official, but mostly I believe it's on a  
13 misunderstanding of how it works and, you know,  
14 some of the -- I guess some of the presentations in  
15 the press that expand on some of the smaller issues  
16 and tend to magnify them.

17 MEMBER PEREIRA: Thank you.

18 CHAIRPERSON GRAHAM: Thank you.

19 Now, we'll move to questions from  
20 OPG. Do you have anything to question His Worship  
21 on?

22 --- QUESTIONS BY THE INTERVENORS:

23 MR. SWEETNAM: Albert Sweetnam,  
24 for the record.

25 We have no questions.

1 CHAIRPERSON GRAHAM: We'll move  
2 now to CNSC. CNSC, do you have any questions?

3 MR. HOWDEN: Barclay Howden.  
4 We have no questions.

5 CHAIRPERSON GRAHAM: Government  
6 officials from various departments, federal and  
7 provincial, is there anyone wishing to ask  
8 questions?

9 I see none.

10 Then I'll move now to Northwatch.

11 MS. LLOYD: Thank you, Mr. Chair.  
12 Brennain Lloyd from Northwatch.

13 I'm wondering, the DTR, there's a  
14 hosting agreement, which I know the panel's  
15 familiar with, between Ontario Power Generation and  
16 the Municipality of Kincardine with respect to low-  
17 and intermediate-level waste.

18 And Section 5 is specific about  
19 low- and intermediate-level waste being generated  
20 from new nuclear generating facilities such as the  
21 one being proposed by the Ontario Power Generation  
22 for Darlington.

23 And Section 5.2.4 talks about  
24 Kincardine's share of payments being decreased if  
25 Ontario Power Generation determines that Kincardine

1 is not, in good faith, exercising best efforts to  
2 support the receipt of low- and intermediate-level  
3 waste from new nuclear generating stations.

4                                   And I'm wondering if Mayor Kraemer  
5 could give us some sense of how much that loss of  
6 revenue to the Municipality of Kincardine for  
7 failing to demonstrate support for new waste from  
8 the Darlington project coming to the DGR -- coming  
9 to his municipality factored into his decision to  
10 attend today, and what points were most important  
11 for him to share with you?

12                                   CHAIRPERSON GRAHAM: Madam Lloyd,  
13 I think you're asking for something that I don't  
14 think is relevant.

15                                   And I don't want to get  
16 argumentative, but you're asking for an opinion  
17 from the Mayor why he came. I believe his  
18 overheads and his presentation here spoke for  
19 themselves.

20                                   I don't want to get into a debate  
21 with the Mayor or anyone else as to were they  
22 motivated by money.

23                                   MS. LLOYD: Thank you, Mr. Graham.

24                                   CHAIRPERSON GRAHAM: My next  
25 intervenor then is Mr. Kalevar.

1                   MAYOR KAVELOR: Mr. Mayor, are you  
2 in some sense ---

3                   CHAIRPERSON GRAHAM: Mr. Kavelor,  
4 if you could direct to the chair, not to the Mayor.

5                   MAYOR KAVELOR: Yeah, Mr. Mayor  
6 through the chair.

7                   I'm Chaitanya Kavelor, for the  
8 record, from Just One World.

9                   I would like to know if you know  
10 what is the lifetime of the nuclear waste?

11                  CHAIRPERSON GRAHAM: I'm sure the  
12 Mayor may want to answer but I think that probably  
13 is a better question to refer to ---

14                  MAYOR KAVELOR: No, I ---

15                  CHAIRPERSON GRAHAM: I mean  
16 the Mayor came here ---

17                  MAYOR KAVELOR: He's the host --  
18 he's the host of the risk, so I would like to know.

19                  CHAIRPERSON GRAHAM: He came --  
20 yes, but he came -- and I think you're referring to  
21 the DGR which is not what we're talking about  
22 today. We're here about the Darlington new build  
23 and the DGR -- are you talking about the life  
24 expectancy of the waste in the DGR or are you  
25 talking about life expectancy of material that will

1 go to Western Waste Management Facility?

2 MAYOR KAVELOR: I'm talking about  
3 a life of the nuclear waste that he is hosting in  
4 his municipality about which he spoke in his  
5 presentation.

6 CHAIRPERSON GRAHAM: I don't want  
7 to cut you off so I'm going to look for -- I'm  
8 going to go to CNSC and just ask, the life of  
9 nuclear waste, it varies on what types of waste it  
10 is and so on. So to perhaps answer, unless you  
11 have the science to answer that, maybe our staff  
12 could just, in a quick version answer what life is,  
13 half-life and so on, just for the benefit of the  
14 question.

15 MR. HOWDEN: Thank you. Barclay  
16 Howden speaking.

17 The waste is characterized into  
18 low, intermediate and high-level waste and that is  
19 determined by the characteristics, the form of the  
20 waste.

21 I don't have all the technical  
22 details. On Tuesday our waste people will be here  
23 for the waste day and would be able to provide the  
24 details if desired.

25 CHAIRPERSON GRAHAM: Is that

1 satisfactory, Mr. Kavelor?

2 MAYOR KAVELOR: No, I would like  
3 to hear from the Mayor because he's the host and he  
4 spoke about it today on the slides. I mean he  
5 should give some numbers, some idea.

6 If he is speaking from ignorance  
7 let him say so.

8 CHAIRPERSON GRAHAM: The Mayor  
9 came with the presentation and I accept his  
10 presentation and ---

11 MAYOR KAVELOR: So do I but I  
12 question it too.

13 CHAIRPERSON GRAHAM: --- and we  
14 said we would give you the -- when the day comes up  
15 on waste and I think that would be more relevantly  
16 answered.

17 Thank you very much.

18 MR. Kavelor, I've spoken to that,  
19 we now have Mr. Haskell.

20 Mr. Haskell?

21 MR. HASKELL: Thank you, Mr.  
22 Chairman. My name is Sanford Haskell; I reside in  
23 the Town of Port Hope.

24 My question is directed to you,  
25 sir.

1                   A number of months ago I was in  
2 Ottawa to a hearing, you approved -- your vote was  
3 one of them that approved the steam generators  
4 going down Lake Ontario. When I read this  
5 gentleman's speech from up in the bushes, I'll call  
6 it, up in God's country, is the way to get rid of  
7 nuclear waste is to ship it out somewhere.

8                   Because if this stuff, they can  
9 store it so easily, why were those generators being  
10 shipped and are we, as being a host of one of the  
11 biggest nuclear dumpsites in the world, are we  
12 going to be getting all that stuff from Kincardine  
13 shipped down to the Welcome Waste Management site  
14 which you again approved, sir? Could you please  
15 answer me?

16                   CHAIRPERSON GRAHAM: Yes, I'll  
17 answer it in this way; that is not relevant to this  
18 session. You're referring to steam generators.  
19 We're here today as a panel to hear presentations  
20 with regard to the new build at Darlington. And  
21 what went on at CNSC hearings prior to this, I will  
22 not answer those today because they're not  
23 relevant, they're out of order.

24                   Thank you very much.

25                   We will now go to the next group

1 of -- oh by the way, thank you very much, Your  
2 Worship, for coming here today.

3 MAYOR KRAEMER: Thank you, Mr.  
4 Chairman.

5 CHAIRPERSON GRAHAM: I'll give a  
6 minute or so for the Municipality of Clarington to  
7 come forward, along with the Mayor, today is Mayor  
8 Foster and I believe there are some other people  
9 that the Mayor's Worship may want to introduce.

10 (SHORT PAUSE)

11 CHAIRPERSON GRAHAM: Mayor Foster,  
12 the floor is yours.

13 MAYOR FOSTER: Thank you. I'm  
14 Adrian Foster, Mayor of Clarington.

15 Mr. Chair, Members of the Board,  
16 on behalf council and our community I want to  
17 welcome you to our home.

18 I'm pleased to be here today to  
19 address the potential for Darlington nuclear new  
20 build. Bienvenue.

21 I'll mention that we also have our  
22 two regional councillors, Councillor Mary Novak and  
23 Councillor Willie Woo in attendance.

24 With me are senior staff members,  
25 to my right, Fire Chief Gord Weir; to his immediate

1 right is the Director of Engineering Services, Tony  
2 Cannella. To my left is the Director of Planning  
3 Services David Crome and beside him is the Director  
4 of Finance, Nancy Taylor.

5                   The panel should also be aware  
6 that two additional staff that have been highly  
7 involved with the review of the EIS are with us  
8 today, Senior Planner Jenna Schwartz and the  
9 Manager of Special Projects, Faye Langmaid.

10 --- PRESENTATION BY MAYOR FOSTER:

11                   MAYOR FOSTER: As part of our  
12 written submission, I believe you received two key  
13 reports that were endorsed by council; the peer  
14 review comments on the draft EIS and our response  
15 to the information request by the panel.

16                   This morning I'll briefly address  
17 the topics outlined on the slide. There are some  
18 issues which I'm going to spend more time  
19 addressing as they are important to the  
20 municipality and we believe also to you.

21                   As a host Clarington council has a  
22 vital interest ensuring the safety of our citizens.  
23 Clarington is involved in many issues that other  
24 municipalities do not deal with.

25                   We know a great deal about the

1 blast schedule techniques and sequencing that  
2 happens at St-Mary's. We also know how nuclear  
3 power affects our community. The safety standards  
4 and procedure for the plant, issues surrounding the  
5 storage of high-level radioactive material on an  
6 interim basis here at Darlington, and low-level  
7 radioactive waste at Port Granby, the legacy left  
8 by Eldorado.

9                               Every municipality has special  
10 circumstances, these are ours.

11                              The Darlington Nuclear Generating  
12 Station has been in Clarington since the early  
13 eighties, it is a positive presence in our  
14 community and we anticipate this will continue for  
15 many years.

16                             OPG provides annual presentations  
17 and reports to council, we have a good working  
18 relationship, both at the political level and at  
19 the staff level.

20                             That working relationship enabled  
21 the collaborative process that we undertook for the  
22 peer review of OPG's environmental impact statement  
23 for the application that is before you now.

24                             OPG has the community's  
25 confidence, this has been built over years of

1 superb performance, community liaison and outreach  
2 by OPG.

3                   The children of Clarington grow up  
4 visiting Darlington, they play soccer on the fields  
5 adjacent to the plant and they have trust in the  
6 nuclear industry.

7                   As a host who are we? Clarington  
8 came into being in 1974. It's the former Townships  
9 of Clarke and Darlington and a lower tier  
10 municipality, one of the eight municipalities in  
11 Durham region.

12                   We have four urban areas,  
13 Newcastle to the east, Orono to the north,  
14 Bowmanville and Courtice are on either side of the  
15 new build location, next to Darlington Nuclear  
16 Generating Station.

17                   Our land base is 612 square  
18 kilometres. Not surprising, our largest industry  
19 is agriculture, St-Mary's Cement and OPG are our  
20 major employers, along with the Bowmanville  
21 Hospital Campus.

22                   In terms of legislative abilities,  
23 within the two-tier government and structure the  
24 municipality exercises a broad range of  
25 responsibilities under authority provided by a

1 number of provincial statues that relate directly  
2 and indirectly to proposed new build.

3                   The *Municipal Act* grants us powers  
4 for borrowing money for capital expenditures,  
5 economic development and tourism, maintenance of  
6 the local road network, parks and recreational  
7 services.

8                   *Highway Traffic Act*; traffic  
9 routing, the Ontario Building Code, the review of  
10 building applications and issuance of permits.

11                   These are the services that the  
12 municipality provides that contribute to the  
13 quality of life our citizens enjoy. These services  
14 are funded from the tax levy imposed by the  
15 municipality.

16                   And I'm sorry; I've just been  
17 notified that Councillor Ron Hooper, one of our  
18 local councillors, has also joined us.

19                   The legislative framework for land  
20 use: Because of the powers provided under the  
21 *Planning Act* Clarington is responsible for  
22 community and land use planning at the local level.

23                   Our Official Plans, zoning bylaws  
24 and site plan control: Clarington's land use  
25 planning has to be in conformity with provincial

1 regulations, such as places to grow mentioned in  
2 the previous presentation by MMAH, and the regional  
3 official plan for Durham Region.

4                   At a broad level the planning  
5 theory behind Clarington's Official Plan is to  
6 reinforce and concentrate the growth and  
7 development in the three urban centres, Curtis,  
8 Bowmanville, and Newcastle, and to protect the  
9 agricultural and environmental land surrounding our  
10 urban areas, villages and hamlets.

11                   The Official Plan has been in  
12 place since 1996 and at the time of its writing set  
13 a new standard for the inclusion of natural  
14 environment protection and sustainable development  
15 policies.

16                   The major green spaces between  
17 Curtis, Bowmanville and Newcastle are in both the  
18 Durham Region Official Plan and Clarington's  
19 Official Plan. The intention of these open spaces  
20 is to act as the lungs between the urban areas.

21                   The major transportation corridors  
22 are the 401 and Highway 35/115. The 407 corridor,  
23 as you've heard, will connect south to the 401 and  
24 east to 35/115. GO Transit is being extended to  
25 Bowmanville along the CP Rail line. There is a

1 regional grid of roads that interconnect with these  
2 highways.

3                   The local road network services  
4 the urban and agricultural lands within the  
5 municipality, including the new build site. We  
6 have two major business parks under development,  
7 the technology business park on the east side of  
8 Bowmanville and the Clarington energy business park  
9 just west of OPG new build site.

10                   The Darlington station and new  
11 build are ideally situated between Curtis and  
12 Bowmanville south of the 401 on the lake. The land  
13 use that surround the site are, for the most part,  
14 industrial, commercial and green space. The  
15 closest residences are just under two kilometres  
16 away.

17                   The Clarington energy business  
18 park to the west of the site is envisioned as a  
19 cluster development for energy related businesses.  
20 In fact, one of the first developments in the  
21 business park is by OPG, their training facility  
22 offices and interpretation centre.

23                   With regard to sensitive land uses  
24 such as daycares, schools and seniors homes, there  
25 are none existing or planned within two kilometres.

1 Daycares are allowed as an accessory use to the  
2 offices in the Clarington energy business park.  
3 The business park is beyond two kilometres. The  
4 closest school is 2.2 kilometres. The closest  
5 seniors' facility is 3.4 kilometres. All of these  
6 distances are as the crow flies.

7                   In terms of emergency plans, the  
8 Municipality of Clarington has a responsibility to  
9 develop and implement emergency management programs  
10 under the *Emergency Plans Act*, the *Fire Prevention*  
11 *and Protection Act*, Ontario Fire Code.

12                   Clarington's emergency plan  
13 prescribes the emergency organization and the  
14 response management to be implemented within  
15 Clarington.

16                   We work with the Durham Emergency  
17 Measures office and have a framework document for  
18 responding to any type of emergency. It outlines  
19 the policy of emergency management, response  
20 strategies, operation, roles and responsibilities.  
21 The emergency plan is reviewed annually and updated  
22 as necessary. We also have training sessions and  
23 practice exercises annually.

24                   In partnership with OPG, the fire  
25 and emergency services have a cross-training

1 program for both Clarington staff and OPG staff in  
2 case of a nuclear emergency.

3 The evacuation plans and modelling  
4 that have been developed by OPG have included input  
5 and review by Clarington transportation planning,  
6 operations and emergency services staff.

7 The Bowmanville hospital is 4.7  
8 kilometres away. It and Lakeridge Health Oshawa  
9 have set guidelines and procedures to follow during  
10 crisis situations such as radiation exposure.

11 Lakeridge Health has specialized teams that have  
12 been trained in the use of decontamination  
13 equipment and are responsible for setting up areas  
14 inside and outside the hospital to ensure the  
15 safety of all patients and staff.

16 In terms of our strategic  
17 direction, Clarington's population is currently  
18 estimated at 86,000 with some 30,000 households.  
19 We are one of the fastest growing municipalities  
20 within the GTA and Southern Ontario. We're an  
21 urban and rural mix and the combination of these  
22 two is both our identity and our strength.

23 The vision for Clarington and  
24 where we want to be in 20 years is articulated by  
25 both our economic development strategy and our

1 Official Plan.

2                                 Residents have told us, and the  
3 public opinion surveys carried out in 1993 and  
4 2008, that they enjoy the urban/rural mix, the  
5 countryside character and historic downtowns, quick  
6 access to community amenities, affordable housing  
7 and feelings of safety and security.

8                                 Clarington has to work hard at  
9 attracting new business and employers so that our  
10 commercial/industrial tax base grows and allows us  
11 to maintain the services we provide to residents.  
12 This will only be possible if we can achieve the  
13 higher jobs to population ratio.

14                                 One of the planks of our economic  
15 development strategy is to attract jobs to  
16 Clarington. The two business parks have been  
17 created and the planning framework is in place to  
18 allow them to develop. One business park is  
19 focused on the energy sector the other on  
20 technology. Both have begun development.

21                                 In each case a founding business  
22 is located in the park and are taking on the  
23 leading roles in promoting and assisting in the  
24 marketing and development of the business parks.

25                                 This chart and the next couple

1 tell the story of what is forecast for our future.  
2 The population of the area is anticipated to grow  
3 to 140,000 by 2031. The planning horizon in the  
4 region and Clarington's official plans, I believe  
5 that date was noted by MMAH as well.

6 By community, while there's been  
7 significant growth in Curtis -- that is the area to  
8 the immediate west -- in the past 25 years it is  
9 levelling out. Bowmanville is envisioned as the  
10 dominant urban centre in Clarington and its growth  
11 will continue through development of the existing  
12 green fields within the urban boundary.

13 As part of Clarington's growth  
14 management the existing urban boundaries that have  
15 been established since 1996 are not being expanded.  
16 There is sufficient room within the urban  
17 boundaries to accommodate growth for the next 20  
18 years and beyond.

19 Where job creation is concerned,  
20 as population is growing we have allocated  
21 industrial and commercial areas for employment  
22 growth and if requested additional employment lands  
23 be added.

24 Currently Clarington has a job  
25 ratio of one to four. While we have 86,000 people

1 in Clarington more than 50 percent of our workforce  
2 commute to jobs outside of the municipality. We  
3 are working towards a more sustainable pattern and  
4 have established a target of one to three jobs to  
5 population ratio.

6 OPG is one of our major employers  
7 and the new build would assist in helping achieve  
8 this jobs to population ratio. Our target is  
9 20,000 additional jobs in 20 years. New build is  
10 estimated to provide 3,500 jobs during construction  
11 for four to six years and then 1,400 once  
12 operational if two units are built; the numbers  
13 double if four units are built.

14 In terms of growth management,  
15 while Clarington has large areas of green space and  
16 agricultural lands these areas are not potential  
17 areas for future residential growth. The northern  
18 portion of Clarington is the Oakridge's Moraine and  
19 is subject to the Oakridge's Moraine conservation  
20 plan. The greenbelt encompasses the Oakridge's  
21 Moraine and lands south of that, except for the  
22 urban areas and whitebelt lands. The greenbelt  
23 policies apply to 81 percent of Clarington. The  
24 whitebelt land separating our urban areas are some  
25 of the best agricultural lands in Southern Ontario.

1                   It is very important to Clarington  
2 that agriculture, our largest industry, is allowed  
3 to continue to prosper. We have to strike the  
4 right balance between urban and rural, and while  
5 there is pressure to allow expansion into the  
6 whitebelt lands there is no justification to do so  
7 for at least 20 years.

8                   Should expansion into the  
9 whitebelt occur it would first be to the east of  
10 Bowmanville where the servicing infrastructure is  
11 easily expanded. Bowmanville's west side is  
12 constrained by infrastructure capacity and the  
13 physical constraints of a large drumlin. Curtis is  
14 constrained by the 407 east link.

15                   Our experience with nuclear: The  
16 Darlington station has been a significant part of  
17 Clarington since the 1980s. It has provided  
18 positive benefits to our community with minimal  
19 impact on the natural, social and cultural  
20 environments. We have experience with the effects  
21 of construction and operation of a nuclear power  
22 plant. Both phases have different requirements but  
23 are manageable. We have been diligently preparing  
24 for new build.

25                   Clarington staff participate in

1 the Durham Nuclear Health Committee, which includes  
2 regular updates from OPG staff and the Port Hope  
3 Area Initiative. Senior staff are part of the  
4 Darlington Planning and Infrastructure Information  
5 Sharing Committee. Council and staff participate  
6 in the licensing hearings and participate with OPG  
7 on the various EAs where appropriate. Council has  
8 representatives on the site planning committee;  
9 Clarington participates in the Nuclear Waste  
10 Management Organization; and our CAO, Frank Lou, is  
11 the Secretary of the Canadian Association of  
12 Nuclear Host Communities.

13 We understand the meaning of  
14 hosting a nuclear power plant.

15 Most importantly, the community  
16 knows what nuclear power generation is and are  
17 supportive. OPG maintains a beneficial presence in  
18 the community and provides regular communications  
19 to our residents.

20 In short, they have always been  
21 willing to listen and participate with community  
22 members and residents and resolve issues when they  
23 arise.

24 The peer review of the EIS. For  
25 the EIS, the municipality retained the consulting

1 firm of Morrison Hershfield in January 2009 with  
2 funding provided by OPG. This peer review was of  
3 the first draft EIS prior to submission to the  
4 CEAA.

5                   Based on the discussion, questions  
6 and comments between OPG staff, their consultants,  
7 the peer reviewers and Clarington staff,  
8 substantive revisions were made in draft EIS.

9                   There was a dispositioning process  
10 of the comments to ensure sign-off of the issues  
11 identified by all involved. While there is always  
12 room for a scientific and methodological debate,  
13 eventually there was resolution.

14                   The peer review found that OPG had  
15 comprehensively addressed all aspects of the  
16 nuclear development project. Council approved the  
17 final peer review report in July 2009 as the  
18 municipality's comments on the draft EIS.

19                   Some key issues: There were key  
20 issues that the municipality would like the Joint  
21 Review Panel to be aware of.

22                   During the municipal peer review,  
23 Clarington requested and OPG agreed to undertake an  
24 additional traffic analysis over an enhanced study  
25 area to help identify impacts to the road

1 transportation network and outline improvements to  
2 be implemented to the road network.

3 This work has been completed to  
4 the satisfaction of the Municipality of Clarington.

5 OPG and Clarington negotiated a  
6 host community -- a host municipality agreement  
7 regarding the new nuclear at Darlington project.  
8 The HMA addresses potential environmental effects  
9 on recreational features such as the waterfront  
10 trail and the soccer fields; traffic and road  
11 impacts; emergency preparedness and fire  
12 protection; municipal fees, charges, property  
13 taxes; and socioeconomic considerations.

14 It addresses matters such as a  
15 financial contribution to the municipal emergency  
16 operation centre and acknowledges that there may be  
17 additional and varying road and traffic impacts to  
18 Clarington.

19 The municipality's peer review did  
20 not address the issue of radioactive waste that  
21 would be created through a new build. The EIS  
22 states that high level nuclear waste, i.e. used  
23 fuel, is proposed to be managed in a manner similar  
24 to that used at the existing Darlington Nuclear  
25 Generating Station.

1                   OPG has demonstrated an exemplary  
2 record with the management of both the low- and  
3 intermediate-level waste and the spent fuel rods at  
4 the existing Darlington Nuclear Station, and the  
5 municipality is confident that waste from new build  
6 will be managed in a similar fashion.

7                   The municipality is also confident  
8 that nuclear waste management organization will be  
9 successful in developing and implementing a long-  
10 term solution for the management of used nuclear  
11 fuel.

12                   Continuing on key issues;  
13 condenser cooling technology. OPG has identified  
14 once-through lake water cooling as its preferred  
15 approach to providing condenser cooling for the new  
16 build project.

17                   This decision was based on a  
18 comparative analysis of each approach that  
19 determined, on balance, that once-through cooling  
20 had fewer adverse impacts on the environment than  
21 cooling towers.

22                   Clarington's peer reviewers agreed  
23 with this analysis.

24                   In June 2010, the Council of the  
25 Municipality of Clarington strongly urged the Joint

1 Review Panel to give appropriate consideration to  
2 the negative socioeconomic effects on the  
3 municipality and Durham Region that would result  
4 from the construction and operation of cooling  
5 towers for new build project. I would like to take  
6 a few minutes to address this issue.

7                   Our peer review did not address  
8 the socioeconomic impacts of the alternate cooling  
9 technologies because once-through lake cooling is  
10 the preferred option identified by OPG. Clarington  
11 has submitted written comments on the cooling  
12 technologies and their impacts on the community.

13                   The municipality is concerned with  
14 the potential socioeconomic impacts of cooling  
15 tower and condensers such as those portrayed in the  
16 photos. Cooling towers and condensers will have an  
17 impact on the traffic issues and local road  
18 network.

19                   The amount of excavated material  
20 that will be transported off site by trucks is  
21 estimated for the maximum excavation scenario  
22 involving cooling towers at 200 truck trips per  
23 day. That's 400-round trip, return trips, for up  
24 to three and a half years.

25                   OPG identified once-through lake

1 cooling as the preferred approach and part of their  
2 reason for this decision was that it meant a lower  
3 volume of truck traffic on municipal roads along  
4 with reduced nuisance and safety impacts on  
5 residents of Clarington.

6                   The municipality understands that  
7 there will be aquatic impacts associated with the  
8 once-through cooling option; however, we urge the  
9 panel to give equal consideration to the  
10 significant and very real impacts to the community  
11 character that would be created by the construction  
12 and operation of cooling towers at the Darlington  
13 site.

14                   The plume from the cooling tower  
15 would be visible 800 metres above the site  
16 approximately 80 to 90 percent of the time.  
17 Although the plumes would consist of only water  
18 vapour, there can be a misperception among some  
19 members of the public that the plumes would contain  
20 radioactive material. These plumes could make  
21 Clarington less attractive to tourists, businesses  
22 and residents from outside the community that are  
23 looking to relocate.

24                   Clarington supports the preferred  
25 option of OPG, the once-through lake cooling.

1                   In terms of public support, as  
2 Council, elected representatives of the people of  
3 Clarington, we have listened to our constituents  
4 and can with confidence tell you the community has  
5 been actively engaged, they are aware and they are  
6 comfortable with nuclear.

7                   The peer review undertaken by the  
8 municipality on the draft EIS for the new build  
9 project allowed for the EIS to be substantially  
10 revised to address the municipality's concerns  
11 prior to its submission to the Joint Review Panel.

12                   The municipality supports the  
13 conclusions and the proposed mitigation measures  
14 provided in the EIS prepared by OPG.

15                   The community and municipality  
16 will derive benefit from new build and increased  
17 benefits from OPG being part of the community.

18                   The next steps: In summation, new  
19 nuclear is significant part of our economic  
20 development strategy, as are energy-related  
21 businesses. The cluster development to the west  
22 and adjacent to the Darlington nuclear plant and  
23 the Clarington Energy Business Park is a major  
24 focus that OPG is an integral part of.

25                   The joint planning undertaken by

1 our Emergency Services Department in cooperation  
2 with DMO and OPG ensures that we are prepared for  
3 unplanned incidents.

4 This working relationship is  
5 continually developed over the years and become a  
6 much envied collaboration between large industry  
7 and the municipality. It continues to improve.

8 Should you have any questions  
9 regarding municipal preparedness and our planning  
10 for emergencies, our fire chief would be happy to  
11 respond. The municipality and the region have been  
12 working together to ensure that the community  
13 infrastructure will be ready to welcome the  
14 professionals, construction workers, crews and  
15 activity that will be part of this major project.

16 Clarington is proud to be a  
17 nuclear host community.

18 Thank you.

19 CHAIRMAN GRAHAM: Thank you very  
20 much, Your Worship.

21 We'll move in to questions. First  
22 questions to panel members, Mr. Pereira.

23 --- QUESTIONS BY THE PANEL:

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

1                   You mentioned emergency  
2 preparedness, and I guess with the current nuclear  
3 generating facilities there have been emergency  
4 exercises from time to time.

5                   What has been Clarington's  
6 experience with those exercises? Have they been  
7 effective means of evaluating your capacity and  
8 improving?

9                   What lessons have you learned?

10                  MR. WEIR: For the record, Gord  
11 Weir.

12                  Yeah. Just recently, I believe in  
13 the last month, we did run another exercise with  
14 them. I believe the CNSC was involved. But from  
15 those joint exercises we run annually along with  
16 cross-training, both our staff and OPG staff have  
17 built a better working relationship together and,  
18 you know, after the critiques of -- generally  
19 things never go bad but we can improve on  
20 activations and responses, and we look at all those  
21 things to review and plan on our next training  
22 sessions.

23                  MEMBER PEREIRA: And how often  
24 would those exercises be held?

25                  MR. WEIR: Exercises with our

1 staff, we train -- we co-train with OPG staff, not  
2 just on site, but also in Wesleyville at their  
3 training facility. That's ongoing all year, often  
4 -- numerous times per year.

5 Often, though, there's at least  
6 one or two training exercises at the site, some  
7 that are, I guess, monitored by the CNSC and some  
8 that are not.

9 As well as we do station tours  
10 with our staff so that they become fairly familiar  
11 with the different components of the plant.

12 MEMBER PEREIRA: Thank you.

13 Now, switch to the issue of  
14 cooling towers and the concern expressed in the  
15 community about cooling towers. Is the primary  
16 concern the matter plumes, or what is it?

17 MAYOR FOSTER: Adrian Foster for  
18 the record.

19 It's both the plumes and the sheer  
20 mass of the towers themselves. So as you come into  
21 Clarington, which is the eastern gateway to the  
22 GTA, we have a significant structure, which is St.  
23 Mary's. That's there already.

24 The plant is well hidden at this  
25 point from the 401, but those towers would be

1 significant massive structures on their own. And  
2 the plumes, of course, would simply add to that.

3

4                                 So it -- you would end up with a  
5 distinct impression as you came into Durham and  
6 Clarington.

7                                 MEMBER PEREIRA: Thank you.

8                                 You indicate in your presentation  
9 that there's broad support in Clarington for the  
10 new nuclear project.

11                                Are there any sectors of your  
12 community that are not in favour of this  
13 development? And if they are not, do you have any  
14 view of why they wouldn't be supportive?

15                                MAYOR FOSTER: Adrian Foster for  
16 the record.

17                                We've gone through a number  
18 exercises, most recently some public surveys on our  
19 strategic plan, and, of course, we've had a number  
20 of open exercises here with the -- with the  
21 proposed new build, that would show a significant  
22 amount of community support.

23                                So this is part of our economic  
24 plank. It's part of our economic development  
25 process.

1                   As a matter of fact, in the recent  
2 election, it was highlighted very clearly, I think,  
3 amongst all candidates.

4                   In terms of the folks that are not  
5 supportive, I can say that in -- over the past  
6 seven years as a municipal politician, I can't  
7 think of any formal concern that I've heard.

8                   We've certainly heard concerns,  
9 very few. Some would be the, you know,  
10 environmental concerns that are typical, and some  
11 would be financial concerns sort of in general over  
12 nuclear.

13                   But I would suggest that they have  
14 been a handful.

15                   MEMBER PEREIRA: Thank you.

16                   And in terms of public  
17 information, do you believe that you're -- in the  
18 municipality there has been a good outreach on the  
19 part of Ontario Power Generation to explain to the  
20 community the nature of the new development and --  
21 and the impact it will have on the community in the  
22 construction phase and then beyond?

23                   MAYOR FOSTER: Adrian Foster for  
24 the record.

25                   Yes, I do believe -- I believe

1 there's been excellent outreach.

2                   If anything, I would suggest that  
3 the average person in the community underestimates  
4 the economic benefits, so when we talk about that  
5 while people are enthusiastic and looking forward  
6 to it, they don't understand the magnitude of what  
7 may be coming here.

8                   MEMBER PEREIRA: A final one for  
9 me.

10                   In the presentation from the  
11 Ministry of Municipal and Housing Affairs, we  
12 talked about controls that might put in place in  
13 terms of what would be developed around the site.  
14 And I see from one of your slide decks is what is  
15 traditionally at the municipality level, zoning  
16 bylaws, and site plan controls. Are those the  
17 primary measures by which one might control what is  
18 built in the vicinity of the station?

19                   MAYOR FOSTER: Adrian Foster for  
20 the record.

21                   I'm going to let our director of  
22 planning address that one.

23                   MR. CROME: David Crome for the  
24 record.

25                   Our primary land use control is

1 the official plan, which provides the policy  
2 direction. An official plan is eventually  
3 formulated into a zoning bylaw which becomes your  
4 official land use rights.

5 But from a policy perspective,  
6 it's the official plan which is the governing  
7 document.

8 MEMBER PEREIRA: Has the plan got  
9 a legislative control basis? Is it mandatory to  
10 have a control? What's the legal instrument for --  
11 for arresting or controlling developments that  
12 might not fit in with the goals of safety,  
13 protecting health and safety?

14 MR. CROME: David Crome for the  
15 record.

16 Any development in the  
17 municipality has to be in conformity with the  
18 official plan, including the municipality's own  
19 development, any public works the municipality  
20 does, so -- so I don't know if that answers your  
21 question, but that's exactly what it's there for.

22 CHAIRPERSON GRAHAM: Madam  
23 Beaudet?

24 MEMBER BEAUDET: Thank you, Mr.  
25 Chairman.

1                   I'd like to come back on the point  
2 that you have raised today and also in your  
3 submission. And for the record, it's 11-P1.15 on  
4 page 6, but you've expressed the same thing today,  
5 saying that you are worried that the -- the JRP is  
6 not getting a balanced perspective with respect to  
7 cooling towers.

8                   I can assure you -- I mean, this  
9 is probably -- I've done two dozens of commissions,  
10 and there isn't one stone of a river that I don't  
11 overturn to see what's under.

12                   We have been on -- on this site in  
13 your municipality to check the visual assessment  
14 that OPG has done, and we went to a point, for  
15 instance, where they considered that the plume  
16 effect would have the highest impact to try to  
17 assess what would happen with -- with the plume.

18                   We've also asked OPG yesterday to  
19 review their assessment with the possibility of  
20 plume abatement. And I don't know if you were aware  
21 that it exists, but because of the local  
22 conditions, especially in winter, we would like to  
23 know exactly what the plume would look like.

24                   We've also done -- asked for  
25 expertise for the expertise on cooling towers. As

1 you probably know, there is a team, an extensive  
2 team of workers, that have evaluated all aspects of  
3 cooling towers.

4                                 This being said, I still would  
5 like to ask you, when you -- you're concerned that  
6 the plume would destroy the community look, if I  
7 can mention it that way -- natural towers are very  
8 high, I think we all agree to that. But mechanical  
9 drafts are usually not much higher than the actual  
10 building.

11                                 So I'd like to understand for you  
12 -- with the members of your community, you must  
13 have consulted with them what they're concerned is  
14 the effect of the plume and the negative aspect it  
15 gives because then you see plume is nuclear, and  
16 it's dangerous.

17                                 Is that what we are supposed to  
18 understand?

19                                 MAYOR FOSTER: Adrian Foster for  
20 the record.

21                                 Now, that's partially correct. So  
22 whether we're looking at the mechanical towers or  
23 not, of course, the -- the larger structure has a  
24 greater impact on the community, the plumes as  
25 well.

1                   There can be, again, the  
2 misperception of what's coming out of a nuclear  
3 plant.

4                   Beyond it being a nuclear plant,  
5 it certainly sets the area up -- and this is our  
6 lake front -- as a highly-industrialized area and  
7 simply reinforces that. And that is something that  
8 most communities are trying to get away from,  
9 including Clarington, where we're trying to build  
10 more public space down there, more recreational  
11 space.

12                   So our distinct preference is for  
13 the lake based as opposed to the -- as opposed to  
14 the towers.

15                   MEMBER BEAUDET: Plume abatement  
16 is used usually for two reasons, for aesthetics, as  
17 you probably know, and then if there's a danger,  
18 for instance, for traffic, if there's a major  
19 highway close by.

20                   But I'd like to ask OPG, I believe  
21 the plume mostly would go over the lake. I would  
22 like to assess how often would they feel that it  
23 would go over the 401.

24                   MR. SWEETNAM: Albert Sweetnam for  
25 the record.

1 Jennifer Kirkaldy will answer this  
2 question.

3 (SHORT PAUSE)

4 MR. SWEETNAM: Albert Sweetnam for  
5 the record.

6 I'm sorry, she's not available.  
7 She's not in the room right now. We'll ask for her  
8 to come back in, if the Chair would so allow.

9 MEMBER BEAUDET: Well, as long as  
10 the answer is in the record, I think you can refer  
11 to it later.

12 My second point concerns waste.  
13 And you did mention that you are worried that there  
14 would be 400 truck trips a day if it is decided  
15 that the cooling towers is an option.

16 But I think if we look at the  
17 scenario once through, there is a fair amount of  
18 excavated material. I think 9 million cubic metres  
19 is a fair amount of material to dispose of.

20 Now, yesterday when we were  
21 talking with the Ministry of the Environment, we  
22 found out that there is no landfill to receive --  
23 the landfill sites that could receive this material  
24 are closed, the three that were available.

25 As a municipality, where do you

1 consider that this surplus soil should go?

2 MAYOR FOSTER: Adrian Foster for  
3 the record.

4 I guess there have been  
5 suggestions that with the 407 being built there  
6 would be a huge desire -- and we're using that as a  
7 laser to try to convince the province to move  
8 forward with that -- and my understanding as well  
9 is that there is some provision for doing some --  
10 I'll call it lake base -- that was the creation of  
11 the wetland that had been previously discussed  
12 through OPG.

13 MEMBER BEAUDET: Well, I may give  
14 a wrong impression with nine here. I know there's  
15 some that is supposed to go in the lake infill,  
16 some on the northeast end of the site, but the lake  
17 infill has been reduced now possibly, so the figure  
18 is still important.

19 I mean, do you have any facilities  
20 on your territory that could receive this material?

21 MAYOR FOSTER: Adrian Foster for  
22 the record.

23 I'm not aware of whether we do or  
24 whether we do not in Clarington. I don't know if  
25 our Director of Planning can help me out with that

1 one?

2 MR. CROME: David Crome for the  
3 record.

4 No, at the present time we have no  
5 such facilities that could handle -- no specific  
6 sites have been set aside for that purpose. So it  
7 would have to be the creation of a new site  
8 somewhere, either in the rural areas, which would  
9 have its own impacts on taking agricultural land  
10 out, unless it can be accommodated within the 407  
11 project itself, which obviously needs a fair bit of  
12 fill.

13 MEMBER BEAUDET: Thank you.

14 I'd like to look now at the urban  
15 planning. I'm not sure if staff can put a figure  
16 on the screen which is from the land use,  
17 environmental effects, the technical support  
18 document? It's Figure 3.1-11. I know it's written  
19 on it the Municipality of Durham plan here, but I'd  
20 like to discuss with you here -- what we have here,  
21 the areas you mentioned close to the site would be  
22 an employment area, but however, there is a  
23 possibility indicated on this figure where you  
24 would have future living area, and that is  
25 indicated in the orange.

