

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public hearing

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Le 31 mai 2013

Pickering Recreation Complex
1867 Valley Farm Road,
Pickering, Ontario

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Pickering (Ontario)

Commission Members present

Commissaires présents

Dr. Michael Binder
Dr. Moyra McDill
Mr. Dan Tolgyesi
Ms. Rumina Velshi
Dr. Ronald Barriault
Mr. André Harvey

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M. Marc Leblanc

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M. Jacques Lavoie

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Pickering, Ontario

--- Upon commencing at 8:30 a.m./

L'audience débute à 8h30

MR. LEBLANC: Can I start?

THE CHAIRMAN: Yes.

M. LEBLANC: Bonjour, mesdames et messieurs. Good morning. Welcome to the continuation of the public hearing on the Pickering Nuclear Generating Station Licence Renewal and Consultation.

The Canadian Nuclear Safety Commission will resume this hearing during today's morning. We have 12 oral presentations and then we will follow with the round of questions from the Commission members to the participants.

Les appareils de traduction sont disponibles à la réception. La version française est au poste 2 and the English version is on channel 1.

We would ask that you keep the pace of your speech relatively slow so that the translators have a chance to keep up.

This hearing is being video webcast and, as we've indicated in several occasions, the video webcast will be archived on our website for at least a three-month period. So it provides an opportunity to go back and see

some of the presentations from Day 1 -- from the first day on Wednesday or yesterday that were made by some of the presenters, for those that were not able to watch them or observe them yesterday or the day before.

To make the transcripts as meaningful as possible, we would ask everyone to identify themselves before speaking. We would also ask that you please silence your cell phones and other electronic devices.

M. Binder, président et premier dirigeant de la CCSN, présidera l'audience publique d'aujourd'hui.

Mr. President?

LE PRÉSIDENT: Merci, Marc, et good morning and welcome to the continuation of the public hearing of the Canadian Nuclear Safety Commission. And welcome to all of you joining us via the webcast and the teleconference.

Mon nom est Michael Binder. Je suis le président de la Commission canadienne de sûreté nucléaire. And I'd like to introduce the Commission members that are here with us here today: On my right, Dr. Moyra McDill and M. Dan Tolgyesi. On my left is Ms. Rumina Velshi, Dr. Ronald Barriault and M. André Harvey.

We just heard from Marc Leblanc, the Secretary of the Commission, and we also have with us here today M. Jacques Lavoie, Senior General Counsel.

I'd like to remind everybody that we have read all the written submissions intensely and we have some questions on most of them. So you don't have to repeat and re-read them.

And, therefore, I would -- and we allocate about 10 minutes for your oral presentation and -- and then, we'll get into the question period.

So I'd like to start with the next submission which is an oral presentation from Dr. Vakil as outlined in CMD 13-H2.63.

And I understand that Dr. Vakil is coming to us through a teleconference.

Can you hear us?

DR. VAKIL: Yes, I can hear you.

THE CHAIRMAN: Okay, please proceed.

13-H2.63

Oral presentation by

Dr. Kathy Vakil

DR.VAKIL: Okay. So I'd like firstly to thank the CNSC Commissioners and the staff as well as the OPG for allowing me the opportunity to speak today. I'm representing Canadian Association of Physicians for the Environment. I'm a family doctor.

Now, I submitted these slides and my

presentation previously and, since then, the RADICON Study has come out -- has been released by the CNSC last week.

So I'm going to change my presentation a little bit. I'm going to zip through the slides and -- so I have a bit more time at the end to discuss this recent study. So please go to slide 2.

All I want to say here is that my -- I'm paying particular attention to the chronic low level emissions that could be causing illness in local populations.

Slide 3, please? We're going to skip that one. Go on to slide 4. All I want to say here is that it's well known that children and embryos and fetuses, because they are growing quickly, are extremely sensitive to the effects of radioactivity.

I want to skip slides 5, 6 and 7 and go to slide 8. Most of the studies that have been done around childhood leukaemia in areas close to reactors -- and this has been going on since the 1980s -- most of them have been ecological studies which epidemiologically is quite a weak type of study.

This study I'm going to talk about briefly here, the KiKK study, came out -- for anybody in the audience that has never heard of this -- it came out in 2008 from Germany and it was a case controlled study and,

epidemiologically, this is a much more robust kind of study.

And it -- go to slide 8. It showed quite unequivocally that there was an increased risk of children under 5 years old living within 5 kilometres of all 16 reactors in Germany there was an elevated risk of about twice of developing childhood leukaemia.

Please go to slide 10. This study was replicated last year in France, called the "Geocap Study". It was also a case controlled study and it showed an increased risk of childhood leukaemia in children under 15 living within 5 kilometres of all 19 of the French reactors to the tune of about double -- double the risk.

They also did some dose estimates of -- of areas around the reactors and in -- and they concluded that the radioactive emissions could not -- were too low to be causing -- and there was not a dose response relationship. So they couldn't be causing this increase in childhood leukaemia.

However, what I would like to discuss briefly is that these chronic low level emissions could be causing increased risk of childhood leukaemia.

Please go to slide 11 and on to slide 12. Firstly, the half-life of some of these radionuclides that are being emitted are very long.

Tritium is, particularly in Canada, is emitted in large quantities and it's thought now that, in fact, there might be a -- when it's -- when it's part of a -- it's radioactive hydrogen which is incorporated right into our bodies and if it's associated with an organic molecule, it's called "organically-bound tritium".

And the half-life of this, according to some models, could be as much as 500 days which means that it could be accumulating in our bodies and causing illness.

Please go to slide 13. This is just a slide of elevated -- a spike, what we'd call a "spike" -- very high over a few days in September in 2011. This is a reactor in Germany. It was -- they opened it to refuel and then they got a big huge spike in emissions.

Now, the CANDU reactors in Canada are online so they don't have -- they're not opening them once a year to refuel but they must be opening them at least once a year for maintenance and this is when the spikes can occur.

Now, I understand that OPG is alerted when there's a spike over a certain threshold but, still, any -- even a small spike could be responsible for causing illness in local populations.

Slide 14, please. Now, I want to talk a

bit about the emissions coming out of our reactors here in Ontario. I obtained some readings from -- through Freedom of Information from OPG.

Firstly, I don't think that I should be having to -- to go through Freedom of Information. I think that should be readily available to the public.

Bruce Power has refused to release any daily readings. You need daily readings to really see the -- if there are any spikes going on. They refused to release anything and just kept saying that everything is on their Web site which are mostly annual averages and, of course, you can't see spikes with those.

They refused to release anything and just kept saying that everything is on their Web site which were mostly annual averages, and of course you can't see spikes with those.

In any case, the only thing from Pickering and Darlington that is measured daily is airborne tritium releases from Pickering. Everything else is weekly or monthly or less often or even annual. So it is impossible to tell whether there are -- are any spikes in anything other than airborne tritium at Pickering, and I think this is a problem.

Having said that, when you look at the numbers from Pickering tritium releases there are spikes.

They're on -- every few months there's a spike. Possibly this is when they open it for maintenance or one of the reactors for maintenance because there are six of them.

And they go as much as tenfold. And I think that, and maybe this didn't trigger an alert to OPG but my feeling is because of the sensitivity of some people that might be enough to trigger leukemia, certainly in fetus or in a child.

In addition the totals are very large. There are 14,300 curie of tritium released last year which is 5.2 times 10 to the 14th Becquerel which is a lot of radiation. And that isn't including Darlington weekly airborne tritium which totalled 1.3 times 10 to the 14th Becquerel, and that's a lot of radioactivity.

There's also the elemental tritium that they -- that they measure weekly from Darlington which adds another 2.5 times 10 to the 13th Becquerel.

In addition, although it's very hard to tell spikes when it's only measured given weekly there was one week in 2012 when there was a 50 to 100 times the baseline rate of a spike of elemental tritium. And this is very concerning because this, again, could be causing -- triggering leukemia in a sensitive individual.

I also find it a bit disturbing that the -- it says right in the RADICON study that radioactive iodine

was undetectable. However, here you can see that it is being detected now at Pickering and measured at Pickering and Darlington.

So I wonder why this is; if it's just that the device is used in the past where it's sensitive enough and if so how reliable is this RADICON study, if they could be underestimating a number of measurements.

So just going onto the RADICON study the -- just a word about the design; it is an ecological study which is the weakest form of study. But the biggest problem with it is that the -- they're looking at 25 kilometre radius. These other reliable studies the KiKK and the Geocap showed increases at 5 kilometres. So any increase that is going on at 5 kilometres is going to be diluted out when you're only measuring 25 kilometres.

So in other words this study is not strong enough, it's not powered enough to show an increase. This does not mean the increase isn't occurring.

I also think that on the Web site, the CNSC Web site calls this conclusive evidence that everybody's safe near reactors and there's no increase in childhood leukemia. This is unscientific and very misleading I think.

Having said all that, if you look at the paper -- and again the paper doesn't give any numbers of

charts of actual numbers of anything. There are these sort of line graphs that you can see but there are some statistically significantly elevated rates of cancer that they did measure in the study; thyroid, bladder, leukemia. Not children but anybody -- but people over 24; colon, lung and liver.

Now ecological studies by their nature cannot make assumptions or make associations between results and possible causes. In this study they talk about other causes and they seem to dismiss the radioactivity as a cause. And they conclude that all these cancers are from smoking, diet, lifestyle.

And I find -- as a physician I find this concerning because there's an elevated -- a statistically elevated rate of thyroid cancer which is a known to be radio-sensitive as well as leukemia and they seem to be dismissing these. And their conclusion is that there are no radioactive -- there's no relationship between radioactivity coming out of these reactors and these statistically significantly elevated radio-sensitive cancers. And I find this a very peculiar conclusion to draw.

Now, if this were a peer-reviewed medical journal a result like this would prompt recommendation for further study. But this is not what their recommendation

is at all

Just a word about the dose estimates also because they did measure supposedly levels of radiation around these reactors. And again these are just estimates. They're based on estimates and assumptions, mathematical models, hypothetical adults and average nursing infants and average weather conditions. These are not actual measured exposures on actual people. They're only hypothetical exposures on hypothetical people. So I really question how reliable these are.

They also don't allow for different sensitivities of different people, people who have other radio -- radioactive exposures like medical imaging and they can't show up spikes in any emissions because they're just spot samples done on occasion, annual averages composites. So again, I really question how accurate they are.

And we have to be reminded of what happened -- I think it was last year -- in Peterborough at the tritium facility where the devices in the stacks were miscalibrated to the tune of a factor of 10; meaning that they were pumping out 10 times the tritium that they thought for 18 years.

Now, this does not instil confidence in the CNSC's ability to measure radioactivity emissions

accurately.

In conclusion, the CAPE whom I'm representing, our recommendations to the Commissioners are that all measurements of emissions should be done on a daily basis, not weekly, not monthly, not annually.

And they should be readily available to the public not for freedom of information, and perhaps put on the Web site, the CNSC or the OPG Web site on a daily basis, like the Weather Channel or something. So if people want to know what the daily readings are they can - - they can just see them on a daily basis.

In addition we insist -- we think the Commissioners should insist that Bruce Power publicize their daily readings which they're refusing to do now.

Secondly, our recommendation is that -- to the Commissioners, is that CNSC undertake a case-controlled study, a well-designed study on childhood leukemia looking within 5 kilometres of these reactors.

They probably should be looking at all ages of leukemia and thyroid cancer because these were the findings of the RADICON study and these are very concerning from a medical point of view.

Also, another recommendation is that OPG should explain why the iodine levels previously were undetectable and now they're detectable.

And finally, that until these increases in cancers found in reliable studies like the KiKK and Geocap study and this recent fairly weak study, the RADICON study, until they're addressed relicensing of these Pickering reactors should not be approved.

Thank you very much.

(APPLAUSE/APPLAUDISSEMENTS)

THE CHAIRMAN: Thank you.

Going to the questions, who wants to start?

Maybe we should start with staff making some comments on what you heard.

DR. THOMPSON: Patsy Thompson, for the record.

I'll start and then I'll ask Dr. Sandor Demeter to -- if he has any additional comments.

What I would like to start with is, again repeating that KiKK study did raise a lot of concerns, not just among the public but among the scientific community and among regulators when it came out.

That's why it was the subject of so much scrutiny and by, essentially, independent experts, the international committee, group of experts in the U.K. and in other places.

And even the authors of that study say that the -- what they found could not be related to radiation

doses because the doses were too small.

I know that the intervenor and others sort of allude to spikes in emissions. But although those graphs give the impression that -- because the spike shows up on a graph that it's a high release, the releases are actually quite small and are in a microsievert range when they actually reach people.

The Geocap study that was done is the -- was the first study that actually looked at radiation exposures of people in the study not just looking at distance. And that study showed that when you took into consideration radiation doses there was no relationship between childhood leukemia and radiation exposures.

So there was a relationship with distance, there was no relationship with dose. There was no increase in childhood leukemia when you looked at exposure to radiation.

The study we put on our Web site last week, the summary, clearly shows that if you look at radiological doses to members of the public around Bruce, Darlington, and Pickering sites, that distance is actually not a good representation of those exposures because distance is only one factor that actually contributes to dose.

When we look at radiological exposures, Dr.

Vakil sort of alludes that there's -- the dose are estimates from modelling and hypothetical -- the receptors that are considered for dose measurements are actually based on surveys in the region.

And the critical groups, or the critical receptors are identified to represent members of the public that live in the area that would be the most exposed because of either, where they live, or their lifestyles in terms of whether they have home gardens, whether they carry out activities around the site.

So the site-specific surveys are used to define lifestyle characteristics that would make people the most exposed in the region. And from that we essentially have critical groups or receptors that are representative of different age groups from infants to adults.

Those calculations are a combination of detailed environmental monitoring program. And so there's been monitoring of radio activity in the environment for many, many years. There's been air monitoring, there's monitoring of milk, drinking water, forage, vegetables, there's groundwater, and drinking water, drinking water supply plants and so we have years and years and years of monitoring data.

In many cases the data in the environment

is below detection level. And so for radionuclides which we can't detect -- that we can't detect in environmental measurements, we use stack measurements and then use a model to disperse the material that isn't -- is below detection level in the environment, to take it into consideration when we calculate a dose.

And so the doses that are represented on the maps actually represent a combination of monitoring data and stack monitoring data when things are not detectable in the environment.

And because of the lifestyle characteristics that are used, the assessments are very conservative, and ensure that the rest of the population are receiving doses that are lower than what we present.

You will see on the maps that the exposures are actually quite limited very close to the site. And also if we look at just air dispersion -- because there are some comments about spikes in emissions -- when you look at data from the spike and you assume that someone, either an infant, a child or an adult, is standing at the stack or wherever we measure air emissions, if someone is standing there 365 days a year, you get the blue dispersion map that is attached to the report.

And that map shows that actually most of the time or a good proportion of the time the doses and

the radionuclides are actually not towards the inhabited areas but towards the shore and towards the lake.

And so from air emissions there's actually not a lot of the area where people live that actually receive exposures.

And so to think that whenever there's a spike that someone will get exposed and can get -- and risk and trigger leukaemia just doesn't make sense from the stacks, the site-specific weather data and all the information that we have.

The study does show that there's no increased incidence in childhood leukaemia and other childhood cancers around the three nuclear power plants; Pickering, Darlington and Bruce. And we have presented cases where there are increased cases of cancers close to the facilities and cases where there are lower rates of cancer close to the facilities.

We have also presented for contextual information, rates of cancer in different regions in Ontario relative to the Ontario average. And you can see in those tables -- that's Table 2 and 3 in the report -- that there are areas where there are no nuclear power plants that actually have rates of cancer that are quite a bit higher than the Ontario average.

And so what we see around the NPPs is

actually observed in the rest of Ontario and is not related to any radiation exposures.

THE CHAIRMAN: Go ahead, please.

DR. DEMETER: For the record, Dr. Sandor Demeter; I'm a public health physician and a nuclear medicine physician and acting here as a physician advisor to the Commission.

I think one of the roles as a physician is to ensure that when speaking on health matters, is to provide a balanced approach to both the benefits or risks of proposed therapies or environmental exposures. And I think in this sense, the exposure from a nuclear power plant at .9 to 4.2 microsieverts needs to be put in context of radiation exposure in general.

Those exposures are three orders of magnitude lower than normal background radiation exposures from the ground, natural, and from the sky, cosmological.

And to put that into perspective, they are two to three orders of magnitude lower than a single set of chest x-rays or bone scan which I order routinely. That's the perspective.

If one uses the "Conservative Biological Effect on Ionizing Radiation Seven Report Linear No Threshold", which was mentioned, and extrapolate back to .9 to 4.2 microsieverts, one would expect an excess

lifetime risk of cancer in one per 10 million. And we don't have that many people in the catchment area. And that's in the area that's in the closer proximity to the power plants.

I read with interest -- and I really appreciate physicians getting involved as intervenors, because I think it brings a set of expertise to the Commission. And I read with interest in the intervenor's submission, the comment that -- the second page top; "this is despite the fact that it is well-known and accepted that any exposure to radioactivity causes cancer".

And I have to say as a practicing physician in a Canadian setting, especially if one works in a hospital setting, that would really hinder my ability to treat patients because if I truly believe that, I couldn't order a chest X-ray, I couldn't order a bone scan.

And so, I really think that the risks and benefits need to be put into perspective. And the perspective here is that these doses are three orders of magnitude lower than background.

And if you do see cancer clusters around a nuclear power plant with those doses, you really need to look further and harder as to why those clusters are there, whether it's a methodological issue, or whether there's another cause.

And I agree that ecological studies by and large, are hypothesis generating, so if you find findings that are unexpected, you need to look further.

Thank you.

THE CHAIRMAN: Dr. Vakil, you want to react to this?

DR. VAKIL: Yes. Firstly, it is true that any exposure to radiation increases risk of cancer. It doesn't mean everybody who's exposed to radiation gets cancer, otherwise we would all have cancer.

It's just that it increases your risk. So the more you're exposed, the more your risk is. So it makes sense to minimize all exposures whenever possible.

It's like smoking, not all smokers get lung cancer, but their risk is elevated, okay? That's all I was saying.

Firstly, responding to the scrutiny of the KiKK study, clearly, the reason it was so scrutinized was because nuclear regulators, who are pro-nuclear, were very intent on showing that if the findings were false, and that if they were true -- which it was really hard to argue that they weren't true -- it couldn't be anything to do with the radioactive emissions. That's why it was so scrutinized.

And these -- what continues to be discussed

is that these levels that are found around the reactors. The truth is, you cannot measure anybody's exposure who lives anywhere near reactors. It's impossible.

So what you do, you take these spot samples, your weekly milk samples, your annual averages, whatever you have, and you put them through mathematical models and you multiply by this, you do this estimate and this assumption. It's all very hypothetical and you come out with these minuscule doses that, quite frankly, I can't see that anybody could guarantee that they're accurate.

They are saying: "Most of the time, this is what happens. Most of the time, the air drifts the other way and people aren't exposed."

Well that isn't -- that doesn't count for the people who are in the time when the weather goes the other way, when the wind blows the other way. The monitoring is not ongoing. It's just this spot sampling.

And these critical groups, it's all hypothetical based on average people. And, as I have said, these are not actual measurements of actual people. They're hypothetical measurements of hypothetical people.

So I don't -- I cannot look at these numbers and feel that they are necessarily accurate. What I have is the numbers of what is actually coming out of

the reactors, and these are very high amounts of radioactivity.

THE CHAIRMAN: Okay. Can we address that point?

DR. THOMPSON: Patsy Thompson, for the record.

I'll just say a couple words and then OPG I think would be in a good position to describe their stack monitoring and their environmental monitoring.

What I would say is that the CNSC regulations require effluent and emission monitoring as well as environmental monitoring. There are standards that exist.

The CNSC reviews -- our specialists review the monitoring equipment, the monitoring frequency, the details of the analytical methods to make sure that they're robust, and we do audits and inspections of the programs to make sure that they are carried out appropriately.

I think OPG could describe how that's actually done and the frequencies and what is actually measured and whether or not there are spikes.