1                   Now, there's no scale on this  
2 figure, but for me, I've looked at these figures a  
3 great deal, and I can assure you that part of this  
4 orange is within two kilometres.

5                   So my colleague was asking you if  
6 there's any possibility in the legislation that  
7 this expansion could be reduced or stopped.

8                   And first I'd like you to comment;  
9 is this set aside for living area? You have agreed  
10 on that?

11                   And then the Ministry of Municipal  
12 Affairs earlier were talking about a buffer zone.  
13 I mean, would you have a definition of a buffer  
14 zone?

15                   I know the Ministry of Environment  
16 has guidelines for other industries, but I'd like  
17 to have your comments on that, please.

18                   MR. CROME: David Crome for the  
19 record.

20                   First of all, on that document  
21 you're referring to, it's a schedule on the  
22 regional official plan that refers to potential  
23 future growth areas. I can tell you that the  
24 Municipality of Clarington's official position, it  
25 is opposed to those growth areas being shown in the

1 region official plan and it did so on the basis  
2 that it was simply premature to identify those  
3 areas until there was a future review of the  
4 regional official plan which has to occur every  
5 five years.

6                               So our position is that we do not  
7 support what you see on that map. The region  
8 obviously has -- is the upper-tier government here  
9 and has a responsibility for growth management  
10 issues. So that's probably a question you can  
11 direct towards them.

12                               With respect to the guidance  
13 towards a setback, from the site we would certainly  
14 appreciate any guidance that might be provided on  
15 that that could be incorporated into both our  
16 official plan or into the regional official plan.

17                               At the present time there is no  
18 such buffer area identified. It's done through the  
19 emergency plan. There are different zones spoken  
20 of.

21                               One of the reasons I can tell you  
22 that we opposed that was the southerly portion of  
23 that was getting very close to the nuclear site,  
24 and we indicated that we thought those lands should  
25 be industrial.

1                   MEMBER BEAUDET: Thank you. This  
2 is very informative.

3                   My last point was about traffic.  
4 OPG has identified certain areas where it could be  
5 problematic, and we've had news that some of the  
6 solutions to that would be delayed because the  
7 Ministry of Transport is not necessarily going to  
8 build now the adjustments for the 401 or the 407.

9                   So for you, what is the  
10 implication of the delays in these developments?

11                  MAYOR FOSTER: Adrian Foster for  
12 the record, and I'll allow Tony Cannella, as our  
13 Director of Engineering, is the one to talk about  
14 traffic impacts.

15                  MEMBER BEAUDET: Thank you.

16                  MR. CANNELLA: Tony Cannella for  
17 the record.

18                  This is all new news to us, and we  
19 are re-establishing what can be done. We did have  
20 a very thorough assessment of OPG as to an enlarged  
21 study area and we're satisfied that that area can  
22 accommodate it, but beyond those limits, those are  
23 really the impacts that I think have to be further  
24 analyzed, and that hasn't been done yet.

25                  MEMBER BEAUDET: Thank you.

1                   When do you expect to do this  
2 revision, in a month, two months, a year?

3                   MR. CANNELLA: Tony Cannella for  
4 the record.

5                   I would have to say it would be in  
6 the foreseeable future. I don't have a direct  
7 timeline.

8                   MEMBER BEAUDET: If it is in the  
9 foreseeable future, could you advise us on any of  
10 your conclusions? We would appreciate that. We'll  
11 be writing our report in May or June, somewhere  
12 around there. So if it is before that, we would  
13 appreciate it.

14                   Thank you.

15                   MR. CANNELLA: Yes.

16                   MEMBER BEAUDET: Thank you, Mr.  
17 Chairman.

18                   CHAIRPERSON GRAHAM: I think OPG  
19 wanted to respond to something.

20                   Mr. Sweetnam?

21                   MR. SWEETNAM: Albert Sweetnam for  
22 the record.

23                   The question that was asked by  
24 Panel Member Beaudet with regards to the plume  
25 affecting the 401, Jennifer Kirkaldy will respond.

1 Jennifer?

2 MS. KIRKALDY: Good afternoon.

3 Jennifer Kirkaldy for the record.

4 I apologize that I wasn't in the  
5 room when the question was asked, so I'm going to  
6 paraphrase what I understand the question is and  
7 you can correct me if I've misunderstood.

8 My understanding is that the  
9 question was how often would the plume be directed  
10 towards Highway 401?

11 MEMBER BEAUDET: Yes, I think you  
12 did a study for icing and fogging, but I'm not sure  
13 that this would cover this aspect as well.

14 MS. KIRKALDY: Sorry, and your  
15 question is related to visibility ---

16 MEMBER BEAUDET: To the plume.

17 MS. KIRKALDY: The plume  
18 visibility?

19 MEMBER BEAUDET: Yes.

20 MS. KIRKALDY: The plume  
21 visibility will be related to the actual wind  
22 directions at the Darlington site.

23 So I'm going to refer to the  
24 atmospheric environment or environmental effects  
25 technical support document. Figure 5.1-1 shows the

1 wind grows for the site. And so for the plume to  
2 be visible or as it travels across Highway 401, the  
3 winds would have to be primarily from the south.

4 If you take a look at the wind  
5 grows, the winds from the south are not all that  
6 frequent. So just doing a very quick look here, I  
7 would say less than about 10 percent of the time  
8 would the plume be directed towards Highway 401.

9 MEMBER BEAUDET: Thank you.

10 CHAIRPERSON GRAHAM: Thank you  
11 very much, Madame Beaudet.

12 I have two questions, one with  
13 regard to fire protection. Is your fire force --  
14 are they a volunteer fire department or is it a  
15 paid fire department?

16 MR. WEIR: Gord Weir, for the  
17 record.

18 We're a composite force. We have  
19 54 career and 125 volunteers. We have five  
20 stations.

21 CHAIRPERSON GRAHAM: The  
22 volunteers, the 54 -- I understand that the  
23 volunteers are people working in a lot of different  
24 jobs and so on and dedicated people who are  
25 volunteers.

1                   With the possible new build and so  
2 on, do you anticipate that you'll need -- or the  
3 need for more volunteers? I'm concerned about  
4 turnover, people doing other things, people not  
5 available and so on.

6                   Have you a plan with OPG as to the  
7 need for fire protection to augment what OPG has  
8 with a facility this size?

9                   MR. WEIR: Gord Weir, for the  
10 record.

11                  I guess in the short term we have  
12 had some discussions, limited however. In the  
13 concept of it being built, we would probably treat  
14 it much like a construction site which municipally  
15 we would probably respond to.

16                  Whichever -- whoever builds the  
17 site, they may have their own internal construction  
18 site, fire department, as OPG did when they built  
19 their current facility.

20                  But the discussions for when they  
21 become operational, those are still -- we need  
22 further discussions with regard to that.

23                  With regards to turnover, being a  
24 composite force, we do have our regular turnover  
25 with our volunteers. I will say, though, that

1 other volunteer complements -- we have a number of  
2 current OPG staff that volunteer with us that live  
3 in the community.

4 CHAIRPERSON GRAHAM: I realize  
5 that. I guess just doing a quick math, with five  
6 stations, 54 permanent staff with all the shift  
7 work and so on, you wouldn't have much more than  
8 two regular firemen at any one station at any one  
9 time. Am I wrong on that or right?

10 MR. WEIR: Gord Weir.

11 We currently have two stations,  
12 the one in Bowmanville and the one in Curtis that  
13 are manned 24/7 with career firefighters. The  
14 minimum would be six; the max would be 11 full-time  
15 on duty. And each station is backed up with 25  
16 volunteers.

17 CHAIRPERSON GRAHAM: Is OPG  
18 satisfied that they have adequate outside support  
19 going forward on such a new build?

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

22 Yes, we believe we have adequate  
23 support. And as Chief Weir was referencing, we'll  
24 continue to work with the fire services in  
25 Clarington to ensure that continues into the

1 operation phase as well.

2 CHAIRPERSON GRAHAM: The only  
3 other question I have is to His Worship regarding  
4 your statement of the tower of the facility is well  
5 hidden.

6 With the high number of support  
7 that's claimed of a nuclear facility, is it with  
8 regard to lack of knowledge or is it -- I'm always  
9 confused about not wanting to have cooling towers  
10 or not wanting people to see a plant or so on.  
11 That has always been described by many presenters  
12 as a very, very positive thing for the community,  
13 but yet you want to keep it hidden.

14 And I'm wondering -- I'm just not  
15 clear on that type of philosophy.

16 MAYOR FOSTER: This is Adrian  
17 Foster, for the record.

18 Within the community, I believe  
19 there is tremendous knowledge of OPG. They've done  
20 a lot of outreach. They are excellent corporate  
21 citizens. There's a number of things that OPG does  
22 with community groups. They are literally  
23 everywhere.

24 The concern with the towers would  
25 be folks coming through the area. So we're right

1 on the 401, thousands of vehicles a day. As we had  
2 mentioned, Clarington needs to work very hard at  
3 attracting new business.

4 The concern is more for the  
5 outsiders that perhaps come in to look at us as  
6 opposed to the community itself.

7 If you look at our history, not  
8 too long ago, there was a suggestion for a project  
9 called ITER, again significant public outreach on  
10 that. That is a fusion project, huge support  
11 there.

12 We've gone through the dry fuel  
13 storage. So that's another project that has had  
14 all kinds of advertisements, public meetings  
15 involved with that. The community is well aware of  
16 the nuclear station.

17 Our concerns are the impressions  
18 of folks that we want to attract to the  
19 municipality.

20 CHAIRPERSON GRAHAM: And you're  
21 concerned that perhaps you can't attract as many if  
22 there were towers? Is that what you're saying?

23 MAYOR FOSTER: Adrian Foster for  
24 the record.

25 Yes, I think it gives a -- the

1 first impression that you get of a community,  
2 whether it were a series of smokestacks or were it  
3 cooling towers. They are very highly visible. I  
4 would be afraid that people might opt not to slow  
5 down and stop here based on something that is so  
6 dominant.

7 CHAIRPERSON GRAHAM: But not all  
8 towers are highly visible. Not all towers would be  
9 even as high or nearly as high as the stacks at  
10 St-Mary's Cement. So I just don't understand the  
11 rationale.

12 MAYOR FOSTER: Adrian Foster, for  
13 the record.

14 And that of course is where the  
15 concern with the plume because -- you're of course  
16 absolutely correct. It depends on what is putting  
17 in for the technology, what is used. But the  
18 plumes are pretty significant as well.

19 So I've I mentioned earlier, it  
20 certainly gives a flavour of a highly  
21 industrialized lakefront. Our motto is that we're  
22 a great place to live, work and to play. And  
23 certainly our natural resources are important to us  
24 and those outdoor centres.

25 So again, it's folks coming from

1 the outside and the immediate and potentially  
2 lasting impression they may be left with.

3 CHAIRPERSON GRAHAM: I'll leave it  
4 at that.

5 We'll go to OPG. Do you have any  
6 questions to His Worship?

7 MR. SWEETNAM: Albert Sweetnam,  
8 for the record.

9 No questions.

10 CHAIRPERSON GRAHAM: CNSC?

11 MR. HOWDEN: Barclay Howden  
12 speaking.

13 No questions. Thank you.

14 CHAIRPERSON GRAHAM: Government  
15 departments whether federal or provincial? I have  
16 no indication, but is there any?

17 If not, we have two intervenors  
18 that would like to have questions. The first one  
19 is Lake Ontario Waterkeepers, Mr. Mattson.

20 --- QUESTIONS BY INTERVENORS:

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

23 Your last question rules out one  
24 of my questions, so I only have one question for  
25 the Mayor.

1                   Through you to the Mayor, I'm  
2 wrapping my head around the balancing between some  
3 of the concerns about the people going down the 401  
4 and seeing some of the visual impacts and the  
5 protection and promotion of environmental policies  
6 on Lake Ontario and in Canada.

7                   And I'm just wondering if the  
8 Mayor is concerned and if they've considered what  
9 sort of precedent they might be setting here on  
10 their community on Lake Ontario if the government  
11 decides to put his local concerns ahead of  
12 environmental protection and how that might come  
13 back and affect his fish and his lake and his  
14 drinking water at some point if other communities  
15 did the same?

16                   Thank you.

17                   CHAIRPERSON GRAHAM: Thank you,  
18 Mr. Mattson.

19                   Your Worship?

20                   MAYOR FOSTER: Thank you. Adrian  
21 Foster, for the record.

22                   I'm not convinced that there will  
23 be huge or tremendous negative environmental  
24 impacts. We've got to balance the socioeconomic  
25 along with those environmental, and the panel, of

1 course, and OPG are well aware of the impacts of  
2 whatever technology is used and significant studies  
3 have been done on both.

4 CHAIRPERSON GRAHAM: Thank you.

5 Mr. Klavevar, do you have some  
6 questions?

7 MR. KALEVAR: Yes, Chaitany  
8 Kalevar from Just One World through the Chair to  
9 the Mayor.

10 Mr. Mayor, you are very confident  
11 about your community support for the new build; is  
12 that correct?

13 MAYOR FOSTER: Adrian Foster, for  
14 the record.

15 Yes.

16 MR. KALEVAR: Would it be possible  
17 for you then to confirm that in the form of a  
18 referendum in the community?

19 MAYOR FOSTER: Adrian Foster, for  
20 the record.

21 We just, within the last couple of  
22 weeks, have completed a survey for a strategic plan  
23 for the next four years of council. That was sent  
24 out -- well, it was widely, widely advertised which  
25 gave residents the ability to talk about any number

1 of things that they wanted to.

2 Certainly had there been concerns  
3 around new build and with the knowledge of this, I  
4 think we would have heard those negative comments.  
5 So I'd be hesitant to do yet another survey  
6 immediately on the basis that we've just gone  
7 through an exercise that encouraged, as much as we  
8 could, public participation.

9 MR. KALEVAR: Do you understand  
10 the difference between a survey and a referendum?

11 MAYOR FOSTER: Adrian Foster, for  
12 the record.

13 Yes.

14 MR. KALEVAR: Well, I'm asking for  
15 a referendum, not a survey.

16 CHAIRPERSON GRAHAM: Thank you.

17 What -- I'm sorry, I didn't  
18 understand the question. My understanding that the  
19 question that I think you referred to a major study  
20 that has been done or a major consultation that has  
21 been done just recently. Mr. Kalevar, is that  
22 clear or do you need something else?

23 MR. KALEVAR: Mr. Chairman, as my  
24 original question was for a referendum and in a  
25 referendum people actually go and vote rather than

1 some consultation -- some consultant, and then  
2 present something.

3 CHAIRPERSON GRAHAM: And I think  
4 the mayor indicated that no, there was not a  
5 referendum ---

6 MR. KALEVAR: Yes.

7 CHAIRPERSON GRAHAM: --- and there  
8 was not going to be one.

9 MR. KALEVAR: Well, there might be  
10 one. You never know.

11 CHAIRPERSON GRAHAM: Well ---

12 MR. KALEVAR: Just like there  
13 might be another quake.

14 CHAIRPERSON GRAHAM: I think what  
15 he said, he's not prepared to initiate one.

16 MR. KALEVAR: Well, that is  
17 understandable.

18 CHAIRPERSON GRAHAM: Okay. Thank  
19 you very much.

20 Just a little bit of logistics  
21 here. I know everyone -- you've been sitting here  
22 for over two hours. My understanding is that the  
23 Region of Durham -- the Regional Municipality of  
24 Durham -- in proper name -- is only going to take  
25 about 15 minutes for the presentation.

1                               So first of all, I want to thank  
2 His Worship and council and staff and support staff  
3 for coming this morning and thank you for your  
4 presentation. So we're finished with you, I  
5 believe, if there are no other questions there.

6                               And we will go to the Regional  
7 Municipality of Durham who I understand that their  
8 presentations about 15 minutes. We'll do that and  
9 then we'll adjourn for lunch and come back at a  
10 specified time to have questions, if that's  
11 satisfactory.

12                              So thank you very much, Your  
13 Worship. And next on deck is the Regional  
14 Municipality of Durham.

15                              Yes, the floor is yours and I have  
16 here the Chief Administrative Officer and he's  
17 going to make the presentation and if I'm correct  
18 on the pronunciation which I'm not doing too well  
19 today, Mr. Cubitt.

20 --- PRESENTATION BY MR. CUBITT:

21                              MR. CUBITT: Good afternoon. My  
22 name is Gary Cubitt and I am the Chief  
23 Administrative Officer of the Regional Municipality  
24 of Durham.

25                              On behalf of the Region, I welcome

1 the panel members, the secretariat staff and other  
2 participants and intervenors to Durham Region.

3 And accompanying me today are  
4 several staff from the Region. I have Alex  
5 Georgieff, the Commissioner of Planning; Cliff  
6 Curtis, the Commissioner of Works; Dr. Robert Kyle,  
7 the Commissioner and Medical Officer of Health;  
8 Mary Simpson, the Director of Financial Planning;  
9 Ivan Ciuciura, Director of the Durham Emergency  
10 Management Office; Kevin Ryan, legal counsel for  
11 the Region.

12 They are the Region's experts, Mr.  
13 Chair, in case you have questions specific to their  
14 areas of responsibility.

15 We appreciate the fact the  
16 hearings are being held in Durham so that the  
17 communities most directly affected by the  
18 Darlington new nuclear project can observe and  
19 participate in this important process.

20 You have our written submissions  
21 which cover the Region's mandate and range of  
22 interests in the Darlington project. Today I will  
23 focus on issues of primary importance to the  
24 Region.

25 To begin, I want to offer a few

1 facts about the Regional Municipality of Durham.  
2 In reviewing submissions by other participants, we  
3 noted that some groups seem unfamiliar with our  
4 region and its two-tier municipal government.

5                   As shown on the map, the Region of  
6 Durham is the upper-tier municipal government for  
7 the area stretching from the eastern boundaries of  
8 Toronto and York Region in the west, north to Lake  
9 Simcoe and east to the City of Kawartha Lakes and  
10 Northumberland County.

11                   The Region's population is now  
12 almost 620,000 people, 80 percent of whom reside in  
13 the communities along the Lake Ontario shoreline.

14                   As a result of Ontario legislation  
15 that protects the Oak Ridges Moraine and the  
16 Greenbelt, most future growth and development in  
17 Durham will occur in these lakeshore  
18 municipalities.

19                   As a regional municipality, Durham  
20 operates at a broader geographic scale than our  
21 eight area municipalities. The Region delivers a  
22 wide variety of infrastructure and human services  
23 in the eight area municipalities.

24                   These services include, but are  
25 not limited to land-use planning, the provision of

1 water, waste water and road infrastructure, public  
2 transit, emergency management, policing, ambulance,  
3 social housing, childcare, long-term care and  
4 public-health services.

5                               The 2011 regional budget  
6 anticipates expenditures in the range of \$1.2  
7 billion and our funding sources include property  
8 taxes, development charges, user fees and transfers  
9 from provincial and federal government.

10                              This year we will collect  
11 approximately \$514 million in property taxes. On  
12 average, 50 percent of the property-tax bill for a  
13 Durham household will go towards regional services.

14                              The Region is the host community  
15 for the Darlington and Pickering nuclear power  
16 stations that generate approximately 30 percent of  
17 Ontario's electricity. Durham Regional Council is  
18 on record as a strong supporter of our local  
19 nuclear industry.

20                              Regional Council has supported the  
21 past refurbishments at Pickering, the ITER Project,  
22 the Darlington new build initiative and relicensing  
23 of the existing plants.

24                              In spring 2010, regional staff  
25 conducted a comprehensive review of OPG's

1 environmental impact statement, technical support  
2 documents and application for a licence to develop  
3 a site.

4                   The review concluded that from a  
5 regional perspective, with proper planning,  
6 community impacts of the Darlington project can be  
7 mitigated. It also recognized potential benefits  
8 to the community including attraction of new  
9 businesses and investments and the growth of highly  
10 skilled, well-paid energy-sector jobs.

11                   In June 2010, Regional Council  
12 passed a resolution confirming that Durham Region  
13 is a willing host for the Darlington new nuclear  
14 project. The resolution outlined council's  
15 opposition to a design that included cooling towers  
16 because of their perception of significant visual  
17 impact on the community.

18                   The council resolution also  
19 endorsed establishing a host community agreement  
20 with OPG which we termed a regional impacts and  
21 services agreement in our earlier submissions to  
22 you.

23                   The Region prefers that this host  
24 community agreement be with OPG rather than with a  
25 third party vendor who will be constructing the

1 project for two important reasons: 1) to maintain  
2 clear lines of accountability for project and  
3 community outcomes and 2) to ensure that actions  
4 related to the Darlington new build project can be  
5 integrated with actions related to the other  
6 proposed nuclear projects in Durham.

7                   OPG has already signed a host  
8 community agreement with the Municipality of  
9 Clarington to compensate for social and service  
10 impacts or effects of the project on that  
11 municipality. The same rationale holds for an  
12 agreement with the Region.

13                   Durham Region provided vital  
14 infrastructure and key municipal services that are  
15 essential for the safe, successful and timely  
16 completion of the Darlington project.

17                   Normally, for any large  
18 development proposed within Durham, the region  
19 would play a planning review and approval role.

20                   Approval for large projects  
21 routinely includes requirements for site plan  
22 agreements and financing of related infrastructure  
23 by the Proponent.

24                   For the Darlington project, this  
25 approval role is assigned to you, an expert joint

1 review panel. We are in your hands to ensure the  
2 region's interests are realized.

3                               Therefore, we ask you to give  
4 careful consideration to the region's  
5 recommendations as outlined in our submission.

6                               Our key recommendation is that OPG  
7 enter into a host community agreement with the  
8 Regional Municipality of Durham to ensure the  
9 timely delivery of physical infrastructure critical  
10 to the project and to mitigate impact on other  
11 regional services.

12                              We are asking specifically that  
13 OPG commit to providing financing beginning in 2011  
14 for the environmental assessment, design and  
15 construction of the regional roads improvements  
16 necessary to accommodate the Darlington project.

17                              While environmental assessments  
18 are needed for lead time to complete road  
19 expansions and intersections improvements, the lead  
20 time becomes two to three years.

21                              To have the infrastructure in  
22 place before Darlington projects begin, the EA work  
23 would have to begin in 2011.

24                              Within the agreement, we also will  
25 be seeking OPG's commitment to a program of

1 monitoring for human services and emergency service  
2 impacts and to provision for monetary compensation  
3 and/or other measures to mitigate.

4 Over time, the project will bring  
5 many jobs and new business investments to the  
6 region. However, during the site preparation and  
7 construction phases, the region will incur  
8 substantial costs for new infrastructure to support  
9 the project.

10 Also, we anticipate increases in  
11 demands for some regional services as workers  
12 arrive in Durham with their families or commute to  
13 the region.

14 The Environmental Impact Statement  
15 acknowledges that not every effect can be predicted  
16 at this early stage.

17 An agreement with OPG is an  
18 essential tool for financing and delivering the  
19 necessary infrastructure and managing other  
20 significant effects of this project on our  
21 community in a timely way as they evolve.

22 The Environmental Impact Statement  
23 suggests that a host community agreement is the  
24 correct mechanism for financing this needed  
25 infrastructure and for mitigating municipal service

1 impacts.

2                                   For the Region to request such an  
3 agreement with a project proponent is simply  
4 standard operating procedure.

5                                   I am very pleased to advise that  
6 OPG and the Region are continuing discussions on a  
7 community-host agreement to ensure the Region is  
8 compensated for its infrastructure costs associated  
9 with the project.

10                                  And OPG has confirmed that  
11 infrastructure refers to both hard and soft  
12 services.

13                                  The Region's top priority is the  
14 safety and security of our residents. Based on 40  
15 years experience as a Canadian nuclear host  
16 community, we believe that this project can be  
17 built, operated and eventually closed safely and  
18 successfully.

19                                  Our confidence is founded on the  
20 high standards of regulation and safety for  
21 Canadian nuclear stations, on excellence in  
22 engineering, management and security at the  
23 existing facilities and on the strong safety ethic  
24 of OPG staff.

25                                  We hope that a century from now,

1 nuclear power generation at Darlington will be  
2 lauded as a catalyst in the successful development  
3 of the Durham community, leaving a valued legacy of  
4 innovation, expertise in energy science and  
5 technology and economic progress.

6                                   To date, OPG has been an excellent  
7 corporate citizen in our communities, contributing  
8 to environmental projects, education, healthcare  
9 and local charities, and we fully expect this will  
10 continue.

11                                   The Region and OPG have  
12 collaborated on a variety of information-sharing  
13 bodies and community initiatives, including the  
14 Durham Nuclear Health Committee since 1995, the  
15 Pickering Nuclear Community Advisory Committee, the  
16 Durham Strategy Energy Alliance and the Darlington  
17 Planning and Infrastructure Information Sharing  
18 Committee.

19                                   The Region and OPG also have had a  
20 strong working relationship with respect to nuclear  
21 emergency planning and preparedness.

22                                   In summary, the Region believes  
23 that most impacts on our road infrastructure and  
24 service delivery can be mitigated through the host-  
25 community agreement.

1                   Furthermore, the agreement will  
2 allow the Region and OPG to address immediate  
3 requirements related to regional roads. It will  
4 also include an adaptive strategy of monitoring and  
5 mitigation to ensure that net benefits flow to the  
6 community in every generation affected by the  
7 project.

8                   The one significant community  
9 impact that can't be mitigated is the visible  
10 presence of cooling towers. Our council stands  
11 opposed to a plant design that includes this form  
12 of cooling.

13                   Durham Region believes the  
14 Darlington project can be delivered safely,  
15 successfully and sustainably, providing benefits to  
16 Ontario and to our community.

17                   That concludes my remarks on  
18 behalf of the Region.

19                   I want to thank the panel for the  
20 opportunity to provide the regional perspective.

21                   CHAIRPERSON GRAHAM: Thank you  
22 very much for your presentation.

23                   I know that there will be more  
24 discussion. And as I said at the outset, I think  
25 in a matter of not trying to cram everything in,

1 because there will be many questions.

2 We will recess for lunch and right  
3 after the lunch hour, we'll have you on deck for  
4 questions, first of all, from the panel, then from  
5 OPG and CNSC and government officials, then from  
6 public intervenors.

7 So thank you very much for your  
8 presentation. And I will call a recess until --  
9 the clock, I'm not sure if that's exactly right --  
10 let's see if we could do it, say for 45 minutes, so  
11 that would be at -- let's say 1:40. Thank you very  
12 much.

13 --- Upon recessing at 12:51 p.m./

14 --- Upon resuming at 1:40 p.m./

15 CHAIRPERSON GRAHAM: Good  
16 afternoon ladies and gentlemen. Would everyone  
17 take their seats, please?

18 For the benefit of one of the  
19 presenters today who has an airplane to catch,  
20 we're going to try and carry this on as fast as  
21 possible but still do things in the orderly way.

22 Before we start questioning to  
23 Durham Region, Undertaking No. 2, I think, is  
24 required -- at least verbal comments on that so  
25 that the panel may ask questions.

1 Go ahead.

2 MR. SWEETNAM: Albert Sweetnam,  
3 for the record.

4 Jim Gough will address Undertaking  
5 No. 2.

6 MR. GOUGH: For the record, Jim  
7 Gough. I'm the Transportation Lead.

8 We did review the issue that  
9 Madame Beaudet had asked on Monday night with  
10 respect to whether there were any updates with  
11 respect to the transportation improvements that  
12 were cited in the TSD, the effects assessment for  
13 transportation.

14 And the specific question was  
15 really about Table 4.1-35 which is the summary of  
16 recommended improvements, and there have not really  
17 been any updates to that table.

18 Those are the improvements that we  
19 have identified as being required to accommodate  
20 both the growth and traffic that's unrelated to the  
21 project, plus the traffic that is related to the  
22 project. So both of those are identified in that  
23 table.

24 There is a subsequent table which  
25 addresses the improvements that are expected from

1 the Region of Durham and the Municipality of  
2 Clarington and the Ministry of Transportation, and  
3 very little has actually changed with respect to  
4 the timing of that.

5                   As we said Monday night, one issue  
6 is the timing of the improvement to the Holt Road  
7 interchange on Highway 401. MTO and OPG, I  
8 understand, have a commitment that the  
9 environmental assessment and the design for the  
10 upgrade of that interchange will begin again as  
11 soon as this project is seen as definitely going  
12 ahead.

13                   So that, I think, we'd see as a  
14 key piece of the transportation infrastructure, the  
15 improvements to the Holt Road interchange to make  
16 it a full access interchange which will  
17 significantly enhance the accessibility of the  
18 Darlington nuclear site.

19                   And Highway 401 is really the  
20 primary access route that we would foresee being  
21 used to and from the site. So as I say, that's a  
22 key piece of the infrastructure.

23                   The other change in timing that  
24 has been announced since we completed our work is  
25 the timing of the Highway 407 extension.

1                   But the recent announcement by the  
2 province indicating that it would extend to Harmony  
3 Road by 2016 and then the completion off to Highway  
4 35, 115, and also the north-south link, the East  
5 Durham link which is immediately west of the  
6 Darlington site, that would be completed by 2021.

7                   So actually that recent  
8 announcement is perfectly in line with what we had  
9 originally assessed in the TSD, so it all dovetails  
10 very nicely. And so that improvement will really  
11 be of some help when we do get to 2021, which is  
12 certainly one of the major horizons in terms of  
13 transportation impacts.

14                   MEMBER BEAUDET: What about the  
15 Waverly exit or the eastbound Waverly exit?

16                   MR. GOUGH: Well, there have not -  
17 - there have -- Jim Gough for the record, sorry.

18                   There have not been any changes  
19 identified definitively by the Ministry of  
20 Transportation with respect to that interchange.

21                   They did review our work for the  
22 TSD, and they were supportive of the program of  
23 incremental improvements that we had cited, so we  
24 took that as a good sign.

25                   The -- in our most recent meeting

1 with the ministry, they did indicate that they are  
2 planning to proceed with a planning study for  
3 improvements along Highway 401 throughout this  
4 section, which we would expect to see resulting in  
5 improvements to the design of the Waverly Road  
6 interchange as well as potentially other  
7 interchanges in the area.

8                               So they have indicated to us that  
9 that study is essentially about to commence in the  
10 very short term, perhaps within a year.

11                               MEMBER BEAUDET: Thank you.

12                               CHAIRPERSON GRAHAM: Thank you  
13 very much for that.

14                               The other undertakings, other than  
15 number 2, we're going to postpone those until  
16 tomorrow and discuss them.

17                               And recognizing time restraints,  
18 now we'll go directly into questions to the Durham  
19 region, and we'll start off with Madam Beaudet.

20 --- QUESTIONS BY THE PANEL:

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

23                               I don't know if you were in the  
24 room when the Municipality of Clarington has  
25 presented their brief and also when we asked the



1 perception of the plan to site issue, and they were  
2 not -- they simply reiterated their position, that  
3 they were not in favour of cooling towers.

4 MEMBER BEAUDET: Oh, so you're  
5 expressing the wishes of those three councils?

6 MR. CUBITT: I'm -- yes, I am,  
7 ma'am. I'm expressing the opinion that was  
8 established through the record of council.

9 MEMBER BEAUDET: The other thing  
10 is I was wondering if staff could put back that  
11 figure we had during the presentation of  
12 Municipality of Clarington, please.

13 Now, what we understand from the  
14 discussions this morning is the Ministry of  
15 Municipal Affairs, they may need to establish  
16 policies. Clarington is there to issue permits for  
17 zoning.

18 Now, I believe we have to ask you,  
19 would you be responsible for the planning of the  
20 region and proposing residential area so close to  
21 the nuclear plant?

22 MR. CUBITT: Gary Cubitt for the  
23 record.

24 I'm going to refer that question  
25 to Mr. Alex Georgieff, who is our commissioner of

1 planning.

2 MR. GEORGIEFF: Alex Georgieff,  
3 commissioner of planning, for the record.

4 We -- my mandate from the  
5 province, as you heard this morning, a number of  
6 pieces of legislation, simply The Planning Act and  
7 a number of policies, the growth plan, the  
8 Greenbelt really defines we're the upper tier,  
9 which we are mandated by The Planning Act. It's  
10 mandatory that we have an overall official plan  
11 which sets the growth management strategy for the  
12 lower tier, the area municipalities.

13 And we deal at the 50,000-foot  
14 level in terms establishing broad policies,  
15 directions. They're detailed at the area municipal  
16 level.

17 For example, when we say, living  
18 area, they will define where houses go, singles,  
19 semis, or local commercial, et cetera. We keep it  
20 very high level.

21 Similarly, when we say,  
22 employment, they will define the kinds of  
23 activities, whether it's processing, manufacturing,  
24 et cetera, et cetera.

25 As part of what you heard this

1 morning from the colleagues from the province,  
2 we're required to bring our plan into conformity  
3 with the provincial growth plan for the Golden  
4 Horseshoe. It ascribed a population of some  
5 960,000 citizens and some 350,000 jobs for Durham  
6 to 2031.

7                   We've gone through a rigorous  
8 exercise to try to find where to populate, where to  
9 put those future growth, if you will, over the next  
10 20 years, recognizing protection of natural  
11 heritage resources, recognizing the infrastructure  
12 that we always -- already have in place, et cetera.

13                   At the end of the day, the  
14 amendment can only go out to 2031. And as part of  
15 our exercise, we recognize that the area that is  
16 immediately in the vicinity of the existing  
17 Darlington facility is more or less status.

18                   The area across -- immediately  
19 across on the 401 is designated major open space,  
20 which is really a rural designation. It's  
21 agriculture, limited recreation, et cetera, et  
22 cetera.

23                   That illustration there that is on  
24 the board, that was -- as part of our consulting  
25 assignment, we had a consultant. We said, what

1 will the region look like at the full build out?  
2 Because we are encumbered by the provincial growth  
3 plan and the Greenbelt legislation, we can only go  
4 so far, and there's only a limited geography.

5                   One of the values in the  
6 provincial growth plan is to intensify the ascribed  
7 specific densities for the region, and then we  
8 ascribe it to each of the area municipalities.

9                   So in the immediate vicinity of  
10 the nuclear facility, we've only extended some  
11 limited employment areas and a very small area for  
12 future residential. Those two pieces have been  
13 appealed to the Board, so they have no status.

14                   And in terms of that schedule, as  
15 I said, we wanted to look at the full build out of  
16 Durham Region to protect against, what we call as  
17 planners leap frogging, development going further  
18 afield.

19                   The province when they came back  
20 to us in assessing the amendment said, look, the  
21 legislation says, while that may be admirable, you  
22 can only plan to 2031. So we agreed with the  
23 province that what you see in -- what you'll see at  
24 the end of the day with the matter appealed to the  
25 Ontario Municipal Board will be only to 2031.

1                   So that illustration will not be  
2 part of the final document.

3                   MEMBER BEAUDET: We were looking  
4 towards some legislation also that would prevent or  
5 create buffer zones. Like, you have distances or  
6 setbacks established for industrial -- other  
7 industrial plants, and it seems the only guidance  
8 with the minister of environment.

9                   Do you have anything for you and  
10 for planning purposes in terms of establishing  
11 buffer zones?

12                  MR. GEORGIEFF: Alex Georgieff.

13                  Again, from a planning  
14 perspective, you use good planning principles.

15                  We have the same issue with urban  
16 areas creeping against agriculture, and there's  
17 provincial regulations in terms of, what's called,  
18 minimum distance separation. When you have an  
19 active agricultural operation, manure, et cetera,  
20 it impacts sensitive uses.

21                  There aren't similar regulations  
22 or directions in dealing with facilities like this.  
23 We have to use our best judgement.

24                  For the 30-plus, almost 40 years  
25 that the Region of Durham has been in existence, we

1 were one of the first regions to have an official  
2 plan in place.

3 I believe our first one was in  
4 1976. The planners of the day and the council of  
5 the day created these, what we call, lungs of the  
6 regions, these physical urban buffers, one between  
7 Ajax and Whitby in the west and one here in  
8 Clarington, and that's that major open space  
9 designation that you see, which -- which acts as a  
10 physical urban separator, and acts as, quote, a  
11 buffer.

12 But it's there for other values,  
13 if you will. We don't want to evolve to what you  
14 see -- if you're familiar with the Golden  
15 Horseshoe, the area west of Toronto, it's a sea of  
16 urbanity.

17 You can't define where Mississauga  
18 begins and where Oakville begins.

19 We tried to introduce that in a  
20 physical sense but as with all policy documents  
21 they're subject to change. The only, call it,  
22 hammer that we have is the provincial greenbelt  
23 legislation, which at least acts as a physical  
24 barrier moving further north.

25 MEMBER BEAUDET: Thank you.

1                   We had asked OPG to update the  
2 table that was mentioned earlier, which is part of  
3 the traffic and transportation assessment of  
4 environmental effect table 4.1-35, for the record,  
5 and for your reference as well.

6                   Maybe you're not familiar with the  
7 table and it would be unfair to ask you to comment  
8 on it. But you seem to present in many instances  
9 in your brief, and also because we've heard  
10 different news that certain highways did not happen  
11 when we thought they would happen, et cetera, and I  
12 would like you to comment if you have any major  
13 issues or priorities that you feel should be  
14 addressed for this project to go ahead.

15                   MR. CUBITT: Gary Cubitt, for the  
16 record.

17                   Yes, we do have some. And to give  
18 you the background of that I'll defer it to Cliff  
19 Curtis, who's our Commissioner of Public Works.

20                   MR. CURTIS: For the record,  
21 Clifford Curtis.

22                   We did take a look at the traffic  
23 impact study that was done as part of the  
24 environmental assessment. In our opinion it  
25 somewhat undervalued the impact on the regional

1 road system.

2                   There were two roads in particular  
3 that we were concerned about, one was Curtis Road,  
4 which runs north/south from the 401 just west of  
5 the plant side, the other was Regional Road 57, its  
6 lower end is known as Waverly Street, that runs  
7 north/south from the 401 east of the OPG site.

8                   A lot of our concern revolved  
9 around construction activity in the haul routes,  
10 aggregate coming into the site from pits up in the  
11 north end of the region, and then nobody's sure  
12 where the fill is going to go but the fill will go  
13 somewhere off site and it's quite likely to hit  
14 north along one or both of those roads. So that  
15 was our primary area of concern.

16                   MEMBER BEAUDET: My next question  
17 is about waste. And I have looked at the  
18 appendices that you have given us and there's no  
19 page numbers here but the document is called  
20 Regional Services and Property Tax 2010 Update and  
21 the fact sheet on Durham Region services. This was  
22 in your official submission.

23                   What we have here, you have one  
24 active and six inactive landfill sites on your  
25 territory. Inactive, are they closed?

1                   MR. CURTIS: Yes, except in the  
2 case of one that's in the City of Oshawa. It's  
3 unused but it hasn't been officially closed. We're  
4 in the process of closing that one. So once that  
5 one is closed we will have just one municipal  
6 landfill site that will be active and that will be  
7 in Brock Township. We're still hoping to phase  
8 that out over the next three or four years.

9                   But I must point out that those  
10 are for municipal waste landfill. They're not for  
11 a commercial dirt haul fill operation.

12                   MEMBER BEAUDET: There are two  
13 things here I would like to ask. We've discussed  
14 earlier this morning that there's a fair amount or  
15 -- I don't know how to qualify it but there would  
16 be even if some excavated material is left on site  
17 and some of it is used for the landfill there is  
18 still a fair amount that has to be moved outside  
19 the site, and also that the lake infill possibly  
20 would be smaller than expected.

21                   So I was wondering if there would  
22 be any place or site that you would have on your  
23 territory that could accept part of that excavated  
24 material?

25                   MR. CURTIS: We don't have any

1 property under the direct control of Durham Region  
2 -- sorry, it's Clifford Curtis speaking, for the  
3 record. Under the control of Durham Region that  
4 would accommodate those amounts of fill.

5 Our expectation was that some of  
6 it would go to do the pre-grading for the 407  
7 expansion and the rest of it would be filled as  
8 some kind of a commercial fill operation, which is  
9 something that's becoming more and more common in  
10 Durham Region.

11 MEMBER BEAUDET: And what is that  
12 exactly?

13 MR. CURTIS: Basically a  
14 corporation will acquire a farm and then  
15 commercially fill on that farm. They tend to fill  
16 up old gravel pits as the first choice, but it is  
17 becoming more common for them to fill up almost any  
18 vacant land.

19 We are struggling with that right  
20 now to try and control it.

21 MEMBER BEAUDET: Thank you.

22 CHAIRPERSON GRAHAM: Thank you,  
23 Madam Beaudet.

24 Mr. Pereira?

25 MEMBER PEREIRA: Thank you, Mr.

1 Chairman.

2                               In your review of the various  
3 initiatives that the region has taken over the  
4 years I see here reference to activities of the  
5 Darlington Nuclear Health Committee, in existence  
6 since 1995.

7                               Are you able to speak about the  
8 achievements of the committee and what they've done  
9 to identify health issues in the nuclear community?

10                              MR. KYLE: So Robert Kyle, for the  
11 record. I'm the Commissioner and Medical Officer  
12 of Health of Durham Region Health Department.

13                              The DNHC, if I can refer to that,  
14 was created in the mid-1990s, 1995 I believe, by  
15 regional council. Its creation was recommended by  
16 the former Environmental Assessment Advisory  
17 Committee that reviewed an expansion of the Ajax  
18 water supply plant in 1992.

19                              It consists of nine public  
20 members, two from Pickering, two from Clarington,  
21 two from Ajax and the balance from the rest of  
22 Durham Region, and it acts as a forum to discuss  
23 radiation emissions from the plant, nuclear waste  
24 and human health concerns. It meets approximately  
25 five times a year.

1                   In addition to public members  
2 there are three from the Health Department, one  
3 from the University of Ontario Institute of  
4 Technology, one from the Ministry of the  
5 Environment and two representatives from OPG.

6                   So it's intended to be really a  
7 forum for industry, academia, government and the  
8 public to talk about these issues.

9                   In its early days the agenda was  
10 driven largely by Durham Nuclear Awareness, which  
11 was an anti-nuclear advocacy group. It chose to be  
12 observers but not formally join the committee. And  
13 it largely drove the agenda for many years in the  
14 early years.

15                   So we have looked at a whole host  
16 of issues. Several years ago we commissioned the  
17 University of Waterloo to do a peer review and I  
18 guess an independent analysis of testing of tritium  
19 in water. We continually, I guess, have guest  
20 speakers from a wide array, CNSC, Ministry of  
21 Energy, et cetera, et cetera, and we view it as an  
22 opportunity for the public to hold industry's feet  
23 to the fire.

24                   I should point out that the public  
25 members are appointed by Councils Health and Social

1 Services Committee and there's been turnover over  
2 the years but not a lot of turnover. We also do  
3 have observers attend from the Municipality of  
4 Clarington and the City of Pickering.

5 All of our terms of reference,  
6 minutes and so forth are posted on the region's  
7 website so if the panel wants any of that  
8 information the Secretariat can go to  
9 [durham.ca/health](http://durham.ca/health), look up Durham Nuclear Health  
10 Committee, you can see the terms of reference,  
11 meeting minutes, et cetera.

12 Thank you.

13 MEMBER PEREIRA: Thank you for  
14 that overview.

15 Are there any studies that the  
16 Health Committee did on the subject of health  
17 related to nuclear operations in the region?

18 DR. KYLE: So Robert Kyle again.

19 The committee per se has not  
20 conducted any health studies but the Health  
21 Department which I head, has done two health  
22 studies; one in 1996 and the most recent one in  
23 2007.

24 There were three components to the  
25 2007 study, if I can just focus in on that.

1                   It consisted of a review of the  
2 scientific literature. We looked at information  
3 related to public dose, really coming from OPG's  
4 radiation and environmental monitoring program.  
5 And we looked at a number of health indicators and  
6 grouped them according to their association with  
7 radiation.

8                   The three health indicators were  
9 cancer incidents and mortality; certain congenital  
10 anomalies; and stillbirths.

11                   It's an ecological study so  
12 there's whole lot of data limitations. And we were  
13 really looking for patterns of disease occurrence  
14 by looking at the local data and grouping it  
15 according to Ajax/Pickering, Whitby/Oshawa,  
16 Clarington and North Durham. And we also used  
17 Halton Region and Simcoe County as comparison  
18 communities.

19                   Overall, we concluded that there  
20 were no patterns looking at any of the, I think, 18  
21 cancer groupings, 5 congenital anomaly groupings  
22 and stillbirths that indicated that there was a  
23 pattern between living in a, if you will, nuclear  
24 community and any of those health indicators. But  
25 I must stress with that type of study there are a

1 lot of data limitations.

2                   If the panel doesn't have the  
3 study, it's posted on the Durham Nuclear Health  
4 Committee website. I do have two hard copies with  
5 me and I can leave with the panel secretariat if no  
6 parties have provided that information to you.

7                   Thank you.

8                   MEMBER PEREIRA: Thank you very  
9 much.

10                   I believe we can get copies from  
11 the CNSC, can we, and perhaps Health Canada as  
12 well? But if we can't, we can always -- the  
13 secretariat can make a note of that and pick it up  
14 later.

15                   My second question relates to --  
16 in the recommendations in your panel member  
17 document, you talk about a recommendation that a  
18 program for the emergency services monitoring be  
19 developed by OPG and the Region.

20                   What's the concern here? Is it  
21 meant to be -- to provide an assurance of where the  
22 programs are going or is it to identify whether  
23 there are weaknesses? What are your goals?

24                   MR. CUBITT: Gary Cubitt, for the  
25 record.

1 Ivan Ciuciura is here from our  
2 emergency management office and he will probably  
3 add some comments when I'm through.

4 I think there were -- the part  
5 you're referring, if I'm not mistaken, is referring  
6 to Emergency Medical Services, EMS?

7 MEMBER PEREIRA: Emergency  
8 services, whatever that may ---

9 MR. CUBITT: Emergency services, I  
10 think that is probably referring to our EMS  
11 operations, emergency medical services operations,  
12 policing.

13 Those are two functions,  
14 responsibilities of the Region where we would be  
15 monitoring any impacts that may occur over time  
16 with the plant, the additional residents, the  
17 additional staff.

18 And if there were significant  
19 impacts associated with those response services  
20 then OPG has already indicated a willingness to  
21 talk with us about how that could find its way into  
22 an agreement and mitigation to be recognized.

23 Ivan, is there anything else to  
24 add to this?

25 MR. CIUCIURA: Ivan Ciuciura. I'm

1 the Director of Emergency Management.

2 No, Mr. Cubitt, it did focus on  
3 the emergency services -- policing, EMS  
4 specifically -- and as population increased or  
5 workers came onsite, those types of things that  
6 would have to be looked at; and coordination.

7 MEMBER PEREIRA: Thank you.

8 CHAIRPERSON GRAHAM: Thank you,  
9 Mr. Pereira.

10 I just have one question that --  
11 you represent a very large population in a  
12 condensed area, 620,000 which is almost as much as  
13 the whole of New Brunswick where I come from, and  
14 by 2031, you're going to be up to over 900,000.

15 What I'm wondering is who has the  
16 -- what body has the ultimate say -- you show your  
17 maps of what you're designating, what's  
18 agricultural, what's for development and so on,  
19 housing. Who has the ultimate say to change to  
20 change that?

21 If a developer wants to come  
22 forward and start a housing development on a piece  
23 of agricultural land or something, who has the  
24 ultimate say? Is it the municipality? Is it the  
25 Durham Region and so on?

1                   And how is that controlled into  
2 the future because you're only going to 2031 and  
3 you're going to have 900,000 in a very condensed  
4 area? And it's not clear to me who has the  
5 ultimate say -- or change.

6                   MR. GEORGIEFF: Alex Georgieff,  
7 for the record.

8                   Ultimately, it's the Region. I  
9 mentioned earlier on, and you've heard this  
10 morning, the province sets some broad policy  
11 directions, one being the growth plan.

12                   We've had recent changes to the  
13 *Municipal Act* which precludes now for an individual  
14 coming forward and asking for a change or an  
15 amendment to the official plan to move the urban  
16 area boundary. It can't happen.

17                   It has to happen under a five-year  
18 comprehensive review lead by the municipality. In  
19 our case, we're governed by provincial legislation.  
20 The provincial growth plan will be reviewed again  
21 in short order.

22                   We will then start the cycle of  
23 updating our official plan and looking again what  
24 are the new targets for Durham Region. Do we need  
25 new geography to accommodate that growth? Can we

1 accommodate it within the existing built boundaries  
2 that we've established, et cetera?

3 So, ultimately, it will be Durham  
4 Region. And, of course, those decisions are  
5 appealable under the *Planning Act* to the Ontario  
6 Municipal Board.

7 CHAIRPERSON GRAHAM: So what  
8 you're saying is in driving even from in here  
9 there's a lot of agricultural land, but that's not  
10 to say that all of that land could be, by 2031 or  
11 so on, or much of it, could be developed if the  
12 process was followed the way the legislation  
13 permits?

14 MR. GEORGIEFF: Alex Georgieff.  
15 Under our official plan as it  
16 stands today, official plan amendment 128, which  
17 has been appealed, that agricultural land that you  
18 see, I would say 99.9 percent would still be there  
19 by 2031.

20 It's beyond that timeframe. If,  
21 again, we go through a planning exercise, we do not  
22 have the physical space to accommodate further  
23 growth, but the province's direction and our  
24 direction and our direction to the lower tier, the  
25 area municipalities, is to intensify our greater

1 densities of urban growth.

2                                   And you're quite right, the way  
3 our plan is structured and, again, it's dictated by  
4 provincial -- the provincial greenbelt legislation,  
5 our development will principally be along the Lake  
6 Ontario shoreline which is where our existing urban  
7 morphology is today.

8                                   CHAIRPERSON GRAHAM: Another  
9 question.

10                                   Wetlands; wetlands, can they be  
11 taken out if there's a trade-off that they're  
12 willing to establish another wetlands area in  
13 another location, like we're doing at OPG with  
14 regard to relocating sites?

15                                   Is that going to be permitted  
16 also?

17                                   MR. GEORGIEFF: Alex Georgieff.

18                                   As a principle, no. Provincially  
19 significant wetlands are immutable. They have to  
20 be protected. You have to mitigate around them et  
21 cetera. It's a rare phenomena where there would be  
22 a trade-off. It would have to be exceptional  
23 circumstances, but as a planning principle, no.

24                                   CHAIRPERSON GRAHAM: Thank you.

25                                   Madame Beaudet, you have any

1 further questions?

2 Mr. Pereira?

3 Okay with that.

4 So we can try and speed things  
5 along. We will go to questions from OPG first.

6 Do you have any questions?

7 MR. SWEETNAM: Albert Sweetnam,  
8 for the record.

9 We have no questions at this time.

10 CHAIRPERSON GRAHAM: Thank you.

11 CNSC, do you have questions?

12 MR. HOWDEN: No questions.

13 CHAIRPERSON GRAHAM: Thank you.

14 Provincial or federal government  
15 agencies, do you have any questions?

16 I see no-one moving forward.

17 We then go to public intervenors,  
18 and I believe we have just one, Lake Ontario  
19 Waterkeeper.

20 Mr. Mattson.

21 --- QUESTIONS FROM INTERVENORS:

22 MR. MATTSON: Thank you very much,  
23 Mr. Chairman.

24 Mr. Chairman, through you, my  
25 question is to one of the Durham Region

1 spokespersons. I'm not sure which one, so I'll  
2 have you just direct it. I couldn't get the name.

3 CHAIRPERSON GRAHAM: Just direct  
4 it to the Chair.

5 MR. MATTSON: Yes.

6 So did I hear correctly that if  
7 the Joint Review Panel finds that once-through  
8 cooling has significant fish impacts and  
9 entrainment and entrapment and thermal plume and  
10 additives going out through the once-through  
11 cooling and orders mitigation in the form of  
12 cooling towers, that this Region will oppose the  
13 whole project?

14 CHAIRPERSON GRAHAM: An answer,  
15 please?

16 MR. CUBITT: Gary Cubitt, for the  
17 record.

18 I can't presume, Mr. Chair, to say  
19 what the Region would do in that circumstance. I  
20 can only tell you that its current position is that  
21 it is against the cooling towers. If they were to  
22 appear, this matter would have to go back before  
23 regional counsel and they would make what decision  
24 they felt in their wisdom they needed to make at  
25 that time.

1 MR. MATTSON: Thank you.

2 CHAIRPERSON GRAHAM: Thank you  
3 very much. That concludes the -- there's no other  
4 intervenors?

5 No.

6 That concludes the presentation.  
7 I want to thank Durham Region and their officials  
8 for being here today to answer the questions which,  
9 as I said, were very important and a very important  
10 part of this hearing.

11 Procedure from now on -- thank  
12 you, you may be excused.

13 The procedure from now on,  
14 recognizing that Dr. Caldicott has time  
15 constraints, I will ask OPG to introduce the --  
16 this topic. And then we will go directly into Dr.  
17 Caldicott's presentation and not have any questions  
18 from OPG until she is finished.

19 So OPG?

20 --- PRESENTATION BY MS. SWAMI:

21 MS. SWAMI: Laurie Swami.

22 We note we don't have a  
23 presentation on our screens here, I don't know if  
24 that's a problem.

25 CHAIRPERSON GRAHAM: Technical

1 staff can -- someone's coming. Okay.

2 MS. SWAMI: In the interest of  
3 time, perhaps I can start the introduction. Again,  
4 my name is Laurie Swami, for the record. And with  
5 me today of course is Albert Sweetnam and John  
6 Peters.

7 The focus of this presentation is  
8 with respect to human health and safety. We have a  
9 number of technical specialists with us to respond  
10 to your questions on this topic. But I would like  
11 to introduce Dr. Alain Soto, our chief physician,  
12 who's also joined us this afternoon.

13 OPG has conducted a comprehensive  
14 assessment of potential effects of the new nuclear  
15 project on human health and safety. The assessment  
16 considered radiological and non-radiological  
17 conditions during normal plant operations as well  
18 as those associated with malfunctions and  
19 accidents. The assessment was conducted to  
20 consider human health as defined by the World  
21 Health Organization, incorporating physical,  
22 mental, and social well being.

23 This brief presentation will focus  
24 primarily on the health affects related to  
25 radioactivity. Based on our studies, we are

1 confident that the project will not result in  
2 significant adverse affects on health of our  
3 workers or the general public.

4 OPG recognizes workplace safety as  
5 a core value throughout our operations. We engrain  
6 a culture of safety within our nuclear operations  
7 and train our staff on a continuing basis. This  
8 safety culture is reflected in the implementation  
9 of targeted risk mitigation programs, and the  
10 occupational health and safety management systems,  
11 OHSAS 18,001 standard for monitoring and improving  
12 safety in the workplace.

13 OPG maintains an extensive  
14 radiological, environmental monitoring program in  
15 the vicinity of the Darlington site to monitor  
16 radiation in the environment and assess  
17 radiological impacts on the public.

18 Each year, as a condition of our  
19 current Darlington licence, we report the  
20 monitoring results to the CNSC. The reports  
21 present comprehensive data on concentrations of  
22 radionuclides in the air, water, milk, soil,  
23 sediments, vegetation and fish samples. They  
24 conclude with a determination of radiological dose  
25 to specific human receptor groups as a consequence

1 of the conditions over the monitoring period.

2 OPG maintains ALARA, or as low as  
3 reasonably achievable programs, including detailed  
4 radiation work planning and monitoring at all of  
5 its nuclear facilities.

6 Our dosimetry program ensures that  
7 all occupational radiation doses received from  
8 nuclear energy workers are carefully monitored.  
9 These programs will be implemented as a part of the  
10 new nuclear project.

11 Based on these programs and our  
12 long history of safety performance, we can  
13 confidently say that radiation doses to workers  
14 during normal operations and maintenance outages  
15 from any of the reactors considered will be well  
16 within regulatory dose limits of 100 millisieverts  
17 per five years with a maximum of 50 millisieverts  
18 in any one year.

19 For context, average annual  
20 individual worker doses at the existing Darlington  
21 station have historically been less than 5 percent  
22 of the 50 millisievert annual limit.

23 Doses to the most critical public  
24 group during normal operations of any of the  
25 reactors considered for the new nuclear project are

1 estimated to be about 5 microsieveverts per year or  
2 0.5 percent of the regulatory limit. The very low  
3 doses to workers and the public from normal  
4 operations do not represent an adverse affect on  
5 human health.

6 Nuclear power generation is one of  
7 the most highly regulated industries in the world.  
8 In Canada, the CNSC requires that all nuclear  
9 plants adhere to very strict standards for design  
10 and operation.

11 The reactor designs being  
12 considered for new nuclear, including EC-6, are  
13 enhancements of designs currently in operation  
14 around the world. All of these designs meet or  
15 better modern regulatory expectations for nuclear  
16 safety. And CNSC pre-project reviews of the vendor  
17 designs found that none of them exhibited  
18 fundamental barriers to licensing in Canada.

19 CNSC regulatory document RD-337,  
20 design of the new nuclear power plants, identifies  
21 safety goals for new reactors. OPG has conducted  
22 an assessment of the compliance of the considered  
23 reactors against the RD-337 safety goals through  
24 the use of source terms that bounded the releases  
25 from credible accidents for any reactor licensable

1 in Canada. We are confident that the safety goals  
2 can be met by the considered reactors.

3 A more detailed demonstration of  
4 compliance of the selected technology with the  
5 prescribed safety goals will be conducted in the  
6 next licensing phase.

7 There are no credible nuclear  
8 accidents that cannot be effectively mitigated or  
9 that would contribute significantly to radiological  
10 risk to the public. The regulatory safety goals  
11 ensure a level of protection for members of the  
12 public by placing limits on the requirements for  
13 short-term evacuation and long-term relocation  
14 during an accidental release of radioactivity. The  
15 emergency plans have been described in previous  
16 presentations over the last few days. And I won't  
17 describe them again.

18 In the event of the accident  
19 evaluated, the total dose to people who live within  
20 100 kilometres of the site at the time of the  
21 nuclear accident and who continue to live in their  
22 homes for 50 years following the accident, would be  
23 less than one percent of the unavoidable dose  
24 received from natural background radioactivity in  
25 the environment.

1                                   As context, cancer occurs  
2 spontaneously and approximately one in four of us  
3 will ultimately die from cancer.

4                                   The theoretical risk to the same  
5 population following a nuclear accident is  
6 calculated as the product of the dose received from  
7 the accident, multiplied by the International  
8 Commission on Radiological Protection risk factor  
9 per unit dose. This theoretical incremental risk  
10 is a small fraction, far less than one percent of  
11 the risk from spontaneous background cancers and is  
12 not measureable.

13                                  Criticality control procedures for  
14 new and used fuel are well-known and understood and  
15 give administrative and engineering barriers.  
16 Criticality events for fuel outside of the core are  
17 not considered credible for our project. Given the  
18 range of accidents considered in the EIS, we are  
19 confident that the consequences of any credible  
20 accident event will not pose a human health risk to  
21 the public.

22                                  In summary, with respect to health  
23 and safety, we conclude that the Darlington new  
24 nuclear project will not result in significant  
25 adverse affects on the physical, mental or social

1 health of humans.

2                               Radiation doses to the public from  
3 normal operations will be approximately 0.5 percent  
4 of the regulatory dose limit. There are no  
5 credible nuclear accidents that would contribute  
6 significantly to radiological risk to the public.

7                               And doses to nuclear energy  
8 workers will be maintained below the regulatory  
9 dose limit through administrative means and ALARA.

10                              Thank you. And we would be  
11 pleased to answer any questions on the topic.

12                              CHAIRPERSON GRAHAM: Thank you  
13 very much, Ms. Swami.

14                              The agenda now shows that we will  
15 have Dr. Caldicott, and if someone could make  
16 arrangements to move Dr. Caldicott forward to the  
17 front as a presenter.

18                              And a welcome to you, Doctor, and  
19 the floor is yours.

20                              I'm not sure I -- if technically  
21 everything is set up for the doctor -- for the  
22 presenter. I hope it is.

23                              Dr. Caldicott is PMD -- or P -- 11  
24 P1.108, if anyone wants to follow.

25                              The floor is yours.

1 DR. CALDICOTT: How do I put it up  
2 where I need to? What do I press?

3 UNKNOWN SPEAKER: Here you go.

4 DR. CALDICOTT: Yeah, but I don't  
5 want it up there all the time.

6 UNKNOWN SPEAKER: Okay.

7 --- PRESENTATION BY DR. CALDICOTT:

8 DR. CALDICOTT: So what --  
9 Well, thank you very much for  
10 inviting me to come today.

11 As background, I'm a pediatrician.  
12 My specialty is cystic fibrosis, the most common  
13 disease of childhood.

14 I was on the faculty at Harvard in  
15 the cystic fibrosis clinic for some years.

16 I founded Physicians for Social  
17 Responsibility, and we had 23,000 doctors at one  
18 stage talking about the medical effects of nuclear  
19 power and nuclear war.

20 And I've founded many similar  
21 organizations throughout the world, and, in fact,  
22 we got the Nobel Peace Prize in 1985.

23 I also met with your Prime  
24 Minister Trudeau and at one stage convinced him to  
25 do the five nation, six continent -- Five Continent

1 Six Nation Peace Initiative by appealing to his  
2 love for his sons.

3 I have been deeply disturbed about  
4 nuclear power and weapons since I've read a book  
5 when I was an adolescent called On the Beach by  
6 Nevil Shute. It was about everyone dying in a  
7 nuclear war except people in Melbourne because we  
8 were so far south. And the end of the book  
9 described the beautiful streets of Melbourne with  
10 bits of paper blowing down in the breeze and  
11 obligingly flapping, and that was the end of life  
12 on earth. That branded my soul.

13 Soon after, I entered medical  
14 school at 17, and I learned about Muller's  
15 experiments on Drosophila fruit fly. He radiated  
16 them, and they developed genes for crooked wings  
17 that were passed down generation to generation for  
18 which he won the Nobel Prize.

19 And I realized then what radiation  
20 does to humans and to genes.

21 At the time, Russia and America  
22 were testing bombs in the atmosphere, and I  
23 couldn't, for the life of me as a young medical  
24 student, understand what on earth these fellows  
25 were up to. I still can't.

1                   I come to Canada because I'm very  
2 fond of this country. I've spent a lot of time  
3 speaking here.

4                   And my film, If You Love This  
5 Planet, which was made by the National Film Board,  
6 won the Academy Award, which was nice, but it's  
7 banned in America as foreign propaganda, even  
8 though I gave the speech in Plattsburgh, New York,  
9 and it was simply about the medical effects of  
10 nuclear war.

11                   I didn't really know much about  
12 nuclear power until I found out Australia has 40  
13 percent of world's richest uranium. And our Prime  
14 Minister then, Gough Whitlam, wanted to mine it.

15                   So I read a book called Poison  
16 Power by Goffman and Tamplin, who were employed by  
17 the AEC -- Goffman was an M.D., physician -- to  
18 estimate the results of radiation and nuclear power  
19 upon humans, and I was so -- it was one of the most  
20 dangerous medical books that I had ever read,  
21 particularly about plutonium.

22                   And so that started me off on the  
23 anti-nuclear power movement, and I spoke to most of  
24 the unions in Australia, who don't really care  
25 about much, but I talked about the medical effect

1 of radiation upon their testicles, and as a  
2 physician, that was appropriate because it mutates  
3 genes in the sperm, as the Drosophila fruit fly,  
4 and affects future generations.

5                   And from that piece of data and  
6 others, they banned uranium mining in Australia for  
7 five years.

8                   That's just a little background.

9                   I come here as a physician  
10 practicing global preventive medicine, trying to  
11 prevent cancer, leukemia, genetic disease,  
12 congenital anomalies.

13                   I come here at the height of the  
14 Fukushima accident, which is quite astounding.

15                   Of course, I've been interviewed  
16 by many -- the German radio, the Turkish radio,  
17 British, and the like. People are suddenly  
18 thinking, oh, my God, I wish I'd taken notice of  
19 you sooner.

20                   I did write a recent book called  
21 Nuclear Power is Not the Answer to Global Warming  
22 describing the medical implications of nuclear  
23 power.

24                   But Fukushima, they built six  
25 reactors, Mark 1 GE reactors on an active

1 earthquake fault.

2                                 There are not just six reactors  
3 there. There are six cooling pools, plus two very  
4 large common cooling pools containing far more  
5 fuel, spent fuel, than in the reactor core  
6 themselves.

7                                 Each reactor core contains as much  
8 long-lived radiation as that released by 1,000  
9 Hiroshima bombs.

10                                Uranium becomes 1 billion times  
11 more radioactive when you put it in a reactor and  
12 fissions.

13                                And it was Einstein who said, the  
14 splitting of the atom changed everything on earth  
15 save man's mode of thinking, thus we drift towards  
16 unparalleled catastrophe.

17                                In Fukushima at the moment, there  
18 have been four explosions of hydrogen, which have  
19 resulted from the zirconium fuel cladding reacting  
20 with the water as the water has decreased, and it  
21 got very hot producing hydrogen, which went to the  
22 top of the building and blew off the top of the  
23 building, but did not damage the reactor  
24 containment at this stage. Although, they think  
25 the number 2 containment is damaged.

1                   There have been fires in four of  
2 the cooling pools.

3                   Now, your cooling pools at  
4 Darlington and Pickering, because they're old  
5 reactors, probably contain about 20 to 30 times  
6 more radioactive material than in the core itself.

7                   I have learned recently that the  
8 cooling pools in America -- and there are 70,000  
9 tonnes of incredibly hot radioactive waste, long-  
10 lived isotopes. They don't have backup emergency  
11 diesel generators for cooling systems or batteries.

12                   What happened in Fukushima is that  
13 that earthquake really didn't damage the reactors  
14 substantially, but the tsunami that came in damaged  
15 the diesel generators. It lost external  
16 electricity power, and they each need a million  
17 gallons a minute to keep them cool, the same for  
18 your reactors approximately. That's a lot of  
19 water.

20                   The emergency diesel generators  
21 are as large as a house, and they were damaged by  
22 the water, as were all the external monitors  
23 monitoring any radiation at all.

24                   So they were operating in the dark  
25 literally until they got the power on yesterday,

1 and no one really knew what was going on.

2                   The fires in the cooling pools  
3 means that long-lived isotopes like cesium-137  
4 that lasts for 600 years, and probably plutonium  
5 and other very deadly materials are getting out.

6                   Indeed, there almost certainly is  
7 a meltdown in the reactors because radioactive  
8 iodine is now being found in the water in Tokyo.  
9 They're telling the mothers that babies shouldn't  
10 drink it. Babies are terribly sensitive to  
11 radioactive iodine because they're thyroids are  
12 tiny, and they absorb it like a sponge. Iodine  
13 only goes to the thyroid gland, so they're telling  
14 the mothers not to let the babies drink the water.  
15 This is very serious.

16                   I'm nervous, so my mouth is dry,  
17 sorry. I'm nervous because I feel this is so, so  
18 important medically.

19                   There have been 13 instances of  
20 neutron radiation fluxes from the reactors, which  
21 means that they're fissioning already and giving  
22 off neutrons 20 times more dangerous to humans than  
23 gamma radiation.

24                   There are five sorts of radiation.  
25                   X-rays, and we've all had x-rays.

1 We are the biggest exposure now, the public, to  
2 radiation. Doctors' CT scans give you a hell of a  
3 dose. Never have an unnecessary x-ray.

4                   The National Academy of Science's  
5 report says all radiation is dangerous, right down  
6 to zero. There's none that's safe and it's  
7 cumulative. In other words, each dose received  
8 adds to your risk of getting cancer.

9                   So there are x-rays which are non-  
10 particulate. You don't become radioactive when  
11 you're x-rayed, but in that instant your cells may  
12 be damaged like the Drosophila fruit fly.

13                   Then there's gamma radiation which  
14 is being measured now at Fukushima. They're  
15 running around with gamma counters, Geiger  
16 counters, and that's like x-rays, and gamma  
17 radiation is given off by many of the elements,  
18 caesium, strontium. There are 200 elements in  
19 these reactors. Some last seconds and some last  
20 millions of years.

21                   Then there's alpha radiation which  
22 is particulate given off by an unstable atom  
23 composed of two protons and two neutrons. That's  
24 plutonium and that's uranium. It doesn't hurt you  
25 if you hold it on your hand because it travels a

1 short distance. If you inhale it, it radiates a  
2 small volume of cells with a very high dose. Most  
3 die, but those on the periphery survive and the  
4 regulatory gene may be damaged.

5                   In the sills are genes in the  
6 nucleus, and in the sill is a regulatory gene that  
7 controls the rate of cell division. If radiation  
8 hits that gene, that DNA molecule, it changes  
9 biochemically and the cell sits quietly and  
10 latently for any time from five to sixty years.  
11 And that's called the latent period of  
12 carcinogenesis.

13                   Now, if I sneeze on you, you're  
14 sneezing in two days. The incubation time for  
15 measles, mumps, whooping cough, rubella, is three  
16 weeks. For cancer, it's any time from five to  
17 sixty years.

18                   And when it occurs, it doesn't  
19 wear a little flag saying, "I was made by some  
20 tritium you inhaled from the Darlington reactors 20  
21 years ago."

22                   So it's sort of a cryptogenic  
23 thing, and the only way you can tell if there's an  
24 increased incidence of cancer in a population,  
25 which hasn't been done around these reactors, is to

1 take the whole population, follow them until they  
2 die, do autopsies on all of them to get the correct  
3 diagnosis and compare them to a totally non-exposed  
4 population.

5                               We did that in Hiroshima and  
6 Nagasaki, and that's how we've derived all our  
7 standards for radiation for human beings. Those  
8 standards now are too high and we need to lower the  
9 dose. No radiation is safe.

10                              So therefore, increasing the  
11 background radiation is going to increase cancer,  
12 but I'll get onto that in a minute.

13                              So the accident in Fukushima is  
14 totally under -- there's no control. They don't  
15 know what's going to happen next. Six reactors.  
16 Already radiation is being found in the seawater,  
17 in food, and what happens is when caesium and  
18 strontium land on the soil, the roots of the soil  
19 suck it up because they need rare minerals and they  
20 think strontium is calcium. And they need iodine,  
21 so they bio concentrate it thousands of times at  
22 each tip of the food chain: algae, crustaceans,  
23 little fish, big fish, humans, because we stand at  
24 the apex of the food chain.

25                              We're here at Lake Ontario; that's

1 where you get your drinking water and the water  
2 from the reactors goes out into the lake, as well  
3 as water that's polluted from Port Hope and the  
4 radioactive materials there.

5                   So we don't know what's going to  
6 happen, but my son pointed out to me the other day  
7 if there's actually a meltdown at one of those  
8 reactors, that's the end, because everyone will  
9 have to evacuate, all the workers, and that means  
10 that there will be no control at all.

11                   We are on the edge of the  
12 precipice of absolute devastation in Japan, which  
13 is a tiny island, and it depends on the way the  
14 wind blows whether or not the whole of Japan will  
15 become uninhabitable, whether thousands will be  
16 dying of acute radiation illness with such a huge  
17 dose, their hair will be dropping out and they'll  
18 be vomiting and bleeding to death, a new syndrome  
19 only first described after Hiroshima and Nagasaki.  
20 We didn't know what it was.

21                   And we learned that radiation  
22 kills the actively dividing cells of the body,  
23 hair, gut and blood cells.

24                   Most certainly there's going to be  
25 a high incidence of cancer in that population that

1 is being exposed now. The reactors are in a highly  
2 populated area. We don't know what's going to  
3 happen down the line.

4 The workers in there now are like  
5 the workers that went in to 9/11. They're dead men  
6 walking. Already I think five of them have died of  
7 acute radiation. This is not a benign industry.

8 Now, I want to talk to you a  
9 little bit about Chernobyl. A World Health  
10 Organization and the International Atomic Energy  
11 Agency have an unholy alliance which says that the  
12 IAEA which promotes nuclear power all over the  
13 world, and we've seen that recently, has an  
14 agreement with the World Health Organization that  
15 WHO cannot examine any health consequences of a  
16 nuclear accident unless the IAEA says it can.

17 Consequently, Chernobyl has never  
18 been examined adequately by the WHO, but the New  
19 York Academy of Sciences has just produced this  
20 report where actually they went to the trouble of  
21 translating 5,000 articles in Russia, scientific  
22 papers, and they have found that almost one million  
23 people have already died as a result of Chernobyl.

24 Chernobyl was only in operation  
25 for three months before it exploded. It was run by

1 a really stupid man who was a specialist in  
2 hydroelectricity and he did a crazy experiment and  
3 we got the explosion.

4                               But this book is one of the most  
5 scary books I've ever read, and the data is all  
6 here about the fallout. Just to make a few points  
7 about Chernobyl -- and I recommend to you all that  
8 you obtain this from the New York Academy of  
9 Sciences and read it thoroughly; it's totally  
10 referenced.

11                              So already, 92,627 people in  
12 Europe have developed thyroid cancer. Of those,  
13 26,584 have died of thyroid cancer. When you have  
14 your thyroid out, you can't exist without thyroid  
15 hormone replacement, or you die, like a diabetic  
16 will die without insulin. So these people are  
17 dependent upon thyroid replacement for the rest of  
18 their life.

19                              For each single thyroid cancer,  
20 there are 1,000 thyroid abnormalities, mostly  
21 hypothyroidism, where people become obese; their  
22 hair falls out; their basal metabolic rate falls.  
23 They become constipated; they stop their periods.  
24 They need thyroid replacement as well.

25                              Cancers of all varieties have

1 increased enormously throughout the European  
2 population and indeed the fallout circled the globe  
3 and landed in America and Canada. Forty (40)  
4 percent of the European land mass is still  
5 currently very radioactive.

6                               And now please would you turn on  
7 my slide. This is a map of Europe. This reactor  
8 had only been operating for three months. It  
9 didn't have a hell of a lot of radiation. And you  
10 can see those red areas are areas in which nobody  
11 can live because it's so incredibly radioactive.

12                              The lighter areas -- and this is  
13 only the caesium deposition which lasts for 600  
14 years -- and there's a potassium analog  
15 concentrates in foods causing brain cancers and  
16 rhabdomyosarcomas or rare muscle cancers.

17                              We haven't included strontium-90  
18 that lasts the 600 years which causes bone cancers  
19 or leukemia. Plutonium lasts for 24,400 years.

20                              You're all looking a bit bored.  
21 Ms. Myles, have you gone to sleep? Please don't.  
22 This is so important. I mean, this is ---

23                              CHAIRPERSON GRAHAM: We're getting  
24 records of who wants to intervene.

25                              DR. CALDICOTT: Oh, are you?

1 Okay. Sorry. I apologize.

2                               So you can see the wind change 360  
3 degrees in the first 24 hours and it blew all over  
4 Russia, Belarus, the Ukraine. Turkey, which isn't  
5 shown, got a hell of a dose. Their tea was so  
6 radioactive and they were so annoyed they picked  
7 all their radioactive tea and sent it back to  
8 Russia.

9                               Don't buy Turkish dried apricots  
10 because they're radioactive probably, or hazelnuts,  
11 but they're being exported all over the world.  
12 Germany and Austria got a hell of a dose. France  
13 got a lot. But although France gets 80 percent of  
14 its electricity from nuclear power, they said that  
15 the fallout stopped at the border of France. Now  
16 they're seeing high levels of cancer amongst their  
17 population. It was first picked up in Sweden where  
18 they monitored it. Gorbachev denied the accident  
19 for 10 days.

20                               There are 360 farms in Cumbria and  
21 Wales whose lambs are so full of caesium-137 they  
22 can't be sold on the market. Those areas will  
23 remain radioactive for hundreds of thousands of  
24 years.

25                               Plutonium is so toxic that a

1 millionth of a gram, if inhaled, will induce  
2 cancer. Each of the reactors here probably makes  
3 500 pounds or 250 kilos of plutonium a year. It  
4 lasts for 500,000 years and you need 5 kilos to  
5 make yourself a bomb. Hence Cameco -- making fuel  
6 rods at Port Hope and exporting them all over the  
7 world; it's the biggest miner of uranium and  
8 exporter in the world -- is actively encouraging  
9 natural proliferation of nuclear weapons because  
10 any country that has a reactor has a bomb factory.

11                   There have been an enormous number  
12 of congenital abnormalities as a result of  
13 Chernobyl. Let me see if I can find the picture  
14 and hold it up. I need you to turn the slide off  
15 now and I want to put this, if I can -- I don't  
16 know if you can see that adequately, but they're  
17 very, very, grossly, yeah, deformed babies.  
18 Phocomelia, babies with no limbs, that's what  
19 thalidomide produced and other extreme  
20 abnormalities in newborns.

21                   We have never seen anything like  
22 this in the history of paediatrics before. There  
23 are homes full of the most deformed children in  
24 Belarus and the Ukraine. Never in the history of  
25 medicine have we seen this before because if you

1 have a normal embryo and some plutonium gets into  
2 the embryo through the placenta and the umbilical  
3 cord, it can kill a cell that's going to form the  
4 left arm or the right side of the brain or the  
5 septum of the heart and indeed congenital  
6 deformities have risen absolutely alarmingly.

7                   And there were hundreds of  
8 thousands of curies released from that one  
9 accident. So what I want to demonstrate is that  
10 one accident at one reactor can contaminate an  
11 entire continent. I don't buy European food  
12 because I don't know what's radioactive and what's  
13 not.

14                   I rang the man in Melbourne who  
15 tests imported food from Europe and I said, "What  
16 do you do when you find radioactive food." "Oh",  
17 he said, "We dilute it with non-radioactive food."  
18 The solution to pollution by dilution is fallacious  
19 when it comes to radiation if you're a biologist  
20 and understand biology.