THE CHAIRMAN: Can we also get really specific rather than get into the science and measurement? I would like to know, the intervenor raised a couple of

questions about actual measurement, becquerel per, I don't know, you know, into the air, becquerel into water, whatever you measure. I thought you're measuring all of this. I thought the data is available.

And also please explain that iodine is undetectable as somebody said. I thought you had a handle on all this material.

And maybe also address the intervenor talks about daily data. I don't know if you want to publish it daily, but at least the daily data, is that available or not? Could you please address all this?

MR. JAGER: Glenn Jager, for the record.

Before I turn it over to Barb Reuber to talk about our environmental monitoring program and monitoring of emissions, I would like, as described before, talk about plant operations. And we're very keenly aware of our emissions and actually manage the plant very closely long before any emissions.

In other words, we monitor activities and conditions within the plant to minimize our emissions. We monitor tritium levels, for example, inside the reactor building. We minimize leaks. We minimize tritium within the systems that could result in those emissions. So we work very hard to manage the emissions as low as possible.

I would also say that all our effluent

pathways are continuously monitored and we do collect daily samples in addition to the online monitoring that is performed to allow us to manage those emission pathways.

Our performance is very good and we've been able to achieve reductions in very -- already very low emissions, as was spoken to earlier. In tritium, for example, we have achieved a 24 percent reduction year over year.

And I would say that, you know, generally speaking, we -- daily, the plant leadership daily monitors our emissions and takes action right down to the individual employees are constantly monitoring emissions within the plant to manage this. It's very important to us.

I'll ask Barb Reuber to speak about the environmental monitoring program and the data that we publish and have available.

MS. REUBER: Thank you. Barb Reuber, for the record.

As Mr. Jager has said, environmental performance is integral to our operation and extremely important to us. And we are well below all regulatory limits both for environmental emissions and dose to the public.

I'll address first the emissions program,

the environmental emissions. As Mr. Jager says, we have continuous monitors in place so they are continuously monitoring, but the data comes back on a weekly basis.

However, we have levels well below the regulatory threshold both for investigation or action. So if a threshold value is achieved, that information comes when the emission rises to that level. First there would be an investigation and if it hits an action level, actions are taken immediately to respond to it. And in some cases, these are automated actions where the plant equipment performs to take an action in recognition that an emission has gone up.

With respect to the environmental monitoring program that we use to determine public dose, we collect thousands of points of data in -- coming up with those evaluations based on a risk assessment.

So there are CSA standards in place that set out how we do our risk assessments. We do specific surveys every five years. So it's not a theoretical basis. We go out, we speak to people, we understand who the people are that are around the facility, what their patterns are in terms of consumption of food, and their exposures. We follow a CSA standard to determine what those pathways are and integrate that data into a dose.

And the results of that have been doses

that are significantly below the regulatory limit and, in fact, less than 1 percent consistently over the last 10 years of the dose limit.

THE CHAIRMAN: Look, I understand all of this. I'm looking about raw data, raw data. Do you publish any raw data?

MS. REUBEN: The data we publish is on an annual basis, as the intervenor said.

THE CHAIRMAN: What's the problem with releasing it on a more frequent basis?

MS. REUBEN: The data is well, well below the regulatory limit and ---

THE CHAIRMAN: So I understand that. But what's the problem with releasing it.

MS. REUBEN: The ---

THE CHAIRMAN: I'm trying to understand whether we are missing something in there. Is there anything about the data that can be misunderstood, misread, et cetera?

MS. REUBEN: The data is reported quarterly to the CNSC through our regular reporting to the CNSC after the appropriate quality control/quality assurance has been conducted, but it does not go to the public. At very low emission levels, they could I guess be assessed as being of concern where variations may still remain well

below 1 percent of the emission limit.

THE CHAIRMAN: Is CNSC in -- possess this particular data?

DR. THOMPSON: Patsy Thompson, for the record. Yes, we do. As OPG just stated, we get quarterly reports of data. We get an annual report with data interpreted. We also are notified if there are exceedances of action levels and those are very few and far between.

And I had mentioned that the CNSC was doing -- was launching an independent monitoring program and we're working with our communications and IM/IT group to put data on our Web site that is informative.

And we've also spoken with Health Canada and our licensees to have data on the CNSC Web site that would provide the information that intervenors are looking for.

Our plan is not to put daily information or more frequent information, but at least to have a common place where monitoring information can be located and interpreted.

What I forgot to mention when I was talking about the results, there were some questions about iodine and OPG does measure iodine in milk samples, and generally those are below -- the iodine is below detection levels.

I also forgot to mention that Health Canada has for years now done independent monitoring around all Canadian nuclear facilities and the data Health Canada collects has validated the monitoring programs that OPG has in place.

There's never been cases where Health Canada has detected levels of radiation in -- gamma radiation, for example, or tritium that would be out of spec with what the licensees are reporting to us.

THE CHAIRMAN: Is Health Canada data posted?

DR. THOMPSON: Patsy Thompson, for the record.

Health Canada data is posted and we are working with Health Canada to -- for them to transfer the data to the CNSC so it could be added to our own; but it is posted and available on the Health Canada Web site.

And you'll recall, at Darlington, that the Ontario Ministry of Labour also came and presented their monitoring program around facilities as well where they're set up to detect anything that would be out of the ordinary.

THE CHAIRMAN: Okay, thank you. We need to move.

Commissioners? Anybody?

Any questions?

Dr. McDill?

MEMBER McDILL: With respect to the -- the fence line, how many kilometres out is the fence line?

MR. JAGER: Glenn Jager, for the record. The exclusion zone is 900 metres.

MEMBER McDILL: And then, around the exclusion zone?

I'm looking -- the intervenor raised the question of 5 kilometres. I'm trying to figure out, within the 5 kilometres that the intervenor is discussing, what's there?

I mean, obviously, on the lake side, it's pretty clear.

MR. JAGER: Glenn Jager, for the record.

There are people living certainly within a 5-kilometre radius of the -- of the power plant. The exclusion zone is the area around the power plant as defined in our licence where nobody would -- would occupy or -- or live in.

MEMBER McDILL: And -- and for Darlington?

I know you're not Darlington, but maybe staff has them.

DR. THOMPSON: Patsy Thompson, for the record.

We did collect data for populations going out from the Pickering and Darlington with distance. I have the data back in the office.

My recollection under -- around Darlington is that within the 3 kilometres, it's -- there's very very few people. It's mainly industrial. I can't recall the numbers for Pickering, but it's certainly something I believe OPG would have.

When the intervenor talked about the -- the fact that we -- we went further out than what the KIKK study did in terms of distance, the -- the reality in Canada is -- is at the Bruce site because we -- we wanted to have similar methodology for all three -- all sites we looked at -- So Port Hope, the three MPPs and Chalk River -- and we also wanted to have methodology that was similar to the -- the studies that were done in the '90s so we could have reference points.

Looking at, you know, 5 kilometres from the site doesn't give us a level, you know, a number of people sufficient to do this type of study.

MEMBER McDILL: That was my question.

So it would be very difficult to have a -- a reasonable sample of -- particularly around Bruce and -- and Darlington, less so for Pickering, perhaps?

DR. THOMPSON: Patsy Thompson, for the

record.

The protocol was discussed with the Public Health Agency of Canada and -- and also Cancer Care Ontario has to agree to -- to release the data, and the data would not be released to the CNSC when there are fewer than six cases of a given cancer because then you -- you're in confidentiality issues.

And so the protocol was developed to make sure that we were able to -- to do the study, respecting confidentiality issues and, in some cases, as you will see on our report, we had to pool data because the number of cases were too few.

MR. JAGER: Glenn Jager, for the record.

In answer to the question of how many people are living around the Pickering site, it's -- the data that we have is 14,500 people are within 3 kilometres of the site.

And I'll ask Barb Reuber if she has any other additional details around the fact.

MS. REUBER: Barb Reuber, for the record.

I hope this is responsive to your question. Through our Radiological Environmental Monitoring Program, we have a series -- we have the continuous emission monitors right at the site, then, we have a series of environmental -- we call them -- "boundary monitors" right

at the perimeter of the site and, then, an extensive network and -- and we do our site-specific sampling out to 10 kilometres from the site.

And then, in addition to that, we have a series of environmental monitors across the province where we pick up background data for comparison.

So we have a sampling program that goes from -- from the emission point at the boundary and then out to the 10-kilometre region.

THE CHAIRMAN: Again, I -- again I come out of curiosity.

Since you have all those monitors all over the province and Health Canada has it and we collect it, why wouldn't we post them?

What's -- I don't get it.

MS. REUBER: Barb Reuber, for the record.

We have produced our data consistent with the requirements and published the annual data which has extensive interpretation and analysis.

The raw data we don't post. It's well below detection limit.

THE CHAIRMAN: So let -- let everybody else do the analysis.

Anyhow, this is something that we'll have to consider. I don't -- you know that, as a regulator,

whatever material and data we get, normally, we post unless there's good reason for not doing it.

So I still don't understand why this material is not posted.

DR. THOMPSON: Patsy Thompson, for the record.

As I mentioned, we have a plan to post the data. We have spoken to Bruce Power and OPG to be able to receive the data in a form that is easily integrated to a -- a mapping or GIS interface and the monitoring information that Health Canada has, we've started discussions with Health Canada so that the data is transferred in a manner that can be integrated with GIS as well as our own ---

THE CHAIRMAN: You have got a time? You have got a time objective here?

DR. THOMPSON: We have a work plan internally to start putting data -- having the -- the interface and the mapping tools in place for fall 2013.

THE CHAIRMAN: Thank you.

Dr. McDill?

MEMBER McDILL: I think I need to go back to the intervenor as we have been doing this week.

THE CHAIRMAN: Dr. Vakil?

DR. VAKIL: Yes, I -- just listening to all

of this, I mean, I don't know what goes on between the CNSC and the OPG.

I just know, from my point of view, as a physician, this all leaves me very concerned. You have studies that show -- concerning risks to children living near reactors and these are very reliable studies done in other countries. We have a very weak study here that, despite its weakness, shows concerning evidence of elevated risks of thyroid cancer and leukaemia near our reactors and yet, we -- there is -- nobody seems to be reacting to this and suggesting we do anything more.

All we're saying is that: Oh, you know, we can't do a case control study. We can't do a good study. There aren't enough people living within 5 kilometres.

Well, I mean, if we can't come up with a way to deal with this, then perhaps we shouldn't be -- certainly should not be relicensing these -- these reactors and perhaps should really consider acting with caution as we are supposed to and as the CNSC is supposed to, and consider just saying this -- this industry is too dangerous to be -- if it -- if there are any concerns about children developing leukaemia.

You know, as a physician, in the medical world, studies -- far less robust than any study we've talked about, if it were indicating -- if some drug we

were using were indicating that children were getting leukaemia from it, it would be pulled from the market immediately.

We wouldn't be dithering about this and saying: Well, we can't do this and, you know, maybe it's wrong. Maybe it's right.

You know, we'd be acting with caution as is our role to protect the public health and I don't see this happening here. I find it very disturbing that this is brushed off and saying: Oh, all these -- these cancers we're finding can't be from these radioactive emissions because of the spot sampling we're doing, because of the modeling upon modeling upon modeling.

The fact is I have numbers here given to me by OPG of large amounts of radioactivity coming out of these stacks and coming -- and detectable rates of Iodine 131.

They are not -- they may be undetectable in the occasional milk sample that's seen, but they're coming out of these stacks along with all these other radioactive elements.

So I just find -- this doesn't leave me with confidence about the way this industry is dealing with this evidence of illness that has been found in Ontario around our reactors.

THE CHAIRMAN: Okay, thank you.

Okay, we've got to move on.

Anybody has any other questions?

Okay. Any final words?

Dr. Thompson?

DR. THOMPSON: Patsy Thompson.

I hate to belabour the point, but when I hear the intervenor say "studies" with an "s", that have shown that there's childhood leukaemia around NPPs, I take exception to that.

The only studies that have shown, with distance, is the KiKK. There's been a study in Finland that showed no relationship with distance. There's been a study in Switzerland, no distance. There's been many studies in France, no relationship with distance. There's been a study in France done that shows no relationship with dose.

And so I think we need to put things in perspective, and the study we have done shows no childhood leukaemia, and the work that the Durham Public Health Agency has done has also shown that there is no health risks for people living in the region.

THE CHAIRMAN: Okay. Thank you.

Dr. Vakil, you have the last word.

DR. VAKIL: Okay, first of all, with

respect to other studies, the Swiss study that was alluded to was a very small study of a resident cohort which, with small numbers, was not a case controlled study. So it is not as strong as the KiKK study or the Geocap study.

The Finnish study was the same. The case control part of it was only 16 cases, very small, too small to show any increase.

The French study that was done in 2008 was not a case controlled study either.

The strongest studies that we have seen, the KiKK and the Geocap, have both been markedly, almost unequivocally positive. We now have a weak study from Canada showing maybe not an increase in childhood leukaemia but an increase in adult leukaemia as well as thyroid cancer, and this is, I gather, going to be completely dismissed.

And this is what I find disturbing about all of this.

THE CHAIRMAN: Okay, thank you. Thank you for your intervention.

(APPLAUSE/APPLAUDISSEMENTS)

THE CHAIRMAN: I would like to move now to the next submission by the Pickering East Shore Community Association, as outlined in CMD 13-H2.121.

And I understand that Mr. Falconer will

make this presentation. Please proceed.

13-H2.121

**Oral presentation by the
Pickering East Shore
Community Association**

MR. FALCONER: Keith Falconer, for the record.

Good morning, President Binder and Members of the Commission. My name is Keith Falconer, and I'm President of the Pickering East Shore Community Association.

I would like to introduce you to a few members of our 11-member executive group that have taken the time to present to you this morning.

To my right is Ms. Debra Amos. Debra is our treasurer and has lived in Durham Region for 13 years and has spent the last three years living and operating her own business in our community. She is the owner and operator of Community Dental Hygiene on Liverpool Road in our community of Bay Ridges.

Ms. Kayte McCafferty is to my left. She is our secretary and graduate of the U of T Computer Honours Program and has lived in the City of Pickering for

31 years, the past seven of which is in Bay Ridges.

I myself have lived most of my life in Bay Ridges for 26 years.

And it is important to note that all three of us live within that 5-kilometre zone that we were talking about as well as all of our executive and all members of our community group, and we're proud to do so.

Firstly, I would like to recognize and thank the Commission for holding these hearings in the City of Pickering. As you have acknowledged, our residents, businesses and community groups are arguably the primary stakeholders with respect to nuclear generation in our community.

The Pickering East Shore Community Association wishes to support the Application of Ontario Power Generation's Pickering Nuclear Plant licence renewal.

As a community, we saw Pickering A constructed in the 1960s and then entered into service during the years '71 to '73. As well, our community experienced the construction of Pickering B beginning in '74 with the four units coming into service from '83 to '86.

PESCA is a community association representing the residents of and persons carrying on

business in the community of Bay Ridges, Pickering, Ontario. Our community is the closest neighbour of Pickering Nuclear.

Please let me give you some background on our organization, as contained in Appendix A of our written submission.

The Pickering East Shore Community Association is an organization representing the residents of Bay Ridges. Our boundaries are: to the south, Lake Ontario; to the West, Frenchman's Bay; to the North, the Highway of Heroes, 401; and East, Squires Beach Road.

Our goals are to promote and enhance the cultural, civic, social and recreational life of the City of Pickering and, more particularly, within Bay Ridges itself.

All citizens of our area are automatically members of the association at no cost to the individual. PESCA is involved in representing the community. As such, we welcome and encourage residents in our area to either come to our monthly meetings and/or join the executive. It's their chance to participate in decisions that impact their neighbourhood.

Our mission statement is to promote and enhance the cultural, civic, social and recreational life of the community of Pickering; to develop and give

oversight to cultural and recreational facilities that the City of Pickering designates, and that's currently a portion of the East Shore Community Centre.

We solicit and raise funds for the purposes that I mentioned above and to operate the Association as a non-for-profit and eligible for donations, grants and contributions from individuals, groups and other organizations.

It's important to note that our executive is elected by the people of Bay Ridges, and this is a completely voluntary position whereby no remuneration is received.

As one of the major employers in Durham Region, the Pickering Nuclear Plant is located in Bay Ridges, where many local residents are employed directly and indirectly by OPG. The PESCA executive does not claim to have any professional expertise in the operation at the site but, through a recent tour and several presentations, they have become more aware.

I would now like to ask Ms. Debra Amos to give her take on the operations at the site.

MS. AMOS: Good morning, Mr. President, and Members of the Commission.

My name is Debra Amos and I am the treasurer of Pickering East Shore Community Association.

Thank you for the opportunity to speak and support the Pickering Power Plant.

I've lived in Ajax/Pickering for several years and presently live and own a business at the bottom of Liverpool Road. I first moved to Pickering in the '80s and, like most residents, have seen the power plant safe to live by. I saw so many changes in Pickering and many people have made Pickering their homes, knowing that we have the power plant here.

The plant helps to build the community and it's a shame to see it go. Many jobs have been provided and the hydro has been a big presence in our activity in Pickering. I was lucky to enjoy a tour through the facility. The plant was very clean and secure. I was impressed with the facility and the safety methods.

It was such a great opportunity that we are -- we'll be encouraging other residents and organizations to take the same opportunity that I was given.

Thank you.

MR. FALCONER: Thanks, Debra.

I will now ask Ms. McCafferty.

MS. McCAFFERTY: In April, several members of our executive, myself included, attended a tour of the plant offered by the Public Affairs staff. Everyone was very impressed with the facility.

It was such a great learning opportunity that it really was a shame to see that the plant will be closing within the next decade. It is an icon in this city and it helped build this community.

In an effort to demonstrate OPG's open communication with the public, members of the OPG Public Affairs Department have addressed the PESCA executive from time to time and have made public presentations at several of our annual general meetings. At these meetings, they have shown dedication to deal with concerns and questions raised by residents.

It is important to mention that OPG maintains a strong relationship with the community as a whole. OPG is a member of the Board of Trade, supports local groups, charities, the local hospital and the Rotary breakfast -- which is actually happening this weekend -- and provides educational opportunities to students and their families at the Energy Information Centre.

They also award bursaries to high school graduates, make presentations to City Council and encourage employees to get involved with charitable fundraising activities.

PESCA is an active member of OPG's Community Advisory Council and the Environmental Stewardship Pickering Initiative.

In addition, OPG employees can be seen at many local activities volunteering their time.

A few examples are tree planting, parades and helping senior citizens at home.

OPG and staff are a significant benefactor to the community and a major contributor to our local economy. Their partnership with our community is invaluable.

Almost every street in Bay Ridges has someone who works at the facility, and we are proud to call these people friends, family and neighbours. They keep us safe and tell us nuclear power has proven to be a reliable source of electricity in Ontario. Its long-term usage is undeniable.

Thank you for allowing me the opportunity to speak to you today.

MR. FALCONER: Thank you, Kayte. Keith Falconer, for the record.

In conclusion, OPG has won recognition for their sustainable and environmental initiatives through awards presented by the City of Pickering, the Town of Ajax, the Region of Durham, and the Board of Trade. OPG's support of Pickering's waterfront development is a significant environmental contribution.

We believe that community residents want a

greener environment, one that has a goal of reducing carbon gas emissions as well as a reliable and economic energy supply. The continued operation of Pickering will go a long way towards achieving this goal.

Many employees and their families live in our community near this facility, which shows their level of confidence in CANDU technology. Their safety record proves their level of expertise in their field and the workers' ability to manage a safe and productive plant.

Our local community will continue to benefit from the Pickering plant. We suggest that the Canadian public and true environmentalist would be in full support of this nuclear power plant.

For these reasons, PESCA supports the licence renewal for Pickering and the executive thanks the Commission for the opportunity to be part of this process and we're willing to answer any questions you may have.

Thank you.

THE CHAIRMAN: Thank you.

Questions?

Dr. Barriault?

MEMBER BARRIAULT: Thank you for your presentation.

I have a question, not dealing with your presentation, but dealing with the fact that you live

within the 5 kilometres of the plant and what you heard earlier this morning, how do you feel about that?

MR. FALCONER: Keith Falconer, for the record.