21                   Okay, now we get on to Darlington.  
22 It seems to me really strange that here we are  
23 discussing building two or four more reactors on an  
24 earthquake fault here when we're in the middle of  
25 the most ghastly nuclear accident the world has

1 ever seen. Have we all got a case of nuclear  
2 psychosis? I mean really where are our brains and  
3 our intelligence and our psyches?

4 Darlington, I don't know what the  
5 new reactors are going to be. Are they CANDU  
6 reactors? Are they going to be CANDU design?

7 CHAIRPERSON GRAHAM: That -- in  
8 the presentations, that has shown that the design  
9 has not been chosen yet.

10 DR. CALDICOTT: Well, I don't  
11 understand how these individuals over here can be  
12 saying everything's safe and the new designs et  
13 cetera when they don't even know what the design is  
14 going to be. We wouldn't do that in medicine  
15 because we would maybe kill our patients. It's  
16 very important to actually have the scientific data  
17 before you make prognostications and predictions.

18 CANDU reactors are, I think, the  
19 other two at Darlington are and at Pickering, I  
20 think you've got eight. They produce very pure  
21 plutonium and indeed India made her first bomb from  
22 a CANDU or similar reactor from Canada with your  
23 plutonium and your uranium. Incidentally, the  
24 reactors in Japan are being run by Australian  
25 uranium.

1                   CANDU reactors produce a lot of  
2 tritium. Now, tritium is a radioactive hydrogen  
3 atom and it's so active that nothing prevents it  
4 getting out except gold. Gold is so dense that  
5 tritium can't escape, but it escapes from  
6 everything else; stainless steel, glass, concrete;  
7 you name it, straight out. Your reactors make an  
8 awful lot of tritium.

9                   Now, say there's -- and it's  
10 injected -- there's no way to stop tritium escaping  
11 from the reactor into the water -- the cooling  
12 water -- or into the air. So say you live near  
13 these reactors and you're immersed in a fog, an  
14 inversion system, tritium combines with water to  
15 form tritiated water H3O and it is absorbed  
16 straight through the skin. The skin lets nothing  
17 through. It's the most important organ of the body  
18 because it protects us. That's why when you get a  
19 burn; it's almost lethal if it's over 50 percent of  
20 the surface area. Tritium gets in through the  
21 skin. It's also absorbed through the lung if you  
22 inhale it and through the GI tract and it bio-  
23 concentrates in the food chain.

24                   Tritium combines directly in the  
25 DNA molecule and it's a soft energy beta emitter.

1 It doesn't emit gamma so the people running around  
2 with Geiger counters in Fukushima are not measuring  
3 tritium. They're not measuring plutonium because  
4 that's an alpha emitter. Beta emitter is just an  
5 electron being emitted from an unstable atom. And  
6 then there are neutrons. Well, I could refer to  
7 that if we want to talk about it later.

8                   So tritium bio-concentrates in the  
9 food. It concentrates in the leaves of trees so  
10 when they transpire, the tritiated water falls  
11 down. The nuclear industry, in fact, is very  
12 worried about tritium and they've done a huge  
13 number of research experiments mostly on rats. In  
14 the early nineties in the Journal of Health  
15 Physics, they -- tritium induces brain tumours,  
16 tumours in every organ, abnormalities in the  
17 ovaries and the sperm and the like. It is  
18 medically contraindicated. You're allowed 7,000  
19 picocuries per litre of tritium in your drinking  
20 water; whereas, in the U.S., it's 700. That's  
21 because your reactors make such a lot of tritium.  
22 It is a very dangerous radioactive isotope. Its  
23 half life is 12.3 years so it lasts for 120 years.  
24 You multiply half life by 10 to get its total  
25 radiological life.



1 contain the genetic material for future  
2 generations.

3                   We all carry several hundred genes  
4 for disease; diabetes, cystic fibrosis,  
5 phenylketonuria, dwarfism, but you don't know until  
6 you mate with someone with the same gene and I have  
7 to say, "I'm sorry your child has cystic fibrosis."  
8 It's like blue-eyed genes are recessive so you can  
9 only have blue eyes if you have a pair of blue-eyed  
10 genes. Brown eyes are dominant so you can have  
11 brown eyes if you have one brown-eyed gene and one  
12 blue-eyed gene. So here's a quiz. Two parents had  
13 blue eyes and they had a brown-eyed baby. Where  
14 did the brown-eyed gene come from? Yes, the  
15 milkman. Okay, so it's quite useful.

16                   So xenon and krypton; xenon decays  
17 to caesium which I've just described as terribly  
18 dangerous and lasts for 600 years. It's a  
19 potassium analogue. Krypton decays to strontium  
20 which causes bone cancer and leukemia. It's very  
21 medically contraindicated for any isotopes to be  
22 emitted into Lake Ontario from whence many people  
23 get their drinking water. There'll be large  
24 quantities of tritium going in there, bio-  
25 concentrating in the food chain and reactors,

1 contrary to what was just said, as well as routine  
2 emissions -- they can't operate without these  
3 routine emissions of noble gases and carbon-14 and  
4 tritium -- do from time to time emit much more  
5 radiation and nasty isotopes than they should.  
6 They don't always report it to -- well, in America  
7 to the NRC. And often their investigations --  
8 people from the NRC go and check on how much  
9 radiation but it's often usually just calculated by  
10 using figures, estimates, guesstimates, as what  
11 happened at Three Mile Island.

12                   Okay, now, apart from a meltdown,  
13 which there are so many ways a meltdown can occur.  
14 Three Mile Island there was a tag over one of the  
15 levers, indicators, that didn't -- so, therefore,  
16 they didn't pick up the tag to see that the water  
17 level was falling and one of the pumps -- I think a  
18 valve got stuck -- and before they knew it they had  
19 a meltdown -- there was a meltdown. The monitors  
20 went off scale in the first few minutes of the  
21 accident.

22                   Hershey's chocolates is 13 miles  
23 from Three Mile Island -- 15 miles. That's where  
24 the cows graze. The milk was so full of  
25 radioactive iodine they powdered the milk for six

1 weeks until the iodine decayed. But almost  
2 certainly strontium, caesium, plutonium, americium,  
3 curium, neptunium, I could go on, and the list of  
4 isotopes some of them are here. Look at the  
5 periodic table -- got out as well. Don't eat  
6 Hershey's chocolates. It's medically  
7 contraindicated. We don't have the ground  
8 measurements where the cows graze. And I've been  
9 saying that since the accident and they haven't yet  
10 sued me.

11 Waste; there's 70,000 tonnes of  
12 the most extraordinarily concentrated radioactive  
13 waste. As we know, those cooling pools are burning  
14 in Japan. The waste contains long-lived isotopes,  
15 not the short ones like iodine and the ones that  
16 decay and thickens, but the ones that last hundreds  
17 and thousands of years. This is incredibly  
18 dangerous.

19 What are you going to do with your  
20 waste? I hear they found a bit of rock peninsulas  
21 sticking out into Lake Ontario and they're going to  
22 dig underneath and make a big hole and put your  
23 waste there, but it's also an earthquake zone.

24 And also, there's no container  
25 that can prevent the escape of radioactive elements

1 for longer than 100 years. Concrete cracks, steel  
2 rusts, and we'll all be dead. And as it leaks into  
3 the water and bioconcentrates back in the food  
4 chain you can imagine generations hence, women  
5 waking up in the morning, their food already  
6 radioactive, their children being born deformed or  
7 with genetic disease, and there are 2,600 genetic  
8 diseases now described, all getting their cancers  
9 at six instead of 16 because children are so  
10 radiosensitive. That is the legacy we leave.

11                   Even if these reactors they want  
12 to build don't have a meltdown they're still going  
13 to release radioactive elements and it's dangerous  
14 for the surrounding population. It's waste.

15                   And it's leaking all over the  
16 world now, Russia, China; we're seeing epidemics of  
17 cancer in those areas.

18                   Do you know how hard we try and  
19 save a child's life dying of cancer? We nearly  
20 kill the child to save it. We try and kill the  
21 actively dividing cells by radiation and chemo.  
22 Their hair falls out, they nearly die. We do cure  
23 now quite a lot of childhood cancers. We can't  
24 cure many adult cancers. When the child dies the  
25 parents never recover.

1 I'm on the core phase of life, as  
2 are all my colleagues. We are totally dedicated to  
3 saving lives, hence, this is the work I do.

4 Under no circumstances must we  
5 increase the level of background radiation, which  
6 already probably induces 30 percent of the cancers  
7 we now see.

8 Even the mummies in Egypt had  
9 cancer. Background radiation caused our evolution  
10 and caused the genes to develop for fish to develop  
11 lungs and birds develop wings and there's  
12 magnificent species to evolve with opposing thumbs  
13 and a huge neocortex. They were advantageous  
14 mutations but they're few and far between and you  
15 need billions of year's evolution to occur. Now  
16 we're increasing background radiation like there's  
17 no tomorrow.

18 So will the earth end with a bang  
19 and we could have nuclear war tonight because the  
20 weapons are still on hair-trigger alert, left there  
21 by Clinton, or will it end with a whimper, random,  
22 compulsory genetic engineering for the rest of  
23 time.

24 And these isotopes get inside the  
25 body. It's not like external radiation measured



1 get to the questions. I appreciate the -- I think  
2 your time is limited.

3 (APPLAUSE)

4 CHAIRPERSON GRAHAM: Order please.  
5 Order please.

6 DR. CALDICOTT: You shouldn't do  
7 that. You shouldn't do that because there are  
8 other people who don't agree and we must be  
9 respectful to everyone.

10 CHAIRPERSON GRAHAM: And it's not  
11 a matter of not agreeing, we want to be able to  
12 have some questions.

13 DR. CALDICOTT: Exactly.

14 CHAIRPERSON GRAHAM: And time --  
15 and we know that you have a tight schedule and ---

16 DR. CALDICOTT: Yes, I must go to  
17 Ottawa.

18 CHAIRPERSON GRAHAM: --- we want  
19 to respect that.

20 DR. CALDICOTT: Thank you.

21 CHAIRPERSON GRAHAM: So I will  
22 open the floor to my panel members, and Madam  
23 Beaudet, you have the first questions.

24 --- QUESTIONS BY THE PANEL:

25 MEMBER BEAUDET: Thank you, Mr.

1 Chairman.

2                   You're probably aware of the  
3 International Agency for Research on Cancer, which  
4 is part of the World Health Organization, and they  
5 have a research group on radiation.

6                   At the moment the agency is trying  
7 to characterize iodine 131. It's in preparation.  
8 They're looking, as you know, at the different  
9 groups, and for the benefit of the public, I will  
10 read them; group 1 is carcinogenic to humans, 2A is  
11 probably, 2B is possibly, 3 is not classifiable and  
12 group 4 is probably not.

13                   DR. CALDICOTT: In terms of what?

14                   MEMBER BEAUDET: In terms of any  
15 elements. It's not just for nuclear.

16                   DR. CALDICOTT: Are we talking  
17 about radioactive iodine 131?

18                   MEMBER BEAUDET: No, for any --  
19 because there are other sources of cancer, not just  
20 nuclear.

21                   DR. CALDICOTT: Of course.

22                   MEMBER BEAUDET: So these are the  
23 classifications and they're looking at, at the  
24 moment, for iodine 131.

25                   DR. CALDICOTT: Yes.

1                   MEMBER BEAUDET: They would  
2 probably put it in group 1, but it's in  
3 preparation.

4                   But the thing is, what -- and we  
5 had a presentation also, some comments earlier  
6 today saying that sometimes it's very difficult to  
7 do epidemiological studies because there are so  
8 many elements that are missing.

9                   And for them also their difficulty  
10 is the influence of genetic and environmental  
11 factors on the risk ---

12                  DR. CALDICOTT: Yes.

13                  MEMBER BEAUDET: --- because, as  
14 we know, some people die of lung cancer if they  
15 smoke but not all smokers will die of cancer.

16                  DR. CALDICOTT: Right.

17                  MEMBER BEAUDET: And so I would  
18 try to put some perspective with your comments as  
19 to how far you assess the different elements coming  
20 from nuclear power stations with this respect.

21                  I mean, I know the research is  
22 starting, you've been at it for a long time, but  
23 maybe now people are starting to evaluate.

24                  DR. CALDICOTT: Yes.

25                  MEMBER BEAUDET: And for us we

1 also have to rely on official scientific data so  
2 I'd like to have your comments on that.

3 DR. CALDICOTT: Well, the National  
4 Cancer Institute -- you know, when America tested  
5 over a thousand bones in Nevada -- I've got the mix  
6 now of the fallout and America was absolutely  
7 doused in radioactive fallout.

8 They only looked at cancers  
9 arising from I131. They didn't look at the other  
10 elements. And their estimate was about 17,000 to  
11 23,000 cases of cancer, thyroid cancer developed in  
12 America as a result of the fallout. But they  
13 didn't look at any other elements.

14 Now, I was commissioned by the  
15 editor, Arnold Relman, of the New England Journal  
16 of Medicine in '78, to write an article about the  
17 medical effects of nuclear power. And I spent a  
18 year in the Harvard library, most of the  
19 information came from the Journal of Health  
20 Physics, from the nuclear industry itself.

21 I must tell you that most of  
22 the isotopes have never been studied in terms of  
23 the pathways and biological systems and to which  
24 organs they go. We know caesium is a potassium  
25 analog, every cell is rich in caesium, so it can

1 cause cancer in many places. We know that  
2 strontium 90 is a calcium analog, only goes to  
3 bones and teeth. That is why during the fall out  
4 days Linus Pauling said we need to look at the  
5 teeth of children for strontium 90.

6                                 We know that plutonium is an iron  
7 analog, so it is combined with transferrin in the iron  
8 transporting protein and it causes lung cancer,  
9 leukemia and lymphoma. It's stored in the liver,  
10 where it causes liver cancer; bone, where  
11 haemoglobin is made, because in bone cancer,  
12 leukemia, it causes a placenta, which lets nothing  
13 through, but it does it, so it can cause these  
14 congenital anomalies I showed you. That's called  
15 teratogenesis, damage of a normal embryo. It has a  
16 pre-election for testicles and every male in the  
17 northern hemisphere has a tiny load of plutonium in  
18 his testicles from weapons testing days. It  
19 deposits just next to the spermatogonia, that are  
20 the precursors of the sperm, so the genetic  
21 mutations of course are passed on generation to  
22 generation. It takes up to 20 generations for  
23 recessive genes to express themselves, to get  
24 together, dominant is this generation, like brown  
25 eyes -- I lost my train of thought. Where was I



1 remind my panel members that questions can also go  
2 to OPG because they did the presentation, so, Mr.  
3 Pereira, do you have any to Dr. Caldicott or OPG?

4 MEMBER PEREIRA: I -- my first  
5 question concerns tritium, because as you pointed  
6 out, tritium is an element which features in CANDU  
7 reactors, and clearly with -- with that knowledge  
8 that we have, we were aware of that as well. I  
9 believe in Canada we've done some studies on doses  
10 of tritium and the impact of the doses. I'll turn  
11 to the CNSC because I am aware that they issued a  
12 report, maybe a year or two ago, on tritium and the  
13 impact of tritium and as with respect to human  
14 health.

15 CHAIRPERSON GRAHAM: Dr. Thompson.

16 DR. THOMPSON: Patsy Thompson, for  
17 the record. Yes, the CNSC did commission -- did  
18 ask staff to do a scientific review of the  
19 information that is available in the literature on  
20 the effects -- the health effects of exposures to  
21 tritium. Those reports -- so the work that was  
22 done was looking at tritium releases in the  
23 environment around Canadian nuclear facilities.  
24 There is also a report on levels of tritium in  
25 drinking water around nuclear facilities in Canada



1 MS. THOMPSON: Can I answer that,  
2 please?

3 CHAIRPERSON GRAHAM: Thank you.  
4 Well, the questions are from the panel, but I will  
5 allow you one question, yes.

6 MS. THOMPSON: One question or one  
7 answer?

8 CHAIRPERSON GRAHAM: Do you --  
9 Mr. Pereira was in a line of questioning, that is  
10 what I --

11 MS. THOMPSON: Oh, sorry, Mr.  
12 Pereira.

13 CHAIRPERSON GRAHAM: -- and once  
14 we get done with him, yes. Mr. Pereira.

15 MR. PEREIRA: Thank you. In -- in  
16 the PMD submitted by Dr. Caldicott, there is a  
17 statement that a number of unregulated isotopes,  
18 including Noble gases, Krypton, Xenon and Argon,  
19 again, I'd invite the CNSC to comment on that --  
20 that statement and the impact of that -- such  
21 practices on human health.

22 DR. THOMPSON: Patsy Thompson, for  
23 the record. The Canadian Nuclear Industry is  
24 regulated by the CNS. There are requirements to  
25 maintain doses of workers as low as possible and

1 the practices, the radiation protection programs  
2 take into consideration all sources of exposures  
3 that workers could be exposed to, so all sources of  
4 radiation and the programs require that work be  
5 planned, so that workers be exposed as -- the least  
6 exposure as possible. The levels of exposures of  
7 Canadian workers are very low and this information  
8 can be provided to the panel as an undertaking if  
9 you wish.

10 In terms of discharges to the  
11 environment, again, the safety systems and the  
12 controls in place to minimize discharges to the  
13 environment, either through water or air, are  
14 regulated by the CNSC and the expectation is that  
15 the releases be controlled to minimize them. The  
16 emission is monitored and the environment is  
17 monitored, so it is through that system of  
18 protection and regulation that we have the  
19 information to confirm that doses to the members of  
20 the public are very low from all radionuclides that  
21 are emitted from the nuclear facility.

22 MEMBER PEREIRA: Thank you, Dr.  
23 Thompson. Another statement that Dr. Caldicott  
24 made was that Darlington is being constructed on an  
25 earthquake fault. Can I turn to OPG and ask for a

1 comment on that statement?

2 MR. SWEETNAM: Albert speaking,  
3 for the record. We have spoken to this subject  
4 before. Darlington is not constructed on a fault.  
5 The investigations that have been done by a series  
6 of seismologists indicate that this is not the  
7 case.

8 MEMBER PEREIRA: Thank you.

9 CHAIRPERSON GRAHAM: Dr.  
10 Caldicott, you had a point?

11 DR. CALDICOTT: Yes, just two  
12 points. The workers are, of course, exposed to  
13 tritium and other -- and sometimes high levels of  
14 gamma radiation, depending on the area in which  
15 they are working. And you cannot tell how much  
16 tritium they've been exposed to, unless you are  
17 measuring tritium actively with a beta-counter, and  
18 that is not usually used. In a reactor the gamma  
19 radiation is measured. But I will tell you that in  
20 my book I've got huge references to the toxicity of  
21 tritium from the Atomic Energy Commission, from the  
22 IAEA, from Health Physics. I mean, it's a vast  
23 number and it says CANDU reactors generate large  
24 quantities of tritium as a by-product.

25 In 1996 a massive 50 trillion

1 curies of tritium were released into Lake Ontario  
2 from a leak at a heat exchanger at the Pickering  
3 Number 4 station. Lake Ontario is a very large  
4 body of water and the tritium would have been  
5 rapidly diluted; however, many people get their  
6 drinking water from this and if they live near the  
7 outflow from Pickering, they would have ingested  
8 tritium. It also bio-concentrates in the food  
9 chain so people who catch and eat fish from the  
10 lake could ingest tritium.

11                                   But I also would like to say -- as  
12 I said there's a vast literature on tritium. It  
13 causes chromosomal breaks and aberrations; in  
14 animal experiments it's been shown to induce a  
15 five-fold increase in ovarian tumours in offspring  
16 of exposed parents, while also causing testicular  
17 atrophy and shrinkage of the ovaries. It causes  
18 decreased brain weight in the exposed offspring,  
19 and mental retardation, with an increased incidence  
20 of brain tumours in some animals. Increased peri-  
21 natal mortality was observed in these experiments,  
22 as well as high incidence of stunted and deformed  
23 foetuses.

24                                   It's also more dangerous when it  
25 becomes organically bound in food; as such, it's

1 incorporated into molecules including DNA within  
2 bodily cells. Chronic exposure to contaminated  
3 food causes 10 percent of the tritium to become  
4 organically bound within the body, where it has a  
5 biological half-life of 21 to 550 days, meaning it  
6 can reside in the body for up to 25 years.

7                                   And I can go on because there's  
8 more, there's just a vast literature on tritium and  
9 so you have no idea how your workers are exposed  
10 unless they wear beta counters just next to their  
11 nose when they're inhaling or -- and it also goes  
12 through the skin.

13                                   CHAIRPERSON GRAHAM: Thank you.  
14 If there are no more questions from my panel  
15 members ---

16                                   DR. THOMPSON: Could I, Mr.  
17 Graham, for the record correct the statements that  
18 Dr. Caldicott just made?

19                                   Tritium exposure of workers is  
20 monitored in Canada. There is a requirement for  
21 all licensees handling tritium to monitor tritium  
22 exposures of their workers; this is a legal  
23 requirement.

24                                   DR. CALDICOTT: Can I ask how is  
25 it monitored; with what monitors?

1 DR. THOMPSON: Perhaps, I could  
2 suggest that we take this as an undertaking and we  
3 can provide the details of the monitoring -- worker  
4 monitoring programs to the panel.

5 CHAIRPERSON GRAHAM: Please do, so  
6 we can -- so you can be very accurate. OP --  
7 pardon me? Pardon me? Undertaking Number 20, that  
8 will be from CNSC with regard to a measurement of  
9 tritium.

10 Now we go to questions from -- and  
11 it's OPG's turn.

12 --- QUESTIONS BY THE INTERVENORS:

13 MS. SWAMI: Actually, I wondered  
14 if I could add to the discussion on worker health  
15 and safety from the perspective of monitoring and  
16 measuring tritium exposures of our workers.

17 Obviously OPG is very interested,  
18 and ensures that its workers are protected from  
19 exposures, whether it's from the types of exposures  
20 that were discussed, or from tritium. We have not  
21 only monitoring of the workers themselves, which is  
22 through bio-analysis, which is done on a routine  
23 basis depending on the type of work that you do in  
24 the facility, whether it's on a shiftly basis,  
25 whether it's on a routine basis, or whether it's

1 after a potential exposure. All of that is tracked  
2 on a regular basis, and we have internal ability to  
3 monitor that.

4 In addition to monitoring our  
5 employees, we also have the ability to monitor  
6 tritium concentrations in and around our plant  
7 where workers may be exposed. We monitor that so  
8 that we can ensure there is adequate protection for  
9 workers, so that their exposure is minimized as we  
10 talked in our ALARA program. And that takes place  
11 on a routine basis.

12 We also ensure that staff are  
13 provided with equipment to protect them from  
14 tritium exposures. That can be through breathing  
15 apparatus, it can also be from a full protection in  
16 suits so that they are not exposed to the so-called  
17 immersion type of exposure. So there's a very  
18 broad program for tritium management and ensuring  
19 that are doses are at ALARA.

20 CHAIRPERSON GRAHAM: Thank you.

21 Now we will go to questions from the ---

22 DR. CALDICOTT: Can I respond?

23 CHAIRPERSON GRAHAM: Yes.

24 DR. CALDICOTT: Well, there's no  
25 way to stop tritium getting through anything, as I

1 said, except if they wear suits of gold. It will  
2 get through the mask, it will get through any  
3 material that they wear. And do you do urine  
4 analysis? You said bio-monitoring, is that what  
5 you test, urine or blood; what?

6 CHAIRPERSON GRAHAM: Dr. Swami?

7 DR. SWAMI: Urinalysis is used.

8 DR. CALDICOTT: I'd like to see  
9 the measurements and the data if I possibly could  
10 later. I don't know if I'm allowed to.

11 DR. THOMPSON: Could I suggest Mr.  
12 Graham that as part of the undertaking for the  
13 dosimetry protocol that we provide the -- a range  
14 of measurements.

15 CHAIRPERSON GRAHAM: Okay.

16 DR. THOMPSON: But for the purpose  
17 of today, the worker exposures to tritium in Canada  
18 in 2006 were between 0.07 to 0.26 millisieverts per  
19 year, so they're very low doses.

20 DR. CALDICOTT: Well, if you  
21 multiply that by 100 to get millirems, that's a  
22 dose, and I said no dose of radiation is safe. So  
23 the workers are being exposed continually to  
24 radiation, which is medically contraindicated.

25 CHAIRPERSON GRAHAM: OPG, do you

1 have some questions?

2 MR. SWEETNAM: I'll restrict them;  
3 for the record we have no questions.

4 CHAIRPERSON GRAHAM: CNSC, do you  
5 have some questions? I'd like to point out OPG  
6 made their presentation first, so if you have  
7 either to OPG or to Dr. Caldicott because we're --  
8 to expedite time we went to both presentations, so  
9 you're in order to ask both, either one.

10 DR. THOMPSON: Excuse me, I would  
11 have two questions for -- Mr. Chair, if you will  
12 take them under consideration. Two are questions  
13 for Dr. Caldicott.

14 The first one is -- would be  
15 whether Dr. Caldicott is aware of the cohort  
16 studies that have been done in Canada?

17 And the second question would be,  
18 through the Chair, if the information that is  
19 available in the peer reviewed scientific  
20 literature on the atomic bomb survivors and the  
21 Chernobyl showing that, effectively, humans are not  
22 as sensitive to genetic effects as animal models,  
23 such as the mouse models. And where we have  
24 information on 31,000 children from survivors -- of  
25 the atomic bomb survivors and there is no

1 indication of genetic effects.

2 So those would be my two  
3 questions.

4 CHAIRPERSON GRAHAM: Dr.  
5 Caldicott, I will allow both of those questions  
6 because there has been a tremendous amount of  
7 figures and so on, that we can read the transcripts  
8 later of what you had said over and over. But Dr.  
9 Thompson has directed two questions if you've read  
10 ---

11 DR. CALDICOTT: What was the first  
12 one again, sorry?

13 DR. THOMPSON: Mr. Chair, the  
14 first question is whether Dr. Caldicott has -- is  
15 aware and has reviewed the cohort ---

16 DR. CALDICOTT: Yes.

17 DR. THOMPSON: --- and  
18 epidemiological studies that have been done ---

19 DR. CALDICOTT: See and ---

20 DR. THOMPSON: --- on Canadian  
21 workers indicating that there are no health risks  
22 of Canadian workers?

23 DR. CALDICOTT: Yes, I've read  
24 those studies. And in fact, there are indications  
25 that there are elevated levels of malignancy

1 amongst those workers, particularly at Cameco at  
2 Port Hope, and nasopharyngeal carcinomas and lung  
3 cancers in others. But these are not peer reviewed  
4 studies. They have not been independently reviewed  
5 as my paper was for the New England Journal, and it  
6 got rejected because my reviewers said, "Well you  
7 didn't say what is good about nuclear power." And  
8 I said, "There's nothing good, medically, about  
9 nuclear power," so it got rejected. These are not  
10 peer reviewed papers.

11 I'm also very much aware of the  
12 Atomic Bomb Casualty Commission studies of  
13 Hiroshima and Nagasaki. In fact, I worked with one  
14 of the men who was in charge of the study. Yes,  
15 they found no genetic abnormalities, but as I  
16 pointed out, we don't live long enough to see any  
17 genetic abnormalities passed on. It takes up to 20  
18 generations for recessive mutations to appear.  
19 There may have been certainly some genetic  
20 abnormalities that caused death within the infants.  
21 There may -- there was an increased spontaneous  
22 abortion rate, although the people in Hiroshima and  
23 Nagasaki were not studied for the first five years,  
24 so some of the really important data was not  
25 obtained.

1                   There was a secrecy imposed upon  
2 Hiroshima and Nagasaki by the American military and  
3 the Atomic Bomb Casualty Commission.

4                   However, if you look at the data,  
5 and I really do suggest -- you can't have this one  
6 -- but that you obtain it, you will see the studies  
7 by T. Mousseau et al about the animals around  
8 Chernobyl, there are a lot of chromosomal  
9 abnormalities, but there are in the people too, and  
10 that's how we can assess radiation damage. It  
11 indicates that there is also genetic damage as  
12 genes reside on the chromosomes.

13                   We will not know in our lifetimes,  
14 or forevermore, how much genetic disease has been  
15 induced by Chernobyl or anything else, but the  
16 point that's different is in Japan people are  
17 irradiated by neutron radiation and gamma. They got  
18 no internal emitters, they got no radioactive  
19 isotopes into their bodies.

20                   That's why it's really not  
21 radioactive now in Hiroshima and Nagasaki and why  
22 40 percent of Europe is still, and will remain so,  
23 radioactive for probably thousands of years. And  
24 the same at Fukushima that's happening now.

25                   And I just would like to, please

1 if I may, present this book to the panel, where  
2 every single bit of data is referenced thoroughly.

3 CHAIRPERSON GRAHAM: Thank you.

4 Dr. Thompson, and then we'll have  
5 the intervenors.

6 DR. THOMPSON: Just one  
7 clarification.

8 The studies I was talking about on  
9 the cohort studies for nuclear power reactor  
10 workers and on the studies on the Eldorado workers,  
11 the chemical workers, have been published in peer  
12 review journals.

13 CHAIRPERSON GRAHAM: They have  
14 been peer-reviewed, is that what you're saying?

15 DR. THOMPSON: Those studies have  
16 been published in peer review journals.

17 DR. CALDICOTT: Okay, well, I've  
18 read ---

19 CHAIRPERSON GRAHAM: I'm sorry, I  
20 don't want to get into a debate. There are some, I  
21 think, in respect of the intervenors, there are  
22 some general public that would like to ask  
23 questions ---

24 DR. CALDICOTT: Yes.

25 CHAIRPERSON GRAHAM: --- so I

1 think it's only fair that we go to that.

2 And the first one is Anna Tilman  
3 for OPG. Not from OPG, but the question is for  
4 OPG.

5 MS. TILMAN: Thank you very much  
6 for that clarification. I'm from the International  
7 Institute of Concern for Public Health.

8 And I have a question with a  
9 couple of little tiny questions to it, if I may,  
10 Mr. Chair?

11 CHAIRPERSON GRAHAM: Proceed, and  
12 then we'll see how tiny, tiny is.

13 MS. TILMAN: As tiny as I am,  
14 okay.

15 I would like to go to Slide 2 in  
16 OPG's presentation where it's referred to that they  
17 conducted a comprehensive, integrated assessment of  
18 potential effects of the Darlington New Nuclear  
19 Project on human health and safety.

20 And their point that they've made  
21 is the project will not result in significant  
22 adverse effects on physical, mental, social health  
23 of workers or the general public.

24 My primary question is, is there  
25 an independent peer-reviewed study to support this

1 premise? Has there been a study to look at not  
2 only the radiological/non-radiological effects, the  
3 synergistic cumulative long-term effects,  
4 generational.

5                               Has there been the study? Does  
6 the study look at cumulative impacts? Does the  
7 study consider the possibility that the permissible  
8 dose that is presently given by ICRP may alter in  
9 light of continuing evidence that there's no safe  
10 level dose of radiation.

11                              So that's my question. Thank you.

12                              CHAIRPERSON GRAHAM: I think there  
13 are a couple of questions there. Was there a peer  
14 review and then study and so on, so I'll let OPG  
15 respond.

16                              Ms. Swami?

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

19                              I would say our studies were done  
20 by our consulting teams and we hired independent  
21 experts in various fields to review our studies  
22 prior to submission.

23                              I will ask Dr. Doug Chambers to  
24 provide a more detailed response of the work that  
25 was done if that's helpful.

1                   CHAIRPERSON GRAHAM: Please  
2 proceed.

3                   DR. CHAMBERS: Doug Chambers, for  
4 the record.

5                   Yes, the studies supporting the  
6 health assessment were independently reviewed by  
7 people not associated with the project, and we can  
8 talk about that if you so desire.

9                   Mr. Chairman and Commissioners, we  
10 followed the international guidance -- I might  
11 mention that in the mid-1950s the United Nations,  
12 much concerned about health, established the United  
13 Nations Scientific Committee and the Effects of  
14 Atomic Radiation. And it was much concerned at the  
15 time, of course, with the issues associated with  
16 atomic bomb fallout.

17                   That group consisted at the time  
18 of 21 countries and annual meetings have, perhaps,  
19 a 100 or more scientists and, not surprisingly,  
20 Japan has a huge interest in the risks from  
21 radiation. And they have a standing committee of  
22 scientists independent of the nuclear industry,  
23 between 40 and 50 people examine, carefully, every  
24 UNSCEAR report.

25                   UNSCEAR reports are published on a

1 rough periodic basis, about every five years, and  
2 in the international system in terms of health  
3 effects, the UNSCEAR reports are the top document  
4 and are relied on by the International Commission  
5 for Radiological Protection, the World Health  
6 Organization, and others who are concerned with  
7 radiation risk.

8                   I don't want to belabour it, but  
9 these are the kinds of documents that we relied in  
10 our assessment, as well as of course, you see  
11 references in various documents to BEIR reports.  
12 That stands for the Biological Effects of Ionizing  
13 Radiation, and that's a group that is established  
14 under the National Academy of Sciences who  
15 periodical at the request of USNRC or USCP or  
16 others, also independently examine the health  
17 information.

18                   And if you read the BEIR 7 report,  
19 which is the most recent, it very carefully talks  
20 about doses and dose response relationships.

21                   If I'm going on too long, please,  
22 Mr. Chairman, tell me.

23                   Below about a 100 miliSieverts,  
24 epidemiology is not able to identify an excess risk  
25 and, therefore, in order to be prudent we assume

1 the linear no-threshold dose response model, which  
2 is generated by the international communities and a  
3 vast consensus of scientists consider it to be  
4 prudent and conservative because there is a  
5 possibility of no risk whatsoever below that level.

6 In any event, I think I've talked  
7 too long, but I believe we followed good, well-  
8 accepted international practice. We've used well-  
9 accepted models in looking at pathways of exposure  
10 and uptake.

11 And I think I have one final  
12 comment -- is we are unavoidably exposed to natural  
13 background radiation. In the Durham Region, we've  
14 got about 1,850 I think, or 1,840 microSieverts a  
15 year. The maximum dose for the bounding scenario -  
16 - and I don't want to go into bounding -- for the  
17 proposed new reactors are about 5 microSieverts per  
18 year. Very, very much smaller and there's a huge  
19 safety factor there.

20 Thank you very much.

21 CHAIRPERSON GRAHAM: Thank you  
22 very much.

23 The next person -- next question  
24 is going be for Roy Brady and he has a question for  
25 OPG.

1 Mr. Brady, the floor is yours.

2 MR. BRADY: Roy Brady from Safe  
3 and Green Energy Peterborough. A question for OPG  
4 through the Panel Chair.

5 I'm referring to statements that  
6 were made during their presentation where they  
7 referred to "other core criticality events and  
8 malevolent acts" that they don't pose a risk to the  
9 public. Also, it doesn't result in a radiological  
10 risk to the public. So there are no credible risks  
11 to the public outside.

12 And I assume this is all from  
13 serious accidents.

14 Now, these statements are  
15 incredible safety -- and services.

16 What proof can you have that in an  
17 horrible accident, that the public is safe?

18 CHAIRPERSON GRAHAM: OPG?

19 MR. SWEETNAM: Albert Sweetnam,  
20 for the record.

21 I'll ask Dr. Jack Vecchiarelli to  
22 respond.

23 DR. VECCHIARELLI: Jack  
24 Vecchiarelli, for the record.

25 We have reviewed out-of-core

1 criticality situations for each of the vendor  
2 designs. This is documented in the accidents and  
3 malfunctions technical support document, to ensure  
4 that there's no credible mechanism for an out-of-  
5 core criticality event throughout the entire fuel-  
6 handling process.

7                   There are calculations  
8 demonstrating sub-criticality in all scenarios.

9                   In addition, we considered a  
10 hypothetical criticality event out-of-core and  
11 found that there is no -- the dose that would be  
12 received within a short distance would not trigger  
13 an evacuation of the public, there's no public  
14 nearby. It would be a limited range of influence.

15                   From a perspective of malevolent  
16 acts, I would just say that the bounding accident  
17 scenarios encompass any event that could be  
18 initiated through malicious intent.

19                   CHAIRPERSON GRAHAM: Thank you  
20 very much.

21                   I'll let you have one supplement.

22                   MR. BRADEY: So am I to assume  
23 that there will not be such an accident and no one  
24 will be killed; no one will be harmed? I still  
25 can't see how you can say that.

1                   Perhaps in one of your subsequent  
2 speeches or presentations you might outline some of  
3 this, because it is very hard to believe, sorry.

4                   CHAIRPERSON GRAHAM: I didn't get  
5 that as a question, so we'll look forward to  
6 responses as we go along.

7                   The next intervenor is Lake  
8 Ontario Waterkeepers, and he has a question for Dr.  
9 Caldicott.

10                   Mr. Mattson.

11                   MR. MATTSON: Thank you, Mr.  
12 Chairman.

13                   It was one question for OPG as  
14 well. I'm just keeping it to one to each. If it  
15 didn't get registered, it might have got lost in  
16 the web. Sorry.

17                   CHAIRPERSON GRAHAM: We get our  
18 messages up here and they're passed to me and so  
19 on. So proceed through the Chair.

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

22                   To Ontario Power Generation, in  
23 May 2009, Lake Ontario Waterkeeper was part of this  
24 public consultation and stakeholders group that Jim  
25 Merritt, head of Ministry of Environment, director

1 for many years, led and ultimately made a report  
2 called the Ontario Drinking Water Advisory Council,  
3 and the report concluded that the appropriate level  
4 in Ontario for tritium and drinking water is 20  
5 becquerels per litre and made the provision that  
6 they could move to 100 immediately and 20 in five  
7 years.

8                                   They also indicated that the  
9 Canadian Nuclear Association agreed that this was  
10 doable without excess costs.

11                                   And I'm wondering if OPG could  
12 agree to implement and put this protection in place  
13 for Ontarians as part of their proposal to build a  
14 new Darlington nuclear plant on Lake Ontario for  
15 the next 80 years?

16                                   CHAIRPERSON GRAHAM: OPG?

17                                   MS. SWAMI: Laurie Swami for the  
18 record.

19                                   A previous question was asked by  
20 Mr. Mattson from Lake Ontario Waterkeeper about the  
21 recommendations in the Ontario Drinking Water  
22 Advisory Council Report and the question that he  
23 asked at that time was with respect to  
24 Recommendation Number 6 on monitoring and reporting  
25 the discharge -- point of discharge levels of

1 tritium in our discharges and that we report these  
2 monthly to the regulatory authorities and other  
3 bodies.

4                               Currently OPG is responsible and  
5 does report these things on a routine basis various  
6 different places, but it is reported.

7                               There are six recommendations that  
8 the Ontario Drinking Water Advisory Council did  
9 make to, I believe, the Minister of Environment in  
10 Ontario. There is one that refers to the 20  
11 becquerels per litre that Mr. Mattson is referring  
12 to. There is also, I understand, one that talks to  
13 the 100 becquerels per litre.

14                               As I've said earlier, OPG has  
15 committed to achieve 100 becquerels per litre on an  
16 annual average basis at the water supply plants  
17 that are near us at both Pickering and Darlington,  
18 and that commitment stands.

19                               If the changes are implemented, of  
20 course, we would meet those requirements.

21                               I would also point out that for  
22 the new nuclear plant, we did assess the bounding  
23 case for what the tritium levels would be at the  
24 water supply plants, and I believe those are  
25 already provided to the panel.

1                   CHAIRPERSON GRAHAM: Mr. Mattson,  
2 your question now to Dr. Caldicott?

3                   MR. MATTSON: Okay. I think, Mr.  
4 Chairman, at some point it would be great if we  
5 could have cross-examination in this room.

6                   I think OPG would agree with me  
7 maybe even today, but we'll leave it at that.

8                   CHAIRPERSON GRAHAM: That's an  
9 opinion; we'd like a question.

10                  MR. MATTSON: Yes, okay. I think  
11 they know what I mean.

12                  My question is to Dr. Caldicott.  
13 And thank you, Dr. Caldicott, for coming, but I'd  
14 like to ask you just to comment on the process here  
15 in Ontario from moving from a drinking water  
16 standard of 7,000 becquerels per litre to 100 or  
17 the 20, which Ontario hopes to have in place. It  
18 seems like a really dramatic shift, 350 times, I  
19 believe, from 7,000 to 20.

20                  Can you explain sort of in your  
21 opinion what sort of impact that could have on the  
22 health of Ontarians?

23                  DR. CALDICOTT: I made a mistake.  
24 I said pico curries per litre instead of  
25 becquerels, and that needs to be changed on the

1 record.

2 I don't know how they can possibly  
3 do that. These reactors produce a hell of a lot of  
4 tritium, much more than any other reactors boiling  
5 water or the like. I haven't a clue how they can  
6 stop the tritium getting out because nothing stops  
7 tritium escaping.

8 If you had a tritiated watch with  
9 the numbers that light up at night, the tritium is  
10 leaking out of your watch. The signs on the  
11 runways where the planes go, many of the green  
12 signs have tritium in them and it's leaking. The  
13 exit signs in theatres, many of them have tritium  
14 and it leaks. There's no way to stop tritium  
15 leaking.

16 So it seems like a fallible  
17 statement which, for me as a scientist, I don't  
18 understand and as a doctor, I have to understand  
19 everything. Otherwise, I won't be able to treat my  
20 patients properly.

21 So I would take that with a large  
22 degree of scepticism.

23 CHAIRPERSON GRAHAM: Well, we'll  
24 see if that's going to be legislated or how it's  
25 going to be handled. So I'm not going to speculate

1 on what's in the future, but that's what's before  
2 us as a recommendation.

3 Mr. Kalevar, the floor is yours  
4 for a question, please. And yours is to Dr.  
5 Caldicott.

6 MR. KALEVAR: Thank you.

7 Chai Kalevar from Just One World  
8 for the record.

9 I am an engineer and I am lucky  
10 enough to have a sister as old as Helen who is a  
11 doctor. She is not a paediatrician but an  
12 ophthalmologist, but that doesn't matter.

13 The thing is, she taught me some  
14 medical science, and from that I learned something,  
15 that there are -- biology and medical science is  
16 very complicated.

17 And one of the things that --  
18 there are a few things that do stand out from her  
19 conversations and Helen's conversation and that we  
20 can't deny, that radioactivity bio cumulates.  
21 That's a very simple concept we can't deny. It's a  
22 complex subject. I can't just go to the question  
23 easily.

24 And then the other important thing  
25 is that dilution is no solution in this because it

1 bio cumulates. That's another aspect.

2 So having said that, my question  
3 is to Helen. What Ms. Swami has said, that all  
4 that she referred to, everything is much under  
5 regulatory dose limit. To you as a doctor, the  
6 concept of regulatory dose limit, does it make  
7 sense?

8 DR. CALDICOTT: No.

9 MR. KALEVAR: Exactly. Thank you  
10 very much.

11 DR. CALDICOTT: I might have a  
12 patient in the intensive care unit and we can, from  
13 previous data and the medical literature,  
14 prognosticate how the patient might progress, but  
15 we never know from day to day what might happen.  
16 The patient might enter cardiac failure or the  
17 potassium level might be too high, and then the  
18 patient may develop renal failure and then liver  
19 failure.

20 As the earth is kind of like a  
21 patient, we can't ever really know what is going to  
22 happen to our patients.

23 I'm sure that when they built the  
24 Japanese reactors they had similar studies to say  
25 everything would be safe and there would be very

1 few radio isotopes being released, and now look  
2 what's happened.

3                   You absolutely cannot predict with  
4 these machines with which humans must be infallible  
5 what's going to happen. You have no idea, and it's  
6 human error; it's computer error. There are all  
7 sorts of errors that could occur, including  
8 terrorist attacks. And although you're pretty good  
9 in Canada and seem not to have many terrorist  
10 attacks, you never know.

11                   But apart from that, what's going  
12 to happen with the waste? All your reactors should  
13 be closed down for the public health of the people  
14 of Canada and the future generations. There's  
15 absolutely no doubt about that and I can't  
16 understand, in the light of the present accident,  
17 how you can be so rational.

18                   (APPLAUSE/APPLAUDISSEMENTS)

19                   CHAIRPERSON GRAHAM: Order,  
20 please.

21                   DR. CALDICOTT: When my patient  
22 dies or gets sick, I have to be rational because I  
23 must be a good physician, but underneath I feel  
24 great emotion. Life is sacred.

25                   We can't be mucking around with

1 this.

2                                   And as Einstein said, nuclear  
3 power is a hell of a way to boil water.

4                                   CHAIRPERON GRAHAM: Thank you very  
5 much.

6                                   We have four more intervenors, and  
7 I'm going to cut off that list right now with the  
8 four that are to come forward because of time and  
9 in respecting time.

10                                  So the next one is CELA. And they  
11 have a question to OPG.

12                                  MS. McCLENAGHAN: Thank you very  
13 much, Mr. Chairman.

14                                  My question for OPG has to do with  
15 slide 5 on the presentation, and there's a  
16 statement that the reactor designs will meet or  
17 exceed regulatory standards, and the safety goals  
18 can be met.

19                                  My question has to do with -- in  
20 the event that we had a more severe accident than  
21 modelled in the safety case that escaped  
22 containment, as, for example, is potentially  
23 happening in Japan, what might be emitted to the  
24 surrounding environment in terms of radionuclides?

25                                  And I'm not looking for the

1 quantitative answers, but the -- a description of  
2 some of the radionuclides, say, from the EC 6  
3 because, again, there are four technologies in  
4 front of us.

5                               Beyond plant boundary -- to be  
6 clear, I'm talking about something beyond the case  
7 that's been analyzed.

8                               CHAIRPERSON GRAHAM: OPG?

9                               MR. SWEETNAM: Albert Sweetnam for  
10 the record.

11                              I would ask Jack -- Dr. Jack  
12 Vecchiarelli to answer the question.

13                              DR. VECCHIARELLI: Jack  
14 Vecchiarelli for the record.

15                              I'll answer it this way: Our  
16 bounding modelling case that we used is meant to  
17 bound the realm of credible accidents per the EIS  
18 guidelines. It goes beyond what we believe could  
19 occur at a frequency of one and one million reactor  
20 years.

21                              And the consequences that we've  
22 demonstrated and illustrated in that study are  
23 fairly benign.

24                              The impact on the local population  
25 is essentially nil with great margins with respect

1 to emergency planning measures within the primary  
2 zone.

3 So I would suggest there's a  
4 strong level of robustness in how much more can be  
5 mitigated in a much more severe incredible  
6 accident.

7 MS. McCLENAGHAN: Mr. Chairman,  
8 with respect, I wonder if I might ask a  
9 supplementary question.

10 And I would encourage the panel  
11 too to take this into account. I'm aware from  
12 reading the documents that OPG has provided source-  
13 term information to the panel and has refused to  
14 make it public. I'm not asking for that today. I  
15 indicated I wasn't asking for the quantitative  
16 information, but you hear members of the public  
17 asking questions today about accidents and not  
18 believing OPG when they say that nothing could  
19 escape containment and harm the public. And we  
20 have an example in Japan where that exactly is  
21 happening. And this proceeding needs to be  
22 credible.

23 CHAIRPERSON GRAHAM: Thank you.  
24 For your information, that was released. It's not  
25 secretive. That was -- that report, I believe, was

1 released, I'm getting a nod, because my  
2 recollection was that we did have that, so --

3 MS. McCLENAGHAN: So --

4 CHAIRPERSON GRAHAM: I think if you  
5 --

6 MS. McCLENAGHAN: So if we could  
7 have the reference number, Mr. Chairman, because  
8 I've been going pretty thoroughly through the  
9 documentation, and I see exchanges where it was  
10 refused.

11 It was provided to the panel, I  
12 see, but not publically.

13 CHAIRPERSON GRAHAM: We'll provide  
14 the number. I know it was released to the panel,  
15 and to clarify things, if it's on the registry, we  
16 will get that for you and give that to you later on  
17 today.

18 MS. McCLENAGHAN: Thank you.

19 CHAIRPERSON GRAHAM: Thank you.

20 The next one is Sharon Howarth and  
21 a question to OPG.

22 Ms. Howarth?

23 MS. HOWARTH: Sharon Howarth.

24 Thank you.

25 I'm a member of the public, and



1                   And I know that we talk about  
2 legislation. I think this is more for the panel.  
3 Like, we talk about legislation, but also there's  
4 our commonsense that has to come into this, right?

5                   And the -- that the question --

6                   CHAIRPERSON GRAHAM: Just for your  
7 information -- I'm not going to interrupt, but I  
8 just want to tell you the panel did have a complete  
9 presentation on faults and on seismic activity and  
10 so on earlier this week. So we are -- we have been  
11 briefed on it.

12                  MS. HOWARTH: Thank you.

13                  And I guess in the last one is  
14 that when -- how could you be asked to approve a  
15 new build when the reactors have not even been  
16 decided?

17                  So this -- I don't care who  
18 answers this question, but I don't understand that  
19 at all.

20                  Thank you.

21                  CHAIRPERSON GRAHAM: Thank you.

22                  That has also been debated a lot  
23 and discussed and questioned.

24                  If OPG wants to comment -- but I  
25 believe it was CNSC that gave the explanation that

1 we do not give the approval -- the construction  
2 license, the -- there was to be a -- there has to  
3 be a type of reactor chosen before the construction  
4 license is granted. And I believe that's correct.

5 Mr. Pereira, you're -- you may --  
6 you're indicating you'd like to comment.

7 MEMBER PEREIRA: Are the  
8 transcripts available?

9 CHAIRPERSON GRAHAM: Yeah. The  
10 transcripts are available. In fact, I saw  
11 yesterday's and so on, and they're that thick.  
12 We've been running 12, 13-hour days, so if you go  
13 to the part of the transcript where it was  
14 discussed about issuing a license, you will see  
15 that.

16 You will also get the information  
17 on seismic.

18 And, thirdly, I apologize for  
19 mispronouncing your name. I'm getting these notes  
20 all the time, and I have a hard enough job  
21 sometimes of pronouncing names. And it was written  
22 the other way.

23 Thank you very much for your  
24 questions.

25 MS. HOWARTH: There's other ways

1 of doing electricity in Ontario. I think that we  
2 really have to look at it. I'll bring you some  
3 information on that, okay?

4 CHAIRPERSON GRAHAM: Thank you  
5 very much.

6 The next one on the agenda here is  
7 Angela, and the way I have it is, Bischoff. I'm  
8 not sure. Maybe -- that may not be the right way  
9 to pronounce it, but the way it's written here --  
10 and they -- Angela has a question for OPG.

11 MS. BISCHOFF: I have two brief  
12 questions for OPG.

13 The first is -- it's in regards to  
14 the earthquake zone or Pickering and Darlington  
15 being on a fault line. I'm wondering if OPG has  
16 seen the studies written by Joe Wallach, and if  
17 that was -- if they were presented to the panel  
18 earlier this week, where he claims that there is --  
19 that there is a fault line going right through the  
20 centre of them.

21 And the second question regards  
22 the concept of the credible versus the incredible  
23 incidents. I don't understand what that's about,  
24 and I'm wondering if OPG could respond to that and  
25 also tell me whether Fukushima was -- would be

1 considered credible or incredible.

2 CHAIRPERSON GRAHAM: Two questions  
3 for OPG. Would you like to respond, please?

4 MR. SWEETNAM: Albert Sweetnam for  
5 the record.

6 I'll go to Dr. Youngs for the  
7 question on the earthquake fault and Dr. Jack  
8 Vecchiarelli for the accidents question.

9 DR. YOUNGS: Robert Youngs for the  
10 record.

11 Yes, the work by Dr. Wallach was  
12 factored into the seismic hazard assessment that  
13 was conducted for the atomic energy control board  
14 in 1997, and it was -- the potential sources that  
15 he identified were included in the seismic hazard  
16 model developed at that time. And those sources  
17 were included in the seismic hazard assessment  
18 conducted for the new build at Darlington.

19 CHAIRPERSON GRAHAM: Thank you.

20 And the other question?

21 DR. VECCHIARELLI: Jack  
22 Vecchiarelli for the record.

23 So ultimately what you're trying  
24 to demonstrate with a safety analysis is that the  
25 risk to the public is very low, and risk involves,



1 factors that the likelihood of having a failure to  
2 shut down, for example, is incredible because you  
3 have these multiple ways of doing the same  
4 function, and they're totally independent.

5                   So -- and many things have to go  
6 wrong to lead to a point where you could have some  
7 sort of a concern from a radiological release, and  
8 the -- the project was given a guideline in terms  
9 of how far -- how low of a frequency do you have to  
10 consider, and that is an event that so many things  
11 going wrong could occur once in a million years.  
12 And the event that happened in Japan, to answer the  
13 second part of your question, I think as we saw on  
14 the earlier presentations, I don't know if you were  
15 here, from the seismic point of view, a magnitude  
16 earthquake -- an earthquake of that magnitude such  
17 as occurred -- has occurred in Japan, a magnitude  
18 9, is just way beyond anything that we would expect  
19 in Southern Ontario.

20                   CHAIRPERSON GRAHAM: Thank you  
21 very much. Thank you very much for your question.  
22 The next questioner is Holly -- and I'm -- I don't  
23 want to massacre your name, so --

24                   MS. BLEFGEN: Oh, thank you,  
25 Chair. My name is Holly Bleggen, and I serve on

1 the Board of Families Against Radiation Exposure.  
2 My question is posed to OPG, in particular to the  
3 comment made -- can you still hear me -- to the  
4 comment made by Doug Chambers. I'd like to know,  
5 when he refers to scientific independent peer  
6 reviewed studies, please advise, how are they not  
7 associated with OPG? Secondly, by what process  
8 criteria -- criteria do you provide that answer?  
9 And thirdly, where's the anonymity that is required  
10 in scientific peer reviewed independent reports?

11 CHAIRPERSON GRAHAM: OPG.

12 MR. SWEETNAM: Albert Sweetnam for  
13 the record. I'll ask Dr. Chambers to respond.

14 DR. CHAMBERS: Dr. Doug Chambers  
15 for the record. There's several questions actually  
16 in there, and I'll start with the first. The --  
17 our approach to the assessment followed well-  
18 accepted practices, such as those of the Canadian  
19 Standards Association, which is very well-reviewed.  
20 We followed the Radiation Protection Guidance of  
21 the International Commission of Radiological  
22 Protection, which, again, is peer reviewed. If you  
23 look at any United Nations scientific committee and  
24 the Effects of Atomic Radiation Report, they all  
25 have hundreds and hundreds of journal peer reviewed



1 assessments, there is also a provision for  
2 alternate ways of dealing with the issue. Now,  
3 perhaps that's happened before today, but I'd just  
4 like to present an alternate way of dealing with  
5 the need for energy.

6 CHAIRPERSON GRAHAM: Ms. Lawson, I  
7 -- as I said at the outset, I have great respect  
8 because you've appeared before us. You are a  
9 presenter later on in the hearings, and I believe  
10 you're covering some of that.

11 MS. LAWSON: Well --

12 CHAIRPERSON GRAHAM: I guess right  
13 now we're trying to get questions to either Dr.  
14 Caldicott or OPG relating to health issues, and if  
15 you could put your questions that way --

16 MS. LAWSON: Yes, I will.

17 CHAIRPERSON GRAHAM: -- we -- I  
18 would appreciate it.

19 MS. LAWSON: This is a comment  
20 that I'm not making later, that the reserves of  
21 renewable energy technically accessible globally  
22 are large enough to provide about six times more  
23 energy than the world currently consumes. And this  
24 is a statement from the European Renewable Energy  
25 Council and Greenpeace. They made that statement

1 in 2007 and I presented to the -- the Darlington  
2 OPG, I would like some consideration of this as we  
3 review the needs for energy.

4 CHAIRPERSON GRAHAM: Thank you for  
5 your question. Mr. Sweetnam, would you like to  
6 respond?

7 MR. SWEETNAM: Albert Sweetnam.  
8 I'm not sure it was a question. The way I'll  
9 address that is that energy policy is addressed by  
10 the Province of Ontario. The long-term energy plan  
11 indicated an energy mix that includes renewables.  
12 It also includes the refurbishment of the plants,  
13 the nuclear plants and both Bruce and Darlington,  
14 and in addition to that, it includes new nuclear at  
15 Darlington. That energy plan was issued and -- in  
16 November last year, has been in front of the public  
17 for review, and it's now with the OPA to prepare  
18 before they go in front of the OEB. Thank you.

19 CHAIRPERSON GRAHAM: Thank you  
20 very much, and as I said, we would be taking ten  
21 minutes right after Dr. Caldicott has one -- she  
22 said like that, so I -- certainly you've come a  
23 long way, and I respect you have a comment.

24 DR. CALDICOTT: Thank you. The US  
25 Nuclear Regulatory Commission before Three Mile

1 Island estimated the chances of a severe meltdown  
2 or an accident to be the chance of being hit by a  
3 lightning bolt in the parking lot. Thereafter  
4 Three Mile Island occurred with -- because of human  
5 error. Thereafter, Chernobyl occurred because of  
6 human error, and now Fukushima is occurring, and  
7 I'd just like to ask OPG and the others if, in  
8 fact, you go ahead and you don't close these  
9 reactors down and you are in the middle of a  
10 meltdown, how are you going to feel?

11 UNIDENTIFIED SPEAKER: (Inaudible)

12 MS. CALDICOTT: We'll all be  
13 dying. That's my last point.

14 CHAIRPERSON GRAHAM: Thank you  
15 very much. We're going to take that break, but  
16 before we do that, Dr. Caldicott, a sincere thank  
17 you for taking time out of your schedule to come  
18 today and present your views. Thank you very much  
19 and have a good trip back.

20 --- Upon recessing at 4:03 p.m.

21 --- Upon reconvening at 4:17 p.m.

22 CHAIRPERSON GRAHAM: Order,  
23 please. Could everyone please take their seats so  
24 we can start again.

25 (SHORT PAUSE)

1 I'll call on my co -- could we  
2 keep it down at the back, please, and could we --  
3 order, order please. Could we -- we'd like to get  
4 started, so if -- if anyone has conversations,  
5 there's room outside to proceed with those. I'd  
6 like to call my co-manager Debra Myles for, I  
7 think, a brief statement on procedures.

8 MS. MYLES: Thank you, Mr. Graham.

9 I just wanted to respond to the  
10 request for the reference document from -- the  
11 question from CELA earlier.

12 The document is called, "Reference  
13 Document OPG New Nuclear at Darlington, Dose  
14 Consequence Analysis in Support of Environment  
15 Assessment." It is on the Canadian Environmental  
16 Assessment registry, and it's document number 397.

17 There's also a cover letter on  
18 that document that acknowledges the previous  
19 request by Ontario Power Generation not to release,  
20 and approves the release of that document. So  
21 that's CELA document 397 -- 397, that's correct.

22 Thank you.

23 CHAIRMAN GRAHAM: Thank you very  
24 much.

25 I'm not sure whether anybody from

1 CELA is here right now so, if they're not, would  
2 that be relayed to -- if you'd relay that to CELA,  
3 I'd appreciate it.

4 Okay, we are now on the part of  
5 the agenda that says that we're going to hear from  
6 Health Canada, and I'd like to welcome Health  
7 Canada with their team, and the floor is yours.

8 --- PRESENTATION BY MR. BASIJI:

9 MR. BASIJI: Thank you.

10 Good afternoon, Mr. Chairman,  
11 intervenors, panel members, and members of the  
12 public.

13 My name is Alex Basiji, and I am  
14 the Acting Director of Health Programs in Ontario  
15 Region for Health Canada.

16 I am pleased to be here today at  
17 the request of the Joint Review Panel to provide  
18 you with an overview of Health Canada's roles and  
19 responsibilities as they relate to the environment  
20 assessment review of this project.

21 With me today are other Health  
22 Canada representatives that are available to  
23 provide additional information, if required.  
24 Please allow me to introduce them.

25 To my right is Ms. Melanie Lalini,

1 our Environmental Assessment Coordinator, and to my  
2 immediate left, Ms. Kitty Ma, our Environmental  
3 Assessment Coordinator.

4 To my extreme left is Dr. Jing  
5 Chen, who is the head of our Radiological Inspect  
6 Section, and to her right is Ms. Lauren Bergman, an  
7 Environmental Impact Specialist, also with the  
8 Radiological Impact Section.

9 And on the phone with us from  
10 Ottawa, Mr. Barry Jessiman, who is the head of our  
11 Air Quality Assessment Section, and Mr. Stephen Bly  
12 who is the head of our Acoustics Section.

13 During my presentation I'd like to  
14 briefly outline the following: Health Canada's  
15 mandate, Health Canada's role in environmental  
16 assessments, our specific areas of focus for this  
17 project and, finally, an overview of our findings  
18 and advice regarding this project.

19 About Health Canada's mandate,  
20 Health Canada is the federal department responsible  
21 for helping Canadians maintain and improve their  
22 health while respecting individual choices and  
23 circumstances.

24 Our department strives to prevent  
25 and reduce risks to environmental health and the

1 overall environment, to promote healthier  
2 lifestyles, to ensure high-quality health services  
3 that are efficient and accessible, integrate  
4 renewal of the health care system with longer terms  
5 plans in the areas of prevention, health promotion  
6 and protection, reduced health inequalities in  
7 Canadian society, and, finally, provide health  
8 information to help Canadians make informed  
9 decisions.

10 Health Canada is participating in  
11 this project review under the *Canadian*  
12 *Environmental Assessment Act*, as a federal  
13 authority with expert information or knowledge.

14 When requested, we provide expert  
15 advice to responsible authorities, mediators or  
16 panels, as stipulated in the *Canadian Environmental*  
17 *Assessment Act*.

18 Health Canada provides advice only  
19 in those areas where we have expertise. Our  
20 department does not take a position on whether a  
21 project should or should not proceed. This  
22 decision lies with the responsible authorities.

23 Health Canada has two fundamental  
24 goals when reviewing environmental assessments:

25 The first is to verify that the

1 potential environmental effects of the project on  
2 human health have been properly identified by the  
3 Proponent, in the Environmental Impact Statement  
4 and related responses to information requests.

5                   The second is to verify that the  
6 Proponent has identified appropriate measures to  
7 mitigate the potential environmental effects of the  
8 project on human health.

9                   Health Canada's review of the  
10 Environmental Impact Statement, and the associated  
11 technical documents, focuses on the potential  
12 health impacts that may result from changes to the  
13 radiological environment, air quality, drinking and  
14 recreational water quality, and the acoustical  
15 environment.

16                   It should also be noted that  
17 Health Canada's conclusions are dependent on the  
18 validity of the Proponent's predictions provided in  
19 the Environmental Impact Statement.

20                   Health Canada is aware that the  
21 reactor technology for this project has not yet  
22 been selected. Consequently, the Proponent has  
23 made a number of assumptions about the project for  
24 the purpose of the Environmental Impact Statement.

25                   Health Canada is also aware that

1 for the purposes of the Canadian Nuclear Safety  
2 Commission's licensing process, the Proponent is  
3 required to submit detailed information regarding  
4 the chosen reactor technology that includes dose  
5 measurements -- that is, the amount of radiation  
6 estimated to be taken up by the human body --  
7 mitigations measures, and monitoring programs.

8                   During the Canadian Nuclear Safety  
9 Commission's licensing process, if requested by  
10 their Joint Review Panel or the responsible  
11 authority, Health Canada would review this  
12 additional information and provide its expertise.

13                   The following slides provide an  
14 overview of Health Canada's findings and advice.

15                   Health Canada's findings and  
16 advice related to radiological impacts are as  
17 follows:

18                   The Proponent uses a conservative  
19 general scenario to evaluate the potential effects  
20 of radiation from the multiple reactor designs on  
21 human health.

22                   Due to the conservative nature of  
23 the dose assessment, and the extremely low doses of  
24 radiation predicted by the Proponent, Health Canada  
25 is satisfied with this information as presented in

1 the Environmental Impact Statement.

2 Health Canada is aware that the  
3 Proponent will provide more information concerning  
4 accidents and malfunctions during the licensing  
5 phase once a reactor design is selected. We advise  
6 that the Proponent model a more realistic nuclear  
7 accident scenario to more accurately determine  
8 potential health effects and doses to workers and  
9 the public. This information will also be required  
10 for nuclear emergency planning.

11 Lastly, Health Canada advises that  
12 the Proponent's existing Radiological Environmental  
13 Monitoring Program be updated to reflect potential  
14 additional radiological emissions due to the new  
15 project. This will also ensure a more accurate  
16 estimation of radiation doses to the public.

17 Health Canada's findings and  
18 advice related to air quality areas follows:

19 The information presented in the  
20 Environmental Impact Statement was limited  
21 regarding mitigation measures and monitoring of air  
22 contaminants related to site preparation and  
23 construction activities.

24 Site preparation and construction  
25 activities are predicted by the Proponent to

1 produce considerable air contaminants in the area.  
2 Therefore, Health Canada advises that the Proponent  
3 implement all technically and economically feasible  
4 mitigation measures to reduce public exposure to  
5 air contaminants.

6 Health Canada's findings and  
7 advice related to drinking and recreational water  
8 quality are as follows: The Proponent has not  
9 completed a water quality assessment to date  
10 because a reactor technology has not been selected.  
11 Therefore, at this stage of the review Health  
12 Canada is not able to provide advice on the  
13 potential for this project to effect the quality of  
14 drinking and recreational water.

15 Once the Proponent selects a  
16 reactor technology in order to identify and reduce  
17 any potential impacts to human health, Health  
18 Canada advises that the Proponent conduct a  
19 detailed water quality assessment that includes a  
20 comparison of the concentration of chemicals  
21 predicted by the Proponent with applicable  
22 standards and guidelines and appropriate mitigation  
23 measures monitoring programs and follow-up  
24 activities.

25 Health Canada's findings and

1 advice related to noise are as follows: The  
2 Proponent provided limited information in the  
3 environmental impact statement on noise monitoring,  
4 a complaint response mechanism and a noise  
5 management plan.

6                                 With the goal of reducing any  
7 potential implications for human health of noise  
8 associated with the project, Health Canada advises  
9 the Proponent to include noise monitoring, commonly  
10 applied construction noise mitigation measures and  
11 considerations for noise reduction in its noise  
12 management plan; hold discussions in advance with  
13 local residents if construction activities occur  
14 outside of municipal noise curfew hours; put in  
15 place a complaint response mechanism to address any  
16 concerns raised by the public related to noise from  
17 the project site; outline the methodology and  
18 frequency of noise monitoring to be carried out in  
19 relation to the project and provide details on any  
20 actions to be taken by the Proponent should noise  
21 levels during construction exceed levels presented  
22 in the environmental impact statement.

23                                 In conclusion, Health Canada has  
24 carefully reviewed the environmental impact  
25 statement and associated technical documents and

1 provided advice regarding additional information  
2 and mitigation measures where appropriate.

3 We understand that more detailed  
4 information will be available by the Proponent  
5 during the licensing phase, and upon request from  
6 the Joint Review Panel or the responsible authority  
7 Health Canada would be prepared to review this  
8 additional information and provide its expertise.

9 Health Canada is pleased to  
10 participate in the panel's assessment of the  
11 proposed project as part of the department's  
12 mandate to maintain and improve the health of all  
13 Canadians.

14 Thank you for your attention.

15 I would now like to turn the  
16 questions over to Ms. Melanie Lalani, our  
17 Environmental Assessment Coordinator, who will in  
18 turn be fielding questions to the appropriate  
19 experts.

20 Thank you.

21 MS. LALANI: Melanie Lalani, for  
22 the record.

23 CHAIRPERSON GRAHAM: Thank you for  
24 the introduction. Thank you for the presentation.

25 We'll start off with panel

1 members, and Madam Beaudet.

2 --- QUESTIONS BY THE PANEL:

3 MEMBER BEAUDET: Thank you, Mr.  
4 Chairman.

5 I'd like to refer to your written  
6 submission, for the record, PMD11P1.8. You did  
7 mention this matter also in your presentation.  
8 It's on page 7.

9 You wish that -- the first  
10 paragraph -- you advise, rather, that realistic  
11 nuclear accident be modelled when a vendor is  
12 chosen to more adequately or accurately determine  
13 environmental effects on those workers and the  
14 public once a vendor is chosen, as I said.

15 OPG has modelled a release  
16 normalized to the threshold requirements of CNSC,  
17 small and large releases, and it's the worse case  
18 scenario.

19 So I'd like to understand the  
20 objective of doing it again when a vendor is  
21 selected. Do you want to have a more realistic  
22 scenario done or because you feel it could extend  
23 the threshold or because you feel the 500-metre  
24 limit maybe is not sufficient? I'd like to  
25 understand the criteria you used to base this

1 recommendation.

2 MS. LALANI: Melanie Lalani, for  
3 the record.

4 I'd like to ask our radiation  
5 expert to respond to that question.

6 MS. BERGMAN: Lauren Bergman, for  
7 the record.

8 OPG was limited to using a  
9 bounding approach for their nuclear accident  
10 scenario because the reactor technology has not yet  
11 been chosen.

12 So in order to accomplish this, as  
13 you mentioned, they did model a release scaled up  
14 to the safety goals recommended by the CNSC. This  
15 is a conservative method to do it. As you  
16 mentioned, it is a worse case scenario.

17 From a Health Canada perspective,  
18 we are more interested in a potential event that  
19 could lead to a nuclear accident scenario, and this  
20 will depend on which reactor technology has been  
21 chosen.

22 We are interested in what a  
23 release related to this potential event would be  
24 and what the corresponding human health effects  
25 would be.

1                   But as you mentioned, the model  
2 taken in the environmental assessment is  
3 conservative and we expect that realistic dose  
4 would be less than this bounding scenario. It is  
5 just to understand what a realistic human health  
6 implication would be.

7                   MEMBER BEAUDET: Thank you.

8                   OPG has agreed to do that. We  
9 have received a document with all the different --  
10 I don't know if you had a chance to look at it, but  
11 with all the recommendations that were proposed by  
12 the federal department. They did accept your  
13 recommendation and they have taken the commitment  
14 to do it.

15                   But I've asked the question  
16 because I'd like to understand a little bit more  
17 the background of your thoughts.

18                   When you say that they shouldn't  
19 model, again, you include only design basis  
20 accident or you also want beyond design basis  
21 accident?

22                   MS. LALANI: Melanie Lalani, for  
23 the record.

24                   I'll ask that that question is  
25 responded to by our radiation expert.

1 MS. BERGMAN: Lauren Bergman, for  
2 the record.

3 We are more interested in the  
4 design basis accidents as these will provide an  
5 accurate dose estimate for us to examine.

6 MEMBER BEAUDET: Thank you.

7 The other point I want to address,  
8 and we've discussed it a bit with OPG this morning,  
9 is during smog alert you recommend that maybe some  
10 activities should be stopped, or for OPG it appears  
11 that they need clarification on this as to the risk  
12 based approach because they consider that the very  
13 small events they're not frequent, they happen  
14 usually in the summer.

15 And so in your recommendation  
16 here, how would you -- what I'm trying to see is  
17 how it would be operational to do this? With OPG,  
18 would you come into an agreement? Would there be a  
19 committee and when it happens you would sit down  
20 and discuss, you know, we have to reduce certain  
21 activities and discuss which activities or it's a  
22 recommendation that you would leave up to the  
23 judgment of the Proponent to take such action?

24 MS. LALANI: Melanie Lalani, for  
25 the record.

1 I'd ask that our air-quality  
2 expert, Barry Jessiman, who is on the phone,  
3 respond to that question.

4 MR. JESSIMAN: Yes, it's -- the  
5 (unintelligible) is the basis of this and other  
6 recommendations is the finding in the scientific  
7 literature and by regulatory authority in Canada  
8 and around the world that there's no threshold for  
9 the effects of major smog components especially  
10 particulate matter in ozone and that any reductions  
11 provide some measure of human health benefits.

12 What we were hoping to see was if  
13 they planned to put in place, they could assess the  
14 -- using something like the provincial air quality  
15 forecast to look forward over a few days and to  
16 examine any potential for such reductions in  
17 activity. Not a formal process, but a plan to  
18 address such a contingency when and if they have  
19 to.

20 MEMBER BEAUDET: So if I  
21 understand you well, you would sit down first and  
22 propose a plan and agree to a plan and then it  
23 would be up to the Proponent to decide when they  
24 should do such reduction of activities?

25 MR. JESSIMAN: I think a plan

1 would be fairly straightforward. We would just  
2 like to see it developed and in place. So it would  
3 not be for some kind of standing committee. I  
4 would feel that the Proponent was able to do this  
5 on their own.

6 MEMBER BEAUDET: I'd like to have  
7 OPG to react on this, not that we have more details  
8 as to how it would work and what it would imply.

9 MR. SWEETNAM: Albert Sweetnam,  
10 for the record.

11 My understanding is that the  
12 concern would be to continue activities that were  
13 impacting or adding to the smog event and that we  
14 would have to reduce those activities on smog days.  
15 OPG is fully conversant with this sort of work.  
16 Our intention would be to provide dust abatement --  
17 significant dust abatement during such days and if  
18 that were not adequate, we would reduce activities  
19 in that specific area that's creating the issue.  
20 We would obviously -- this would be part of an  
21 overall plan that we would have for the site and I  
22 think we have committed within the licence  
23 conditions handbook to actually provide a dust  
24 abatement plan.

25 MEMBER BEAUDET: Thank you.

1                   My next point is -- it relates to  
2 your proposal for a comprehensive water quality  
3 assessment for drinking water and recreational  
4 water activities.

5                   I believe OPG has agreed to do  
6 that, but I'd like to understand a little bit more  
7 what you're proposing here because when a vendor is  
8 chosen, there will obviously be standards to be met  
9 and so when you mentioned water quality assessment,  
10 I presume it would include radiological and  
11 conventional contaminants, but then there are  
12 standards that exist and they would have to meet  
13 those standards so what would you foresee in such a  
14 study that you're asking?

15                   MS. LALANI: Melanie Lalani, for  
16 the record.

17                   Generally in a water quality  
18 assessment we seek a number of pieces of  
19 information in order to better present potential  
20 human health impacts. For example, we do have a  
21 drinking water and recreational water quality  
22 guidance document that we would be very pleased to  
23 present the proponent with that they could use that  
24 would really inform their water quality assessment,  
25 but I'll give you some details as to what we would

1 anticipate being in a water quality assessment.

2                               So first of there would be  
3 identification of all sources used for drinking  
4 water in the project area; consideration of all  
5 contaminants emitted from the project and their  
6 physical characteristics, so for example,  
7 temperature, turbidity, pH, total dissolved solids,  
8 total organic carbon and dissolved organic carbon;  
9 a determination of potential changes to source and  
10 well water quality due to any project activity  
11 including spills or accidents; determination of  
12 impacts of changes in water quality and potential  
13 human exposure pathways; comparison with, as you  
14 mentioned, applicable water quality guidelines or  
15 standards at the point of human consumption or  
16 exposure.

17                               When water is treated before  
18 consumption, we would like to see an examination of  
19 whether the technology and capacity of the drinking  
20 water treatment facility is sufficient to ensure  
21 that the treated water will be of adequate quality.

22                               We'd also like to see applicable  
23 monitoring and mitigation, as well as an assessment  
24 of residual risk.

25                               To also properly identify effects

1 on water quality, other factors need to be  
2 considered as well so looking at the effluence or  
3 discharges including the thermal plume; materials  
4 and chemicals that may be present in effluence;  
5 also considering excavation and construction  
6 issues, potential flooding, rerouting of waterways  
7 or landscape changes; sources of contamination that  
8 are already naturally occurring in the project  
9 area. So for example, those that are found in  
10 soils, in our water already or that remain from  
11 historical activities and could be released by the  
12 current project activities, as well as looking at  
13 physical characteristics. So I mentioned increased  
14 turbidity as it may actually reduce the  
15 disinfection capacity of chlorination or cause an  
16 increase in the amount of disinfection by-products  
17 that are produced during water treatment.

18                   And then the secondary piece would  
19 be an inclusion of consideration of recreational  
20 water quality as well, so, for example, in this  
21 part of the assessment, looking at consideration of  
22 sediment quality. Again, evaluation of potential  
23 human exposure pathways; so ingestion, inhalation  
24 or direct skin contact. And a description of the  
25 types of activities that are practiced on or in the

1 waters in order to identify potential exposure  
2 pathways, so swimming is a potential example.

3                   And we have worked with provincial  
4 and territorial partners to develop the guidelines  
5 for Canadian recreational water quality so these do  
6 not include guidelines for specific chemical  
7 parameters. So in the case of chemical  
8 contamination, it's actually advised that the  
9 guidelines -- the Canadian Guidelines for Drinking  
10 Water Quality are used when performing this  
11 assessment.

12                   If there are guideline exceedances  
13 in these areas, we suggest that a human health risk  
14 assessment would be undertaken in case of  
15 recreational exposures and mitigation measures, so  
16 including those to address possible spills and  
17 accidents and notification of appropriate  
18 authorities and measures to be taken to inform  
19 recreational users if there is impairment of water  
20 quality.

21                   And I'll just add, on that note,  
22 that recreational water quality does fall under  
23 provincial jurisdiction, but because, as I say, we  
24 have worked with provincial and territorial  
25 partners on the guidelines for Canadian

1 recreational water quality, we're advising that  
2 this approach is taken.

3 MEMBER BEAUDET: I will start with  
4 the recreational water.

5 I was under the impression that  
6 what is usually measured is for E. coli and that's  
7 usually a responsibility of the municipalities. In  
8 your approach, you're proposing other elements to  
9 be measured and who would be the responsible  
10 authority to do that?