I would actually say that I find it disturbing. I've lived there 26 years myself, as well as previous members that we've had on our executive team that have lived there since the houses were built in the late sixties.

And it doesn't fit with the community outlook that we'd like to put forward. We're proud to have that plant in our backyard and as our neighbour.

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

THE CHAIRMAN: Ms. Velshi?

MEMBER VELSHI: Can anyone of you three or maybe all three tell us what you know about the emergency plans around Pickering nuclear plant?

MR. FALCONER: Keith Falconer, for the record.

The Region of Durham, I believe, just earlier this month or the previous month, had distributed their pamphlet to all the homes within our community.

We are aware that the -- more sirens have been installed in the local area. They did do testing,

what was it, about two weeks ago. Yeah, just recently within the last two weeks to ensure that full coverage is within the boundaries. So we do -- we are well aware of the emergency preparedness plan.

We're also aware of some of the conditions with regards to how emergencies are called with various levels of, I think -- I believe there's four levels of emergencies. But I believe there's also an American model program that OPG has worked on with regards to evacuations and evacuation centres.

And we've had, in the past, presentations from the emergency preparedness staff. And our executive team has felt that's adequate. So any questions and the concerns that they've had, they've addressed those to those staff members.

MEMBER VELSHI: Thank you.

THE CHAIRMAN: Just to add, do you know where you can get your -- should you need it -- KI pills?

MR. FALCONER: Keith Falconer, for the record.

The KI pills are available at the local pharmacy, right in Bay Ridges. So anybody that -- and they're free of charge and they're not out of supply.

Anybody who wants them can go pick them up there, although I wouldn't suggest people take them

because you're not supposed to take them unless there's an emergency.

THE CHAIRMAN: Thank you.

Anybody else?

Thank you for your presentation.

MR. FALCONER: Thank you very much.

THE CHAIRMAN: Marc?

MR. LEBLANC: Yes. The next presentation is supposed to be by Ms. Brenda Cross. We have not identified her in the room this morning.

Is Ms. Cross in the room?

If not, we're going to change a little bit the order of presentation this morning.

We have Ms. Belinda Cole, which is CMD 13-H2.82. Members, that's at the end of your binders, that will switch place with Ms. Cross. And if Ms. Cross does not show up this morning, we will consider her intervention as a written submission only.

Thank you.

So the President will, in a few seconds, introduce Ms. Cole.

THE CHAIRMAN: Thank you, Marc.

So we'll move to the next submission, which is an oral presentation from Ms. Cole, as outlined in CMD 13-H2.82. And I understand that Ms. Cole is joining us

via teleconference. Can you hear us?

MS. COLE: Yes, I can. Thank you.

THE CHAIRMAN: Okay, please proceed.

13-H2.82

Oral presentation by

Belinda Cole

MS. COLE: Thank you. First of all, thank you very much to you and to the CNSC staff for making sure I had an opportunity to present this morning. I'm not available this afternoon.

First of all, I would like to ask you to grant Ontario Power Generation a temporary licence with instructions to prepare to close Pickering by 2014.

If you are not prepared to do that, I would ask that Pickering's continued operations be granted only once citizens have approved an emergency plan.

As a mother of four children, I am not prepared to accept either the risk of running the Pickering reactors beyond their design life nor the further payment of what is billions of dollars in public subsidies.

I have come to understand that this is an industry that leaves a wake of devastation, both in local

communities and nature all the way along the Yellowcake Trail.

I would also urge you to rescind the 10-year licence of the GE Hitachi plant in Toronto and to prepare for its closure in 2014, or alternatively, to order that its continued operation be granted only after our neighbours, those of us in the area and in the City of Toronto, have approved an emergency plan.

My goal here -- I'm coming from the point of view that both as a mother and as a neighbour in my community, as a citizen, my goal is to safeguard the gift that we've been given. It's the clean soil, the water and the clean air. And I want to make sure that these are available, not just for my children, but for all children and for the generations to come.

And given my goal, I have to say no to any further investment of our public money in the nuclear industry, that includes no more licence renewals. Licence renewals are a particularly sore spot in our neighbourhood.

In 2010, the CNSC granted GE Hitachi further 10-year licence to operate in the neighbourhood with no notice to anybody that I have met at the three neighbourhood meetings that I have been to.

The CNSC does not require any signage that

would have alerted us to the presence of the nuclear facility in our own neighbourhood and has since refused to re-open these hearings to ask our neighbourhood and other Torontonians for our views.

I'm very grateful for the diligence and commitment of people who have offered their time and energy to alert us about the real dangers of the ageing Pickering plant, reactors and the GE Hitachi plant.

And I am aware that all across the country, from the First Nations who suffer the effects of mining in Saskatchewan, to those of us who get our drinking water from Lake Ontario.

I'm very concerned about the consequences of chronic lower level poisoning from Ontario's reactors that are leaking tritium into Lake Ontario right now.

I am not prepared to risk another Fukushima-like disaster this time at Pickering that will poison our drinking water, our soil and our air.

Pickering is Canada's oldest and most dangerous nuclear station. Extending its operation is, in my view, reckless and entirely unacceptable.

The proposal also asks me and my fellow Canadians to add to our multi-billion dollar tab and much more importantly to the legacy of existing toxic waste that we will pass along to our children.

And that waste threatens the soil and the water and the air right now and these are wastes that the government plans to ship by truck across rivers and lakes that our lives depend upon to get rid of toxic waste that none of us wants buried anywhere near our communities or our water.

I would like to see the \$850 million in annual savings from shutting down the Pickering A and B nuclear stations to conservation retrofit and readily available alternative energy.

I am also calling the financing for the closure of the GE Hitachi operation. Right now in our community, we're living with a reverse lottery.

We know that babies and young children and women of child-bearing age are the most vulnerable to cellular damage and cancer that come from GE Hitachi's day-to-day releases of low-level ionizing radiation into our water and our air; from emissions at the plant, from the waste that is emptied into the sewers that flow into Lake Ontario, from the particles that escape as the trucks are loaded and unloaded at the plant, and as they travel through the city.

We know that some people in our neighbourhood will suffer this damage and get cancer from breathing in and eating food polluted by this low-level

ionizing radiation. What we don't know is exactly who will get it.

I am particularly worried, my children and I gather apples on a nearby hillside in the vicinity of the plant. I am worried about eating the apples this year.

I'm very concerned about the silence and misinformation around the real cost of nuclear power, about the day-to-day accumulating poison and the threat to our drinking water. I am also very concerned about the inseparable waste of the nuclear weapons industry.

Now, I would note that neither the CNSC nor GE Hitachi disclosed the danger of the alpha particles that the GE Hitachi plant emits. Instead, GE Hitachi ---

THE CHAIRMAN: Excuse me, can you stay on topic? We're not talking about GE Hitachi here. We're talking about Pickering.

So can you please stick to topic?

MS. COLE: Yes, will you -- will we be given an opportunity to make public submissions because the reason I need to speak on it here is we have been denied a public hearing in our neighbourhood. So if that's going to happen, I would feel greatly reassured.

THE CHAIRMAN: As I said, we are not dealing with GE topic here now. So could you please stick

to Pickering?

MS. COLE: All right. Now, I realize that as I call for the shift and the shutdown of the Pickering reactor, it's my job to replace the 58 percent of the nuclear source energy that my family uses. It's my job and I'm working very hard together with my neighbours right now to work on increasing our conservation, retrofitting our homes, and finding out where we can meet our remaining energy requirements with alternative energy sources. Our efforts are well under way and we are talking to one another as neighbours.

I am very, very concerned about emergency planning for the Pickering reactors. I am aware of the comments by Toshimitsu Homma of the Japan Atomic Energy Agency who said that the most important lesson of Fukushima was that there was an implicit assumption that such a severe accident could not happen and that insufficient attention was paid that such an accident by authorities.

Now, I was very concerned. I listened to the CELA presentation which outlined very, very specific concerns about evacuation of people in the Pickering area, in the Toronto area, concerns about people who don't have cars being able to evacuate, concerns about sheltering, and what I heard, I was quite alarmed. I'm new to these

regulatory hearings. What I heard in response was promises of discussion and I heard promises of ongoing preparation of plans and new standards.

This is two years, more than two years after the Fukushima accident and we're talking about trying to get a plan in place now. We're talking about this in the context of ageing nuclear reactors. This is entirely unacceptable.

I feel that my family is in immediate danger as long as the Pickering plant continues to -- continues to go. Just to give you a sense of my own, I have very good reasons to be concerned about this.

In my own neighbourhood, there is an emergency plan for the -- around the GE Hitachi plant. I called this morning -- on Page 33 of 44 of the emergency plan for our -- supposedly for our neighbourhood. On page 33 there is a mention that if there's a need to declare a community emergency, they give us three numbers.

Now, I called all those numbers this morning to see what that emergency plan looked like. The first number I called I got a voice mail asking me to leave my information and I would be called back.

The second number I called and I was told that this was a federally-based organization. The person said to me it sounds like you need -- you're talking about

local energy management. Right now you're dealing with the federal government. Would you please call the public enquiry number?

I called the -- and the public enquiry number was the first number I had already called with a voice mail.

Finally, I called the last number that talks about community emergency response in our neighbourhood and I spoke to somebody from the province who said that what I needed to do was call the Toronto Fire Service. And after that he told me that actually what I needed to do was to call the City of Toronto. I asked if I could have the number for that, for the Department of Energy, Emergency Management. He told me that he didn't have it, that I should call 3-1-1.

So here is a practical example of emergency planning in my neighbourhood. I have not heard that emergency planning either in my neighbourhood or at Pickering is anything that I certainly can rely on.

I do know that in the event of a spill in our neighbourhood that GE Hitachi's first steps are to contact its own corporate public relations department and its legal representative.

THE CHAIRMAN: Can you please wind -- can you please complete your presentation? You're way over

time.

MS. COLE: Yes. So I would just like to call on the CNSC to provide us with a plan for closing and immediately decommissioning both the Pickering operation and GE Hitachi plant in our neighbourhood.

I would also call on the CNSC to provide our neighbourhood with a copy of the cost of decommissioning both Pickering and the GE Hitachi plant and a copy of GE Hitachi's letter of credit that will ensure the coverage of full cost of decommissioning.

Thank you very much for this. I appreciate the opportunity to present.

THE CHAIRMAN: Thank you.

Anybody? Question? Go ahead, Mr. Tolgyesi.

MEMBER TOLGYESI: Just one short one. It's to OPG. When you do your public meetings, do you discuss emergency measures or evacuation measures or these pills distribution?

MS. COLE: I'm sorry. Would you please speak up?

THE CHAIRMAN: This is to OPG, please.

MR. JAGER: Glenn Jager, for the record.

Yes, we do. We have a community advisory council and, as a matter of fact, just last meeting there

was a presentation by DEMO on emergency planning and what that all entails.

I'll ask Kevin Powers to speak in more detail about generally how we interact with the community and provide information around emergency planning.

MR. POWERS: Kevin Powers, for the record.

As Glenn noted, we do meet regularly through the CAC, and recently have spoken to emergency planning.

In addition to that, we have been undergoing a campaign over the past several weeks around emergency planning, which has included updates to our Web site, updates to our brochures, videos on emergency planning, as well as ads throughout the community sending people to the Web site to find out more about emergency management plans and what they could do in the event of an emergency.

In addition, we have sent out a newsletter, our "Neighbours Newsletter", a special edition, to all of those around Pickering. And in that, there are articles on emergency planning, preparedness, and what they can do in the event of an emergency.

MR. JAGER: Glenn Jager, for the record.

I think I'd just add that -- you know -- based on what we've heard from intervenors over the last

day or so, it's clear to us that we need to increase our outreach in communication on emergency planning. And we'll work with DEMO and EMO on that to improve our efforts there.

MEMBER TOLGYESI: Ms. Cole, did you participate in the public meeting, did you receive these pamphlets which were distributed?

THE CHAIRMAN: She is from Western Toronto.

MEMBER TOLGYESI: Oh, I'm sorry.

THE CHAIRMAN: Okay, Ms. Cole. You have a final word?

MS. COLE: I'm very concerned. I don't feel that I'm in any way protected by the regulatory process. I don't think that's due to any bad will on anybody's part, I think we're all doing the best we can. I simply don't believe, nor do I see any evidence that large bureaucracies or government organizations will keep us safe.

What will keep -- what I'm going to count on to keep my family and I safe is that we have a plan in place, we talk to each other about it, we know about it.

In my children's schools, they have fire drills. They have fire drills so that if there is an emergency, everybody has gone through it and done it so they're prepared. Everybody knows what to do. That's for

schools of 200 to 1,200 students.

We are talking about areas the size of Pickering and Toronto where thousand's upon millions of people, and there is no plan that I feel is reliable.

Thank you very much.

(APPLAUSE/APPLAUDISSEMENTS)

THE CHAIRMAN: Okay. Thank you.

I'd like to move on to the next submission which is an oral presentation for Mr. Kehoe, as outlined in CMD 13-H2.103.

Please proceed.

13-H2.103

Oral presentation by

A.J. Kehoe

MR. KEHOE: My name is -- oh, I guess I should start my watch shouldn't I because I only have 10 minutes.

MR. LEBLANC: And Mr. Kehoe, I remember from Darlington, the interpreters, you're going too fast, or is it because you are really timed within your 10 minutes?

MR. KEHOE: I'm really limited, and it's already starting.

MR. LEBLANC: What if we give you 11 and you go just a bit slower for the interpreters?

MR. KEHOE: Sure.

MR. LEBLANC: Because it's webcast and people are listening all across the country.

MR. KEHOE: I'll stop my watch.

MR. LEBLANC: Thank you.

MR. KEHOE: Okay. My name is A.J. Kehoe. Since 1994, people have been hiring me to look after their computer systems. I used to support Microsoft servers and I hated it. These systems constantly had problems, thereby causing a very expensive downtime for my customers. Sure, it meant a never-ending supply of work for me, but it was a very dishonest way to earn money.

I was like a doctor helping patients maintain fast-food diets, knowing it will only perpetuate their health problems.

In the late 1990s, becoming increasingly fed-up with Microsoft's lack of resolve to fix the problems in their software, I began dabbling in Unix based operating systems like FreeBSD and OpenBSD.

What attracted me to these BSD systems was their reputations for being highly reliable, their histories dating back to the 1960s, and best of all, their

open-source nature.

For those of you who don't know, "source-code" is the term to describe the programming instructions that are used to create computer programs. It's like a recipe. Having a copy of the source code allows you to see exactly how a program works, to find problems that may arise, and to make substitutions where necessary.

At first, I was overwhelmed by these BSD systems. They were so different from everything that I'd been using for years, and many of the conventions familiar to me were suddenly no longer applicable or relevant.

I soon realized that these systems were remarkably elegant in their simplicity, and vastly more efficient and more powerful than anything I'd seen from Microsoft.

In 2002, I ended my support for Microsoft servers. I upgraded all 50 Microsoft servers in my care, from Windows to FreeBSD, and the reliability and performance of these machines improved dramatically.

Furthermore, the high efficiency of this software meant that these systems could do more with less powerful hardware thereby reducing electricity usage and the need for hardware upgrades. Today, I am responsible for over 300 FreeBSD servers across Canada.

The internet is powered by open-source

software. All 13 of the internet root servers are powered by BSD software, as are most of the components comprising the Internet's backbone.

If you place a high value on security and reliability, then you are going to want to use software that has had its source code thoroughly scrutinized by as many people as possible.

The most critical control and communications systems used by the Military, NASA, the White House, Google and countless other organizations are all powered by open-source software.

With open-source software you have access to the recipe that was used to create it, whereas, with closed-source software you don't.

Closed-source software companies like Microsoft, don't allow anyone to access their source-code, so for mission critical applications, closed-source software cannot be trusted. Using closed-source software is like driving a car with its hood welded shut.

I have friends and customers who work at OPG nuclear power plants. I care about these people, and I want them and their families to live long and happy lives.

So you can imagine how stupefied I was when I learned that they were using closed-source Microsoft

software at work. They are using the wrong tools for the job and it's putting us all at risk.

OPG can make their nuclear plants less dangerous by simply requiring their software vendors to release their source-code for public scrutiny. If OPG's current software vendors refuse to do so, then OPG can find plenty of other software vendors who'd be willing to release their source-code in exchange for OPG's business.

In December, I asked the CNSC to order all nuclear facilities to stop using closed-source software like Microsoft Windows. The CNSC responded by saying that they are satisfied with the closed-source software that OPG uses.

Neither the CNSC or OPG have access to the source-code for the software, so neither of you know exactly how the software works, and yet you say it's acceptable?

I recently asked a CNSC staff member how many people you employ to do source-code auditing and they told me that you don't employ anyone for this task.

Software plays an intrinsically crucial role in plant operations, communications, security, safety et cetera, but OPG and the CNSC seem to downplay its importance. We're talking about the operation of a nuclear power plant, not a video game.

In October, Louise Levert discovered a very bizarre bug in her email program that prevented her from reading non-encrypted digitally signed email.

She couldn't figure out how to fix it, but neither could your IT department. I offered to help, and after numerous attempts I eventually got through to someone.

Like most Canadian IT professionals, the person I spoke to was dreadfully lazy and showed total disinterest in fixing the problem. Several times, I instructed -- I sent a list of instructions that explained how to fix the problem for free, but they wouldn't reply, let alone fix it.

Two months later, Louise still couldn't open digitally signed messages, so I brought up the issue at the Darlington hearings.

It quickly became apparent that when it comes to software, it's both laughable and disturbing how the CNSC sheds any semblance of common sense it may have.

After insinuating that her upbringing was superior to my own, Moyra McDill called me an uninvited threat for offering my professional assistance at no charge.

Is this how your organization responds to everybody who tries to help you?

If your vehicle breaks down on a busy road, and the only person who stops is a professional mechanic offering free suggestions, do you ignore their advice and call them an uninvited threat?

(APPLAUSE/APPLAUDISSEMENTS)

MEMBER MCDILL: I'm sorry; I've got to say something. I think I said you might be "perceived" to be that way. I didn't say that you were. At least we could check the transcript.

MR. KEHOE: Feel free.

MEMBER MCDILL: Sorry, 30 seconds there Mr. Chair.

MR. KEHOE: It wasn't until February, four months after I originally reported the problem, that the CNSC IT department had finally corrected the digital signatures issue on Louise's computer.

If this is how long it takes the CNSC to fix a simple problem, I cringe at what time would be needed to correct something more dire.

And what's ridiculous about the way they fixed it, is that they spent our taxpayer dollars on an expensive and lazy solution. They could have had my instructions peer-reviewed, tested and implemented within an afternoon, and it wouldn't have cost us any more than maybe an hour or two of their time.

Instead, like most Canadian IT professionals, they exhibited an irrational aversion to learning.

Speaking of education, I find it incredible that some of you graduated high school. In grade 10 science class we were taught that a carcinogen is something that causes cancer and that any amount is harmful. Ionizing radiation is not only carcinogenic, it's also a mutagen.

I recognize that radioactivity is all around us, but we can't do anything to prevent it.

With nuclear power, at least we have the ability to stop creating more radioactivity.

If you use a Geiger counter to examine the face of a cathode ray tube television, you'll see that it registers about 100 counts per minute. Thanks to all the radioactivity your industry has vomited onto this planet, the radioactivity in rainwater can now be measured in hundreds to thousands of counts per minute.

When you're out soaked in the rain, it's like you have dozens of tube televisions pressed against your whole body. The radioactive vapour that you breathe in is many times as harmful when it's inside your body and that can lead to all kinds of health issues.

It's worth noting that most of that radioactivity is from alpha and beta particles, which aren't measured by your gamma monitoring stations.

Any amount of this poison that the industry defecates onto us is wholly unacceptable. When I hear the CNSC say things like "acceptable dose" or "safe level", I'm reminded of the campaigns by the tobacco industry that said how many cigarettes can be safely smoked per day.

Would it be okay to dispose of cyanide in baby food if you didn't notice a decline in infant health?

I ask the CNSC to do six things: Number 1, close Pickering Nuclear Generating Station by 2014. Number 2, order all nuclear operators to stop advertising nuclear power as clean, safe or cheap. Every time they make such bogus claims, there are people who get lulled into a false sense of security and this compromises safety.

The tobacco industry is forbidden from advertising their products in a positive light and the same laws need to apply to the nuclear industry's filthy, dangerous and expensive electricity.

I asked you to do this back in December, but you did nothing to stop it and today they're advertising gratuitously.

There's a billboard at Pickering that

reads: "40 years of safely generating power for Ontario". This is false information, but I guess it depends on your definition of "safety".

If you define the hitherto absence of an inevitable disaster a sign of safety, then I guess a few uneventful rounds of Russian roulette makes it a perfectly safe game to play.

Number 3, order all nuclear operators to stop using Microsoft Windows and closed-sourced software. How many times do I have to explain this until you finally get it through your heads that this is a serious problem.

Number 4, order OPG to develop an accelerated decommissioning plan for Pickering that will be open to public consultation by the end of 2014. This will give my Pickering nuclear friends and customers a few more decades of lucrative employment.

Number 5, stop using GoDaddy.com for your Web server security certificates. GoDaddy.com kills elephants and doesn't respect their customers.

And number 6, stop forcing the public to depend on closed-source and proprietary software to view your Webcast and video archives.

I asked you to do this last time, but you failed to do so. By failing to use open and royalty-free formats like Theora or WebM, the CNSC is limiting Canada's

ability to watch these hearings. Selecting a different format when creating these videos is so easy that even a nuclear proponent can do it.

Okay, time for questions.

THE CHAIRMAN: Thank for your ---

(APPLAUSE/APPLAUDISSEMENTS)

MR. KEHOE: No problem.

THE CHAIRMAN: Thank you very much.

I'd like to move on to the next presentation.

You don't ask questions, we ask the questions. So thank you for your presentation.

MR. KEHOE: Do I get my closing statement?

THE CHAIRMAN: That was your closing statement. Thank you.

MR. KEHOE: Oh!

THE CHAIRMAN: Okay, I'd like to move on to the next submission by the Society of Energy Professionals as outlined by CMD 13-H2.126 and 13-H2.126A.

(SHORT PAUSE/COURTE PAUSE)

THE CHAIRMAN: I understand that Mr. Travers will make the presentation. Please proceed.

13-H2.126 / 13-H2.126A

Oral presentation by

**The Society of Energy
Professionals**

MR. TRAVERS: Thank you very much. My name is Scott Travers, President of the Society of Energy Professionals.

With me here today, I have to my right Joe Fierro, local Vice-president of our Ontario Power Generation Local; to his right, Dave Romanowitz, Unit Director at Pickering Nuclear; and to my left, Victor Chetcuti, Unit Director at Pickering Nuclear.

Thank you for the opportunity to come and speak today. The Society is in a position of concurrence with the conclusion of CNSC's CMD 13-H12. We are supporting the Application for Renewal for Pickering for a 5-year licence.

It's our position that OPG is qualified to operate the Pickering facilities. OPG has implemented adequate provisions for the health and safety of persons and the protection of the environment and that they have maintenance of national security and measures required to implement international obligations.

We do not believe an environmental assessment is required and we support the Commission's renewal for the Pickering re-licence operation for five

years.

Just a quick word about who the Society of Energy Professionals are. We represent more than 8300 employees working within Ontario's electricity industry. We have members at Ontario Power Generation, Hydro 1, Bruce Power, nuclear waste management operations, AMEC Nuclear Safety Solutions, Connectrix and various other organizations within the electricity sector.

Our members are employed as first-line managers, supervisors, professional engineers, scientists, information system professionals, economists and auditors, as well as many other professional and administrative positions within the nuclear industry and the electricity sector?

At OPG in particular, the Society represents more than 3900 members. Approximately 2600 members are employed in the nuclear division of OPG with close to 1700 of those attached to Pickering NGS.

We stand behind our members' professionalism, their integrity and their commitment to excellence in all areas, particularly, workplace safety, public health, environmentalism and environmental sustainability.

At OPG, our members provide technical expertise in areas of conventional health and safety,

radiation safety, emergency preparedness and environment.

Society-represented staff are involved in sensitive occupations, including ergonomists -- I always have trouble with that word -- safety specialists, industry hygienists, safety officers, health physicists, emergency managers, environmental scientists and environmental engineers.

Our members are at the heart of nuclear safety at Pickering NGS and our members in our union are uniquely motivated and uniquely situated to act as an additional safeguard to the public trust.

Our members work in OPG's nuclear facilities and they would be the first in harm's way if there was ever a problem at those stations. We ensure that the stations are run to the highest standards of safe operation and that occupational health and safety are adhered to.

Our members live in the Pickering and surrounding Durham County communities and their children and our members drink the same water and breathe the same air as all the local residents. We live here, we work here, we maintain the safety of the stations.

Because of our occupational positions, our training and our expertise and thanks to our independent role and the internal responsibility systems established

within OPG, we are in a position to enforce the most stringent of standards and we take our position and our responsibilities extremely seriously.

So we are in support of the renewal of the licence, but we do have a couple of issues that we would like to raise with the Commission.

The first one relates to the scope of the CNSC. We do have some concerns that the scope of the CNSC may be too limited. Safety at the nuclear stations is not just the preserve of the regulator -- of the licence and the process that's happening here today with a handful of community stakeholders.

There are other people who can have influence on the safety at the stations. There are significant actors, such as the Ontario Energy Board with whom the CNSC does not regularly interface. Those kinds of actors can have an influence and, in fact, are attempting to influence the way in which OPG operates its facilities.

We applaud OPG for maintaining its safe -- high safety standards, but we believe that the OEB's overriding concern with consumer price moderation has led it to penalize OPG financially for behaving in ways that are consistent with the highest standards of prudence and nuclear safety.

So we would like to recommend that the CNSC, prior to the next round of OEB rate hearings, that the CNSC should exercise its educational mandate to take outreach and education activities focussed on enhancing the nuclear safety awareness of key OEB decision-makers.

Turning to health and safety at Pickering, Pickering NGS is a model for environmentalism and health and safety.

By March 2013 Pickering has exceeded 9 million hours worked without a lost time accident. Safety performance measures were better than target in almost all measured categories.

The members of our Joint Health and Safety Committees are all certified workers which is a higher level of training than those required under the *Occupational Health and Safety Act*. And this is part of the demonstration of the commitment to safety at OPG.

These certified status workers on the Joint Health and Safety committees can halt unsafe work under the *Occupational Health and Safety Act*.

We're confident that our efforts, along with those of the Power Worker's Union and OPG management, will continue to ensure that important metrics such as dose limits of radiation remain lower than the minimum limit mandated by the CNSC.

We're also pleased and supportive of the performance improvement activities that have been performed at Pickering nuclear generating. Improved preventative and predictive maintenance programs have enhanced Pickering's equipment availability and reliability.

This has yielded major improvements in reliability which in turn improved capacity and forced loss factors. Improvements in human performance achieved through adopting event three tools and greater emphasis on operation and maintenance fundamentals have resulted in dramatic reduction and forced loss related to human performance.

Much improved use of operating experience from OPG's screen data to the CANDU Owner's Group is also being integrated into supervisory training. All of this is evidence of the commitment to safety and the inherent safety culture at Pickering NGS.

In addition Pickering A and B amalgamation has provided further improvements in the work environment at Pickering.

The merging of work groups from the two different plants into a single work group has resulted into consolidations and integration of work practices. Most importantly, it's fostered increased information

sharing and allowed the adaption of best practices from the two stations. So it's allowed for encouraged cross-learning from one station to another.

There's an increased sharing of expertise and experience and issue resolution which is drawing from the larger body of expertise and the experienced personnel.

The amalgamated station and day-to-day based maintenance arrangements have created additional opportunity for cooperation and communication between engineering and specialized maintenance crews.

So the amalgamation, coupled with the improved OPEX has led to an improved operating environment.

At this point I'll turn over the presentation to my colleague, Joe Fierro.

MR. FIERRO: For the record, Joe Fierro.

With the transition from the Pickering nuclear plant to a station that's approaching its end of life, OPG is moving to a model of using greater contractors. And this slide just talks about the need for OPG and the society to continue to work through this process as it moves forward to ensure that we work together to make this work as best we can.

On the next slide there is a slide about

end of life plans for staff. And this is something that came up in the 2010 hearings, in I guess, paragraphs 55 and 56. And we believe that this is something that in the current rate -- the current licence application needs to be confirmed that in this five-year period greater work needs to be done in this area so that the society and PW workers who are working at these plants today, who will work at these plants until the last day of operation clearly understand what happens to them at the end.

Without such knowledge or information or plans it will lead to people looking for other opportunities and could cause greater chaos than required to ensure that transition plans are developed as people move to other positions and work still needs to get done.

So we did something very similar to this for the coal plants at Lambton, Nanticoke, Atikokan and at Thunder Bay which the provincial government mandated be shut down by 2014.

And as a result of that the society and OPG reached an agreement which is attached as part of one of our submissions to deal with those staff and the PW have a similar agreement for those plants.

And what this did was allow everyone to understand what happens at the end of the shutdown. And what this did is allow people to remain, work at those

plants with an understanding of the processes that would occur after, and people with their minds clear and not worrying about the future state is helpful to a safe and confident operation of these plants.

So in conclusion the society strongly supports the application of OPG for a five-year licence for the combined Pickering A and B plant.

The society is very pleased with the safety performance of the plant and the operational improvement of the plant over the last three years.

The society is pleased with OPG's desire to maintain the safety record and safety performance even when the OEB is looking forward to reduce staffing and cut costs in this area. And this is -- this is a true sign that OPG is putting safety first by taking a financial penalty to not do what the OEB wants but to run the plant safely.

And finally, the society will continue to work on behalf of its members with OPG to ensure that the plant runs safely, operates in a safe reliable manner, and that staff are engaged, motivated, properly trained and that the community and the employees continue to benefit from low cost, affordable, reliable, safe nuclear power.

And I'd like to thank the Commission for giving us this opportunity to prepare this presentation

and submit it to you. And we are willing and able to answer any questions you may have.

THE CHAIRMAN: Thank you.

Questions?

Ms. Velshi?

MEMBER VELSHI: A question for OPG. I think it would be helpful if you could give us some specific examples of work that -- safety work that was planned that the OEB didn't believe was prudent or cost effective. And do you normally run into this tension between what the CNSC may require and that the OEB would not approve?

MR. JAGER: Glenn Jager, for the record.

The OEB is -- sets our rates. We're the only rate-regulated electricity generator in the province.

They did have -- in doing that they review every aspect of our operation. They did -- and in part of our submissions we do benchmarking externally and we provide that data and they compare our operations, as do we. Because that's how we establish gaps to industry benchmarks and develop improvement plans.

They did have some specific comments on radiation technicians where we had different numbers of staff to benchmark and they may have comments in other areas. And what -- generally speaking, that's an input

into the overall rate -- rate structure that's provided.

The specifics of establishing staff levels are really left to us in how we improve to close or obtain improvements in other areas to really offset perhaps what we're doing.

So there is no specific direction to us to -- to alter staff numbers, that is left to OPG. And as was presented in the society presentation here we do set the final staff numbers.

In the end we're left to deal with the financial consequences of that. And OPG, as a company as a whole, deals with that in terms of the impact of any decisions we might make.

Not sure if that answers your question.

THE CHAIRMAN: Can I -- can I be more specific; on the Section C of the presentation, Item Number 8, they -- the intervenors are giving specific numbers; 55 million reduction in 2011 and 90 million in 2012. And they imply I don't if it's the OEB words, but an implication here that OEB, in essence, financially penalized OPG for putting safety first. I would like to know whether that is true or not.

MR. JAGER: Glenn Jager.

Was that directed -- are you directing that at OPG or...

THE CHAIRMAN: Actually, well, let me start with maybe the intervenor.

MR. FIERRO: For the record, Joe Fierro.

What actually happened was they looked at some benchmarking data around radiation protection technicians and they said you have 12 or 13 too many of those and OPG said, no, no, we need them because there's this alpha radiation project we're working on and -- and they said, no, because of that, you are losing this amount of money and because you have other positions like this, we're assuming you're also overstaffed there and so the total reduction was going to be that \$55 million number.

So they used one specific job -- one specific situation and extrapolated a financial penalty to OPG and assumed that they were potentially overstaffed in other areas.

THE CHAIRMAN: OPG?

MR. JAGER: Glenn Jager, for the record.

Before I ask Barb Reuber to comment further on the OEB process, what I would say is, again, OEB sets financial -- the rate that we receive for the production of electricity and that sets our financial targets and it's -- it's left to OPG to set the necessary staffing levels in all the different areas to operate the facility and, of course, meet our financial goals.

I would say that there is no area in which we have set staffing levels that compromise safety in any way nor would we ever do that.

I think in this specific example of the RP techs, we had a program and the CNSC is familiar with this, where we brought in an entire alpha program, therefore that required additional staff and -- and we set the staff levels to accomplish that.

But just to reiterate, you know, financial targets are something that we obviously strive to hit. We're held accountable by the province to -- to meet our financial objectives and -- and generally, we do so.

But we will never ever put safety behind that and safety is first and we set our staff levels, we manage our operations to achieve all of our safety objectives.

And I think if you look at our performance over the licensing period, particularly at Pickering, we have met all of our safety objectives and with margin.

So I'll turn it over to Barb Reuber to discuss the OEB process in more detail.

MS. REUBER: Barbara Reuber, for the record.

As Mr. Jager says, the OEB sets rates and they are very clear that after having set those rates,

it's up to the management to determine how they use the revenues that result to manage their company. Those are management's decisions.

The disallowances cited are -- were compensation related for OPG writ large and they determine, based on a prudence review of our forecast compensation costs at the highest level that those amounts were imprudent.

But it -- it was not at all directive as to how OPG would respond and I would add that OPG disagreed with that determination and that matter is currently before the Court of Appeal in Ontario.

THE CHAIRMAN: So do you think it'll be useful or required for CNSC to talk to OEB about our expectations?

MS. REUBER: Barbara Reuber, for the record.

I actually do think it would be useful to have a forum for interface between the CNSC and the OEB so that the OEB had a strong appreciation of the mandate of the CNSC and the -- and the safety role, their -- their role in safety for the public and the environment.

THE CHAIRMAN: Thank you.

Ms. Velshi? Anybody else?

Monsieur Harvey?

MEMBER HARVEY: Just to follow with that, I would like to have the staff comment on that because with the example, minimum shift complement, I suppose the staff has -- has always an eye on the minimum resources in the area related with safety. So I suppose OPG cannot do what it wants in certain fields.

DR. RZENTKOWSKI: Greg Rzentkowski, for the record.

Of course, we monitor very closely safety performance of the station. At this point in time, we have no concern that the -- that the safety is being maintained and the station is being operated safely and reliably.

Nevertheless, if the situation like -- like this one persists for a longer time, it may eventually impact on the safety performance of the station. So we take this action as a result of the discussion here and definitely we have to talk to the Ontario Energy Board not necessarily educate them, but at least explain better what is our regulatory framework, how it is implemented and what the licensee has to do to maintain safety.

MEMBER HARVEY: Because I was to touch that point at the end in the round because in your text, in your submission, under "Business transformation initiative", there is a sentence:

"The design of the organization will meet business needs with fewer resources."

So we want to be sure that the fewer resources would not compromise the safety.

MR. JAGER: Glenn Jager, for the record.

Just to back up a bit on the -- on the minimum shift complement, that is met at all times and ensures the safety of the power plant and -- and I would add that we're the only utility that has, thus far anyway, met the requirements of the CNSC in terms of G323 and the analysis -- supporting analysis for minimum complement and this was in support of our days base maintenance program.

This is a very exhaustive analysis that supports our minimum shift complement. It took a number of years to complete, and we went through that exercise to assure the safety of the plant and that it's adequately staffed at all times.

But as well, that initiative accomplishes and increases the effectiveness of our operation.

The -- in terms of business transformation, that is a company-wide initiative, not just specific to nuclear, but really speaks to a restructuring of the entire company and it's a consolidation, if you will, of functions across the company that recognizes the fact that

we have closed or are closing the coal-fired plants and, of course, we have to readjust all the different support functions within the company to match the generation mix and the level of support that's needed across the company.

We're partway through that process. We, as a result of it, have achieved a number of economies in a - - in many different support functions.

It was directed just at that -- primarily at that segment of the business, the support area to the generating stations. The generating stations themselves were largely unaffected by -- in staff numbers, that is the personnel that directly operate and maintain the plant; we're not directly affected in terms of business transformation.

So it's a process we're still going through, mainly directed at the support functions and this is a company-wide effort and we have been able to achieve a number of economies in the business, and that factors into the rate discussion that we have with the OEB and it's how we achieve our financial goals and -- and remain accountable to the -- the Province of Ontario and the ratepayers to achieve safe production of electricity at competitive costs.

THE CHAIRMAN: Mr. Jammal, you wanted to --

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MR. JAMMAL: It's Ramzi Jammal, for the record. Thank you, Mr. President.

I just would like to reiterate one important fact that the safety is the responsibilities of the operators responsibility, and specific OPG. Even though I fully support the outreach to the OEB, I just want to make it very clear that the CNSC is not going to be between OPG and the OEB. We will set our requirements. It's OPG's responsibility to meet them.

We have staff onsite who carry out inspection at any time we feel that there has been any potential impact on safety, we will take regulatory actions in accordance with the resources in place, let it be derating, let it be licensed limitation of their activities.

But the key point here is, yes, we're open for discussions, overall the safety and OPG's role is responsible to operate safely.

THE CHAIRMAN: Okay, thank you.

Anybody else?

Monsieur Tolgyesi?

MEMBER TOLGYESI: Considering, you know, you have a large membership, you said 8,300 people. Considering the end of operations in a few years, what you consider -- what measures or actions should be undertaken

to maintain the minimum shift complement and the availability of appropriately trained employees right to the end of operations?

Because usually, you know, you cannot commit -- you cannot just decide that: Okay, you will have so many operators. We should make sure that they are available -- they are ready to work for us although the operations are getting close to the end.

MR. FIERRO: So this is a fairly complicated question because there's different people doing different roles and some roles require significant training.

But, in the end, I believe this is something that OPG and the unions have to work on together so there is a plan. It may not be a perfect plan, but it is something that we did for the coal plants, which would give people a certain level of certainty.

And, obviously, the people who work at the plant, some of them will be required for some period beyond 2020 but, in reality, unless there's an opportunity to go to a new nuclear plant that's under construction, there's only so many other spots that people can move to.

So it will be -- it won't be easy to find employment opportunities for everyone, but we also have the advantage of some demographic where we have people

who, in the next five, maybe 10 years, will be retiring. So it may work in well with other plants.

So we are prepared and willing to work with OPG to find a plan that works for OPG to operate the plant safely up until 2020 and for our members to be treated fairly with respect and with dignity at the end of their careers.

MEMBER HARVEY: My question was mainly about what you think should be done to make sure that you maintain the labour because, you know, when you have opportunities you know that it's ending, you leave.

So it's not necessarily because of demographics; so, eventually, it will be less employees. Demographics could work against you because there's lots of openings. Here is you have to maintain the person in place right to the end of operations.

MR. FIERRO: Joe Fierro, for the record.

What we did at the coal plants, which have similar requirements, is we worked out a process to allow some contract employees or some external hires as temporary employees to migrate into certain roles that were of a short-term nature and to allow people to move to other positions.

So there is a combination of perhaps a temporary workforce being introduced at some point along

with potentially some contractors and then allowing people to move to new permanent positions so that, you know, they can go to where they need to go to.

So there isn't a simple answer and it's going to require significant effort to figure out how to deal with a large group of people like this. But we are prepared to look at different options to ensure this works for both OPG and for the workers.

THE CHAIRMAN: Just piggybacking on this, in your submission on section -- I wish you had page numbers, there's no page numbers -- section I2, you are -- I understand you're working up those modalities of end of life staffing and personnel.

But here you say:

"The CNSC must most specifically require OPG to deal with the issue surrounding the human resource aspect of the plant."

I'm just trying to say: What did you have in mind here?

And it's not the first time that it was raised that there's an issue between your Union or your workers about the end of life. And I understand they're eager to get a deal or an understanding with your guys.

So you're not suggesting that we make them

sign a deal, kind of a thing?