11 MS. LALANI: Sorry, could you just  
12 rephrase your question?

13 MEMBER BEAUDET: Usually for  
14 recreational activities, for swimming especially,  
15 it's E. coli that is measured. And it's usually a  
16 responsibility of municipalities to inform people  
17 of which beaches they can use. Now, if I  
18 understand you well, you would also add other  
19 elements like turbidity of the water, et cetera.  
20 And my question is, who would be the responsible  
21 authority to do these checks? Is it Health Canada?

22 MS. LALANI: Our role, as I  
23 mentioned, is more on setting the guidelines for  
24 recreational water quality and drinking water  
25 quality. And then the province is the one that

1 undertakes to enforce any standards that they would  
2 have.

3 MEMBER BEAUDET: Because for  
4 recreational waters you also have swimming and you  
5 have second contact activities, which is kayaking,  
6 for instance, and canoeing, because then if you  
7 fall in the water you'll drink a little bit but you  
8 won't be the whole day in the water.

9 So it's a vast domain, although it  
10 looks very simple. But it requires, I would say,  
11 an independent authority, or an authority that has  
12 regulation to implement penalties to do these  
13 checks. I don't think it -- I don't consider it  
14 would be the responsibility of the Proponent.

15 MS. LALANI: Well, the checking is  
16 sort of separate from the water quality assessment  
17 that we're advising be undertaken by the Proponent.  
18 And we could undertake to get back to you with  
19 further information, if you'd like, on the  
20 regulatory regime in this regard.

21 MEMBER BEAUDET: Yes, please.

22 CHAIRPERSON GRAHAM: Okay, then  
23 this I guess will be an undertaking, Undertaking  
24 Number 21, to Health Canada to get back to the  
25 panel with further information on the subject.

1                   MEMBER BEAUDET: The first part of  
2 -- sorry.

3                   CHAIRPERSON GRAHAM: Just --  
4 pardon me, Madam Beaudet. Timeframe, how long  
5 would it take to get?

6                   MS. LALANI: If we were back to  
7 you by mid-week next week?

8                   CHAIRPERSON GRAHAM: Next  
9 Wednesday, thank you.

10                  MEMBER BEAUDET: The first part  
11 was drinking water. Now, I'd like you to explain  
12 to me the approach again. Because I believe it's  
13 an obligation from the Proponent to measure at the  
14 discharge, but it's up to the municipality to check  
15 that the potable water, after treatment, is  
16 potable.

17                   So you're approach would be to  
18 revise, or to second the municipalities to check  
19 other things, like maybe that they're not checking  
20 now, like tritium or other elements? Because from  
21 another case I saw at the CNSC the municipalities  
22 don't do any radionuclide checking, whether it's  
23 for sewage treatment plants, or I'm not sure about  
24 drinking water. But is that your intention?

25                   MS. LALANI: I will -- with

1 respect to your question about radiological  
2 constituents in drinking water, I would ask that  
3 our radiological expert respond to that.

4 MS. BERGMAN: Lauren Bergman, for  
5 the record.

6 Health Canada is responsible for  
7 setting the drinking water quality guidelines for  
8 many constituents, including radionuclides.  
9 However, it is up to the discretion of each  
10 province to adopt these guidelines into regulation  
11 or make any adjustments that they feel necessary.  
12 So it would be the provinces' responsibility to  
13 enforce such guidelines, if that answers your  
14 question.

15 MEMBER BEAUDET: And I believe,  
16 yeah, it's Minister of Environment.

17 I'd like a reaction on this with  
18 CNSC, please?

19 CHAIRPERSON GRAHAM: Dr. Thompson?

20 DR. THOMPSON: Patsy Thompson for  
21 the record. I was told that I was talking too low  
22 a few minutes ago, so I'll try to speak closer to  
23 the microphone.

24 Essentially the -- our  
25 understanding of the Health Canada recommendation

1 aligns with one of the CNSC recommend -- staff  
2 recommendations to the panel. That once the  
3 technology is chosen and information is available  
4 on the hazardous substances that would be released  
5 from the site, either through the stack or the end  
6 of pipe, in terms of liquid releases, that an  
7 assessment be done of potential human health  
8 consequences through exposure. For example, for  
9 recreational uses and drinking water, that  
10 assessment would be used, one, to guide monitoring,  
11 but also if the assessment would indicate that, for  
12 example, drinking water plants could be affected by  
13 the operation, we would essentially -- if the  
14 project goes ahead, the licensing would ensure that  
15 the limits on effluence would protect drinking  
16 water supplies.

17                               So the Health Canada  
18 recommendation, as I understand it, is to conduct  
19 that assessment, and that is also what CNSC staff,  
20 in one of our recommendations, is putting forward.

21                               MEMBER BEAUDET: I'm trying to  
22 understand here. This morning OPG has told us that  
23 when the -- there's a two phase with Minister of  
24 Environment, let's say, for instance, for discharge  
25 at the pipe that you do. You evaluate first what

1 you think is going to come out, and then you allow  
2 a margin. And so I agree, I mean, we can do a  
3 study and we can recommend it, but I'd like to know  
4 exactly what is needed.

5 I think -- my understanding at the  
6 moment is it's very vast. I mean, we need  
7 something that will be useful and practical, and  
8 I'd like OPG to react on this, please.

9 CHAIRPERSON GRAHAM: OPG?

10 MS. SWAMI: Laurie Swami.

11 I think that when we had the  
12 dialogue earlier today, I was referring to the  
13 process that would be followed. What I would also  
14 mention is that there are guidelines and standards  
15 that exist today that we would look to, to begin  
16 that process of what would be the requirement for  
17 the effluent; that it would have to meet those  
18 requirements.

19 We would also understand those  
20 requirements to be protective of the environment as  
21 well as potentially drinking water supplies, and  
22 things of that nature. The process though of the  
23 final design, OPG wouldn't pick the limit and say,  
24 okay, I'll design to that limit. Because, you  
25 know, we talked a little bit earlier about

1 incidents. You don't want to be in a position  
2 where you have an incident that results in an  
3 exceedance of a limit, as an example. And so we  
4 look to build in margins to our designs so that we  
5 can ensure that we'll meet limits.

6 That's the process that I was  
7 discussing. We would fully anticipate that once  
8 the design is selected we will have a lot more  
9 detail on the flow rates, loadings, the chemical  
10 constituents that we would be looking to, and we  
11 would design effluent discharge systems to ensure  
12 that they met those limits that are established.

13 So many of these are available to  
14 us today, and I believe that we provided a lot of  
15 that information in one of the information request  
16 responses so that you could see the -- sort of the  
17 full range of things that we would be looking to  
18 ensure that we met those requirements.

19 Is that helpful?

20 MEMBER BEAUDET: Yes.

21 Construction or designing of the  
22 nuclear power plant is going to be in a few years  
23 from now, even if you've chosen the vender. We  
24 were talking earlier of meeting 7000 becquerels per  
25 litre for drinking water. Would there be a

1 possibility of retrofits if you build with that  
2 standard and you have to change it later?

3 MS. SWAMI: Laurie Swami for the  
4 record.

5 We -- typically, in the water  
6 supply plants in the local areas around both  
7 Pickering and Darlington, are typically less than  
8 10 becquerels per litre today. And so we don't see  
9 any issue or concern with being able to meet those  
10 drinking water objectives.

11 We've already committed to 100  
12 becquerels per litre, that's an internal commitment  
13 that we've had in place for many years now, and we  
14 will continue to achieve the 100 becquerels per  
15 litre. I see no a risk to that in future.

16 MEMBER BEAUDET: Thank you.

17 CHAIRPERSON GRAHAM: Mr. Pereira?

18 MEMBER PEREIRA: I don't have any  
19 further questions.

20 CHAIRPERSON GRAHAM: Thank you  
21 very much.

22 Okay. First of all, we'll go to  
23 OPG. Do you have any questions to Health Canada?

24 MR. SWEETNAM: Albert Sweetnam for  
25 the record.

1 I have no questions.

2 CHAIRPERSON GRAHAM: CNSC? Dr.  
3 Thompson?

4 DR. THOMPSON: No questions.

5 Thank you.

6 CHAIRPERSON GRAHAM: Other  
7 government agencies, whether provincial or federal,  
8 that may have questions? Do I see any?

9 If not, intervenors, and we do  
10 have a list.

11 And the first one is Anna Tilman.

12 Someone assist Ms. Tilman to lower  
13 the microphone there. Thank you.

14 --- QUESTIONS BY THE INTERVENORS:

15 MS. TILMAN: Again, from the  
16 International Institute of Concern for Public  
17 Health, I have one question on air with two parts,  
18 if I may, Mr. Chair.

19 CHAIRPERSON GRAHAM: Please  
20 proceed.

21 MS. TILMAN: Okay. My question  
22 deals with site preparation and construction  
23 activity, that phase, and, again, with air  
24 emissions.

25 The first part has to do with rock

1 crushing activities, which, no doubt, will lead to  
2 radiological releases because this soil, the rocks  
3 now are on land on which there's been reactors  
4 operating for an average of 18 years or so. So is  
5 there going to be any monitoring of the  
6 radiological releases as a result of rock crushing?

7 My second question, if I may --

8 CHAIRPERSON GRAHAM: Could we stop  
9 there and ask Health Canada --

10 MS. TILMAN: Sure, sure.

11 CHAIRPERSON GRAHAM: -- to  
12 respond?

13 MS. LALANI: Melanie Lalani for  
14 the record.

15 I actually think that that  
16 question might be more appropriately answered by  
17 OPG.

18 CHAIRPERSON GRAHAM: Thank you.  
19 OPG, would you like to respond,  
20 please?

21 MR. SWEETNAM: Albert Sweetnam for  
22 the record.

23 The rock at the site is not  
24 contaminated in any way by radionuclides, so any  
25 rock crushing at the site would not generate any

1 sort of release.

2 MS. TILMAN: If I may --

3 CHAIRPERSON GRAHAM: But the  
4 question was, will you be testing?

5 MR. SWEETNAM: At the moment, it's  
6 not our intention to test for radionuclides in rock  
7 at the site.

8 But we would test overall for any  
9 releases at the site, but not specifically -- we  
10 have no plans to specifically test for the rock  
11 because we already know from the sampling that the  
12 rock is not contaminated with radionuclides.

13 MS. TILMAN: If I may, Mr. Chair -  
14 -

15 CHAIRPERSON GRAHAM: Yes, please.

16 MS. TILMAN: My understanding on a  
17 site visit to Darlington when I asked a similar  
18 question about contamination, radioactive  
19 contamination in the ground, be it rock crushing in  
20 the ground, that there was -- but they said it  
21 wasn't a major concern.

22 However, it is a concern, I think  
23 a public concern, to know if there is radiological  
24 contamination in the rock or the ground upon which  
25 the rock is situated and how that may affect

1 releases into the atmosphere.

2 So that's my question, that I  
3 believe that needs to be monitored, okay?

4 CHAIRPERSON GRAHAM: If I may, I'm  
5 going to ask CNSC because there's always traces in  
6 any rock crushing operation, but I think what -- no  
7 matter where it is, near Darlington or anywhere  
8 else, so -- but I guess what type -- the concern is  
9 -- of the intervener is, is what testing will be  
10 done there to see of contamination?

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

13 Essentially some of the  
14 information that, I think, was provided yesterday -  
15 - but I'm sort of losing track of time -- was that  
16 the highest levels of tritium measured onsite in  
17 soil and ground water were about 500 Becquerels per  
18 litre.

19 We've indicated, and Health Canada  
20 made the same recommendation, that the -- OPG's  
21 radiological environmental monitoring program be  
22 reviewed in relation to the proposed project and as  
23 needed be revised.

24 And so through that evaluation, if  
25 there is a need to provide additional air

1 monitoring for tritium, it would be put in place  
2 through that review.

3 CHAIRPERSON GRAHAM: And if I  
4 recall, that was regardless -- whether it was  
5 onsite or offsite; was that not correct?

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

8 That's correct. There's currently  
9 a network of monitors, and the process we would go  
10 through is to ensure that the monitoring program  
11 under the CNSC license is appropriate for the  
12 activities being carried out by OPG.

13 MS. TILMAN: If I may on --

14 CHAIRPERSON GRAHAM: Ms. Tilman,  
15 one -- you can one further one, yes.

16 MS. TILMAN: On this? Because I  
17 have another question on air.

18 CHAIRPERSON GRAHAM: Well, if it's  
19 -- if it's for clarification --

20 MS. TILMAN: Yes, it's for  
21 clarification.

22 I was not just addressing tritium  
23 in this. I was suggesting the range of  
24 radionuclides that may be released as -- and  
25 attached to particulate matter throughout the rock

1 crushing operation.

2 CHAIRPERSON GRAHAM: I think what  
3 Dr. Thompson said is that yesterday I think we  
4 addressed that, and my understanding was that  
5 there's -- there are offsite monitoring stations,  
6 and that detection process would be in place or is  
7 in -- would be in place. And if there was  
8 detections, then further steps would be taken.

9 Is that not correct, Dr. Thompson?

10 DR. THOMPSON: That's correct.

11 And perhaps to clarify, the radiological  
12 environmental monitoring program is not just for  
13 tritium. And so it would be reviewed and revised  
14 as appropriate for the site activities.

15 MS. TILMAN: Thank you.

16 My second question has to do with  
17 the non-radiological air contaminants, and I'll  
18 leave it to particulate matter in ozone.

19 And mention was made in Health  
20 Canada's written document on page 8, the Canada-  
21 Wide Standard principle was referenced of keeping  
22 clean areas clean and continuous improvement.

23 Now, there's no doubt that these  
24 operations are going to lead to releases well above  
25 what is presently in the ambient air or surrounding

1 air of -- in the Darlington vicinity.

2 I have before me the guidance  
3 document for the continuous improvement, and what  
4 strikes me of concern, and I want to know the  
5 response --

6 CHAIRPERSON GRAHAM: Could we get  
7 to the question?

8 MS. TILMAN: Yes. Who is going to  
9 check what the levels are under continuous  
10 improvement and keeping clean areas clean  
11 provisions for pollutants which have no threshold  
12 for adverse effects, as Dr. Barry Jessiman has  
13 indicated, and the current Canada-Wide Standards  
14 are not fully protective, so who is going to  
15 monitor the ambient air and ensure as well the  
16 principle that there's no polluting up to the CWS  
17 limit?

18 MS. LALANI: Melanie Lalani --

19 CHAIRPERSON GRAHAM: I'll ask OPG  
20 -- or Health Canada, please, to --

21 MS. LALANI: Melanie Lalani for  
22 the record.

23 I'd ask that Barry Jessiman  
24 respond to that question, please.

25 DR. JESSIMAN: I'm not sure I can.

1 It's a monitoring question, and, again, monitoring  
2 issues are not in my area.

3 MS. TILMAN: Well, who is going to  
4 --

5 CHAIRPERSON GRAHAM: Maybe Dr.  
6 Thompson can clarify that?

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

9 I was going to say that under the  
10 licensing requirements under the CNSC, there is a  
11 requirement for environmental protection programs,  
12 policies, and procedures. And we have a regulatory  
13 standard, S-296, which essentially aligns with ISO-  
14 14001 standard. It's a regulatory requirement, and  
15 that standard has in it identification of  
16 improvement targets.

17 And the CNSC reviews it and --  
18 this program for acceptability, and we do  
19 compliance audits and review records to track OPG's  
20 performance under that program.

21 CHAIRPERSON GRAHAM: Theresa  
22 McClenaghan, CELA.

23 MS. McCLENAGHAN: Thank you, Mr.  
24 Chairman.

25 And my question pertains to the

1 reference that I was given, and which I appreciate  
2 we were all given just as the session resumed, in  
3 terms of the registry number for the dose  
4 consequence analysis, registry number 397.

5                   And my question for Health Canada,  
6 if -- is whether or not Health Canada did the --  
7 reviewed the same kind of analysis in terms of dose  
8 consequence for the east C6 because I noticed that  
9 the dose consequence analysis is stated to be based  
10 on the AP 1000, ACR 1000, and the Areva EPR.

11                   CHAIRPERSON GRAHAM: Health  
12 Canada?

13                   MS. LALANI: Yeah. We're just  
14 consulting.

15                   CHAIRPERSON GRAHAM: But it will  
16 be Health Canada?

17                   MS. LALANI: Yes.

18                   CHAIRPERSON GRAHAM: Yes.

19                   MS. BERGMAN: Lauren Bergman for  
20 the record. We did include -- we did review the  
21 document provided by Ontario Power Generation on  
22 the inclusion of the EC6 reactor. And doses for  
23 members of the public were calculated and compared  
24 to those as resulting from the bounding scenario,  
25 and this was completed for both the cooling options

1 under consideration. Although -- sorry, just  
2 collecting my thoughts. The doses provided by the  
3 EC6 were still well-below the regulatory dose limit  
4 of 1 millisievert so we do not anticipate any  
5 adverse human health effects from the inclusion of  
6 this reactor.

7 MS. McCLENAGHAN: Sorry, I wonder  
8 if I -- if I might --

9 CHAIRPERSON GRAHAM: Thank you.  
10 Do you have a supplementary?

11 MS. McCLENAGHAN: Yes, just a  
12 clarification, Mr. Chairman, because the -- the  
13 reference 397 didn't mention EC6 at all. I'm  
14 wondering if Health Canada is referring to a  
15 subsequent document that OPG provided in terms of  
16 dose consequence analysis for the EC6 or a  
17 different document.

18 CHAIRPERSON GRAHAM: Health  
19 Canada?

20 MS. BERGMAN: Lauren Bergman for  
21 the record. I am referring to a separate document.  
22 I'm not sure the name of it off the top of my head,  
23 but Ontario Power Generation might be able to  
24 provide that information. And these does that I am  
25 considering are under normal operating conditions

1 and not an accident scenario.

2 CHAIRPERSON GRAHAM: Yes, I'm  
3 going to ask OPG if we can verify that.

4 MS. SWAMI: Laurie Swami for the  
5 record. I believe you're referring to the August  
6 30, 2010, submission to the Joint Review Panel  
7 which outlined OPG's response to the request  
8 regarding the EC6 and went through a number of  
9 elements of the changes that would occur in our  
10 project as a result of the inclusion. I -- I  
11 believe that's the document you're referring to.

12 MS. BERGMAN: Yes, that's correct.

13 MS. McCLENAGHAN: Yes, I have seen  
14 that document, Mr. Chairman, and -- and as Ms.  
15 Bergman just indicated, it doesn't include accident  
16 scenarios, but CEAA registry document 397 is  
17 pertaining to accident scenarios and the dose  
18 consequence analysis so that's why I'm wondering if  
19 -- if they had a document to review regarding the  
20 EC6 with comparable information.

21 MS. BERGMAN: Lauren Bergman for  
22 the record. That information was not provided to  
23 us. It's not available on the public CEAA registry  
24 so if that information were to come forward we  
25 would be available to review it.

1                   CHAIRPERSON GRAHAM: Ms. Thompson  
2 can you help us out because we believe it was, so  
3 could you help us out?

4                   DR. THOMPSON: I -- I can't, but  
5 Dr. Newland can. He'll provide the -- the  
6 background for the -- the choice of -- the  
7 methodology that was used for the accidents and  
8 malfunctions assessment.

9                   DR. NEWLAND: For the record, Dave  
10 Newland. So the information that was submitted by  
11 OPG for the EIS and the licence to prepare a site  
12 for the accidents and malfunctions was what I would  
13 describe as representative analysis for both the  
14 design basis accidents and for the beyond design  
15 basis accidents. It is representative based on  
16 information that was available to them and that is  
17 representative of analysis that would be submitted  
18 as part of our preliminary safety analysis report  
19 at the time of construction. It's based on  
20 standard methodologies and so we wouldn't expect  
21 the analysis to be substantially different moving  
22 forward. So we consider it to be representative.

23                   The fact that EC6 came in at a  
24 later date, from our perspective, is -- is not  
25 really that important. The -- the analysis is

1 representative of EPR, AP1000, EC6 probably other  
2 designs as well.

3 CHAIRPERSON GRAHAM: Thank you.

4 MS. McCLENAGHAN: So my -- so my  
5 question is then whether Health Canada can be given  
6 an opportunity to review the information for the  
7 EC6 as they said they would be available to do?

8 CHAIRPERSON GRAHAM: Health  
9 Canada?

10 MS. LALANI: Melanie Lalani for  
11 the record. I'll ask Lauren Bergman to respond to  
12 the question.

13 MS. BERGMAN: Lauren Bergman for  
14 the record. If such information were to be made  
15 available, if the EC6 was the chosen technology for  
16 the Darlington New Nuclear power site, we would be  
17 happy to review that information.

18 CHAIRPERSON GRAHAM: That's the  
19 review that you're talking about?

20 MS. BERGMAN: It's a review of the  
21 dose consequences of an accident scenario for the  
22 EC6 reactor.

23 CHAIRPERSON GRAHAM: Thank you,  
24 then. You have the -- the statement from Health  
25 Canada on that.

1 MS. McCLENAGHAN: So are you going  
2 to give that an -- an undertaking number, Mr.  
3 Chairman?

4 CHAIRPERSON GRAHAM: I can --  
5 would you repeat that, please?

6 MS. McCLENAGHAN: Will that have  
7 an undertaking number associated with it?

8 CHAIRPERSON GRAHAM: No, I think  
9 it's on the record that that's being -- the -- this  
10 would go forward, so I -- I'm not giving that an  
11 undertaking number at this time. If -- if we -- if  
12 we review it and feel it will, I'll -- I'll  
13 announce that later.

14 MS. McCLENAGHAN: Right.

15 CHAIRPERSON GRAHAM: So I'll go to  
16 Brennain Lloyd for her questions.

17 MS. LLOYD: Thank you, Brennain  
18 Lloyd from Northwatch. I have a -- a general  
19 question for Health Canada. We heard from Health  
20 Canada this afternoon that their conclusions depend  
21 on the validity of the proponent's assumptions and  
22 we heard from the proponent yesterday morning that  
23 their conclusions depended on the validity of the  
24 information that was provided to them by the  
25 vendors and that that information had not been

1 peer-reviewed -- peer-reviewed or -- or given any  
2 independent review. And my questions for Health  
3 Canada -- I have two questions. One is a -- a  
4 general one and one is about their ability to  
5 achieve their departmental goals. The general  
6 question is, I'm wondering if Health Canada could  
7 comment or share with us if Health Canada has a --  
8 a general review -- a general view on the value of  
9 having technical work peer-reviewed. That would be  
10 my first question.

11 CHAIRPERSON GRAHAM: Health  
12 Canada?

13 MS. LALANI: If I could seek some  
14 clarification. It's Melanie Lalani for the record  
15 -- on the nature of the question. Is it on the --  
16 related to peer-review in general or on radio --  
17 something radiological specifically?

18 CHAIRPERSON GRAHAM: First of all  
19 I'm having a little problem on asking of an opinion  
20 on how you do things. Maybe could you rephrase --  
21 rephrase that question that -- that we can have it  
22 more in a -- in a way that can be answered  
23 correctly?

24 MS. LLOYD: I wonder if Health  
25 Canada has a -- a policy or a practice in place

1 that places more value on peer-reviewed studies  
2 than on single-source information?

3 CHAIRPERSON GRAHAM: Health  
4 Canada?

5 MS. LALANI: I'm Melanie Lalani  
6 for the record. I'd need to take an undertaking on  
7 that to see if the department has a policy on that.

8 CHAIRPERSON GRAHAM: I'm still not  
9 clear because they were asked to do a review?

10 MS. LLOYD: Mmhmm.

11 CHAIRPERSON GRAHAM: Now, you're  
12 asking if that review was peer-reviewed. If I  
13 gather that's the question, and -- and I -- I don't  
14 think that's an undertaking, but maybe I'm not  
15 getting it correctly and -- and -- would you share  
16 it again?

17 MS. LLOYD: What I'm asking of  
18 Health Canada is, as a department, how do they --  
19 how do they weight information that comes to them  
20 and do they have, as a policy or as a practice, a  
21 way of evaluating, weighting information  
22 differently if it's single source, particularly  
23 from a commercial player versus independently or  
24 peer reviewed information?

25 CHAIRPERSON GRAHAM: Health

1 Canada?

2 MS. LALANI: I'm Melanie Lalani,  
3 for the record. I would maintain that a request to  
4 do an undertaking on that, just so we can provide  
5 adequate detail in our response.

6 CHAIRPERSON GRAHAM: We'll do that  
7 as Undertaking number 22. Thank you very much.

8 MS. LLOYD: Thank you, Mr. Graham.

9 CHAIRPERSON GRAHAM: We have -- we  
10 have --

11 MS. LLOYD: Mr. Graham?

12 CHAIRPERSON GRAHAM: -- seven more  
13 -- I've got an agenda yet for two other presenters  
14 tonight. I'm -- I think I'm going to have to cut  
15 these down to -- a little shorter, and I'm going to  
16 -- the last one that's on my list here is number  
17 seven, you are number two -- or number three, I  
18 guess now, so I can only allow -- for time, I'm --  
19 I'm trying to get as much in as possible, so could  
20 we go to the next presenter please?

21 MS. LLOYD: If, Mr. Graham, I  
22 could submit my question in writing to Health  
23 Canada and have it on the record, I -- I would  
24 accept that. I do understand you're pressed for  
25 time.

1                   CHAIRPERSON GRAHAM: Well,  
2 questions in writing are going to get a little  
3 cumbersome too because --

4                   MS. LLOYD: M'hmm.

5                   CHAIRPERSON GRAHAM: -- I'm trying  
6 to get this --

7                   MS. LLOYD: That's why it would be  
8 so much easier if I could just ask it now.

9                   CHAIRPERSON GRAHAM: Well, if you  
10 could ask it, keep it very short and we'll go from  
11 there, and I'm going to only allow one question for  
12 each -- each intervenor after this.

13                   MS. LLOYD: All right. Thank you.  
14 My question is for Health Canada on goal  
15 achievement. Health Canada has told us that one of  
16 their fundamental goals is to verify that the  
17 potential human health impacts of the project are  
18 properly identified. And I'm wondering how they  
19 will be able to meet that goal if they are not  
20 invited to provide advice at licencing. That seems  
21 to be up in the air as to whether they will be or  
22 not.

23                   CHAIRPERSON GRAHAM: Dr. Thompson,  
24 would you --

25                   MS. LALANI: Melanie --

1                   CHAIRPERSON GRAHAM:  -- like to  
2 respond to that because this process --

3                   DR. THOMPSON:  Since the -- the  
4 question would be if the CNSC as a responsible  
5 authority would invite or rely on Health Canada's  
6 expertise.  I would like to -- to say that there is  
7 a memorandum of understanding between the Canadian  
8 Nuclear Safety Commission and Health Canada that's  
9 been in existence for a long time.  It's being  
10 updated as we speak, and we have always relied and  
11 called upon Health Canada expertise as we've needed  
12 it.

13                   CHAIRPERSON GRAHAM:  Thank you.  
14 The next question from intervenor is Mark Mattson,  
15 Lake Ontario Water Keepers, and there are three  
16 more after Mr. -- or Lake -- it's not Mark, but --  
17 not Mr. Mattson, but if you could keep it to one  
18 question, please.

19                   MS. BULL:  Lake Ontario Water  
20 Keeper.  We've heard today that Health Canada's  
21 relying on a number of assumptions -- or OPG's  
22 relying on a number of assumptions that Health  
23 Canada has recongnized.  I just wanted to clarify.  
24 So is Health Canada telling the panel that the  
25 important decisions related to health on this

1 project are going to be made only at the licencing  
2 stage rather than the EA?

3 MS. LALANI: Melanie Lalani for  
4 the record. Our comment with respect to relying on  
5 assumptions as presented in the report relates to  
6 all information that's presented in environmental  
7 assessments. And we -- actually if I could ask  
8 that you just rephrase your question, just to make  
9 sure I capture all of it.

10 MS BULL: I think in light of the  
11 important decisions that Health Canada is advising  
12 on, I just want to clarify whether you feel like  
13 you can make those advisory statements now or  
14 whether you're deferring to the licencing process  
15 until the record is complete?

16 MS. LALANI: Melanie Lalani for  
17 the record. I actually think our -- our final  
18 submission was fairly clear in the areas in which  
19 we were requesting that more information would be  
20 provided, and in the areas where we understood that  
21 more information would be provided during the  
22 licencing phase. And during the licencing phase  
23 we'd be more than happy to -- to provide our  
24 expertise if requested.

25 MS. BULL: Thank you.

1                   CHAIRPERSON GRAHAM: Thank you.  
2 The next -- the questioner or intervenor, Holly  
3 Belfgen --

4                   MS. BLEFGEN: Blefkin, thank you  
5 very much.

6                   CHAIRPERSON GRAHAM: -- Belfgen, I  
7 think I've got that right this time.

8                   MS. BLEFGEN: Blefkgen, thank you  
9 very much. My question: First of all, I'd just  
10 like to comment to Madam Beaufry (ph). I confer  
11 with you, Madame, on all your questioning. I think  
12 it's been very good. Thank you.

13                   I'd like to add, though, that the  
14 decisions today, I can't believe that we are even  
15 trying to make them -- I think they're all very  
16 much hypothetical assumptions, and it's very  
17 premature.

18                   My question, though, today is to  
19 Health Canada. I'd like to ask Health Canada what  
20 about the mental and the psychological health of  
21 the workers and the citizens of this province. Are  
22 you going to address those, please?

23                   MS. LALANI: Melanie Lalani, for  
24 the record. Health Canada, in our environmental  
25 assessment unit actually doesn't have expertise in

1 that particular area of health effects.

2 CHAIRPERSON GRAHAM: Dr. Thompson.

3 DR. THOMPSON: What I -- I could  
4 say is that the RD document -- CNSC RD Document 337  
5 for design of new power reactors identifies the  
6 small release frequency and larger release  
7 frequency goals. And those goals were set on the  
8 basis of international experience, including the  
9 experience from the accident at Chernobyl. And the  
10 large release frequency was established to ensure  
11 that there is no large areas that would need to be  
12 permanently relocated, which was the -- an  
13 important source of psycho-social health effects in  
14 the Chernobyl population. So we have taken psycho-  
15 social impacts into consideration in establishing  
16 the safety goals for the design of new -- new power  
17 reactors.

18 MS. BLEFGEN: May I comment?

19 Because I think it should be a holistic approach,  
20 and I think I'd like to make this an undertaking of  
21 Health Canada or the authorities who are  
22 responsible for that, please.

23 CHAIRPERSON GRAHAM: Thank you for  
24 your comments and your -- your question. The last  
25 one that will -- last intervenor is Pat Lawson.

1 Someone assist Ms. Lawson in the microphone please.

2 MS. LAWSON: The Health Canada  
3 informed the residents of Port Hope that the  
4 radiological impact to health of the people from  
5 radiation in Port Hope was no different than any  
6 other town in the country. Now, do they still --  
7 does Health Canada still stand by that statement?

8 CHAIRPERSON GRAHAM: Ms. Lawson,  
9 in fairness, the hearing today is with regard to  
10 Darlington and not with regard to Port Hope, and  
11 I'm not even sure whether the same correct  
12 officials are here from Health Canada that can  
13 answer the Port Hope questions. And while I  
14 appreciate and always respect your questions, we  
15 are talking about Darlington.

16 MS. LAWSON: I understand, but  
17 it's the way of measuring radiation that's so  
18 important, both for Darlington and Port Hope.

19 CHAIRPERSON GRAHAM: Thank you.  
20 We've run out of time on presenters, and in fact,  
21 we've given a lot because this is a very important  
22 subject, tried to be as lenient as possible. So  
23 now I first -- next thing, I want to thank Health  
24 Canada -- and by the way, first of all, my  
25 colleague, any questions? If not Health Canada,

1 thank you very much. You have an undertaking that  
2 we look forward to getting an answer back, and we  
3 thank you very much for coming here today and  
4 participating in a very, very important process.  
5 Thank you very much for -- for coming.

6 We have the next presenter --  
7 we've run out of time on those questions, and we'll  
8 now move to the Municipality of Port Hope. And we  
9 will call the floor, we'll open it to Mayor  
10 Thompson for a presentation.

11 And I might say that after that we  
12 will probably have a short break and then we will  
13 do Transport Canada, and that will be it for the  
14 day.

15 CHAIRMAN GRAHAM: Your Worship,  
16 the floor is yours.

17 --- PRESENTATION BY MAYOR THOMPSON:

18 MS. THOMPSON: Thank you very  
19 much. For the record, Linda Thompson, Mayor for  
20 the Municipality of Port Hope, and thank you for  
21 the opportunity to speak to the Joint Review Panel  
22 for the Darlington new nuclear project through this  
23 intervention.

24 And I would like to note the  
25 Deputy Mayor Gilmer of the Municipality and

1 Councillor Ellis are also with us today. Thank  
2 you.

3 Port Hope is a neighbouring  
4 community to Clarington, with a long history as one  
5 of the world's focal points for the development of  
6 the nuclear industry for well over 70 years, being  
7 home, of course, to the former Eldorado Inc. and  
8 Zerkatech Industries.

9 Port Hope is also home to the  
10 Federal Low Level Radioactive Waste Management  
11 office and the Port Hope area initiative, developed  
12 through a legal agreement with Port Hope,  
13 Clarington and Natural Resources Canada.

14 Cameco Corporation also have major  
15 facilities in Port Hope, which include a uranium  
16 conversion facility and a fuel bundle manufacturing  
17 facility. At this time, Port Hope does not have a  
18 nuclear power generating station.

19 Port Hope is located on the north  
20 shore of Lake Ontario in what we consider the  
21 nuclear corridor. We are home to a stable, skilled  
22 and versatile labour force, and given Port Hope's  
23 long history with the nuclear industry, our  
24 community is engaged and knowledgeable and  
25 ultimately supportive of the industry, as is

1 evident in annual surveys by both the Port Hope  
2 area initiative and Cameco Corporation.

3                   Our community has a strong  
4 understanding of the environmental assessment and  
5 the CNSC process. And as we saw today, Mr. Graham,  
6 you know many of those intervenors by name from our  
7 community.

8                   Port Hope continues to utilize a  
9 peer review process using independent experts to  
10 review detailed documents that come before the  
11 CNSC. This municipal due diligence has proven  
12 support from our community.

13                   Our community does ask questions,  
14 and the municipal due diligence provides detailed  
15 comments to the regulatory authorities. As a  
16 neighbouring community to Clarington, Clarington  
17 and Port Hope have enjoyed a long history of  
18 positive relationships, working jointly on many  
19 projects.

20                   As Port Hope is also home to a  
21 1,700 acre generation site known as the Wesleyville  
22 generation site, we continue to maintain a strong  
23 relationship with Ontario Power Generation and  
24 strongly support the Darlington generation station.

25                   Port Hope is currently home to

1 many Ontario Power Generation employees, and we  
2 appreciate that the Darlington project will have a  
3 tremendous spillover effect on our municipality,  
4 with numerous spin-off and supply chain  
5 opportunities. These economies and community  
6 development opportunities are important priorities  
7 to Port Hope, along with the diversified and  
8 reliable energy supply.

9 As part of our peer review process

10 ---

11 CHAIRMAN GRAHAM: If you wish to  
12 get a glass to have some water.

13 MAYOR THOMPSON: That's all right.  
14 I had a bottle and forgot it. I see one, if I may.

15 (SHORT PAUSE)

16 MAYOR THOMPSON: Thank you.

17 As part of our peer review  
18 process, Stantec consulting was engaged to review  
19 the EA draft guidelines and to examine the  
20 Environmental Impact Statement for the new nuclear  
21 Darlington environmental assessment.

22 Stantec's scope of work was to  
23 determine whether the project would have potential  
24 adverse environmental effects on Port Hope and to  
25 ensure the project will not compromise any

1 potential future development within Port Hope,  
2 specifically at the Wesleyville site.

3                   The key findings identified that  
4 Port Hope is included within the regional study  
5 area associated with the Darlington new nuclear  
6 power plant project. Therefore, cumulative effects  
7 include all projects currently planned within Port  
8 Hope.

9                   The evaluation also found there  
10 are no significant adverse environmental effects of  
11 the project that cannot be mitigated or  
12 compensated. This also included aquatic  
13 environmental, including thermal effects or effects  
14 on fish and fish habitat.

15                   The finding also concluded there  
16 is the potential for positive socioeconomic change  
17 within the Municipality of Port Hope which is  
18 within the project regional study area. The  
19 details of Stantec's comments, reviews have been  
20 provided to the panel.

21                   While the Wesleyville generating  
22 site in Port Hope is not currently identified as a  
23 project, it is owned by Ontario Power Generation.  
24 Its proximity to Darlington opens synergistic  
25 opportunities for site sequencing phasing and for

1 maximized planning, design, construction approvals  
2 and workforce cost efficiencies.

3                   The use and development of the  
4 Wesleyville generation site has the full support of  
5 Council, community leaders, organizations and  
6 regional communities, including the county and  
7 Eastern Ontario Wardens' Caucus.

8                   We believe the Darlington new  
9 nuclear power plant project, as planned, will have  
10 no effect on potential development options at  
11 Wesleyville.

12                   Port Hope supports the Darlington  
13 new nuclear power plant project. We believe this  
14 project provides investment potential for a  
15 stronger economic base by providing well-paying and  
16 stable, technically oriented employment and greater  
17 opportunities along with a diversified and reliable  
18 energy supply for Ontario.

19                   Thank you for the opportunity to  
20 present to the Darlington Joint Review Panel this  
21 evening.

22                   CHAIRMAN GRAHAM: Thank you very  
23 much for coming today and for your presentation.

24                   I open the floor. Mr. Pereira, do  
25 you have any questions?

1                   MEMBER PEREIRA: I don't have any  
2 questions. Thank you.

3                   CHAIRMAN GRAHAM: Madam Beaudet?

4     --- QUESTIONS BY THE PANEL:

5                   MEMBER BEAUDET: Thank you, Mr.  
6 Chairman.

7                   We received over 248 -- I've lost  
8 count -- I think 250 submissions and with the  
9 written ones, a great many, about 100, we realized  
10 that the participation isn't just with regards to  
11 the project here, but the nuclear debate in  
12 general. And this was before the unfortunate  
13 situation of Japan.

14                   We've discussed among ourselves  
15 the risk and how we would deal with the risk if we  
16 lived in a community in the nuclear belt, you can  
17 call it, in Ontario. And you look at it saying,  
18 well, you know, you have greater risk to die in a  
19 car or in a plane and you take the car, you take  
20 the plane.

21                   But it's a personal choice. You  
22 take the car instead of walking, or you take the  
23 plane instead of the train.

24                   With the submissions from the  
25 municipalities, I understand a little bit more why

1 people make the choice to live in a community where  
2 there's nuclear. And that aspect I did not  
3 understand before.