MR. FIERRO: No, we're not saying you make them sign a deal.

THE CHAIRMAN: I just want to make sure ---

MR. FIERRO: You could encourage them that an agreement with the workers or the workers' representatives is something that the CNSC sees as a positive thing because, obviously, in a 5-year period, it's something that would have to be done because, if we're talking the middle of 2018 when this 5-year licence would be over, you're now within two, two-and-a-half years of the end of life.

I think employees have a right to know what's going to happen with them and I know OPG has been working on some things, but there needs to be a little bit more of an onus or an interest or a desire to do something within this licence period so that the certainty of those workers' future is known by all so that they can rest assured what's going to happen to them, continue to work there safely and with the right attitude and not have to necessarily worry about what might happen.

THE CHAIRMAN: OPG?

MR. JAGER: Glenn Jager, for the record.

I guess two things and I'll turn it over to Mr. Tulett to talk about the specifics of what our plans

are and what we intend to do.

But, for the Commission, this is an action in our Sustainable Operations Plan that we need -- that we've identified that we need to complete and we'll complete as part of the overall Sustainable Operations Plan to take the site out to 2020.

And I'll ask Mr. Tulett to speak a little further on that.

MR. TULETT: Mark Tulett, for the record.

So as I said for the record yesterday, the Sustainable Operations Plan actually commits us this year to develop 10-year staffing plans for all employees for the whole company.

We would traditionally do staffing plans on a 5-year basis, but recognizing the shutdown period in 2020, we deliberately extended our staffing plans out past the 2020 period and, really, to capture all the issues the Society has talked about.

It's not going to be a simple solution, we've got needs for Darlington refurb increasing, needs for Pickering decreasing.

And as I said yesterday, our goal is really to keep the force engaged in useful work, which we don't believe is an issue, but also that every employee understands their fate so that, if they want a retiring

role at Pickering, then there will probably be a spot to do that.

If they want to move on to Darlington refurbishment, then that's got to be built into the staffing plans.

And as the Society pointed out, it's probably a mixture of temporary staff and contract staff so that you're not hiring people that you won't need later.

So we are committed to working with the unions this year and working out that 10-year plan and working through this 2020 period.

THE CHAIRMAN: Thank you.

Final words to you guys. Anything else you want to add?

MR. FIERRO: We'd just like to thank the Commission for this opportunity to make this presentation and we'd like to thank you for your time today.

Thank you.

THE CHAIRMAN: Thank you.

We shall take a 15-minute health break here. That's it, 15 minutes.

--- Upon recessing at 10:37 a.m.

L'audience est suspendue à 10h37

--- Upon resuming at 10:54 a.m.

L'audience est reprise à 10h54

THE CHAIRMAN: Settle down and we can get going. We can go without it.

We'll move on to the next submission, which is an oral presentation from Ms. Cockburn, as outlined in CMD 13H-2.104.

Please proceed.

13-H2.104

Oral presentation by

Gail Cockburn

MS. COCKBURN: Good morning. My name is Gail Cockburn and I'm here to say a few words in addition to my written submission.

I live in Whitby and have been concerned about the safety of the nuclear power plants in our community and their effect on our health.

I'm part of a small group, Durham Nuclear Awareness, dedicated to raising awareness about nuclear issues. As part of this hearing process, Durham Nuclear Awareness received funding to engage an expert, Mr. Arnie Gundersen of Fairewinds Associates. He has made a

submission on DNA's behalf.

Mr. Gundersen makes it clear that the request by OPG for a 5-year licence should be denied due to the many safety issues of the ageing multi-unit Pickering station, which is situated so close to a major population.

To compound his concerns about the safety of an ageing reactor, the nuclear emergency plans for Durham Region and Toronto are completely inadequate to protect the population from a major accident.

Theresa McClenaghan, of the Canadian Environmental Law Association, submitted a well-researched expert submission about nuclear emergency planning, which should guide the Commission in order to protect the residents in Durham Region and Toronto.

Shawn-Patrick Stensil's submission for Greenpeace, among many issues raised, outlined recent information about an intolerable risk relating to the predicted frequency of large accidental radiation releases, which is significantly higher than previously thought.

Here, we have three expert well researched submissions being presented before the Commission asking questions and raising issues that need to be addressed. What they are each asking, because of these concerns, is

that the five-year licence be denied.

After attending the hearing for the past two days, I've listened to OPG's and CNSC's explanation to the intervenors' legitimate concerns, and I'm not reassured that an ageing plant can operate safely beyond its design life and keep the public safe.

I request that the five-year licence be denied. Thank you.

THE CHAIRMAN: Thank you.

Anybody want to add a question here?

Questions?

Okay, thank you. Thank you very much.

I would like to move to the next submission, which is an oral presentation from Ms. Pulst, as outlined in CMD 13-H2.114. Please proceed.

MR. LEBLANC: And I'll just note for the record, you provided us a document, which is an extract I guess from the original Municipality of Durham document. I'll distribute it ---

MS. PULST: That is correct because the one I sent was 200 pages, I'm so sorry.

THE CHAIRMAN: Go ahead.

MS. PULST: So I just press and leave it on, okay.

THE CHAIRMAN: That's it.

13-H2.114

Oral presentation by

Barbara Pulst

MS. PULST: Honoured Members of the Canadian Nuclear Safety Commission, thank you so much that you have extended this another day so that people such as myself could submit our requests.

I am just going to tell you briefly about myself and then I will talk about the democratic process that I felt was circumvented and about water, and then, number three, about community partnership population and growth.

I am deeply concerned by Ontario Power Generation's proposal to run the ageing Pickering reactors beyond their design life, particularly while April 22nd and 24th, I observed a process of decision-making that was underhanded and lacked respect for the people who live very close to the plant.

My name is Barbara Pulst, and I live at 909 Vistula Drive in the West Shore area of Pickering. A family of six, we live less than 1 kilometre from Pickering nuclear power plant. And when we moved here, we had no qualms about living near the power plant but that

changed dramatically that week.

I'm interested in open dialogue between local government and OPG regarding emergency planning, a realistic evacuation plan for the unspeakable, as I have three children attending local schools, and the environmental and social impact on people and nature in the surrounding area. Managing an ageing plant made of ageing metal and ageing concrete, involving such great sums of money requires accountability.

Local elected officials are our only opportunity to hold the OPG energy giant accountable. Municipal Council decision did not follow due process. I'm concerned about the process by which Pickering Council, on April 22nd, arrived at a consensus to support the five-year relicensing agreement with OPG.

Surely, such an important decision should have been put on the agenda and should have been discussed with prior notice to the counsellors and the public.

This was not the case, as it was slipped in by Mayor Ryan on Monday, April 22nd, 2013, at the eleventh hour under "Other Business".

And you'll see that is one attachment I had at the end of the -- and I'll read it here.

"Mayor Ryan also stated he was seeking the consensus of Council with respect

to support of a five-year relicensing agreement with OPG. It was the consensus of Council that Pickering support the renewal."

That was the second-last item at 10:27 before it finished the meeting.

Further, at the Durham Regional Council meeting on April 24th, the recommendation from the report of the Finance and Administration Committee -- that's the piece of paper you just had there -- was amended to remove the bottom three bullet points. So you see there are four bullet points under "3" and so the first one was to stay, which was -- full support:

"The region's strong support for the five-year renewal process."

And then the discussion went on to remove the region's one concern related to uncertain timeframe for the removal of used fuel and other wastes from the Pickering site.

The other point to be removed was the region's interest in being informed about and -- involved in planning for the eventual closure and decommissioning.

And the third point removed was that the region looked forward to working with OPG to mitigate community effects of the plant closure.

I still, to this day, don't understand why it was so essential to remove those points. There was quite discussion, not about the actual issues, not about the actual waste question or not about the emergency plans; there was really only a discussion, even at the meeting, about removing the points.

And perhaps that is something the CNSC is able to better determine why that was so important to remove those points.

I encourage you, if you like, to watch the Regional Council meeting from that day and it's -- the discussion is in the first hour and in the last half before they took the vote. So that's regarding the meeting.

The second point I was going to say was about water. And I have here -- it was released 2012; it is "Proposed Source Protection Plan - CTC Source Protection", submitted to the Minister of Environment, October 22nd, 2012. They say here -- it's a question on page 127 in the PDF, which is 120 on the actual -- under 10.12.2:

"Why is a tritium spill a threat to drinking water sources? Tritium is not removed in the treatment process in municipal drinking water plants.

In order to meet the ODWS in the finished water, municipal operators --

"

Oh, my eyes, sorry.

"In order to meet the ODWS in the finished water, municipal operators may need to shut off pumps at the intake during a spill event to avoid bringing raw water containing elevated tritium levels into the treatment plant."

We had our water shut off once for 24 hours. We had to go to a hotel. If you know in advance, it's not a problem because you can stock up but if you don't know in advance, having your water shut off -- so just think a little bit -- I mean, this is not insulting; I'm just saying just imagine with me -- 4 million people suddenly having their water turned off. That needs to be part of emergency planning.

You know, just telling people they need three days' worth of water at their home is a simple solution but it needs addressing.

And I found that -- I don't find that they were too transparent because -- okay, so we had Pickering Advisory Council here, and I checked their minutes and

immediately following March 2011, April 2011, May 2011, June 2011 minutes there was no discussion of the March 2011 minor -- what do you call it -- minor leak of tritium laden water into -- the 73,000 litres that went into Lake Ontario; there was not even a mention made at the Pickering Advisory Council meeting.

So that is disappointing to me. Terms like "very low", "as low as possible", all those kinds of things are, again, issues you probably are better able to address than me. That was the spill. It wasn't discussed.

Again, on the Toronto Web site, they say Lake Ontario is their main source of drinking water. That's three point something million people.

So I think the water issue, other people can explain better but it definitely has to be in the emergency planning.

My third point. I'm so sorry. Okay. So, my third and last point was the community outreach. And my kids have been to building Darth Vader in the Lego plant there, I mean when they've got Lego in summer. So they have a lot of outreach plans and environmental groups, and so if this whole licensing renewal was to talk about their outreach to the community, then I think they would probably get an A plus. That's definitely there.

Plus there are also at least -- I've got at least 25 submissions here of intervenors who have funding, who are funded by OPG, who receive funding. So that might be something you would need to look into.

So I don't think there's any problem with their involvement with the community, but this is a discussion about risk. This is a discussion about 90,000 thousand people. This is a discussion about -- there are -- I delivered flyers to 2500 homes in our area. This was for another group. And so I live on the west shore. So if there's 2500 on our side and there's probably about the same on the east side, you figure about 2500 north, you're looking around 10,000 homes in the 3-kilometre zone, easily.

And I am not sure if that 3 kilometres if they mean as the crow flies -- maybe somebody could answer that -- if that's as the crow flies or if that's map.

So community outreach, there's lots of programs but we are talking about risk. We are talking about risk to our drinking water.

In closing I would like to say, I feel that we are playing a little bit Russian roulette here. Their liability is covered, \$75 million. I don't know how -- what is that \$75 million, okay, for per incident.

Emergency planning is supposedly looked

after by Durham Region. I might note that the Pickering Council is not included in very much planning, and I take great -- I would encourage you to include them in some way because when something happens in a community, the first people to get the phone call is the councillors and the Mayor.

So these really should be an integral part of the planning and they were not part of discussions, as I showed you, at their meetings. There was no reason that there was a sudden hurry and I am sure the Mayor and others knew that this CNSC panel was happening. I don't think it needed to be, you know, a week before the submission. So that does not show transparency to me.

So number one was liabilities coverage. Emergency planning, Durham Region is looking after that and the province. The waste, the NWMO, that's long term waste. We have no definition and no discussion on the 30 years between now and the initiation of the NWMO project.

So I feel this is a little bit Russian roulette happening here with this. If we were talking about community partner...

THE CHAIRMAN: Can you please conclude?

MS. PULST: I am closing up, but we are talking about continuing to operate a nuclear, not a bonbon power plant, past its design life, on the shores of

a drinking water source of over 4 million people, and trying to achieve this licensing with circumvention of data, discussion and open democratic process.

And just as a note, I think it would be wise for future panels that intervenor status should, in the future, include a declaration if one is funded or employed by OPG.

Thank you.

THE CHAIRMAN: Thank you.

Maybe now is the time -- I understand, Dr. Thompson, you have an update for us on drinking water in from Lake Ontario. Maybe now is the time to get this update.

DR. THOMPSON: Patsy Thompson, for the record.

That's correct. Last night there was a request for information from concentrations of tritium in the Toronto drinking water supply plants.

And so we have gone on the Toronto Web site. There are four drinking water supply plants that measure tritium and there's between 193 to 207 samples a year that are taken and measured for tritium.

Generally there's about 80 samples that are below detection level. And so there's less than 50 percent of the samples that are taken in which you can actually

detect tritium.

Their detection limit for the purpose of drinking water quality is five becquerels per litre. The range for the years we were able to have readily on the Toronto Web site, the maximum values were 9.1, 10 and 11, and that's for 2009, 2010, and 2011. And the annual average was 2.3, 2.3 and 2.8 becquerels per litre, and that is including the non-detectable samples.

THE CHAIRMAN: How often is this published?

DR. THOMPSON: It's on the Toronto Web site. I don't know. I can check and get back to you, but the information is readily available, and it's available for the four drinking water supply plants, and there's a link on the Web and you can get that data.

THE CHAIRMAN: And it's up to date, up to 2013?

DR. THOMPSON: It's up to 2011, is the most recent complete year that we could find.

THE CHAIRMAN: That doesn't sounds very good. I mean we are now -- that's two years almost. Okay. Anyhow, why don't you check to see how often they put it up?

DR. THOMPSON: I will. Just maybe, if I could, the intervenor talked about the spill in March 2011, and just to say that, during that spill, the

drinking water supply plant closest that was the most affected, what we saw in terms of increase in tritium concentration was an increase of 0.56 becquerels per litre above what is normally measured at that drinking water supply plant.

So there's a very, very low incidence of that spill on drinking water.

THE CHAIRMAN: Thank you.

Question? Ms. Velshi?

MEMBER VELSHI: Just a quick question. Did you say that the average for the 3 years is 2.3, 2.3 and 2.8 becquerels per litre?

DR. THOMPSON: Dr. Thompson.

That's correct.

MEMBER VELSHI: So if the detection limit is 5 or less, how can you get an average that's lower than that?

DR. THOMPSON: What they do is -- the detectable levels, they use the number in the average, and the values that are not detected, they use zero. So they average the 207 or -- all the values are put into the average.

THE CHAIRMAN: Ms. Velshi, that's it?

MEMBER VELSHI: That's it.

THE CHAIRMAN: Anybody else? Question?

Okay. Thank you. Thank you very much.

I'd like to move on to the next submission which is an oral presentation from Mr. Bertrand, as outlined in CMD 13-H2.122.

Mr. Bertrand please proceed.

13-H2.122

Oral presentation by

Louis Bertrand

MR. BERTRAND: Thank you, Mr. Chair. Louis Bertrand, for the record.

Mr. Chairman, Members of the Commission, good morning. My name is Louis Bertrand and I am a resident of Durham Region. I am a professional engineer with experience in software development and internet security.

Monsieur le président, membres de la Commission, je vous souhaite bonjour et je vous remercie de l'occasion de m'exprimer au sujet de cette demande de renouvellement du permis d'exploitation pour la centrale nucléaire Pickering.

Chers commissaires francophones, je regrette mais je dois continuer en anglais. Si on me pose une question en français, j'essaierai dans la mesure du

possible d'y répondre pareillement.

Previous intervenors have commented at length about the age of the Pickering B reactors and the increased potential for the accidental release of radioactive contaminants. They brought forth technical arguments that were, in my opinion, well researched.

Yes, I am aware that the licensee downplays the much discussed 210,000-hour expected lifespan, framing it instead as a business goal.

But I'm uncomfortable with the fact that these would be the oldest operating CANDU reactors in the world.

However, emergency planners do not seem to share my misgivings. In emergency planning, as the saying goes: You hope for the best, but do plan for the worst.

As I mentioned in my written submission, the speed at which rumours can be propagated by social media -- Twitter, Facebook, so on -- as well as person-to-person text messages should be a factor in emergency planning.

In the event of an evacuation order, authoritative messages may be drowned out by rumours propagated at network speed. In the event of a minor accident, the opposite might happen, resulting in people choosing a so-called "voluntary evacuation" when none is

needed.

In the case of a major accident, let me express my doubt that an evacuation would be possible. Even if police and emergency personnel direct traffic, turn all lanes of city streets and Highway 401 into unidirectional routes, it seems to be that fender-benders and breakdowns would stall the flow of traffic.

And, in fact, if you would like to see what an evacuation looks like, I invite you to stand on the pedestrian bridge just down the street from here and observe Highway 401 this afternoon. And for a simulation of a mass evacuation, just wait for a Friday afternoon before a long weekend.

Many intervenors, in particular municipal officials from Durham Region and its constituent municipalities, have praised the licensee as a good employer and corporate citizen. As well, Durham Region, in its submission Wednesday, noted that the licensee provides regular updates to Durham Region Council.

However, as was pointed out in a recent letter to the editor -- in fact, by Ms. Pulst who just spoke -- and later in an editorial, Pickering Council as well as Durham Region have expressed their support for the Application without studying the Application in depth.

To my knowledge, the motions to support

were hastily presented and councillors who wished more time to study the proposal were outvoted. This blind faith in the licensee troubles me.

Even more troubling is my experience last October with the Mayor of Clarington. As a resident of Clarington, I accompanied a spokesperson for Durham Nuclear Awareness for a meeting with the Mayor to discuss the emergency planning and zoning recommendations from the Joint Review Panel on the Darlington new build; specifically, those recommendations which are within municipal jurisdiction.

To our surprise, the Mayor had invited officials from the licensee to attend, saying something to the effect that: Well, he didn't know much about the subject and relied on his experts.

My point is that there is no critical engagement whatsoever with the licensee on safety and emergency issues at the municipal level. It's a code of silence and everyone is asking as if -- acting as if nuclear plants are just another factory.

It's almost as if everyone is hoping to relive the heyday of the construction phase of the Pickering and Darlington stations -- those good hydro jobs -- and to speak of any risks would be to dash any hopes of economic revival.

As evidence, I point out the fact that emergency planning is stalled at every opportunity and those JRP recommendations seem to have been ignored.

In fact, members of the Commission, if it wasn't for hearings like this today, there would be next to no opportunities to raise concerns locally.

For the moment, let's leave aside the possibility of a large release accident and consider smaller scale incidents or failures that would cause a shutdown of one or more reactors.

The age of the reactors makes those incidents more likely. Once shut down, the outage would be of indefinite length. It entirely depends on the nature of the failure and the extent of the repairs.

There are subsystems that are shared between multiple reactors and even the entire station. The vacuum building is the obvious example, but there are others. A failure in common systems could cause multiple reactors to be shut down.

This is not farfetched. The station occasionally must shut down if there is too much algae in the water clogging the common cooling water intake. Similarly, a systemic defect in a component or class of components -- pumps, valves and so on -- could impose a multiple reactor shutdown out of concern for multiple

common cause failures.

These unplanned, indefinite outages would have effects beyond the fence line of the Pickering Station.

But first, I need to address the socioeconomic factors and I will return to the matter of outages in a moment.

Now, before I begin this section of my presentation, I wish to make clear that I'm not presuming to instruct the Commission about its mandate. Rather, I would like to initiate a respectful conversation about the decision criteria in light of the socioeconomic arguments brought forward by many intervenors both in support of and against the application.

Quoting from Section 9 of the *Nuclear Safety and Control Act*, I see that the Commission's mandate is in part to:

"...regulate the development, production and use of nuclear energy..."

And, in particular, per subparagraph 1, to:

"... prevent unreasonable risk, to the environment and to the health and safety of persons, associated with that development, production,

possession or use."

I want to focus on the term "unreasonable risk", which is open to a very wide interpretation. The licensee's plan to extend the operation of Pickering is to provide the electricity to make up for long-term outages of the Darlington reactors during their planned refurbishment expected to begin in 2016.

What happens if there is a failure or incident that forces one or more Pickering reactors offline for an indefinite outage?

Also, what happens if the Darlington refurbishment extends beyond the 5-year licence extension?

Twenty sixteen (2016) to twenty twenty (2020) does not leave Darlington with much of a margin in case of delays in refurbishment.

And either case, this would leave Ontario with an unpredictable shortfall of nuclear-generated electricity, which would, according to the current Ontario government's electricity supply mix directive of 50 percent nuclear, leave Ontario with a possible overall electricity shortfall.

Now, for the purposes of this discussion, I will leave aside the apparent oversupply that has been in the news lately. The situation is complicated enough as it is.

The alternative scenario is to mandate an orderly shutdown according to the original schedule. This predictable scenario would give the Ontario government time to plan for a ramping up of truly sustainable electricity sources -- wind, solar, geothermal -- as well as a program of electricity conservation that would relieve the grid of wasteful loads, the so-called "megawatts of savings".

Now, the CNSC Web site echoes the legislation by emphasizing that economic matters do not play a role in CNSC's mandate. However, it seems that the socioeconomic factors mentioned earlier are out of place here. They should be discussed at the Ontario Energy Board, as was mentioned, or the Ontario Power Authority, or, as appropriate, in the Ontario legislature.

Yet, many intervenors at this hearing point out the employment provided by the licensee and just as many decried a high cost of nuclear operations. It seems to me that the Ontario government is hiding behind this Commission, as if to say that if the safety is demonstrated, then the project is viable.

Perhaps we are indeed back in the heyday of Ontario Hydro, an organization that has been called a "government on its own that could swagger into Premier Davis' office and make demands for blank cheques".

I think that this Commission is being put in an unfair position of being one of the few public forums, perhaps the only one, to discuss the future of electricity generation in Ontario.

Monsieur le président, membres de la Commission, avec la réticence du gouvernement ontarien de parler franchement au sujet de l'avenir du système d'électricité ainsi que le refus des élus municipaux d'accepter qu'il pourrait se produire un accident sérieux, il paraît qu'on fait de nous les dindons de la farce.

Mr. Chair, Members of the Commission, given the reluctance of the Ontario government to open up the discussion on the electricity system and the state of denial of municipal officials regarding the potential for a serious accident, it seems to me that we're being taken for a ride.

Je vous prie de refuser la demande et plutôt insister au déclassement de la centrale nucléaire de Pickering à la limite de la vie utile prévue pour les réacteurs de type CANDU, soit les 210 000 heures.

I ask you to turn down the Application and instead insist on decommissioning the Pickering Station at the end of the planned operating span of CANDU reactors, namely the 210,000 hours.

Thank you. Merci.

(APPLAUSE/APPLAUDISSEMENTS)

LE PRÉSIDENT: Alors, merci beaucoup.

Des questions? Questions?

Dr. Barriault.

MEMBER BARRIAULT: Just briefly,
brièvement.

What I'm hearing really is that there's dialogue between the municipal people and OPG, but it doesn't go down to the community.

Do you have good newspapers in the area to report on what's going or what's happening or is there other means that you could identify to have the communications going down to the people of the community.

MR. BERTRAND: Well, obviously I'm privy to any private conversation between elected officials and the licensee. However, in my experience of attending let's say Clarington council where I live, the statements by the -- by the licensee the annual report as well as the Liaison Committee, rarely discuss emergency issues. They discuss you know the worker safety record, right. And it's a safe -- you know I'm not arguing that it's not a safe workplace.

But there's very little talk of what would happen in case of a release of radioactive material. That really -- that discussion just does not occur. And this

is a public discussion in council when the licensee makes a presentation, councillors are quite welcome to make -- to ask questions. And I've seen some pretty aggressive questioning by councillors of other presenters but generally not the licensee.

Same thing happens at regional council when I've attended those meetings; it's code of silence on those specific issues that directly concern the safety and the continued operation.

MEMBER BARRIAULT: Have you raised those issues with OPG or with the council?

MR. BERTRAND: Well, as I mentioned -- Louis Bertrand, for the record.

As I mentioned, I tried to raise those issues with my mayor, and it was basically it was -- he was quite willing to listen to fairy tales not -- not the hard facts.

MEMBER BARRIAULT: Thank you, Mr. Chairman.

THE CHAIRMAN: It's interesting, you're pretty well-organized. You have a pretty good cheering gallery here and you know and a lot of people feel passionately about that.

Why don't you go to a council meeting en force and try to kind of ask for some discussion about those subjects?

MR. BERTRAND: Well, I have made many delegations to my municipal council, as well as regional council on the subject of the Durham Region incinerator, which is just right across the street from the new OPG building.

You might have noticed that construction site. That is going to be a garbage incinerator that's going to take garbage from all the way up into York region.

And it -- I basically refuse to put myself in a situation like this where there is a power imbalance between elected officials and a -- and a person -- I do not make delegations to my councils anymore because it's -- of the built-in power imbalance.

I appear there as a supplicant. And it's their council, their rules and to quote Sun Soo, "You don't fight on the enemy's ground".

And I basically refuse to -- I've tried to raise it privately and you just don't get anywhere.

We did have some interesting talk with the mayor of Oshawa who seems to be a lot more open. And part of his background training is as a firefighter in emergency -- in hazardous situations. So he gets the -- but he's one of the few people who get it.

THE CHAIRMAN: Thank you.

Anybody else, question? Question?

Thank you. Thank you for the presentation.

(APPLAUSE/APPLAUDISSEMENTS)

THE CHAIRMAN: I'd like to move onto the next submission which is an oral presentation from Mr. Blaney, as outlined in CMD 13-H2.128 and 2.128A.

13-H2.128 / 13-H2.128A

Oral presentation by

Brad Blaney

MR. BLANEY: Thanks Louis, you're the best.

Okay, I'm Brad Blaney, for the record. I'm here to declare concerns about the ability for CNSC to oversee the nuclear power industry in Canada.

The CNSC mandate is to hold accounters -- operators to the highest standard in terms of safety and accountability. Now I speak as someone who has followed -- closely followed and participated in the intervention for the Darlington retrofit, where it became clear that the only standard in this regard is the level which OPG believes that it can achieve despite its unlimited public financial resources.

The fact that the final decision to retrofit Darlington saw this Commission rubberstamp the

shoddiest environmental business case presented to it by OPG is an insult to taxpayers who pay your \$50 million budget.

Surely CNSC Committee Members, their friends at OPG, their friends at the Power Worker's Union and the industry shared some fine wine to toast the CNSC approval of OPG Darlington plans. The taxpayers of course were not invited. But no doubt they paid for the celebrations.

The Darlington intervention process showed me that there are many brilliant people in the back row willing to take time to read the OPG and CNSC documents to be educated about what is being proposed, and to come to these fake hearings to ask the CNSC to challenge OPG assertions and to make them accountable for them.

(APPLAUSE/APPLAUDISSEMENTS)

MR. BLANEY: In the recent CNSC decision regarding -- regarding Darlington, it's clear that the Commission simply ignored every single concern raised by intervenors. I could not help but see the impatience with intervenors, the Commission, the OPG and various other government agencies had for intervenors during the public sessions in Courtice.

The written decision by CNSC proved to me that this isn't really impatience but an outright contempt

for anybody challenging the garbage presented by OPG as their environmental assessment and which was signed off by CNSC.

(APPLAUSE/APPLAUDISSEMENTS)

MR. BLANEY: Contempt of over -- contempt by over-paid bureaucrats is something we citizens, taxpayers have to suffer through everyday.

THE CHAIRMAN: Can you please be respectful of this particular ---

MR. BLANEY: Yeah, sure.

What's truly gnarling is the contempt shown in this process that we pay the CNSC budget to see that it acts as a highly-paid whistleblower for the Canadian public. And what we get is a cheerleader for a multi-hundred billion dollar business with a lobby that can take care of its own disinformation campaigns.

To regurgitate the nuclear power message that radioactive emission is safe is not your mandate, it's the mandate that -- it's what you do but it's not your mandate.

The CNSC Web site is rife with science-fiction scientific reports that espouse only the industry mantra; cancer in communities surrounding nuclear plants is not caused by radioactive materials coming from the plants.

In fact, it goes further to tout on its Web site that some of the questionable recent science-fiction studied by RADICON that there is no childhood leukemia near nuclear power plants.

In fact, the report doesn't say this at all but CNSC chooses to spin this clearly shows the bias to the position of the industry friends. And it has header deliberately misinforms the public to hide the real results of this complex RADICON report and its highly subjective analysis of cancer rates.

In regard to the intervention today it's a given that CNSC will approve OPG's request to extend the operation of the plants beyond the original manufacturer's specifications.

The fact that OPG will be able to do without submitting reports about potential risks to the public and this Commission willing to accept this half-ass effort by OPG to fast-track this approval clearly illustrates the Commission's lack of credibility and its bias toward the OPG and the CNSC complete disregard to protect the safety of citizens.

While I'm on the topic of credibility, the CNSC mandate I noticed, Dr. Binder, that you visited that NRA -- NRC Secretary General of Japan, that crook Shunichi-Tanaka, to sign a so-called IEE -- IAE Code of

Conduct.

In light of the recent -- in light of the request by OPG to simply continue operating these plants beyond the specification it came to mind that you probably flew first-class on a jet with engines that had been maintained as per the jet engine manufacturer.

I presume that you would not knowingly fly on a plane where the engines had not been maintained or rebuilt to the specifications of the manufacturer.

Yet, OPG will have approved -- CNSC's approval to operate this -- a request to operate these nuclear plants beyond their approved lifespan and without preparing any reports that really are entering into an uncharted territory. The pattern of regulatory malaise of the CNSC, IAEA and NRC, is the way of the world.

One example is that CNSC -- under CNSC oversight the operators at Chalk River failed to file dosimeter readings for 1,650 badges between 2009 and 2012. And there were late files recently of some 7,000.

How is it -- how is one to know whether there's been an incident between 2009 and 2012 that the operators simply chose not to report? The dosimeters are one main tool to keep the operators honest.

CNSC failed to -- failed the public as did Chalk River operators and this is either irresponsible or

criminal or both.

In the absence of meaningful sanctions, oversight by CNSC, these plant operators would do and say what they want, when they want.

TEPCO has proven this, as has -- as has OPG, the Power Worker's Union. The only difference between TEPCO and OPG now is that OPG has not, at least currently, engaged in the mismanagement of a catastrophic meltdown of three nuclear reactors and one spent fuel pool.

If it was, the same lies would be coming out of OPG as are coming out with the CNSC running blocker for the operators.

In fact, your recent -- you recent visit that with that crook Tanaka you signed the IAEA code of conduct which put to test -- was put to test very recently in an experimental reactor in Japan in the last few days where the operator clearly violated Section 5A Number 2 and 5A Number 3.

The accident resulted in exposing some 30 workers directly to the radiation -- to radiation circulated in the plant and the operators simply released the gases into the atmosphere without telling anyone.

One can only guess what these brainiac Japanese nuclear fission freaks were trying to do at the

plant by exposing gold to radiation, indeed some 400 times more than required or why these science-fiction scientists reset the alarms and then continued the experiment, melting away the gold, resulting in these dangerous gases being released.

The Code of Conduct is: release gases first, lie to the public 48 hours later with apologies.

In fairness the complete disregard for public safety is also found at our provincial and regulatory emergency management planning bureaucrats and this is due to complete incompetence. The Darlington submissions by these agencies were simply laughable. The truth is, if there's a nuclear accident you're on your own.

Regardless of with or without the IAEA code Bruce -- the OPG Bruce operative, like TEPCO, would surely vent gases without warning into the surrounding area.

Anyone who believes the operators here would do anything different than the Japanese operators did in this case where an emergency venting is required is an -- is an imbecile.

CNSC would not reinforce any sanctions against a commercial plant operator to failure to warn the surrounding communities about emergency venting, just in the same way the IAEA and NRC regulator, Japanese

regulators, did. They'll tell the public a few days later with apologies to the pregnant women and children.

By holding OPG's feet to the fire on the Darlington retrofit and now the extension to -- of the use of the dilapidated Pickering facility, the CNSC exposes the public to great danger.

There are no half-measures. If there's a failure at an aged pipe under the pressure at Pickering, or OPG cuts corners on the Darlington retrofit, it's only the unsuspecting trusting public that will bear the pain and suffering much like the Japanese people.

It's not comfort that this Commission's report is to be tabled to Minister of Natural Resources Joe Oliver. Minister Oliver is an idiot who seeks to satisfy only the interests of the nuclear power industry.

THE CHAIRMAN: Okay. You just ran out of time.

MR. BLANEY: All I can say is that ---

THE CHAIRMAN: Security, please escort this gentleman -- and I use the word "gentleman", right out of here, please.

Security, get here.

You've just finished your time allocation.

You'll never appear in front of us again.

Next I'd like to move to an oral

presentation from Ms. Lester, as outlined in CMD 13-H2.118.

(SHORT PAUSE/COURTE PAUSE)

13-H2.118

Oral presentation by

Carrie Lester

MS. LESTER: Yes, okay. Greetings to the Panel Members of the Canadian Nuclear Safety Commission, the Ontario Power Generation panel members, Pickering Nuclear panel members I suppose are here, members of the public who have come as intervenors and witnesses to the - - and to the online viewing public.

And in recognition and honour to all the other beings around us, without whom we would not exist; the aquatic beings, the swimmers; the terrestrial beings, the walkers and the crawlers, and to the air dwelling beings, the flyers.

I'm deeply concerned with OPG's proposal to extend the operating life of the Pickering nuclear reactors beyond their designed life expectancy.

It's time to move from nuclear energy to renewable energy for the sake of the 9 million or so people living around Lake Ontario and the other beings who

receive their drinking water from this beautiful lake. We must move away from the continued destruction of it.

(Speaking in native language). That's my name, my clan and my nation. I'm from Onondaga, I'm Bearfoot Onondaga from Six Nations territory.

I am called Carrie Lester. I'm a mother, a sister, an aunty and a daughter to parents who have both died from cancer. I'm a granddaughter to grandparents no longer with me, some of whom also died from cancer.

As I said earlier, through my mother and her mother I am Bearfoot Onondaga from Six Nations Iroquois Confederacy of the Grand River territory. Previously of the lands of the Kaniekehake (Mohawk) and the Onondaguaiga, on the other side of the Beautiful Sparkling Waters, which is the name for Lake Ontario.

Through my mother and her mother's family our families have lived in this region of Lake Ontario for thousands of years and we have benefited from and supported and loved the natural beauty and bounty of this region for those many years.

It deeply saddens us that within a matter of only a couple hundred years most lakes and rivers of this land, that we are only borrowing from our children and our grandchildren and those faces yet to come, have become undrinkable for both human and animal and harmful

to plant life.

This very month there are people from a Dene community in Saskatchewan who are walking across the country to bring attention to their situation, where uranium is being mined and their lives and health are at risk.

Their community is also one which is targeted to receive Ontario's nuclear waste. This is a common situation in which the government instituted ban council makes decisions without community involvement. These walkers will be arriving in Toronto on their way to Ottawa in just a couple of weeks.

I'm also concerned about our position in the nuclear fuel chain here in Toronto. That being Toronto's uranium fuel plant in the west end.

Besides working with special needs children in the school board, I also work with my school's eco-school's team of which their project is to work on greening the energy grid of Toronto's schools, using a combination of several ideas, including conservation, auditing the energy use, solar energy, green roofs and greening of the school environment.

I would like to see -- sorry, I would like for our children to see that in their lifetime nuclear energy and the uranium extraction that is needed for its

existence is put to rest and green renewable energy takes its rightful place.

Today's elementary students are bringing up -- bringing these ideas up through the grade levels and the universities had better be ready for this. They will not tolerate lies and obfuscation; they already see through the propaganda advertisements of the Alberta tar sands.

How amazing it would be for the Province of Ontario and OPG to be seen as leaders in this regards. If the OPG and CNSC were to do the right thing and begin decommissioning and dismantling of nuclear energy engineering students would not be put in harm's way when they enter the energy workforce. They would not have to have it on their conscience that an accident on their part, if they survived, might cause a catastrophic radioactive contamination of their community and communities beyond and the immediate chaotic evacuation of said members.

I truly cannot imagine what an evacuation of that proportion would look like considering what a typical day or night on our highways already looks like. And make no mistake, all it takes is human error to cause such an accident.

We know that small accidents happen all the

time. Lake Ontario supports nuclear reactors on both sides of the border, and all these small accidents contribute to that contamination.

I'm going to briefly list a few such accidents that have had happened at Pickering that I'm aware of.

August 1st, 1993, a metre long break ruptured a pressure tube in Pickering Reactor 2, spilling 17 kilograms of heavy water per second onto the floor of the reactor vault.

November 22nd, 1988, a fuel failure occurred when a Pickering Reactor -- when Pickering Reactor 1 operator working with incorrect operating instructions increased reactor power from 65 to 87 percent, causing 36 fuel bundles to fail.

March of '89, workers discovered that 100 square centimetre hole had existed between the moderator purification room and the moderator room since early 1988, a year before. If a serious loss of coolant accident had occurred at some point during those 15 months, the resulting leakage of water between the two rooms would have damaged the sump pumps, which are required to recirculate water to the emergency core cooling system during a loss of coolant accident.

September 25, 1990, Pickering Reactor 2

experienced a severe flux tilt, which means an unstable and unbalanced nuclear fission following the insertion of an adjuster rod into the core. Operators spent two days trying to stabilize the reactor by changing fuel bundles, reactor power and configuration of the adjustor rods.

November 1990, moderator room pumps were found ceased up at Pickering Reactor 4. This situation was estimated to have disabled the emergency core cooling system of that reactor for the previous 11 months.

Reactors A and B of 1990; during a test of the containment system at Pickering that is carried out only once every 10 years, a seal on the pressure relief duct failed at about one-half the pressure it was designed to withstand.

June 1991, a faulty valve on a steam generator resulted in a 15,000 litres leak of heavy water at Reactor 3.

August 2, 1992, heat exchanger was damaged by debris from a broken strainer, spilling over 2,000 litres of radioactive heavy water into Lake Ontario, that lasted for six hours.

April 15, 1996, a leaking heat exchanger spilled 100 litres of radioactive heavy water into Lake Ontario. The leak was discovered at 9:40 in the evening and halted two hours later.

Reactors A and B, April 16, 1996; workers discovered a malfunctioning valve associated with emergency core cooling system. After delaying several days -- while Former Prime Minister Chrétien was promoting CANDU reactors in Eastern Europe -- Ontario Hydro announced the first unscheduled shutdown of all the reactors of both Pickering nuclear stations. The shutdown took place on April 20th and 21st.

August 14, 2003, during the great blackout, there was a significant flaw -- a design flaw in the Pickering station's emergency shutdown system, and it was underscored by the blackout.

The U.S./Canada Power System Outage Task Force noted that equipment problems and design limitations at Pickering B resulted in a temporary reduction in the effectiveness of some of the multiple safety barriers.

December 26, 2003, it was discovered that the emergency core cooling system would have been unavailable in the case of loss of coolant accident and loss of electricity supply incident because of problems with the site electrical system. The system was unavailable for seven hours -- a little over seven hours.

March 16 of 2011, the Ontario Power Generation notified the Nuclear regulator late that evening that there was a release of -- what we talked

about earlier, the 73,000 litres of demineralised water at Pickering A earlier that day. And we know in the newspaper accounts that it was all considered to be of no consequence.

And I know that many intervenors must have addressed and asked about the emergency plans for Pickering. I haven't had time to view the discussions online but I certainly have been here today and that has certainly been discussed.

I would like to say that from what I understand, sirens within a 3 kilometre radius would be sounded; some robocalls would go out to households within a 10 kilometre radius giving information about either suggesting, endorse or to evacuate to several designated locations.

But I've also read that there's not enough sirens, and I question the ability of robocalls to reach citizens if they are at work or school or on the road.

And what about the people who don't live in the area but are passing through it? I would like to hear more about the emergency plans for Pickering and the GTA.

I would also like to address the previous intervenor, Barb Pulst, when she mentioned the \$75 million liability. She was thinking that might be enough liability insurance but as we know, most of us with our

car insurance we're usually insured up to about \$1 million. So \$75 million would only cover about 75 people.