4                               You have for Kincardine 74 percent  
5 supporting the nuclear industry there.

6                               I'd like to know, your community -  
7 - I mean, the Mayor has to represent all the  
8 citizens, and I'd like to know, in your community -  
9 - we know that there's been a position and I'd like  
10 to put us up to date exactly the percentage of  
11 people that feel for the industry to stay there and  
12 what would be the reasoning of people why they  
13 don't want. Sometimes it's because they can't  
14 move. So if you could put us up-to-date, please,  
15 with that.

16                              MAYOR THOMPSON: Yes. For the  
17 record, Linda Thompson. Both Cameco and the Port  
18 Hope Area Initiative provide annual surveys in the  
19 community, and they can be provided. And it has  
20 upwards of 87 percent support for the industry in  
21 the community. There are also many other  
22 opportunities for public consultation and input.  
23 Some of those are directed through the CNSC with  
24 our licencing process.

25                              Also, in regards to work that the

1 community has done, we have done public  
2 consultation with our economic development  
3 strategic plan where, again, a great deal of input  
4 was provided in regards to support for building on  
5 our nuclear strength.

6                   Elections are a great opportunity  
7 for comments to be made and show support in the  
8 community. In regards to several events in our  
9 community, on a cold winter night in November,  
10 2,000 people showed up from a community of 16,000  
11 to say that a group called "Families Against  
12 Radioactive Exposure" does not speak to them. Last  
13 December, 1,000 people came out on a snowy Saturday  
14 morning to support the community.

15                   It is important that questions are  
16 asked, and Port Hope is home to groups that do not  
17 always agree, and many of them here are intervenors  
18 before you. Mr. Graham has heard many of them and  
19 sat for 17 hours one day to hear those.

20                   For the municipality, we put into  
21 place several years ago, I believe it was in 2004  
22 or 2005, the peer review process. So when the  
23 industries within our community come forward, we --  
24 our residents have an opportunity to ask questions.  
25 We are a historical community with historical waste

1 within our community. That came forward from the  
2 industry practices between the 1930s and the 1950s.  
3 Any industry did not have the practices they have  
4 today, but it is the questions raised by those  
5 communities, Mrs. Lawson and others, that's made  
6 the change within our community and made things  
7 better and brought things forward. So it's  
8 important to hear those questions.

9                   We believe from the municipal  
10 perspective, we do our due diligence, we move  
11 forward, we have peer review processes. With the  
12 Port Hope Area Initiative, we have a person on  
13 staff to deal with questions from the public or  
14 questions from council to deal with those issues  
15 and bring them forward, and at the end of the day,  
16 while we may not always agree, we look to make sure  
17 that our peer review process is thorough and we  
18 bring those questions to the accountable  
19 authorities, whether it's the CNSC or a panel  
20 review to deal with those issues. And in many  
21 cases, we have brought questions from our community  
22 forward that we could not work with the proponent  
23 to deal with.

24                   MEMBER BEAUDET: I'd like to look  
25 at another subject, which doesn't have anything to

1 do with health. I know it's health today, but I  
2 had this question when I read your submission.

3                               We heard earlier during the week,  
4 that the number of employees that would come from  
5 the region would be about 35 percent only, and you  
6 mentioned in your submission that the Darlington  
7 project would have a tremendous spillover effect on  
8 your municipality, and I'd like to know how well  
9 you -- the business community is organized because  
10 we also found out from OPG that there's no limits  
11 in terms of bidding with a percentage of using  
12 local companies.

13                               MAYOR THOMPSON: Mmhmm.

14                               MEMBER BEAUDET: So I'd like you  
15 to inform us a bit more on that, please.

16                               MAYOR THOMPSON: Port Hope, our  
17 borders actually, our center town is about 22  
18 kilometres from the Darlington site, and you're  
19 correct. We have -- there are many industries in  
20 our community that would be able to put forward a  
21 proposal to do work at Darlington. We do know we  
22 have many employees within our community, and there  
23 has been statistics in regards to that.

24                               From the municipal's perspective,  
25 one of the things that was identified in 2005 with

1 our economic development strategy and which  
2 entailed a great deal of public consultation was  
3 that we would look to build on the nuclear  
4 industry.

5                               In doing that, we have been  
6 actively involved with many associations, many of  
7 them that Mayor Kraemer mentioned this morning, and  
8 we have looked to build on our strengths with the  
9 corporations we do have in our community, Cameco,  
10 for instance, and their feeder companies and other  
11 companies that may feed into the nuclear industry  
12 in our area.

13                              So there is a substantial benefit.  
14 We do have -- we have received socioeconomic  
15 information from our local industries as to what  
16 they provide, so building on that would be a  
17 benefit to our community as when people go to work,  
18 they don't always locate just in borders, nor do  
19 corporations that provide services.

20                              MEMBER BEAUDET: Thank you, Your  
21 Worship.

22                              CHAIRPERSON GRAHAM: Thank you. I  
23 appreciate your remarks. As a believer in a strong  
24 family, I guess family that expresses their views,  
25 whether you all agree or not, perhaps makes a

1 stronger family, and I do appreciate this.

2 This morning was a question with  
3 regard to referendum and -- to one of the mayors,  
4 and I guess, as an elected official, referendum is  
5 an election day --

6 MAYOR THOMPSON: Mmhmm, that's  
7 right.

8 CHAIRPERSON GRAHAM: -- but is  
9 that ever put to the people? Has there ever been  
10 an election run in Port Hope with regard to nuclear  
11 industry versus other -- other -- has there ever  
12 been -- not necessarily on the ballot as a  
13 referendum, but have candidates ever run that way?

14 MAYOR THOMPSON: And I can say,  
15 and as, Mr. Graham, you are aware from sitting  
16 through many hearings in regards to Port Hope, the  
17 industry is often a very hot topic spoke about in  
18 Port Hope. And in regards to the -- both the Port  
19 Hope Area Initiative and Cameco, I have been on  
20 council for ten years, and I don't believe there  
21 has been an election where it has not been  
22 discussed and part of the discussion or debate  
23 during an election process.

24 Back in 2000 -- in the election in  
25 2000, while there was not a formal referendum,

1 there -- and that was because the province decided  
2 that we -- at that time they couldn't do a formal  
3 referendum, there was a vote taken on the Port Hope  
4 Area Initiative and a legal agreement in regards to  
5 that.

6 CHAIRPERSON GRAHAM: Thank you.  
7 Moving along, OPG, do you have any questions to Her  
8 Worship?

9 MR. SWEETNAM: We have no  
10 questions.

11 CHAIRPERSON GRAHAM: CNSC, do you  
12 have any questions?

13 MS. P. THOMPSON: Yes, if I could,  
14 Mr. Chair, just one quick question. Mr. Mattson,  
15 and then I can't remember when, indicated that in  
16 Lake Ontario Waterkeepers' view, there were  
17 deficiencies with the cumulative effects assessment  
18 that was conducted by OPG for this project, and I  
19 was wondering if Mayor Thompson could tell us what  
20 the Port Hope consultant, Stantec, whether they  
21 were satisfied with the cumulative effects  
22 assessment conducted by OPG?

23 CHAIRPERSON GRAHAM: Ms. Thompson.

24 MS. THOMPSON: For the record,  
25 Linda Thompson. Our information from Stantec was

1 satisfied that projects within Port Hope, as it was  
2 included in the regional study area, were included.

3 CHAIRPERSON GRAHAM: Thank you.

4 Go to intervenors, we have two. One question each.  
5 The first one is CELA, Tracy McClenaghan. Your  
6 question, please.

7 MS. MCCLLENAGHAN: Thank you, Mr.  
8 Chairman. I'm wondering if I could direct a  
9 question through you to Her Worship dealing with  
10 the Wesleyville Generating Site, which she  
11 referenced in several of her slides, and what I'm  
12 wondering is what range or kinds of energy  
13 production are under discussion for that site?

14 CHAIRPERSON GRAHAM: Your Worship.

15 MS. THOMPSON: Mr. Chair, if I  
16 could take, and believe me, it will only be a  
17 couple minutes, the original site that was put  
18 forward by Ontario Hydro back in the '70s was  
19 originally designed for oil, and it was to be built  
20 in synergies with the original Darlington plant,  
21 and once it was built it was understood that two  
22 nuclear units would be built at the Wesleyville  
23 site.

24 When -- with the oil crisis and  
25 many other issues and conditions, the Wesleyville

1 site was stopped, there is no generation on it at  
2 that time, and that would be up to Ontario Power  
3 Generation. But to date, building on the nuclear  
4 strength the -- and building on a larger project,  
5 the Municipality of Port Hope clearly understands  
6 that nuclear facility could be available at that  
7 site.

8                               Within the industrial area at  
9 Wesleyville, we do have a proposal and an  
10 environment -- a provincial environmental  
11 assessment is going forward for another energy from  
12 waste facility, and there is also other energy  
13 facilities that are looking at property in that  
14 area.

15                               CHAIRPERSON GRAHAM: Thank you.  
16 The other questioner is Joanna Bull, Lake Ontario  
17 Waterkeepers. Ms. Bull?

18                               MS. BULL: Thank you, Mr. Chair,  
19 Ms. McClenaghan had actually asked the question  
20 that I was going to raise, but I would ask for more  
21 information on that point if I could, in terms of  
22 what were the cumulative effects that Port Hope was  
23 concerned about with the site at Wesleyville and  
24 the Darlington site?

25                               CHAIRPERSON GRAHAM: Ms. Thompson

1 -- Your Worship?

2 MS. L. THOMPSON: For the record,  
3 Linda Thompson.

4 There is no issue between the site  
5 at Wesleyville and Darlington. Perhaps the  
6 question could be clarified more?

7 MS. BULL: To what -- what Port  
8 Hope had asked Stantec to consider in terms of  
9 cumulative effects? Not as to their conclusions.

10 MS. L. THOMPSON: I can provide  
11 the details from Stantec in regards to that, but  
12 looking at the cumulative effect information that's  
13 Stantec has reviewed in the past in regards to the  
14 Cameco Corporation and to ensure that any additions  
15 were included, and that they were included through  
16 the review of the CNSC, as always, Port Hope looks  
17 to the regulatory authority to ensure all  
18 information is reviewed.

19 CHAIRPERSON GRAHAM: Thank you  
20 very much. There's a Stantec report that maybe you  
21 could get together with Her Worship and get that  
22 report, and maybe you may have some other questions  
23 that's relevant to the Darlington one from that.

24 MS. BULL: Just to clarify, my  
25 question was more so regarding whether the Stantec

1 report looked only at the sources in Port Hope and  
2 whether they were considered in the Darlington  
3 assessment, or whether you're trying to inform us  
4 that the Stantec assessment applies to all the  
5 cumulative effects for the Darlington project?

6 CHAIRPERSON GRAHAM: Do you wish  
7 to comment any further?

8 MS. L. THOMPSON: I can really not  
9 comment much further, other than we looked to  
10 ensure that the -- any projects in Port Hope were  
11 considered when the larger project was considered.

12 CHAIRPERSON GRAHAM: Thank you  
13 very much.

14 That concludes the presentation  
15 from the Town of Port Hope -- it's Town of Port  
16 Hope, is it? There's -- in New Brunswick it would  
17 be a large city, but anyway -- where I come from.

18 Anyway, thank you very much, Your  
19 Worship, for coming today and making a presentation  
20 and answering questions.

21 We're going to take a 10 minute --  
22 pardon me? Julie, you have something? I can't  
23 hear you. Go to the microphone maybe. Okay.

24 (SHORT PAUSE/COURTE PAUSE)

25 CHAIRPERSON GRAHAM: The

1 procedural question that our staff has just brought  
2 forward is that after I closed the line of  
3 questioning, Mr. Lawson had indicated that he  
4 wanted to ask a question, and in the respect for  
5 the -- for Mr. Lawson and Mrs. Lawson, I will  
6 entertain a question.

7 One question, Mr. Lawson.

8 MR. LAWSON: Can you hear me?  
9 Thank you very much.

10 I wanted to ask for Mayor  
11 Thompson's response to this situation we have in  
12 Port Hope. She speaks of the benefits that will  
13 come from -- from Darlington to Port Hope, and I  
14 think I agree that there would be economic benefits  
15 and whatnot coming from that. What she didn't  
16 mention that I think is relevant is that a former  
17 Mayor of ours stated, in public, after leaving the  
18 office that over six years in office, he had had,  
19 on a weekly basis, enquiries from enterprises  
20 interested in coming to Port Hope, and always  
21 asking about radioactivity, always being reassured,  
22 and never coming. And those who know Port Hope and  
23 know Cobourg, for example, know that Cobourg has  
24 left Port Hope behind. That we have a stigma that  
25 isn't going away and I don't think is going to go

1 away, and it is the presence of the industry.

2                                   And over and over again, Mayor  
3 Thompson, we have had crises at one sort or another  
4 where whistleblowers have been heard, one way or  
5 another, about the industry. And in virtually in  
6 every case we've had, what you can only call  
7 "shooting the messenger"; it does nothing about the  
8 source of the stigma which we live with.

9                                   And I would like to know her  
10 response to this, because when elections come, for  
11 example, Cameco has very deep pockets and makes  
12 sure that we get the council they want.

13                                   CHAIRPERSON GRAHAM: Ms. Thompson,  
14 would you like to -- would you like to respond?  
15 Have you lost industry because of what's referred  
16 to by Mr. Lawson? I think that's the question, I  
17 gather that's the question.

18                                   MAYOR THOMPSON: For the record,  
19 Linda Thompson.

20                                   Thank you, and Mr. Graham, from  
21 your municipal -- your political background, you  
22 will realize Port Hope is a small community, and we  
23 had no -- we have very little to no available space  
24 available for sale that isn't owned by private  
25 industry and is often held to quite a high price to

1 sell.

2                   A great deal of work was done in  
3 our economic development strategy in 2005; we did  
4 not have serviced land, we did not have land that  
5 was shovel ready with water and sewer for industry,  
6 and many others. And lo and behold, a community  
7 right down the street, Cobourg, had land that was  
8 available, serviced; and many, many opportunities  
9 did go to Cobourg. We're lucky that we are in a  
10 county and that we all benefit from that.

11                   I would also like to address the  
12 comment -- I cannot let it go unnoticed, the  
13 *Municipal Act* and the *Elections Acts* in Ontario  
14 does not allow for such things and it's open. And  
15 I know personally I can state, I've never received  
16 a benefit from Cameco in regards to an election.

17                   CHAIRPERSON GRAHAM: Thank you  
18 very much for that. We're going to take a 10 minute  
19 break, be back at five after six to hear the last  
20 presenter of the day, Transport Canada, is that  
21 correct?

22                   Thank you very much for coming and  
23 we'll be back by 6:05.

24 --- Upon recessing at 5:56 p.m./

25                   L'Audience est suspendue à 17h56

1 --- Upon resuming at 6:10 p.m./

2 L'Audience est reprise à 18h10

3 CHAIRPERSON GRAHAM: I would like  
4 to take this opportunity to welcome Transport  
5 Canada. I apologize for the lateness, but do look  
6 forward to hearing from you and your presentation.

7 So if you'd introduce yourselves  
8 -- and I need to find a name, but -- Zeet? I'm  
9 sorry, pardon me, I'm having -- I have a real  
10 problem with -- I'm used to very ordinary names,  
11 either in French or in English and that's it from  
12 where I come from so, sir, the floor is yours.

13 --- PRESENTATION BY MR. ZEIT:

14 MR. ZEIT: Thank you. So, as we  
15 just established, my name is David Zeit.

16 I am a senior environmental  
17 officer with Transport Canada, and joining me here  
18 today, to my left, is Jean-Stéphane Bergeron,  
19 Manager, Transportation of Dangerous Goods; Norman  
20 Monteiro Manager, Compliance and Enforcement,  
21 Marine Safety; and Sue MacDonald-Simcox to my  
22 right, Navigable Waters Protection Officer.

23 Sorry, how do I get a presentation  
24 on the screen there? There we go, thank you.

25 I'll begin with a brief overview

1 of Transport Canada's mandate, and our role in this  
2 panel process.

3                               Transport Canada is responsible  
4 for Federal transportation policies and programs,  
5 intended to ensure that air, marine, road, and rail  
6 transportation are safe, secure, efficient and  
7 environmentally responsible.

8                               Transport Canada administers a  
9 variety of regulations, conducts reviews, and  
10 issues approvals for works that may affect  
11 transportation.

12                              It is expected that some  
13 components of the Darlington project may require  
14 approval from Transport Canada under the *Navigable*  
15 *Waters Protection Act*, or NWPA, which may in turn  
16 trigger responsibilities pursuant to the *Canadian*  
17 *Environmental Assessment Act*. This means that we  
18 are a potential or likely responsible authority  
19 under the CEAA Act.

20                              With respect to our input to the  
21 Joint Review Panel process, Transport Canada is  
22 able to provide expertise on aspects of the project  
23 that may interact with the transportation system.

24                              Transport Canada has conducted a  
25 detailed review of the environmental impact

1 statement, application for a licence to prepare  
2 site, supporting documents, and responses to  
3 Information Requests as they relate to our mandate.

4 In so doing, we have identified a  
5 number of project components that have the  
6 potential to affect, or be affected by,  
7 transportation systems and conditions.

8 Transport Canada's review focussed  
9 on five areas within the Department's regulatory  
10 authority and expertise: navigable waters  
11 protection; marine safety; boating safety;  
12 transportation of dangerous goods; and rail safety.

13 I'll briefly summarize the  
14 regulatory requirements and main findings  
15 associated with each of these areas.

16 I'll begin by talking about the  
17 Navigable Waters Protection Program.

18 This unit of Transport Canada  
19 oversees the management and regulation of  
20 obstructions in navigable waters through the  
21 administration of the *Navigable Waters Protection*  
22 *Act* or, as I mentioned before, the NWPA.

23 This Act is a federal law designed  
24 to assist in protecting the public right of  
25 navigation on navigable waters throughout Canada.



1                   The second type of approval which  
2 falls under subsection 5(3) of the Act is for works  
3 that may create an interference that is not  
4 considered to be substantial.

5                   At this stage, we anticipate that  
6 most of the proposed works will be approved under  
7 subsection 5(3) of the Act, however, we cannot make  
8 any firm determination until more detailed plans  
9 are submitted.

10                   When these plans are received, the  
11 proposed works will be reviewed by a Navigable  
12 Waters Protection Officer. This review process may  
13 include an opportunity for public comment on  
14 matters that could affect navigation safety. This  
15 opportunity for public input would apply in the  
16 case of any works determined to pose a substantial  
17 interference with navigation.

18                   Once the review of plans is  
19 complete, comments considered and Aboriginal  
20 consultation duties have been discharged, approval  
21 may be granted under the NWPA.

22                   Such approvals may include  
23 conditions intended to maintain safe navigation.  
24 These conditions, which are enforceable both during  
25 and after construction, may include requirements

1 such as lighting and marking; a notice to shipping  
2 issued through the Canada Coastguard Traffic  
3 Centre; and a notice to mariners issued through the  
4 Canadian Hydrographic Services.

5                   Since the Darlington proposal is  
6 at a fairly early stage in conceptual design, we do  
7 not have the level of detail we would normally  
8 require in order to undertake an NWPA review. So  
9 our approach to reviewing the environmental impact  
10 statement focussed on identifying whether there are  
11 any red flags or showstoppers, components that we  
12 believe would not be approvable.

13                   With regard to earthworks, we  
14 found that the proposed lake infilling, while  
15 potentially large in magnitude, will generally  
16 follow the contour of the shoreline and it's  
17 therefore unlikely to pose a substantial  
18 interference to navigation.

19                   This preliminary conclusion is  
20 based on the information received to date and may  
21 change following receipt of final design details.

22                   With regard to physical works,  
23 such as the intake, diffuser and possibly a wharf,  
24 we believe that potential interference to  
25 navigation can be managed through the normal course

1 of the NWPA approval process and through the  
2 application of appropriate terms and conditions.

3 If these terms and conditions are  
4 met, there is unlikely to be a significant adverse  
5 effect to navigation.

6 Therefore, although we do not have  
7 detailed plans at this stage, we are confident that  
8 the types of proposed works can be effectively  
9 managed at the regulatory approval stage.

10 I will now turn to the subject of  
11 marine safety.

12 Transport Canada's Marine Safety  
13 Program aims to provide Canadians with a safe and  
14 efficient marine transportation system.

15 The Department relies on a number  
16 of acts and regulations to help achieve this goal,  
17 including the *Canada Marine Act*, the *Canada*  
18 *Shipping Act 2001*, and the *Marine Transportation*  
19 *Security Act*.

20 Components of the Darlington  
21 project that are of interest to the Marine Safety  
22 Branch include, first, the marine-based shipment of  
23 materials and components for the construction of  
24 the project and, second, proposed barging  
25 operations.

1                   According to the EIS, materials  
2 required for construction of the project are to be  
3 shipped to suitable nearby ports and then barged to  
4 the project site if an appropriate wharf can be  
5 constructed or, alternatively, to the neighbouring  
6 St. Mary's Cement wharf.

7                   In regard to these barging  
8 operations, Transport Canada has taken into  
9 consideration the interaction between commercial  
10 shipping vessels and recreational water craft.

11                   With respect to the first point,  
12 the marine-based shipment of construction  
13 materials, our position is that this is an area  
14 which is well governed by existing regulations.

15                   This next slide highlights three  
16 examples of these regulatory requirements.

17                   First, all cargo shipped into and  
18 out of Canadian ports is regulated with an emphasis  
19 on the movement of dangerous and pollutants, and it  
20 should be noted here that it is the Department's  
21 understanding that no radioactive materials will be  
22 transported by ship for the proposed project, and  
23 our findings are based on that assumption.

24                   Second, shipments in Canada are  
25 subject to audit, inspection, and in some cases,

1 pre-clearance.

2                                   And, third, vessels and certain  
3 barges to be used in the project will have to be  
4 properly certified and inspected.

5                                   During the public review period,  
6 the Métis Nation of Ontario identified a concern  
7 with respect to potential dangers that barging  
8 operations may pose to recreational boaters. This  
9 is contained in Information Request Number 265.

10                                   In responding to this concern,  
11 Transport Canada wishes to highlight the role of  
12 the collision regulations taken pursuant to the  
13 *Canada Shipping Act 2001* which detail the rules of  
14 the road for the interaction between vessels on the  
15 water.

16                                   These regulations provide for the  
17 safe interaction between vessels, including the  
18 barges and recreational boats that would be  
19 operating in the vicinity of the Darlington site.

20                                   It should also be noted that  
21 barging operations are a common activity on the  
22 Great Lakes with a good track record for safety.  
23 For these reasons, we believe that OPG's proposal  
24 poses no unusual risk to the boating community.

25                                   For those unfamiliar with barging

1 operations, this photo shows what a typical barge  
2 looks like. They can be self-propelled or as in  
3 the case of this photo, manoeuvred by tugboats.  
4 They are designed to carry very large components  
5 and because of their flat-bottom design, they can  
6 operate close to shore because they do not sit too  
7 deeply in the water.

8                   Turning to our conclusions with  
9 respect to marine safety, the key points upon which  
10 we base our position are that (1) there is a robust  
11 system of regulation, inspection and enforcement  
12 governing shipping activities in Canadian waters,  
13 and (2) the Darlington proposal involves routine  
14 shipping and barging activities. There is nothing  
15 unique being proposed here.

16                   This sort of shipping and barging  
17 occurs routinely on the Great Lakes. Consequently,  
18 Transport Canada has identified no significant  
19 concerns with the proposed marine operations.

20                   I will now turn my attention to  
21 the role of Transport Canada's Office of Boating  
22 Safety. This office is a specialized unit within  
23 the marine safety branch. It delivers prevention-  
24 based programs and vital information for users and  
25 builders of recreational boats.



1 Council to amend the VORR by adding a new  
2 restrictive zone, OPG would need to fulfil a number  
3 of requirements.

4                                 These include consultation held at  
5 the local level, demonstrating that non-regulatory  
6 options have been evaluated, assessing the need for  
7 a restriction, establishing that enforcement is  
8 practical, and showing that the benefits of a  
9 restriction outweigh the cost to Canadians.

10                                This slide presents a site plan  
11 depicting the existing and proposed prohibitive  
12 zones. You can see that the current restrictive  
13 zone, highlighted in blue here, is in place over  
14 the existing intake pipe, noted in red, and the new  
15 zone, highlighted in orange, would coincide with  
16 the proposed location of the new intake pipe and  
17 diffuser.

18                                I apologize for the resolution of  
19 this plan. I shamelessly stole it from one of the  
20 EIS documents but didn't have access to the  
21 electronic original.

22                                The information request filed by  
23 the Métis Nation of Ontario, which was discussed in  
24 the previous section of this presentation, also  
25 identified concerns with respect to the impact that

1 this new restrictive zone may have on recreational  
2 boating and fishing in the area.

3                   Transport Canada recognizes that  
4 vessel operating restrictions may impinge on the  
5 use of waterways, and for that reason, we require a  
6 sound basis for any requests to establish  
7 restrictive zones. Therefore, in order for our  
8 department to entertain such a request, the  
9 applicant must demonstrate that the proposed  
10 prohibition meets one or more of the following  
11 conditions.

12                   It must (a) be in the interest of  
13 public safety, (b) be intended to protect the near  
14 shore environment, or (c) serve the public  
15 interest.

16                   In examining the basis for OPG's  
17 desired restrictive zone, we find that it is  
18 consistent with two of the aforementioned  
19 conditions.

20                   First, with regard to public  
21 safety, the new prohibitive zone would help to  
22 protect boaters from the dangers associated with  
23 the presence of the underwater structures and  
24 possibly from turbulence and/or changes in water  
25 current caused by these structures.

1                   Second, with regard to public  
2 interest, we believe that the proposed prohibitive  
3 zone would protect valuable public infrastructure  
4 from damage and thereby help to ensure the safe and  
5 reliable operation of the Darlington facility.

6                   These two points provide a  
7 rationale for requesting a new prohibitive zone.  
8 However, this request must still be weighed against  
9 the impact to the boating public.

10                   To summarize the key points  
11 associated with boating safety, the application for  
12 a new restrictive zone will require that OPG hold  
13 public consultations, the Métis Nation of Ontario  
14 must be engaged as part of that consultation  
15 process, and these consultations should include a  
16 consideration of any reasonable means of mitigating  
17 the impact to recreational boating and fishing.

18                   The next area of interest I will  
19 focus on is the transportation of dangerous goods.

20                   The Transportation of Dangerous  
21 Goods Directorate serves as the major source of  
22 regulatory development, information and guidance on  
23 dangerous goods transport for the public, industry  
24 and government employees through the administration  
25 of the *Transportation of Dangerous Goods Act*, or

1 TDGA.

2                                   This Act and associated  
3 Regulations specify the standards for containers to  
4 be used during shipping, emergency response plans,  
5 documentation, training of personnel handling  
6 dangerous goods during transport, safety markings  
7 and accident reporting.

8                                   And of relevance to this process,  
9 it should be noted that the transportation of  
10 radioactive material is regulated under Class 7 of  
11 this Act.

12                                   The components of the project that  
13 are of most interest to the Transportation of  
14 Dangerous Goods Directorate are the shipment by  
15 truck of radioactive waste materials. Both on site  
16 and off site options for the storage of low level  
17 and intermediate level radioactive wastes were  
18 considered in the EIS.

19                                   The off site option would involve  
20 transporting unprocessed waste by truck to an  
21 appropriately licensed facility. Other shipments  
22 of radioactive materials, contaminated equipment  
23 and clothing and tritiated heavy water for off site  
24 upgrading and detritiation would also occur  
25 periodically.

1                                   We begin our analysis of this  
2 issue by looking at the relative increase in  
3 shipments that would result from the proposed off  
4 site storage option. As highlighted in the  
5 Environmental Impact Statement, OPG currently  
6 transports and/or consigns over 900 shipments of  
7 radioactive materials in an average year, or over  
8 75 per month.

9                                   Under the bounding scenario, the  
10 additional off site transportation of radioactive  
11 material would be about two to three shipments per  
12 month of low level waste and an additional two to  
13 three shipments of intermediate level waste. This  
14 equates to a maximum increase of eight percent in  
15 the total number of shipments.

16                                  With this context in mind, we then  
17 turn our analysis to an examination of OPG's  
18 transportation safety track record. Here we find  
19 that OPG has been transporting radioactive  
20 materials for over 35 years.

21                                  These shipments have totalled over  
22 11.5 million kilometres travelled. During this  
23 time, five shipments have been involved in traffic  
24 accidents. Three of these accidents involved  
25 trucks transporting low level waste, and two

1 involved the transportation of heavy water.

2 But notably, these accidents did  
3 not result in the release of any radiological  
4 material to the environment.

5 The next step in our analysis is  
6 to consider the existing safeguards in place to  
7 help ensure the safe transport of this material.  
8 The key factor here is that OPG currently operates  
9 a radioactive material transportation program which  
10 it plans to expand to meet the needs of the new  
11 reactor operations.

12 The provisions of this program  
13 include packaging in accordance with stringent  
14 regulations and standards, regular audits and  
15 reviews of transportation procedures, an ongoing  
16 transportation of dangerous goods Class 7 training  
17 program, transportation package inspection and  
18 maintenance, subjecting long service life packages  
19 to an aging management program, oversight of high  
20 hazard and non-routine shipments, procurement and  
21 engineering support for transport and work  
22 equipment and an emergency response assistance  
23 plan, also known as an ERAP, detailing the response  
24 protocol in the event of an incident involving the  
25 transportation of radioactive material.

1                   There are several requirements  
2 that must be met in order for OPG to expand its  
3 waste handling program.

4                   First, the ERAP will need to be  
5 examined in closer detail by Transport Canada as  
6 the project advances and more details are known  
7 about the proposed operations. Any changes to the  
8 existing transportation plan must be evaluated with  
9 respect to OPG's response capability and protocols.

10                  Second, OPG must submit an amended  
11 ERAP and receive approval from the Transportation  
12 of Dangerous Goods Directorate if there are changes  
13 to conditions as listed in the plan, including, but  
14 not limited to, the introduction of dangerous goods  
15 above the ERAP threshold, or other than those  
16 listed in the current ERAP; changes in the  
17 geographic areas that the dangerous goods will  
18 travel; or changes in the response personnel,  
19 procedures or capability, including changes to  
20 mutual aid agreements.

21                  Three, any increase in the  
22 transportation of dangerous goods should be  
23 disclosed to partners in the Mutual Initial  
24 Response Assistance Agreement. This mutual aid  
25 agreement is included within the ERAP currently

1 approved by Transport Canada. Should conditions to  
2 this agreement change, Transport Canada must be  
3 made aware in a timely manner.

4 Turning to our conclusions on this  
5 subject, the key points we distill from this  
6 analysis are that OPG has been involved in the  
7 shipment of radioactive materials for many years.  
8 This activity is strictly governed by the  
9 *Transportation of Dangerous Goods Act*.

10 Accidents involving these  
11 shipments are rare and have never resulted in a  
12 release of radioactive material. OPG's track  
13 record demonstrates that it has the appropriate  
14 mechanisms in place to ensure the safe  
15 transportation of this material, and these  
16 mechanisms will be updated if OGP receives approval  
17 to advance its project.

18 Therefore, we conclude that a  
19 relatively small increase in the number of  
20 shipments should not pose any significant risk to  
21 public safety or the environment.

22 The final area of interest we will  
23 examine is rail safety.

24 Transport Canada's Rail Safety  
25 Directorate develops, implements and promotes

1 safety policy, regulations, standards and research  
2 and, in the case of railroad grade crossings, it  
3 may subsidize safety improvements under the  
4 authority of the *Railway Safety Act*.

5 Project components of interest to  
6 the rail safety branch are, first, potential  
7 changes to the CP railway crossing at Holt Road  
8 and, second, the proximity of the CN rail line to  
9 the proposed reactor blocks and support facilities.

10 This slide presents a site plan  
11 depicting the existing crossing at Holt Road and  
12 the CP rail line. The arrow at the upper side of  
13 the screen indicates the rail crossing. The rail  
14 line is highlighted in red, and you can see its  
15 orientation to Highway 401 below, and to the  
16 Darlington facility.

17 The Environment Impact Statement  
18 has considered the issue of whether the existing  
19 at-grade CP rail crossing located at Holt Road may  
20 present a safety and/or operational concern in the  
21 event that Holt Road is chosen as the soil haul  
22 route during the construction phase of the project.

23 The concern is that when a train  
24 is passing, vehicles using the road could become  
25 backed up, thereby interfering with traffic on

1 Baseline Road or at the Highway 401 interchange.

2                   The EIS has recommended a detailed  
3 investigation to examine appropriate intersection  
4 improvements, which may include the installation of  
5 control gates or a grade separation.

6                   On this subject, we will simply  
7 note the regulatory requirements associated with  
8 the potential modification of this crossing. OPG  
9 will be required to coordinate this work with the  
10 road authority, NCP.

11                   The process to modify or  
12 reconstruct a grade crossing will include the  
13 requirement to issue a Notice of Proposed Railway  
14 Works. Further, if it is necessary to modify the  
15 road, the road authority will be required to issue  
16 a Notice of Proposed Railway Works to CP, as per  
17 the requirements of the Notice of Proposed Railway  
18 Works regulations.

19                   The road authority, municipality,  
20 and CP are required to assess the safety of the  
21 proposed work and may file an objection to the  
22 proposal if the work would prejudice their safety  
23 or the safety of their property.

24                   The second issue is the proximity  
25 of the rail line, of the CN rail line, to the

1 reactor site. The Darlington site is bisected by a  
2 CN rail line running in an east-west direction.  
3 The new reactors and associated facilities would be  
4 located to the south of this line. OPG is  
5 proposing to protect the new facilities from  
6 possible derailment through the use of a berm  
7 blastwall or a retaining wall.

8                   This slide provides a sight plan  
9 depicting the orientation of the rail line relative  
10 to one of the proposed reactor designs, in this  
11 case, the ACR-1000. However, regardless of the  
12 technology ultimately selected, this orientation  
13 will remain roughly the same.

14                   So I am highlighting here with the  
15 cursor. You can see the location of the rail line.  
16 The hatched line on the south side of it depicts  
17 where the railway blastwall would be, and you can  
18 see the orientation of that to the power block just  
19 to the south of that rail line.

20                   A key component of Transport  
21 Canada's mandate is safety and security. As such,  
22 we believe it would be prudent for OPG to undertake  
23 a risk assessment to determine appropriate safety  
24 measures, to ensure the protection of the proposed  
25 facility in the event of a rail incident.

1                                   This assessment may include an  
2 examination of the risks associated with a  
3 derailment or other rail incident that could affect  
4 the Darlington facility, and a comparative  
5 evaluation of the effectiveness of various  
6 mitigation measures or combination of measures,  
7 such as a blastwall, retaining wall, recessed  
8 tracks, berm, and/or railway speed restrictions  
9 within the vicinity of the site.

10                                   The assessment should also  
11 determine the design criteria necessary to ensure  
12 the effectiveness of these measures -- for example,  
13 the appropriate height, strength, material and  
14 design of a blastwall -- and an analysis of whether  
15 these measures, when properly designed and  
16 implemented, would be sufficient to provide  
17 protection to the Darlington facility in the event  
18 of a derailment or other adverse incident.

19                                   We realize some of this work may  
20 already have been undertaken and is perhaps  
21 included in the prescribed documents which we have  
22 not reviewed.

23                                   This final slide presents a  
24 summary of the main requirements and  
25 recommendations that have been offered in this

1 presentation.

2 To quickly sum up, an application  
3 must be made and public comments considered, where  
4 appropriate, under the *Navigable Waters Protection*  
5 *Act*.

6 Vessels and certain barges used in  
7 the project must be properly certified and  
8 inspected.

9 Application must be made for the  
10 establishment of a new vessel operation restriction  
11 regulation.

12 Consultation with the Métis nation  
13 of Ontario, and other concerned parties, must be  
14 conducted as part of the vessel operational  
15 restriction regulation amendment process.

16 OPG must submit an amended  
17 emergency response assistance plan, and receive  
18 approval from Transport Canada if there are changes  
19 to conditions in the existing plan.

20 OPG must inform mutual assistance  
21 partners of any changes to its transportation of  
22 dangerous goods operations.

23 The road authority municipality  
24 and CP are required to assess the safety of the  
25 rail crossing at Holt Road, and OPG should conduct

1 a risk assessment in regard to the nearby CN rail  
2 line.

3 That concludes our presentation,  
4 and we will now be pleased to respond to questions  
5 from the panel and intervenors.

6 CHAIRMAN GRAHAM: Thank you very  
7 much, Mr. Zeit.

8 I will go first to questions from  
9 my colleagues. Mr. Pereira?

10 --- QUESTIONS BY THE PANEL:

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

13 I note your report on experience  
14 over many years with transport of intermediate  
15 level and low level waste, and safe transport.

16 To what standards are the  
17 packaging of -- in which this waste is transported?  
18 What are the standards applied for the packaging?

19 MR. ZEIT: I'll refer that  
20 question over to Jean-Stéfane Bergeron.

21 MR. BERGERON: Jean-Stéfane  
22 Bergeron, for the record.

23 The packaging requirements are  
24 probably the most key or the most important  
25 requirement with respect to the general safety

1 requirements when transporting radioactive  
2 materials of any kind, waste or not.

3                   And because of the unique nature  
4 of radioactive materials, and because of the joint  
5 responsibility with the agency, the Canadian  
6 Nuclear Safety Commission, the regulations with  
7 respect to the packaging standard itself is the  
8 packaging and transport of nuclear substance  
9 regulations, that is, the CNSC's regulations.

10                   I think they'd be better able to  
11 answer, if you have specific technical  
12 requirements, but essentially the requirements are  
13 extremely stringent and, depending on the nature of  
14 the material and the risk that it presents, the  
15 material is adjusted to the packaging at that  
16 point.

17                   MR. PEREIRA: Could you provide  
18 some information on the standards used and also the  
19 radiological protection measures involved with the  
20 use of this packaging?

21                   MR. HOWDEN: Barclay Howden.

22                   Yes, I can. And if there's any  
23 points that I can't, we'll bring the information  
24 back for you.

25                   As Transport Canada said, we use

1 the packaging and transport of nuclear substance  
2 regulations because the basic philosophy is on the  
3 design of the transport package as the primary way  
4 to protect the material.

5 It also has additional controls,  
6 regulatory controls, such as labelling, placarding,  
7 quality assurance, maintenance records. Also,  
8 there's emergency response plans needed.

9 The packages are designed based on  
10 the risk or hazard that could be posed by the  
11 material so, for example, for low risk levels of  
12 radioactive material, the packages are designed to  
13 do the job properly but they're not certified.

14 For higher risk levels of  
15 radioactive material that -- those require  
16 certification of the packages, which is done by  
17 submissions made by the licensees and reviewed by  
18 our staff at the CNSC. And the certification is  
19 done by professional engineers.