I would like now to bring up the CNSC news release -- CNSC news release from several days ago, which was to address the German study about leukemia rates among children living near nuclear plants. And I know this was talked about earlier today, but this is what's in my notes.

The press release states that there is no --

THE CHAIRMAN: Can you ---

MS. LESTER: I just want to add a little bit to it, if I may, Mr. Binder.

THE CHAIRMAN: Please.

MS. LESTER: The press release states that there is no consistent pattern across the three facilities studied. When looking at all age groups, some cancers were higher than expected and some cancers were lower than expected.

And the lead researcher and Epidemiologist, Rachel Lane, states that 60 percent of all cancers in Ontario are due to smoking, obesity, poor diet and physical inactivity.

I haven't read all through this study yet, but I do question it. First, the way this press release

is written, it makes it sound like it's going to be all about the childhood leukemia rates around nuclear plants.

But it quotes Rachel Lane as saying that the majority of cancers in Ontario are due to the smoking, obesity, poor diet and lack of physical activity. We're talking about childhood leukemia and leukemia from birth.

Children and infants are not smoking at those ages and nor would they necessarily fall into the other categories for ill health. I find this very misleading and insulting.

I also wonder if any long-term case studies have ever been taken from around the nuclear plants in which subject have been followed throughout their lives, even if they move about.

We have a very transient population in Ontario, so I wonder about the information in this study by your epidemiologist. We all know that numbers and statistics can be manipulated to suit a study for whoever is paying for it. It also worries me that Rachel Lane is heading a study of Saskatchewan uranium miners.

Which brings me to this other point. As I look up ---

THE CHAIRMAN: Could you please complete?

MS. LESTER: --- at these Panel Members in front of me, I see members of the CNSC, members of OPG and

Pickering, but I don't see any independent panellists nor do I see panellists from the anti-nuclear side.

And I, for one, would like to see panellists who represent the other side, whom we could call upon to answer our questions as well. It doesn't seem fair for us to only hear -- to hear them as intervenors and not to be able to question them as well.

We are all not -- we are not all able to be here every day nor have we been able to watch the live feed every day.

The only intervention that I did see last night ---

THE CHAIRMAN: Can you please conclude?

MS. LESTER: --- when I watched -- I'm almost there, sir -- when I watched with great interest the discussion that was generated because of Dr. Gordon Edward's intervention against Pickering nuclear's five-year extension.

His thinking was clear and concise as was another CNSC Panel Member, who recognized -- and I think it was you, sir, Mr. Barriault -- sorry, who recognized where Dr. Edwards was coming from. And I think you must have some business in the aircraft manufacturing point of view, because mechanical parts have a limited lifetime. One cannot simply extend that life on hopes and dreams.

Lives are at stake and both aircraft and nuclear reactors, as both would have an immediate detrimental and deadly effect, and the latter would have an ongoing, forever damaging, deadly effect.

If the CNSC and OPG thought that there was use for Pickering to continue, it should have applied for refurbishment and not just the extension.

One final thought in thinking about the title of the CNSC, it reminds me of a policy in many public schools.

And this may sound weird but hear me out; it's something called the "Safe School's Act". It sounds like this Act is to ensure the safety of the larger school community but in reality it was set up to ensure the safety of violent students who had very volatile natures and who were to receive the best education that could be given to them with a safety plan built into their day.

What this policy doesn't properly address, in my humble opinion, is the safety of other students. These said students are simmering unpredictable and explosive ---

THE CHAIRMAN: Okay, do you want me to shut down the mic?

MS. LESTER: --- and this is how I see the nuclear industry simmering, unpredictable and explosive

and this is how I see the nuclear ---

THE CHAIRMAN: Could you please cut the mic please?

MS. LESTER: --- (off mic).

THE CHAIRMAN: Thank you.

Anybody has a particular burning question here? Thank you very much.

I'd like to move to the next submission which is an oral presentation by Dr. Goldin Rosenberg, as outlined in CMD 13-H2.93.

Please proceed.

13-H2.93

Oral presentation by

Dorothy Goldin Rosenberg

DR. ROSENBERG: There we go, thank you. Well, greetings Commissioners of the Canadian Nuclear Safety Commission, greetings once again. I have been before you a number of times and here we go.

So I am Dorothy Goldin Rosenberg and I teach about environmental and ecosystem health to graduate students at the Ontario Institute for Studies in Education at the U. of T. and my presentation is on behalf of the Women's Healthy Environments Network, of which I am the

volunteer education coordinator.

We promote a safe, clean environment in the use of the precautionary principle with regard to contaminants causing harm to our health and the ecosystem on which we depend. And the reason I am doing this is because I believe and WHEN believes that individuals can make the difference when they take action for prevention in their homes and communities, but that there is also an important role for our governments and their agencies in protecting human health and the environment.

And once again, I am coming to you with my knowledge and understanding about health and safety impacts relating to nuclear reactors in Ontario. And this time, along with many other interventions, I am here because I am deeply concerned, in this case, by the Ontario Power Generation's proposal to continue to operate the ageing Pickering reactors beyond their design life.

As such, I believe it's imperative that the CNSC deny OPG's request for a five-year licence renewal for the many reasons that I'll note below.

My concerns peaked when I read the statement, the 2012 Ontario Energy Board stating that the Pickering A and B plants have among -- have amongst the worst -- and on some measures the worst operating measures among nuclear generating stations worldwide, that really

frightened me.

And as again, I say to you, that I am not paid to be here as many of you in this room are. I come here as a volunteer at a great expense in terms of time to myself and to my work and I come here because of my and WHEN's deep concerns for the present and future of all life on earth, today, in particular, relating to the above-mentioned request.

As an environmental health researcher, educator and film producer, I am aware that we have many more scientific evidence studies and so on and growing numbers of diseases and conditions related to the preventable exposures of toxic materials, such as and including ionizing radiation.

And as I have said to you many times in previous deputations, CANDU reactors routinely release ionizing radiation in the form of tritium and you know that it's a known human carcinogen according to the International Agency for Research on Cancer, IARC, of the World Health Organization. And IARC lists a number of radionuclides as proven causes of cancer, including those produced from mining, milling, manufacturing and the use of uranium fission in nuclear power plants.

And it's now known that there is no safe dose of radiation and even the smallest dose can cause

cancer and other health effects, and this is from the Biological Effects of Ionizing Radiation 7, BEIR 7, National Academy of Sciences 2005.

I provided this evidence to you in several previous sessions. So I won't go into great detail about it, but it's really an important consideration which needs to be attended to.

We know that ionizing radiation is routinely discharged into water and air from reactors and it directly affects all life, but in particular women and the developing foetus and young girls' breasts in puberty.

With all the commentary relating to Pickering continuum, there's little about these health impacts specifically, while billions of dollars are being designated to a radioactive carcinogenic, mutagenic and teratogenic technology rather than a sustainable energy plan, one which will not deny our children and theirs the safer conservation efficiencies renewable energy that we know so much about and which they deserve.

And I'll just add a comment here that I have been freezing in here all morning because it's so cold and the air conditioning is an example of a waste of energy.

Since the Fukushima nuclear disaster in Japan, many countries are already embracing these

policies. However, we're way behind in Ontario, still pouring billions of dollars into the radiation-related nuclear path.

I teach about environmental and ecosystem health and I am currently teaching my course. Last night, we had an incredible presentation from José Etcheverry. He teaches at the Faculty of Environmental Studies at York University. He did an amazing presentation on how renewable energy is growing all over the world and how we are lagging far behind because the billions of dollars that are going into nuclear should be actually going into energy efficiency and conservation.

So with regard to safe alternatives, it's very disturbing and disappointing that, during this review, there hasn't been an adequate public assessment of the need for or actual alternatives to the Pickering continuum to justify such a project.

In critical pedagogy in education, we ask what's missing? This is a point. It's now well known that the safe energy technologies are evolving quickly and are already more cost effective than prolonging the existence of ageing plants. Therefore, is it not prudent to promote more of such sustainable options?

So the concerns about this have been evidenced with many, many deputations and I won't go into

detail, but in addition to the likes of the Clean Air Alliance and others, Dr. David McKeown, the Medical Officer of Health, he has sent several letters to the then Premier Dalton McGuinty regarding the Ontario Power Authority supply mix.

And in his -- even back to the 2006 report, he called for a sustainable energy strategy for the province composed of a combination of measures in the following order of priority: demand management, energy efficiency and conservation approaches, and supply from low-impact ecological sustainable renewable sources rather than by nuclear -- rather than by nuclear energy.

And as I have noted, I have a long history. I won't even go into it, but with the ACES report, the Advisory Council on Environmental Standards, in 1994, they called for that reduction and we pointed out that, at that time, the disregard for public opinion can only serve to dissuade citizens' participation in such important processes, which was hoped it would not be the case in this instant.

The recent decision on the previous Darlington hearings have not been reassuring that serious well-researched deputations challenging Ontario's electricity policy are being regarded.

Sorry, just let me see what I have to do

here.

I wanted to talk about our Toronto Cancer Prevention Coalition and we were very involved in bringing the whole notion of tritium to Ontario Drinking Water Advisory Council, through our work with Toronto Public Health and the Medical Officer of Health and the letter that went to the then Minister of the Environment, Laura Broten, to bring the issue of tritium to the Ontario Drinking Water Advisory Council.

The working group, our Toronto Cancer Prevention group, exemplifies the knowledge and persistent concern of well-informed and engaged citizens on the subject at hand, the radioactive carcinogen tritium in the drinking water. And we want confirmation from the provincial government that it accepts the Ontario Drinking Water Advisory Council recommendations to reduce the amount of tritium into the drinking water, and the group continues to be very concerned -- also the Medical Officer of Health -- concerned that this issue of tritium is a major health concern.

The nuclear industry has told the Ontario Drinking Water Advisory Council they already comply with lower standards. So why is there a delay in changing it?

Despite all of our letters and so on, and I have a whole list of the letters that our Toronto Cancer

Prevention Coalition has sent to the various ministers, there has been no change in the standards. Why have the standards not been changed?

Can it be that there are pressures building for exempting new expanded facilities from requiring to meet current best practices or excusing Pickering, the older ones, from having to go to best practices?

In previous deputations, you have heard many calling for a phase out and decommissioning of nuclear reactors and the allocation of the billions slated for nuclear refurbishment and building new ones to the healthier options.

And several deputations called for zero discharge of radionuclides into the drinking water in five years, based on the precautionary principle of requiring proof of safety beforehand.

Recommended at the time was that if it cannot be achieved, the existing reactor should be phased out and decommissioned and no new ones built. And Dr. Vakil's, I think, presentation this morning had a lot of very valuable information.

I'm just wondering if the Panel here is familiar with the recommendations from the European Union report "*Late Lessons from Early Warnings*", the report that was just put out in 2013? Science precaution and

innovation and the title of this section is "*Eighteen Late Lessons from Chernobyl - Early Warnings from Fukushima*".

And I'd like to know if any of you have read that report with its recommendations.

Let me just see where I am here with my -- I'm looking at just a few things more.

I won't elaborate on any of the accident recommendations and details because you have heard a major report from the Canadian Environmental Law Association which went into great detail about these problems but I wanted to mention that it is well known that major nuclear accidents are happening in approximately every decade and it could happen here undoubtedly.

At an IAEA -- International Atomic Energy Agency regulators conference in Ottawa, in April 2013, Mr. Homa of the Japan Atomic Energy Agency stated in a conference panel on emergency management that the most important lesson of Fukushima was that, before the accident, there was an implicit assumption that such a severe accident could not happen and thus insufficient attention was paid to such an accident by authority.

What are the guarantees that a nuclear disaster will not happen here?

And, of course, there is not even a mention of the routine radioactive emissions in the so-called

"normal operations".

So just to move on, I won't discuss waste because I have them -- I've put it in my written brief so you can read that but a good example of what could and should be done is that of Quebec, where the government recently directed Hydro-Quebec to develop an accelerated decommissioning plan for the Gentilly-2 reactor.

To date alas OPG, however, has developed no such plan. Therefore, CNSC should direct OPG to develop an accelerated decommissioning plan for the Pickering reactors which should be made public for public consultation by the end of 2014.

You heard Dr. Gordon Edwards' major presentation. I would just say that I'm from Montreal myself, and so I know the Quebec situation quite well and that the CEO of Hydro-Quebec said that he was very concerned about the 210,000-hour design limitation and he said, very clearly ---

THE CHAIRMAN: Please do not repeat this. We already heard it.

I do not know if you had a chance ---

MS. GOLDIN: Okay.

THE CHAIRMAN: --- to actually observe.

MS. GOLDIN: Okay. Well, what I ---

THE CHAIRMAN: All of those issues ---

MS. GOLDIN: What I will do ---

THE CHAIRMAN: --- were discussed at length.

MS. GOLDIN: --- I will ask ---

THE CHAIRMAN: Can you ---

MS. GOLDIN: --- the question ---

THE CHAIRMAN: --- finalize your ---

MS. GOLDIN: Yeah, I will just ask the questions about what are you folks going to do?

What is the CNSC going to do after all the things that you've heard from all of us and from so many people and, you know, you've asked people, you asked that gentleman to leave because he was being very critical.

Carrie here was carrying on maybe too long but she was also asking critical questions.

I read some of the deputations. I am a founding member of the CCNR with Gordon Edwards in Montreal; 35/40 years ago. We've been at this stuff for a long time. So our concerns are real.

You have basic information here. What are you going to do?

Are you going to continue as usual with no changes? Are you going to have the fortitude, as Gordon Edwards asks, to do something different and put public safety second to administrative expedience?

So in closing, I just want to say that we hope that you will act accordingly.

I thank you for attention and I look forward to your decision which I hope will reflect responsibility to the safety and health of all life in the eco-system of the Pickering reactors in particular to future generation and that includes your grandchildren and mine and millions more in this beautiful land.

Thank you.

THE CHAIRMAN: Thank you.

(APPLAUSE/APPLAUDISSEMENTS)

THE CHAIRMAN: Okay. Question?

Anybody? Question?

Okay, I just think that, one more time, I think one more time, I don't know if you were here for the tritium discussion about, first of all, there are no safe level of radiation.

Can we hear one more time the discussion that already I think we done twice. And it's made reference to you on, in your page, there's no page number. On your health section you quote the BIER VII, the biological effect, et cetera.

I'd like staff to comment on that.

DR. THOMPSON: Patsy Thompson, for the record.

Before I let Dr. Demeter speak to it, I'd just like to reiterate that the staff does take into consideration all the scientific literature that is published on a regular basis including major reviews like the BIER VII and other reviews.

So we are well aware of the report. We are well aware of the science. And the science had very low doses of radiation is not clear. There is evidence for adaptive responses and other types of responses but the CNSC, like other nuclear regulators, does use the linear/no threshold relationship as a conservative, prudent radiation protection tool.

That's the reason why we insist on licensees having ALARA programmes and this results in very little doses to both workers and members of the public.

MS. GOLDIN: Can I just ask ---

THE CHAIRMAN: Just ---

MS. GOLDIN: --- you to respond to my question?

THE CHAIRMAN: just, can you -- no, can you just wait a second?

MS. GOLDIN: Oh, I'm sorry.

THE CHAIRMAN: Dr. Demeter.

MS. GOLDIN: Oh, I thought she was finished.

DR. DEMETER: Dr. Demeter, for the -- Dr. Demeter, for the record.

I think risks has to be put into perspective. The dose, the incremental increase dose from the tritium is calculated at .9 to 4.2 microsieverts.

Understanding that living on this earth from the sky and the ground you get between 1 and 3 millisieverts per year just from natural background radiation -- and that's an order of magnitude of 1,000 times more than the dose from the tritium.

If there is a risk from the tritium, based on the BIER VII conservative estimates, if you calculate that risk back down to these microsievert levels, you're down to about 1 in 10 million additional lifetime risk of cancer.

So can I say that that's zero? That's pretty darn close to zero from a reasonable pragmatic point of view based on what we, what we're exposed to just from our day-to-day living on this earth.

You know just to put this in perspective. I live in Winnipeg. And Winnipeg, if you look at radon doses across Canada, has the highest rate of radon doses because of the natural background. My kid spends a lot of time in the basement. We've measured the radon. It's at the level but I take precautionary measures in reducing

it, not because I think he's at any significant increase risk but because I think it's prudent.

I think the levels of tritium in the water here are at such a low level they're approaching sometimes the background level of tritium which is in water just based on interaction of cosmic rays in the sky which cause natural tritium.

So from a BIER VII point of view, the risks conservatively are as close to zero as you can get.

Thank you.

THE CHAIRMAN: Over to you.

MS. GOLDIN: So I would say that this is an example of your scientist versus my scientist and we've been hearing these arguments way back.

I want to ask these people are they taking into consideration the developing fetus, growing children, young girls breasts in development at puberty?

Those are the kinds of vulnerable stages in life where the tiniest amounts of radiation and chemicals can cause havoc not only on that child themselves but on future generations.

So these are really important questions you ask. It's not just a general population. But it's your scientist versus my scientist and you know that there are major discrepancies in people's evaluations.

I want to ask, in particular, 'cause I asked the question: Have any of you read that report from the European Union "*Late Lessons from Early Warnings. Eighteen Late Lessons from Chernobyl - Early Warnings from Fukushima*"?

THE CHAIRMAN: Staff?

MS. GOLDIN: Have any of you read that?

THE CHAIRMAN: Okay, let somebody answer.
Staff?

MR. JAMMAL: Ramzi Jammal, for the record.

Yes, a section pertaining to the intervenor has been reviewed.

Actually, I, myself read it as part of the conclusions recommendations. It's a very well-written report. As a matter of fact, a lot of the conclusions is being implemented by the CNSC from International Co-operation or Regulatory Effectiveness.

With respect to put the emphasis on mitigation and the -- as everybody is aware, the Commission has never accepted from staff a probabilistic assessment and so on and so forth but the President, what he calls a "doomsday scenario", to be taken into consideration.

So the CNSC regulatory philosophy and policy and oversight is based on prevention and

mitigation.

So we accept the fact that an accident is going to happen and that's why in our Action plan, the CNSC Action Plan that was endorsed by the Commission, has required action items to be implemented in facilities recognizing that an accident is going to happen and there will be mitigation to respond to the accident.

So, overall, the conclusion makes a lot of sense and the conclusions are being implemented as we speak and the CNSC, as a regulatory body first in the world, is far ahead of any other regulatory body.

THE CHAIRMAN: Okay.

Anybody? Any other questions?

Okay, you've got final words.

DR. GOLDIN-ROSENBERG: Yeah, I just want to say that we really need to take this very seriously. I have spent decades of my life working on environmental health issues and primary prevention using the precautionary principal.

Even if we don't have 100 percent proof of safety, we need to take precautions based on weight of evidence, based on ways of looking at things in a way that: Why take the chance?

So I would only, say in conclusion: Stop that Pickering continuation. Close it down in 2014, the

way it was supposed to be, and let's have some safety in our drinking water and in our air.

I live in Toronto, I know that it's far away, but it's certainly within the realm of distance should there be a major accident.

THE CHAIRMAN: Thank you.

DR. GOLDIN-ROSENBERG: Thank you very much.

THE CHAIRMAN: Thank you.

Okay, Marc?

MR. LEBLANC: Yes. This concludes the oral presentations for this hearing.

There were 5 persons or organizations that have asked to make oral presentations, but were not able to present so we will consider their oral presentation -- or their submission as written submissions only.

And I will go through a list -- but there's 5 of them -- with the Commission members. I recognize that it's a bit everywhere in your material, so I'll give you the chance to retrieve them one by one.

The first one, is one that was to be presented about two-thirds of the day on May 29. It's from Just One World.

THE CHAIRMAN: Why don't you work it backwards?

MR. LEBLANC: From the closest today?

THE CHAIRMAN: Yeah?

MR. LEBLANC: I can do it. I'll do it backward.

THE CHAIRMAN: Yes.

MR. LEBLANC: So why don't we start with someone for today? Good idea.

So we will then start with the presentation by Mrs. Brenda Cross or submission which can be found at CMD-13-H2.111, which was scheduled for today.

13-H2.111

Written submission by

Brenda Cross

MR. LEBLANC: So any questions from the members?