20 For those particular -- for those  
21 packages that pose a higher level of risk, they  
22 need to go through testing that simulate both  
23 normal and hypothetical conditions of transport  
24 such as free drop testing, puncture testing,  
25 thermal testing and simulated aircraft accidents,

1 depending on the risk that's being posed.

2 In terms of the very specifics of  
3 how the packages are designed and certified, OPG  
4 can probably talk more about the design for the  
5 details of certification. If required, we'd have  
6 one of our transport people reply to you at a later  
7 date.

8 MEMBER PEREIRA: What about the  
9 risk of fire if there's a transport incident?

10 MR. HOWDEN: Sorry, I missed that.

11 Fire is another one where they do  
12 -- actually, part of the testing program is they do  
13 immersion in fire for certain packages to show that  
14 they can withstand a fire for a certain period of  
15 time.

16 There's a design basis fire, but I  
17 don't know exactly the details of what that is.

18 MEMBER PEREIRA: You mentioned  
19 quality assurance.

20 To what standard would that be  
21 conducted?

22 MR. HOWDEN: In terms of the  
23 quality assurance, that would be in terms of the  
24 design of the package as well as the -- that would  
25 be for the quality of the package. That would be

1 under -- those would be stipulated under the  
2 packaging and transport of nuclear substance  
3 regulations.

4                   These regulations are in line with  
5 the international work that's done. There's a real  
6 effort to harmonize across the world, and the IEA  
7 is the lead. And they have -- I forget the name of  
8 the regulation or standard, but there is an  
9 international standard to which all countries  
10 adhere to.

11                   The purpose for that is because  
12 these packages can sometimes cross international  
13 borders. It's important that the regulatory  
14 authorities in the two countries use the same  
15 standards to be able to accept those packages that  
16 go into another country.

17                   Even if that was the case, the  
18 regulatory authority in the other country has to  
19 confirm that the package has been designed and  
20 constructed according to the standards.

21                   MEMBER PEREIRA: Now, in the EIS,  
22 Ontario Power Generation indicates that after a  
23 period of time they will expect to ship used  
24 nuclear fuel to the nuclear waste management  
25 organization's facility.

1                   Are they packages that are  
2 certified for the transport of used fuel in Canada?

3                   MR. HOWDEN:   Barclay Howden  
4 speaking.

5                   There are.   I don't know how many  
6 packages are, or the details of the design, but  
7 they would, again, go through the certification  
8 process.

9                   Used fuel is not transported very  
10 often within Canada, just occasionally when it  
11 might go up to a research facility such as Chalk  
12 River.  They would have to go in the appropriate  
13 package.  But it's not done on a regular basis.

14                   But the package would be subject  
15 to certification as well as there's a requirement  
16 for the transportation of enriched uranium or  
17 plutonium above certain quantities.  They would  
18 have to have a security plan for special  
19 arrangement.  They would have to put in other  
20 measures in place.

21                   But there is a full program in  
22 place, and if you want details, I can get a  
23 transport specialist.

24                   I'd just like to point out that  
25 there is a fact sheet on transportation that is

1 sitting on the CNSC website right now that is  
2 publicly available and describes the transportation  
3 and packaging. It includes the transportation of  
4 dangerous goods because the two work together.

5 And that information there is  
6 available for the public, and it's quite  
7 comprehensive.

8 MEMBER PEREIRA: Thank you.

9 And the transport packages and  
10 containers, are they owned by the OPG, I presume?

11 MR. HOWDEN: I believe they are.  
12 I think OPG can confirm that.

13 MEMBER PEREIRA: OPG, would you  
14 like to comment on the packages and, you know, your  
15 program for maintaining the packages in good order?

16 MR. SWEETNAM: Albert Sweetnam,  
17 for the record.

18 The packages are owned by OPG.  
19 They're designed through consultants and  
20 manufactured to certain specifications after  
21 agreement with the CNSC.

22 After the items are packaged, they  
23 are inspected.

24 If we're talking about the used  
25 fuel packages, the dry casts ---

1                   MEMBER PEREIRA: No, I'm talking  
2 about the low level and intermediate level.

3                   MR. SWEETNAM: Low level. These  
4 are inspected on a regular basis and they're  
5 transported with regular shipments between  
6 Pickering, Darlington and the Western Waste  
7 Management site.

8                   MEMBER PEREIRA: Now, the staff  
9 who will do the transporting, the driving, are they  
10 OPG employees or are they commercial operators?

11                  MR. SWEETNAM: Albert Sweetnam,  
12 for the record.

13                  They are OPG employees.

14                  MEMBER PEREIRA: And Transport  
15 Canada, are these drivers or staff required to  
16 qualify to certain programs for safe transport of  
17 radioactive material?

18                  MR. BERGERON: Jean-Stephane  
19 Bergeron, for the record.

20                  Yes, both, I believe, under the  
21 Canadian Nuclear Safety Commission requirements and  
22 under our requirements there are training  
23 requirements that set out general areas of training  
24 and that have to be adjusted to the function-  
25 specific task of the employee.

1                   And the employer of the employee  
2 would be responsible to do the assessment and  
3 ensure that the training provided meets the  
4 regulatory requirements.

5                   MEMBER PEREIRA: Can you tell me a  
6 bit more about the mutual initial response  
7 arrangements that are referred to in your overhead?

8                   MR. BERGERON: Jean-Stephane  
9 Bergeron.

10                  I can in general terms. I'm sure  
11 OPG would be able to provide a lot more details.  
12 But as part of their submission on their emergency  
13 response assistance plan, they also rely on  
14 partners under agreements for the initial response  
15 and the support to the response.

16                  We, upon our review, thought it  
17 was important to point out to the panel that,  
18 depending on how their operation changes with the  
19 new build and how they adapt their business, that  
20 may also have an impact on its partners and it's  
21 important for them to coordinate that with their  
22 partners and ensure their partners are also on  
23 board with the change in operation.

24                  MEMBER PEREIRA: OPG, could you  
25 provide some information on that aspect of the

1 operation?

2 MR. PETERS: John Peters, for the  
3 record.

4 We have -- as you indicated,  
5 correctly, there is a detailed training program for  
6 each of the OPG vehicles and the fleet of packages.  
7 And every transport route is carefully assessed as  
8 to all the hazards and risks associated with it and  
9 there is a specific emergency response plan  
10 associated with each of those traffic pathways.

11 Those are developed on an annual  
12 basis and they're reviewed with the emergency  
13 responders who are located along those routes so  
14 that they can also achieve any training  
15 requirements with OPG and through their own  
16 processes to ensure that there is a coordinated  
17 understanding of the nature of the shipments and  
18 the paths and the timing and that kind of detail  
19 that's necessary to ensure safe passage.

20 MEMBER PEREIRA: Just not to go  
21 into too much detail, but just a confirmation, is -  
22 - are there security provisions for transport of  
23 some of those loads, given the current environment  
24 we live in?

25 MR. PETERS: There would be a

1 security plan, yes.

2 CHAIRMAN GRAHAM: Thank you, Mr.  
3 Pereira.

4 Do you want to announce that now?  
5 Okay.

6 Madam Beaudet.

7 MEMBER BEAUDET: Thank you, Mr.  
8 Chairman.

9 On your written submission -- for  
10 the record, PMD11P1.10, page 5 -- and I will be  
11 quoting you here, you said:

12 *"Navigable Waters Protection*  
13 *Act approval document may be*  
14 *issued upon completion of*  
15 *deposit and advertisement,. .*  
16 *and upon Navigable Waters*  
17 *Protection Programs receipt*  
18 *of final environmental*  
19 *assessment and Aboriginal*  
20 *consultation reports."*

21 For the Aboriginal consultation  
22 reports you have mentioned on page 11 as well that  
23 there will be consultation of the Métis. Do you  
24 mean here consultation report as duty to the Crown  
25 request that you do a consultation of Aboriginal

1 groups or you just mean here the Métis  
2 consultation?

3 MS. MacDONALD-SIMCOX: Sue  
4 MacDonald-Simcox, for the record.

5 Under the *Navigable Waters*  
6 *Protection Act*, once we do an initial application  
7 submission, if there is determined -- there are  
8 certain triggers that are determined in the works  
9 that we look at under the Act that will trigger  
10 whether an Aboriginal consultation is required and  
11 that is under the Crown's duty to consult. It  
12 would be separate from the consultation with the  
13 Métis Nation of Ontario.

14 MEMBER BEAUDET: Another point on  
15 navigable waters. You did refer to an exclusion  
16 zone and the data here has the length of the intake  
17 and discharge structures probably what we have in  
18 the EIS, but you must be aware that there has been  
19 a proposal of locating the structure deeper, at  
20 deeper length, and at 10-metre depth of water there  
21 would be between 600 to 800 metres long.

22 There was a proposal discussed I  
23 believe in the summer and in the fall where OPG was  
24 asked if they could place these structures at 15  
25 meters depth and then the length of the structures

1 would be evaluated by OPG as being around 1,700  
2 meters, and now we're talking about 20-metre depth  
3 during this public hearing, which of course  
4 increases again the distance of this structure from  
5 the shore.

6 Any comments on the fact that the  
7 diffuser would put in deeper waters, and also do  
8 you still feel that the expanded prohibitive zone  
9 will not have a measurable effect, although it has  
10 been -- this point has been a concern of the Métis.

11 MS. MacDONALD-SIMCOX: Sue  
12 MacDonald-Simcox, for the record.

13 I will address the first part of  
14 your question, Madam Beaudet, with regards to how  
15 we determine where to put the intake and the  
16 diffusers, and then I'll refer it to my colleague  
17 Norman Monteiro for the prohibitive zone, which is  
18 known as the VOOR.

19 It's very difficult to make a  
20 whole determination on where the project goes. We  
21 have not received a formal application and we  
22 haven't received detailed plans and design on  
23 exactly what they would like to do.

24 So what I'll do is I'll phrase my  
25 answer from a general perspective on what someone

1 like myself, a navigable waters inspection officer,  
2 would do when they review an application.

3                   One of the first things that we  
4 must do as an officer is we must do what's called a  
5 navigation impact assessment, and what a navigation  
6 impact assessment does is we look -- as an officer,  
7 is we look at what the work is and where the work  
8 is located and what the possible impact to that  
9 waterway it has.

10                   We look at things such as the  
11 waterway usage, so what type of vessels are using  
12 that, the waterway characteristics, the  
13 accumulative impacts, both present and possibly  
14 future, future uses of the waterway, what the  
15 impacts of the proposed work could do, both  
16 presently and in the long term.

17                   And that is when we look at other  
18 considerations, which sometimes aren't strictly on  
19 a case-by-case basis, and this helps us make sure  
20 that we're upholding the legislative responsibility  
21 under the *Navigable Waters Protection Act*.

22                   We look at certain terms and  
23 conditions, as well, and like I say, it's extremely  
24 difficult for us to say exactly where we could put  
25 the diffuser at this time but we do have things in

1 place, such as terms and conditions of what we put  
2 on approvals so that it protects the person's right  
3 to navigation. And that is the best answer I can  
4 give you at this time.

5 MR. MONTEIRO: Norman Monteiro,  
6 for the record.

7 The Office of Boating Safety has a  
8 process whereby they look at applications from  
9 concerned parties in regard to establishing  
10 restricted zones on the waters of Canada. There is  
11 an existing restricted zone, as was shown in the  
12 presentation just a little bit earlier. We  
13 understand from the submission by OPG that there's  
14 going to be another one now, in addition to the  
15 existing one.

16 The Métis Nation of Ontario has  
17 already expressed concern about availability of  
18 fishing and recreational boating in that area. The  
19 Office of Boating Safety looks at applications from  
20 proponents, and I assume in this case there would  
21 have to be an application from OPG to establish  
22 another area of restriction, but there will be  
23 public consultation in that regard and the Métis  
24 Nation of Ontario would be invited to those  
25 consultations which will be conducted by the OPG.

1                   MEMBER BEAUDET: I'd like to go a  
2 little bit further about this consultation. You  
3 mentioned that when OPG is prepared to make a  
4 request for a new prohibitive zone Transport Canada  
5 will require, as you say, to have Métis and maybe  
6 other groups.

7                   But this consultation should look  
8 at any reasonable means of mitigating such impacts,  
9 and I would like to hear what are usually the  
10 mitigation measures that you would use.

11                   MR. MONTEIRO: Norman Monteiro,  
12 for the record.

13                   It's a little bit outside my area  
14 of expertise. It's the Office of Boating Safety  
15 manager who generally deals with this. I'm  
16 representing them. I do not have the details that  
17 you seek. But there is provision, as you rightly  
18 said, for mitigation measures and I cannot really  
19 say what those might be. I don't have the  
20 expertise.

21                   MEMBER BEAUDET: Would they  
22 include compensation?

23                   MR. MONTEIRO: I'd have to provide  
24 the answer later or maybe provide an undertaking  
25 for that.

1                   MEMBER BEAUDET: Because there  
2 were two things that they raised; they raised the  
3 fact that they would be restricted now in their  
4 fishing and recreational activities, but also  
5 regarding their safety.

6                   You mentioned that the barges  
7 would probably operate close to Oshawa shore, and  
8 we were trying to find out if between Oshawa shore  
9 and the new wharf or St-Mary's wharf, apart from  
10 the existing exclusion zone, if that area was used,  
11 and so there would be a constraint on the use and  
12 also possibly a problem of safety.

13                   Would that be your assessment of  
14 the situation?

15                   MR. MONTEIRO: Norman Monteiro,  
16 for the record.

17                   We did look at that. The  
18 interaction of various users on the waters of  
19 Canada is a normal process, it happens routinely,  
20 and we operate on the premise that the waters of  
21 Canada are a shared resource. It is not explicit  
22 in the regulations but the spirit of the sharing is  
23 implicit in the regulations.

24                   And we do get complaints from time  
25 to time from one party or the other and there is no

1 regulation reserving any body of water to any  
2 particular user, it's a matter of commonsense.

3                   And the interaction of barge or  
4 tug and barge traffic with other users is normal  
5 and there are regulations that basically say to  
6 each user of the waterway how to behave in certain  
7 interaction situation. So if each user obeys or  
8 behaves or acts in -- in accordance with the  
9 regulations, there really shouldn't be a problem.  
10 Our statistics do not indicate that there -- that  
11 we should anticipate such problem.

12                   MEMBER BEAUDET: We're talking  
13 about the Métis, but we did visit Darlington Park  
14 and we -- we looked at a -- a few locations where  
15 there are marinas and, of course, living on Lake  
16 Ontario shores, I guess you would have recreational  
17 boats. And I think one of the worries was that  
18 OPG's assessment said that they could go -- go  
19 further offshore, but it's not necessarily the  
20 case, depending on the -- on -- on the boat you  
21 have. So for you, you think that there would be no  
22 problem in terms of safety?

23                   MR. MONTEIRO: That is my -- my  
24 conclusion. If OPG decides to use the -- the  
25 cement plant facility, it's not a very far distance

1 from where they proposed to build, if they do end  
2 up building, a -- a wharf. It -- it would be  
3 unreasonable, in my opinion, for them to head out  
4 to the lake and then come back in.

5                   If on the other hand they were  
6 using Oshawa harbour or Toronto or Hamilton, then  
7 it is a different situation. The interaction is  
8 minimal as opposed to our transportation loop from  
9 St. Lawrence to the Darlington facility.

10                   MEMBER BEAUDET: I would like to  
11 change the subject now and go to rail safety. On  
12 page 17 of your written submission, you say that  
13 currently there are no regulation requirements with  
14 respect to the construction or alteration of  
15 buildings and other structures, not being railway  
16 works or properties adjoining the land on which a  
17 -- a rail line is situated. However, such  
18 regulation may be developed in the coming years.  
19 There are two things here so Darlington would --  
20 would be a special case. And why do you say that  
21 there -- there will have to be regulations? Is it  
22 because there are problems already identified or  
23 you -- you have complaints that now are forcing you  
24 to establish regulations? And if you do, how would  
25 Darlington be considered with -- with the line

1 crossing?

2 MR. BERGERON: John-Stephane  
3 Bergeron. This point was raised by one of my  
4 colleagues in Ottawa. I think I can address it in  
5 -- in some general terms and give you some context.  
6 I'm not sure I can give you all the details, and if  
7 you need further details maybe we can get an  
8 undertaking with you to -- to provide the details  
9 you require.

10 Proximity issues with respect to  
11 railways in general terms, in terms of the  
12 operation of a railway in a community, whether it's  
13 an industrial setting or a residential setting, are  
14 without question, on occasion an issue, whether  
15 that is noise, vibration, occupation of crossings.  
16 So general -- in general terms proximity issues do  
17 -- do arise. Some of them are directly in relation  
18 to the *Railway Safety Act* and have direct relations  
19 to the safe operation of the railway and of the  
20 community where the railway operates.

21 Others are just really matters of  
22 proximity and co-existence. The railway safety  
23 portion of those concerns or those issues are  
24 addressed by the *Railway Safety Act* in general  
25 terms and in some regulatory requirements, such as

1 the construction of a crossing, for instance, while  
2 other are outside the scope of the *Railway Safety*  
3 *Act* and are really an issue of the Canadian  
4 Transportation Agency, which is -- is the process  
5 by which some of these -- these proximity disputes  
6 or irritants are dealt with.

7 In -- in more specific terms, with  
8 respect to the operation of the rail line through  
9 the Darlington facility, if you -- if you want to  
10 characterize it that way, the -- the transportation  
11 -- the *Railway Safety Act* is really there to  
12 address the safe operation of the railway itself  
13 and its impact on the safety of Canadians and the  
14 community where the railway resides, and not to  
15 protect other installations and their specific  
16 requirements from the railway operation.

17 And -- and I would suggest to you  
18 that it would probably become an issue more of  
19 licencing or the regulations that apply to that  
20 facility and -- and maybe the -- the CNSC can  
21 address that, and they've already addressed that,  
22 but -- but it goes beyond the scope of the *Railway*  
23 *Safety Act*.

24 MEMBER BEAUDET: Thank you.

25 CHAIRPERSON GRAHAM: Thank you,

1 Madam -- Madam Beaudet. I have two questions.  
2 There's some discussion -- my panel -- my panel  
3 colleagues have asked a question about the diffuser  
4 line. And regardless whether that is ten, 15 or 20  
5 -- at depths of ten, 15 or 20 metres, is there a  
6 regulation or specification that the pipeline out  
7 has to be buried or it -- can it be on the bottom.  
8 I guess what I'm concerned -- or asking is,  
9 displacement of draught of ships and so on, is  
10 there regulation of that as to, if you're out in 20  
11 metres of water, does it still require being buried  
12 or can it be on the bottom and the draught of a  
13 ship is limited then to 15 metres or whatever it  
14 is? Can you explain that?

15 MR. MONTEIRO: Norman Monteiro for  
16 the record. I -- I will address the component that  
17 deals with ships' draughts. Generally, in areas  
18 that have subsea items or things like diffusers,  
19 those areas are marked on the chart and that is --  
20 is usually an indication that it's an area to be  
21 avoided both for the safety of the vessel and for  
22 the safety of -- of the -- the mechanism.

23 In addition to being marked on the  
24 chart, there would be buoys for those who don't  
25 have charts, especially people on small boats. So

1 draught could be a factor on determining whether or  
2 not ships can or cannot go. But I would imagine  
3 despite the -- the draught aspect, there's also the  
4 anchoring aspect. If -- if that's not marked as a  
5 -- an area prohibited for anchoring, you could  
6 damage that mechanism.

7 CHAIRPERSON GRAHAM: But there  
8 would have to be a regulatory process that an  
9 applicant would have to go through so that  
10 navigable waters could be charted and the charts  
11 could be prepared and so on. There would be a  
12 process; is that correct?

13 MR. MONTEIRO: That is correct.

14 CHAIRPERSON GRAHAM: Thank you.  
15 My -- my second question -- there's considerable  
16 discussion about incoming material to the site and  
17 the site being used for incoming material. We've  
18 discussed in the last couple of days the fact that  
19 there may be in excess of three, three and a half  
20 million cubic metres of excess material other than  
21 what's going to be stockpiled on site and so on.  
22 There's been considerable discussion of on-land  
23 transportation, but again, there could be -- there  
24 could be -- it could be exported off by barge.  
25 What type of regulatory process would that require?

1 How do -- export -- taken off by water.

2 MR. MONTEIRO: Norman Monteiro for  
3 the record. Were you talking about during the  
4 construction phase?

5 CHAIRPERSON GRAHAM: No, we have a  
6 licence to prepare a site.

7 MR. MONTEIRO: Right.

8 CHAIRPERSON GRAHAM: And we're  
9 told that there -- 12 -- 12 million metres -- cubic  
10 metres or something to that effect, nine million is  
11 going to go into a -- a site -- stockpile on site.  
12 There's still about three million metres; been  
13 considerable discussion about road transportation.  
14 We have not -- not been informed of any host site  
15 for that by road, whether -- how far it goes or  
16 where it goes. And as an alternative, because of  
17 water transportation, barge transportation  
18 sometimes being cheaper, I'm wondering if -- if  
19 there was a decision to move that by water, and  
20 have -- have a host site somewhere, it might be  
21 economically feasible. What I'm wondering is -- is  
22 that type -- how does -- how does an applicant or a  
23 licensee go about that type of process?

24 MR. MONTEIRO: We -- Transport  
25 Canada does not regulate that aspect. Ships are

1 free to load without our intervention. The only  
2 areas we actually approve carriage of goods is in  
3 the carriage of grain, concentrates like zinc and  
4 iron ore concentrates and timber where inspectors  
5 actually go on board and verify stability and other  
6 aspects before they show certificate of readiness  
7 to load.

8 All other cargos, we do not have  
9 an approval role including dangerous goods. We do  
10 audit. We do go on board to show the flag and we  
11 do monitor and they are obliged to show us how they  
12 meet the regulations, but that's the extent of our  
13 involvement.

14 To answer your question about  
15 volumes, I guess, is where you were going --  
16 volumes of shipment?

17 CHAIRPERSON GRAHAM: I don't think  
18 it matters what the volume is. I just want to know  
19 the process.

20 There could be -- I'm just saying  
21 could be -- upwards of three or three and-a-half  
22 million cubic metres, but I was going to come to --  
23 the point is that what if it was determined that  
24 some of that excess material was contaminated;  
25 whether it was radioactive contaminated or

1 contaminated with another chemical, would it still  
2 be permitted to be barged?

3 MR. MONTEIRO: Norman Monteiro,  
4 for the record.

5 If a certain cargo had to become  
6 contaminated, we would rely on the shipper of the  
7 goods to notify us and then we'd have to determine  
8 whether or not it was to be classed as a dangerous  
9 good, and if it were to be classed as dangerous  
10 goods then there are separate regulatory  
11 requirements that have to be met, just like was  
12 shown in that presentation.

13 CHAIRPERSON GRAHAM: That's what I  
14 was looking for.

15 Okay, Mr. Pereira, do you have  
16 another question?

17 MEMBER PEREIRA: Just one  
18 question.

19 MR ZEIT: Sorry, Mr. Chairman.  
20 Sorry to interrupt.

21 Your previous question regarding  
22 the diffuser pipe had sort of two elements to it.

23 Norman Monteiro spoke to the draft  
24 component of that, but I believe that Sue  
25 MacDonald-Simcox has some additional information

1 for you.

2 CHAIRPERSON GRAHAM: Please?

3 MS. MACDONALD-SIMCOX: Sue

4 MacDonald-Simcox, for the record.

5 Mr. Chairman, with regards to the  
6 diffuser, there is a regulatory instrument and that  
7 is the *Navigable Waters Protection Act*.

8 The diffuser will be part of the  
9 approval if an application is received, and with  
10 regards to you wondering whether it needs to be  
11 buried or marked, in other types of works that  
12 we've approved in the past in the waterway,  
13 oftentimes when things are laid at different  
14 depths, the normal movement of water with the bed  
15 will cover and not require that it be covered.

16 But also in this case, depending  
17 on the depth of the water in which the diffuser  
18 will be placed, there are ways that we mitigate  
19 through terms and conditions such as marking it in  
20 accordance to the standards with the Canadian Aids  
21 to Navigation System.

22 CHAIRPERSON GRAHAM: Thank you.

23 Madame Beudet, anything further?

24 Okay, we'll go to -- oh, Mr.

25 Pereira again.

1 MEMBER PEREIRA: Question for OPG.

2 In one of its last -- it's the  
3 second last slide -- Transport Canada recommends a  
4 risk assessment be undertaken to determine safety  
5 measures needed with respect to the rail crossing  
6 going through the site and this is a risk to the  
7 facility that you're going to construct.

8 Is there something that would be  
9 done and provisions made during the site  
10 preparation or would this be a later phase of the  
11 project?

12 MR. SWEETNAM: Albert Sweetnam,  
13 for the record.

14 This would be something that would  
15 be done initially because in the licence to prepare  
16 site, the worker would do -- would include that  
17 blastwall and the earthworks associated with that,  
18 so we would have to do the risk assessment to  
19 determine what the final mitigation is depending on  
20 the results of that risk assessment.

21 MEMBER PEREIRA: I'll turn to the  
22 CNSC.

23 Is that already covered in the  
24 draft licence to prepare site?

25 MR. HOWDEN: Barclay Howden

1 speaking.

2 Yes, it is.

3 MEMBER PEREIRA: Any observations  
4 or information that you can provide us? Just in  
5 general what would be your sense?

6 MR. HOWDEN: Barclay Howden  
7 speaking.

8 Mr. Schwartz has just given me a  
9 little bit more information. From our view, from a  
10 generic standpoint, they could start the work there  
11 during the site prep licence, but they would have  
12 to confirm at the licence to construct because  
13 they'll have a chosen technology at that point to  
14 confirm that the risk assessment is valid.

15 But they could do the preliminary  
16 work on a berm to be able to do that, but they'd  
17 have to do confirmation.

18 The other thing I wanted to  
19 indicate was that under the EIS and also as part of  
20 the RDA-347 site evaluation, OPG has had to do a  
21 review of human-induced external events, which  
22 could be this particular one, and they have done  
23 that.

24 Our view though, however, as  
25 Transport Canada has said, a detailed assessment

1 will need to be done at the licence to construct to  
2 confirm that the proposed mitigation measures will  
3 be effective, but they'll be able to start the  
4 work, but there is a confirmation step to make sure  
5 that what they've done to demonstrate the  
6 mitigation is correct.

7 CHAIRPERSON GRAHAM: Okay, now we  
8 will go to OPG.

9 Do you have any questions to  
10 Transport Canada?

11 MR. SWEETNAM: I have no  
12 questions.

13 CHAIRPERSON GRAHAM: CNSC, do you  
14 have any questions, Mr. Howden or Dr. Thompson?

15 DR. THOMPSON: Thank you, Mr.  
16 Chair. No questions from the CNSC.

17 CHAIRPERSON GRAHAM: Just before  
18 we go to intervenors, my co-manager has one short  
19 announcement.

20 MS. MYLES: Hello, Debra Myles,  
21 panel co-manager.

22 I just wanted to present the  
23 panel's outline for the agenda tomorrow to you.

24 I believe at 7:30 tonight we lose  
25 webcasting and so I think the plan is for me to

1 read this and then Mr. Graham will go to questions  
2 from intervenors.

3                                 So the outline for tomorrow is to  
4 commence proceedings once again at 8:30 a.m.  
5 instead of 9:00 a.m. They anticipate that the  
6 morning session will continue for approximately  
7 four hours.

8                                 We'll begin as planned with  
9 Emergency Management Ontario, followed by Ontario  
10 Ministry of Labour and Ontario Ministry of Energy.  
11 The panel also intends to have the presentation of  
12 Natural Resources Canada in the morning session  
13 tomorrow.

14                                 After a shortened lunch break 00  
15 hopefully, not quite as short as today -- the panel  
16 plans to hear a brief presentation by Ontario Power  
17 Generation on aquatic biota and habitat, followed  
18 by the presentations from Fisheries and Oceans  
19 Canada and the Ontario Ministry of Natural  
20 Resources. So the entire afternoon would be  
21 aquatic biota and habitat.

22                                 The originally scheduled plan was  
23 to address the written submission of the Canadian  
24 Transportation Agency at the end of the day  
25 tomorrow, but this will be rescheduled to another

1 time.

2 Thank you.

3 CHAIRPERSON GRAHAM: And thank  
4 you.

5 And just to add to that, we will  
6 not -- and I'm going to say not -- sit beyond 6  
7 o'clock tomorrow night. We've been sitting every  
8 night long, long hours and to the fairness of the  
9 people that are here, both staff, both OPG, both  
10 ourselves and both -- and also the people that are  
11 here as intervenors that have worked hard also to  
12 get questions and so on, we will not sit beyond  
13 six. If we're not finished, we'll just adjourn  
14 until the next meeting.

15 We go to our intervenors and Mr.  
16 Haskell, you're the first one at the mic there,  
17 sir.

18 --- QUESTIONS BY THE INTERVENORS:

19 MR. HASKILL: Thank you, Mr.  
20 Chairman. My name is Sanford Haskill and that's  
21 spelled H-A-S-K-I-L-L.

22 My question I will direct to you,  
23 sir. Are these OPG intending to use Oshawa Harbour  
24 for these barges?

25 CHAIRPERSON GRAHAM: OPG, do you

1 care to respond to that?

2 MR. SWEETNAM: Albert Sweetnam,  
3 for the record.

4 No.

5 CHAIRPERSON GRAHAM: The answer is  
6 no. Do you have a supplement?

7 MR. HASKILL: Yes. Could you tell  
8 me what harbour they're planning on using, please?

9 CHAIRPERSON GRAHAM: OPG?

10 MR. SWEETNAM: Albert Sweetnam,  
11 for the record.

12 That's not determined as yet.  
13 It'll be determined in conjunction with EPC  
14 contractor when one is selected, but there's no  
15 intention to use the Oshawa Harbour.

16 CHAIRPERSON GRAHAM: Not Oshawa,  
17 but not determined yet what other harbour might be  
18 used. Is that what you're saying?

19 MR. SWEETNAM: That's correct.

20 CHAIRPERSON GRAHAM: Mr. Haskill?

21 The next one is Theresa  
22 McClenaghan of CELA.

23 MS. McCLENAGHAN: Thank you, Mr.  
24 Chairman, and with your permission I'd like to pose  
25 two questions; one on marine safety and one on

1 transportation of dangerous goods.

2 Dealing with marine safety, Mr.  
3 Chairman, I'm looking at Slide 12 in the -- in the  
4 presentation. And it was indicated that the  
5 understanding was that no radioactive materials  
6 would be transported by ship for the proposed  
7 project. And I'm wondering if the -- if that  
8 statement includes the full project under CEA, i.e.  
9 right through construction operation and  
10 decommissioning, or if that statement was limited  
11 to the license to prepare a site.

12 CHAIRPERSON GRAHAM: Transport?

13 MR. ZEIT: David Zeit for the  
14 record.

15 That statement was made with  
16 respect to the project in its entirety. As stated  
17 in the presentation, that is our understanding at  
18 the current time, and it is the assumption upon  
19 which we based some of our conclusions.

20 If that turns out not to be the  
21 case or if there's any change in current plans,  
22 then we would re-evaluate some of our conclusions.

23 CHAIRPERSON GRAHAM: Ms.  
24 McClenaghan?

25 MS. McCLENAGHAN: Thank you, Mr.

1 Chairman.

2                   The other question with respect to  
3 transportation of dangerous goods is regarding  
4 slide 28, and it deals with the emergency response  
5 assistance plan.

6                   And Mr. Pereira asked some of the  
7 aspects, but I wondered if there can be a bit of  
8 elaboration on who it is -- what types of  
9 responders are included in the -- in the mutual aid  
10 agreement and whether they have particular training  
11 regarding nuclear operations and radioactive  
12 materials?

13                   I -- we heard at the time from OPG  
14 giving their staff that training, but we didn't  
15 really hear about other responders.

16                   CHAIRPERSON GRAHAM: OPG?

17                   MR. PETERS: John Peters for the  
18 record.

19                   We'd like to take an undertaking  
20 to clarify with precision this question because the  
21 staff persons who are experts in this field are not  
22 here now.

23                   But I can generally say that I --  
24 my indication was that there is training and a  
25 working relationship that's specific to the

1 undertaking of transportation of these packages,  
2 and the training applies to both OPG employees and  
3 to the partners on the other side, who are in the  
4 emergency response communities that we are partners  
5 with.

6 CHAIRPERSON GRAHAM: We'll give  
7 that an undertaking, undertaking number 23.

8 MS. McCLENAGHAN: Thank you, Mr.  
9 Chairman.

10 CHAIRPERSON GRAHAM: And just one  
11 moment.

12 We'll give it an undertaking  
13 number, and you're here tomorrow, the emergency  
14 preparedness. You may have it ready. If you do,  
15 we'll deal with it and check it off the list. If  
16 you -- because of the lateness of the hour tonight  
17 and people have only so much time to get the  
18 material, we'll still give it an undertaking, and  
19 it's undertaking, again --

20 UNKNOWN SPEAKER: 23.

21 CHAIRPERSON GRAHAM: Number 23.

22 The next one -- well, right on  
23 deck, Madam Llyod.

24 MS. LLOYD: Thank you. Brennain  
25 Lloyd from Northwatch.

1                   Mr. Chair, as Transport Canada  
2 notes in their slide, the environmental impact  
3 statement identified both onsite and offsite  
4 storage for -- for low and intermediate-level  
5 waste, and they've provided some comment on  
6 transport of low and intermediate-level waste.

7                   But the EIS also has -- identifies  
8 the option of onsite or offsite long-term  
9 management of nuclear fuel waste.

10                   And I'm just wondering why  
11 Transport Canada provided no address of that in  
12 their presentation to you today.

13                   CHAIRPERSON GRAHAM: Transport  
14 Canada, would you like to respond to Ms. Lloyd?

15                   MR. BERGERON: Mr. Chairman, Jean-  
16 Stefane Bergeron.

17                   The reason why we focus primarily  
18 on the low and intermediate-level waste is that's  
19 the activity that's happening now, and OPG was  
20 submitting as part of their proposal, their  
21 assessment, an increase.

22                   There is very -- very little, if  
23 any, moving of high-level waste, as already pointed  
24 out during their earlier presentations. It's being  
25 stored onsite, and that's why we haven't

1 specifically addressed that.

2                   Given that, the regulatory  
3 framework that's in place both from the CNSC and  
4 Transport Canada would address whatever radioactive  
5 material is transported, and it would adjust the  
6 regulatory requirements, including the packaging  
7 requirements, according to the risk that that would  
8 present.

9                   MS. LLOYD: Thank you.

10                   CHAIRPERSON GRAHAM: Thank you.

11                   The very last one, Anna Tilman.

12                   Will someone assist there on the  
13 mic? Thank you.

14                   MS. TILMAN: I have two brief  
15 questions, Chair. I'm sure you're pleased at that.

16                   One is dealing with rail safety --  
17 rail safety. Okay. On slide 37, there is  
18 recommendations by Transport Canada. One  
19 recommendation that's missing from their PMD 11-  
20 P1.10 on page 17 is an analysis of the risks  
21 associated with a security threat, such as a bomb  
22 being placed on a train running on the tracks that  
23 bisect the facility.

24                   So I just want to note that that's  
25 one thing that was missing there.

1                                   But the other thing that I think  
2 is also relevant is the impact of an incident or  
3 accident on -- at Darlington on the rail system and  
4 what are the cumulative impacts, if that should  
5 occur, and I don't see that in this document, so I  
6 wonder if that is going to be a recommendation or  
7 to be considered because I think that is a very  
8 significant fact to consider.

9                                   CHAIRPERSON GRAHAM: Transport  
10 Canada? I think, Mr. Bergeron, you have an answer  
11 or --

12                                  MR. BERGERON: Yes, I do, Mr.  
13 Chairman.

14                                  Jean-Stefane Bergeron.

15                                  First, on the security of the  
16 facility component and why we didn't address it  
17 further in the presentation is we raised the issue,  
18 but, again, as we pointed out, in our view, it's  
19 primarily responsibility with respect to the  
20 licensing the facility and protecting the facility  
21 itself, which is outside our area of expertise and  
22 authority. And that's why we haven't addressed it  
23 any further. We raise it as an issue.

24                                  On the second question with  
25 respect to an incident at the facility and how that

1 would impact rail operations and the safety of the  
2 rail operations, we did not address that  
3 specifically because, first, the response to an  
4 emergency is with the local community, and that  
5 would involve roads and rail operations. And it is  
6 under the general requirements of the Railway  
7 Safety Act up to the railways to do a risk  
8 assessment and ensure that they are prepared and  
9 have plans to address whatever incidents or  
10 emergencies that could affect their operation,  
11 their employees, and their passengers. And,  
12 therefore, for railways operating through that  
13 facility, it would be part of their obligations  
14 under the Railway Safety Act and its requirements  
15 to do an assessment of that and how they would  
16 handle such an incident.

17 CHAIRPERSON GRAHAM: Do you have  
18 another question?

19 MS. TILMAN: Yes.

20 The other one is another question  
21 of clarification on slide 25. It is simply a  
22 matter of, let's say, the number of shipments that  
23 will be done, and the additional shipments are only  
24 three compared to OPG now ships 75.

25 Since the 75 comes from all kinds

1 of shipments of radioactive waste, it is not clear  
2 when you say, three additional from Darlington, how  
3 much that represents from the Darlington facility  
4 itself.

5 I just you -- you're comparing one  
6 thing with another, and it looks like it's a  
7 minimum amount of shipment compared to all of OPG  
8 does.

9 But, in fact, how much is being  
10 shipped out of this region would, I think, be a  
11 more important number to work with, and I would  
12 like to see that clarified.

13 How many shipments come out of  
14 Darlington now or Pickering, this area, relative to  
15 how many shipments would this additionally add?  
16 Because I think it's the local transportation.

17 CHAIRPERSON GRAHAM: I'm not sure.

18 OPG, do you care to respond?

19 Because I don't think you have  
20 access to that as Transport Canada.

21 MR. SWEETNAM: Albert Sweetnam for  
22 the record.

23 We had this information, but we  
24 don't have it handy. We could take an undertaking  
25 to do it, or we could discuss it when we discuss

1 waste on the 29<sup>th</sup> because we'll have all of the --  
2 our experts on waste at that point in time.

3 CHAIRPERSON GRAHAM: I think  
4 that's probably the best time, if that's all right.

5 I'm not going to take it as an  
6 undertaking. I think they know it's coming up.

7 So with that, to Transport Canada,  
8 thank you very much for coming, thank you for your  
9 patience, thank you for adjusting your schedules.

10 And this panel is now adjourned  
11 and will reconvene tomorrow morning at 8:30.

12 Thank you very much, everyone.

13 --- Upon adjourning at 7:30 p.m./

14 L'audience est ajournée à 19h30

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## C E R T I F I C A T I O N

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4 I, Alain H. Bureau a certified court reporter in  
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