Dr. McDill.

MEMBER MCDILL: Thank you.

In this intervenor's submission, towards the end, there is a specific question referring to *Nuclear Liability and Declarability Act* and the recovery of assets.

So I thought I would direct to staff and perhaps to OPG the question: How does the Nuclear Liability Act work?

Where is the state of the Act going through Parliament?

And after the current \$75 million is consumed, what then?

Thank you.

This also refers to a question raised by one of the intervenors who spoke just a few moments ago.

DR. RZENTKOWSKI: I understand a representative from NRCan is on the line and is prepared to respond to this question.

THE CHAIRMAN: Can you hear us, NRCan? Anybody from NRCan? I guess not.

MEMBER MCDILL: Maybe we could have the question -- we are coming back after lunch -- so we could ask ---

DR. RZENTKOWSKI: Maybe we can start from OPG until we resolve this problem. In the meantime and Mr. Jacques Henault should be present on the line.

(SHORT PAUSE/COURTE PAUSE)

THE CHAIRMAN: OPG?

(SHORT PAUSE/COURTE PAUSE)

MS. SWAMI: Laurie Swami, for the record. Perhaps you could repeat the question for me, as I was shuffling through to get up here.

MEMBER MCDILL: Thank you.

In brief, the *Nuclear Liability Act*, when the amount is exceeded, where does OPG fit in?

Where does the Federal Government fit in?

And I did ask for the state of the current -- I think the Act is in Parliament again -- but we can let NRCan answer that question.

MS. SWAMI: Laurie Swami, for the record.

The current level of nuclear liability is \$75 million. We are ultimately accountable for the events and the Act provides provisions so that individuals can apply immediately for financial relief through the Act. That is assured.

Should that amount be exceeded, the Federal Government would step in to support any additional liability that is required to be paid.

MEMBER MCDILL: Mr. Jammal?

MR. JAMMAL: Ramzi Jammal, for the record.

Just to add, as you mentioned, Dr. McDill, the *Nuclear Liability Act* is under review. It's a policy decision by the Government of Canada and drafts are in place, and it's being tabled in Parliament.

I don't have the exact -- I know the number -- I don't have the exact details with respect to the process itself, but all I know, it's been tabled in Parliament, and it's undergoing review.

So we'll -- if you give us a few minutes, we'll get the precision from Ottawa.

Can we ask then Clare Cattrysse from Ottawa to expand if there is anything else to be added?

MS. CATTRYSSE: Hello, this is Clare Cattrysse from the Canadian Nuclear Safety Commission.

I'm the Director of the Policy Aboriginal International Relations Division.

Just with respect to the Act, we are trying to get NRCan on the phone but I can clarify.

Natural Resources Canada actually did table on four different times the *Nuclear Liability and Compensation Act* to replace the *Nuclear Liability Act* but due to prorogation within the government, it did not make it through.

So it has not been tabled yet, there is -- I just want to clarify that there are plans to try and re-table the Act, but that is not something that we can speak to. This is not what the CNSC does with NRCan.

But if it is tabled in the near-term future, there are plans to increase the liability numbers.

Thank you.

THE CHAIRMAN: Okay.

Anybody else?

Ms. Velshi?

MEMBER VELSHI: I have a question that I'll start with staff and then move to OPG.

Over the last few days, we've heard from a number of intervenors that 2020 may not be the last date of operation for these Pickering reactor units; that OPG may indeed come in front of us and ask for an additional extension, as this particular intervenor is alluding in the fourth-last paragraph.

And so -- as I said -- I'll start off with staff first. And I think it was Greenpeace, yesterday, said that there rumours that these units may just run during peak electricity demand times so that you haven't exhausted your -- whatever the revised fuel channel life estimate is.

Is that a possibility?

And if OPG can demonstrate fitness for service and demonstrate that the safety case is still robust, is there a possibility of post-2020?

DR. RZENTKOWSKI: Greg Rzentkowski, for the record.

If the safety can be demonstrated beyond any doubt -- so that means the fitness for service will be demonstrated and the data will be presented to us which will allow to extrapolate the safety case -- let's say towards maybe 2022 -- and all the regulatory requirements

will be met, there is no reason why we wouldn't issue a licence.

MEMBER VELSHI: Thank you.

OPG, do you want to add anything?

MR. JAGER: Glenn Jager, for the record.

The 2020 date is a date that was set by the Board of Directors of OPG. It is our business plan to operate to 2020 and, accordingly, all our business plans are positioned in that way, including the technical analysis and the Continued Operations Plan and the Sustainable Operations Plan.

So, right now, that is our business plan. It is to run to 2020.

As part of that operation, there are units which we would load manage in order to extend their operation out, from a calendar stand point, to 2020.

The degree to which we would have to load manage those units depends, of course, on force loss rate, outage duration and the planned outage duration and so-forth.

So bottom line here, our business plan is set for -- to cease commercial operation at 2020, at which point, we move into the Stabilization Plan and that is the direction that we've received from the Board of Directors.

MR. JAMMAL: Mr. President, if my -- Dr.

Velshi if you'll allow me please. My colleague made a statement, staff do not issue the license. It's Ramzi Jammal, for the record.

We make recommendation to the Commission and you render the final decision with respect to -- the changes in the safety case is a change in the licensing basis hence it requires the Commission approval.

All we -- will do, evaluate, ensure safety, that there is unequivocally adequate safety and we'll make recommendations to the Commission.

MEMBER VELSHI: Thank you and all I say to OPG is that's what your current business plan is. Just as a former business plan had the Pickering A units running only up to 2014. So it could change.

MR. JAGER: Glenn Jager, for the record.

I can't speak for the Board of Directors but that is our business plan. And again that is what we as a company have done, all the analysis positioned, all our investment and positioned the technical supporting analyses for -- is to cease commercial operations in 2020.

I guess what -- you know, in summary what -- what the message is, it was a business decision undertaken by the Board of Directors and then as a company it's -- as an operator we have to ensure that we operate the plant safely and that is what we have done.

We've put together a Continued Operations Plan and a Sustainable Operations Plan to safely operate those units right out through to 2020.

THE CHAIRMAN: But -- but just so we're absolutely clear, the business plan is a business plan but the safety plan is independent of the business plan?

The safety plan, if I understand correctly, and you better explain because you're now in the position that Quebec were, in other words, all the planning and all the safety et cetera, is now taking into account that you -- that the decision has been made to shut it down by 2020.

And if -- the hypothetical question, if you want to go beyond to 2025, I think we're now talking about refurbishment. So I just want to make sure that we do not make a business decision with a safety decision.

Did I get it right?

MR. JAMMAL: It's Ramzi Jammal, for the record.

Yes, you got it right, Mr. President. Its business plan is -- it's the plan of -- I'm going to call them -- OPG. Our business and only plan is safety case and maintaining safety at all times.

It doesn't matter if it's, again, Day zero which is the end of 2020, whatever request for an

operation, the safety case must be valid, must be proven, in order for the staff to provide recommendation to the Commission.

So the business plan is their business plan. Our plan is safety at every licensed activity. It doesn't matter if it's safe storage or in operation, it must be safe at all times.

THE CHAIRMAN: OPG?

MR. JAGER: Glenn Jager, for the record.

That's absolutely correct. The safety case and the technical analysis is independent of the -- of the business plan, if you will.

The business plan basically provides direction. If we were -- we would not develop a safety case that takes us beyond that unless the business plan directed us to do that.

The safety case that we develop and supports operation to 2020, is strictly a technical analysis and demonstrates that it's safe to operate right through to 2020 for all the units that are -- to do so.

I can ask Mr. Mark Elliott, our Chief Nuclear Engineer to talk about the -- the details of the plan and how that's developed and basically how it takes us out to 2020, the framework.

THE CHAIRMAN: I think I'd like to reserve

this for the last round because we wanted -- we wanted to do the written material and break for -- and maybe we'll come back after lunch on this.

Okay, so Mark?

MR. LEBLANC: The next written submission is CMD 13-H2.131 from Zach Ruiter that was scheduled late yesterday.

13-H2.31

**Written Submission from
Zach Ruiter**

(SHORT PAUSE/COURTE PAUSE)

MR. LEBLANC: So Members, any questions on this intervention?

(NO RESPONSE/AUCUNE RÉPONSE)

MR. LEBLANC: So the next submission is the submission from Kelly Clune, 13-H2.69. That was also yesterday.

13-H2.69

**Written Submission from
Kelly Clune**

MR. LEBLANC: Any questions from the

Members on this submission?

THE CHAIRMAN: No.

MR. LEBLANC: The next submission is from Randi Luster 13-H2.53. That was early yesterday.

13-H2.53

**Written Submission from
Randi Luster**

(SHORT PAUSE/COURTE PAUSE)

MR. LEBLANC: Sorry; this is on Wednesday night -- was the third-last presentation as scheduled on Wednesday.

THE CHAIRMAN: Okay, let's start -- let's start again with the number?

MR. LEBLANC: Fifty-three (53).

MR. JAMMAL: Mr. President, I'd like to give an update since you're looking for -- I believe NRCan is on the line now, available to give an update on the NLA.

THE CHAIRMAN: Okay, let's -- let's just finish 53.

MR. LEBLANC: So any questions on this intervention?

THE CHAIRMAN: No, no.

MR. LEBLANC: Okay.

So the last written was one that was scheduled also on the May 29th evening. It was from Just One World H2.41. Which was just before dinner, so that would be at the two-thirds of your binder.

13-H2.41

**Written Submission from
Just One World**

MR. LEBLANC: Any questions from the members?

THE CHAIRMAN: Just one question. The intervenor is talking about relationship with the U.S. at the border, for example, the Fermi plant, et cetera.

What kind of relationship we have with the Americans about exchanging information?

DR. RZENTKOWSKI: In general, we have a very close relationship with U.S. NRC.

For example, personally I have bilateral meetings twice a year to exchange information particularly on operating experience.

In relation to environmental protection and releases, I will ask Dr. Patsy Thompson to provide this information.

DR. THOMPSON: Patsy Thompson, for the record.

Essentially in terms of any releases to the Great Lakes, there is a notification protocol in place. And we have been -- the process is to go through the -- Environment Canada is our point of entry for information.

And so there is a notification from the U.S. Environmental Agency to Environment Canada and then we're notified.

If there's a national emergency or a major spill, then there's an emergency notification between the two countries that are in place.

We have provided information, for example, to the International Joint Commission in terms of discharges from nuclear facilities and issues such as fish entrainment and impingement, the issues that were of interest to the IJC. But in terms of routine operations, we're involved if there's some kind of event that requires notification.

THE CHAIRMAN: Thank you.

Anybody else? Thank you.

We have NRCan on, please. So NRCan, can you -- a question was posed about the state of affairs for nuclear liability.

Can you bring us up to speed on this?

MR. McCAULEY: Certainly. Dave McCauley from NRCan, for the record.

The government has made a commitment to update the existing legislation, the *Nuclear Liability Act*, to bring it up to international standards.

It has -- previously there have been four versions of a bill to do this that were brought before Parliament, but unfortunately they did not succeed due to prorogation, et cetera. But the government has indicated its commitment to bring forward new legislation.

THE CHAIRMAN: And the question also was asked that if an accident happened tomorrow, what happens beyond the 75 million?

MR. McCAULEY: Well, the absolute limit is \$75 million dollars. At that time, the government would have to make a decision as to whether additional funds would be committed or it would have to make a decision based on the case that is presented to it. But the limit of liability today is \$75 million.

MEMBER McDILL: That's the limit on the operator though, at the moment?

MR. McCAULEY: The legislation does not provide any other liability beyond the \$75 million, the current legislation.

What would have to happen would be that the

government would consider the situation at the time of the incident and it would make a decision as to whether Parliament was going to appropriate additional funds or other arrangements might be made.

So unless Parliament decides otherwise, the limit is \$75 million in the current legislation.

THE CHAIRMAN: Okay. Thank you.

MR. McCAULEY: You're welcome.

THE CHAIRMAN: We will now break for lunch and come back at 1:30. Thank you.

--- Upon recessing at 12:41 p.m./

L'audience est suspendue à 12h41

--- Upon resuming at 1:31 p.m./

L'audience est reprise à 13h31

MR. LEBLANC: If you may take your seats, we're going to resume.

So this afternoon will be focussed on two elements. First, I am going to read into the record requests for rulings that the Commission has received pursuant to Section -- well, Rule 20 of the CNSC Rules of Procedure.

And obviously the rules also provide that the Applicant, in this case OPG, and in some instances

other interested persons, perhaps the staff if something is for the staff to do, time to consider and to provide their responses.

So those responses need not be given today if you don't have a response today. And we will communicate with you to determine timeframe to receive those responses in writing.

So the first request is from CELA. I'm reading them into the record. Those could have been made orally today pursuant to Rule 3 of the Rules of Procedure.

In the interest of fairness and expeditiousness, I will be reading them into the record to make sure that we don't just restart going through some of those elements. And then you can always focus on these in your responses later.

So CELA, the first request is from -- it's a giant request from CELA, Greenpeace, Durham Nuclear Awareness, Northwatch and CCNB Action have requested under Section 23 or Rule 23 of the CNSC's Rule of Procedures a particular request.

Their request is that:

"OPG not be granted permission to operate beyond its design life without an additional public hearing once all of the missing data from the safety

case can be made public."

And they have summarized the reasons as follows:

"Pickering is one of the oldest nuclear stations in the world and is proximate to the major population centres of Pickering, Durham Region, as well as the City of Toronto. OPG has failed to provide a complete safety case to these hearings on the Pickering B reactor's ability to operate beyond their design life, which has resulted in a request for delegation to staff. OPG's most recent probabilistic risk assessment for the Pickering B reactors shows large radiation release potential as the Pickering B reactor approaches the traditional limits for reasonable risk. This site here under the *Canadian Nuclear and Safety Control Act...*"

I think it wanted to refer to the *Nuclear Safety and Control Act*.

"...if risk contributors omitted from

the Pickering B risk review are included, the station exceeds regulatory limits. OPG has not provided a probabilistic risk review for the two Pickering A reactors to this hearing. Nuclear emergency plans are clearly inadequate, putting people at risk and that under the NSCA the Commission, not staff, are ultimately responsible for preventing unreasonable risk to Canadian Society. It is thus inappropriate for the Commission to delegate its responsibility for protecting Canadians to CNSC staff, given the known risk of the station and the clear lack of information related to the station's ability to operate beyond its design life."

So this was the ruling request made by this group.

The second request comes from CCNB Action -- oh, sorry that's not the right one.

And the same -- the request is made under Section 20 or Rule 20 pursuant to the Rules of Procedure.

Mr. Chris Rouse on behalf of CCNB wanted to make these presentations orally.

Again, for the reason I mentioned earlier, for the interest of expeditiousness and fairness, we'll just read them into the record:

"We request a ruling that Pickering not be able to operate beyond its design life without the installation of a passive emergency filtered vent in addition to its current venting capabilities."

Also request a ruling that:

"Between the time that the draft Licence Condition Handbook has been presented to the Commission in the staff CMDs and when the licence is granted, that no changes to the draft Licence Condition Handbook be made unless it is noted in the Commission's Reasons for Decision.

Also request a ruling that the wind-large release frequency be considered the same as the wind-core damage frequency, unless OPG can prove otherwise.

Further request a ruling that the same or a revised wind-large release frequency be added to the large release frequency, so that the Commission can see if OPG's regulatory large release frequency limit is met."

The Commission will consider those requests for ruling as part of its deliberation on the hearing as a whole and will render its decision in due time after due consideration.

Thank you, Mr. President.

THE CHAIRMAN: Okay, most of those issues have been raised -- have been discussed extensively here. Nevertheless, I wonder if OPG want to make a quick comment on those requests.

MR. JAGER: Glenn Jager, for the record.

I want to ask Carlton Mathias, our legal counsel, to comment on those rulings.

MR. MATHIAS: Good afternoon. For the record, my name is Carlton Mathias. I'm in-house legal counsel at Ontario Power Generation.

The rulings requested by Greenpeace yesterday and the one referenced by Mr. Leblanc just now by CELA, from the -- and a number of additional intervenors are essentially the same, as we understand it,

as part of Greenpeace's written submission dated April 30th, 2013.

At the conclusion of Section 8 of the Greenpeace submission -- and, unfortunately, their submission does not have page numbers -- Greenpeace requested that the Commission should require CNSC staff to publish a site-level risk assessment for both the Pickering A and B reactors by the end of 2013, if it renews the licence for the Pickering NGS.

And then they repeat this at the Conclusion at Section 11 of their submission.

With respect to this submission -- this request for a ruling and the one from CELA referenced a few minutes ago, OPG's position and it submits to the Commission today that it should be considered as part of the intervenor's overall written submissions and oral presentations and not as a discrete matter that requires any interim determination or additional information or submissions.

OPG submits that the Commission should weigh all of the evidence and the submissions it has heard from the participants in the proceeding and that any determination on this ruling request may form part of the Commission's decision on OPG's Application.

To briefly summarize, as you've heard in

this proceeding, OPG has met all the conditions and timelines specified by the CNSC and required by our licence.

OPG has completed the Pickering Units 5 to 8 PRA in accordance with the methodology accepted by the CNSC and regulatory document S-294.

The Units 1 to 4 updated PRA, using accepted methodology, is underway and is committed to be completed by the end of 2014 and is required in our licence.

We therefore submit that the licence conditions are sufficient and no additional conditions are required.

So that's with respect to the Request for Ruling by Greenpeace and CELA.

If the Commission is inclined to receive additional submissions or information on those two rulings, OPG would request, given the late notice for the Ruling Request, that we be provided seven days or seven business days to provide written submissions. But that would be an alternate submission to you.

The first is that you have all the material in the application materials before you already. If you feel you require additional information, we could provide that within seven business days.

With respect to the additional Request for Ruling, OPG has not received notice of that until we just heard it now, and that's the CCNB action -- several Requests for Ruling.

For those requests, we would need at least seven business days to be able to prepare written submissions in response to those rulings. If time permits, I suggest that 14 business days would probably be more appropriate.

THE CHAIRMAN: Okay. Thank you.

I think that we would like to leave this as such and maybe start our next round -- or the round.

I don't know if staff, if you want to comment on the only matter that's really directly deal with you and that's the licensing -- the LCH.

Do you want to talk about that?

MR. JAMMAL: Ramzi Jammal, for the record.

Mr. President, the matter that pertains to us is -- I would like to touch on the safety case aspect because there is a misinformation being presented to the Commission that the safety case is incomplete.

As a matter of fact, I want to confirm to the Commission that the safety case pertaining to this Application has been assessed by staff and is a complete safety case. I want to reconfirm the fact that the safety

case presented to you is a complete safety case.

There is a confusion between what we had as the discussions about PSA and PRAs and the tools that are being used for continuous enhancement.

But I do not want to -- anybody to leave with the fact nor misinform the Commission on the fact that the safety case before you is valid; otherwise, staff would not recommend to you to issue a licence, and we would not authorize OPG to operate.

So the enhancement that's being -- periodic enhancement that we request all our licensees to put in place are periodic enhancements and as part of the continuous regulatory philosophy of the CNSC and regulatory oversight.

But again, the existing safety case is still valid and is robust.

With respect to the -- we will provide a written response on the large release frequency, especially on CCNB. Again, they are asking for information that there is no international consensus, and you asked the question: "Is there a right way to do it?"

And we have our expertise specialist that the international community, international regulators are still discussing what is required to be done with respect to the methodology and how it's being done.

So I've got to remind the Commission of this methodology is being developed and the international consensus on what is the best methodology or the values that is or are associated with this methodology.

So I want to conclude with the fact that the safety case before you, the safety case developed by staff in support of the Application is valid.

THE CHAIRMAN: Well, we are now going into the next round. That's why I want to have some questions about both the CMD submitted by staff and by OPG.

And we have some questions about it before we conclude this hearing and consider all the material and all the evidence that was provided to us.

MR. JAMMAL: Now, with respect to the LCH, sir, I ask to respond.

Again, I would like to reiterate the fact that, on the CMDs, the CMD itself is a document produced by staff; the licence is a proposed licence; the LCH associated with the licence is a staff guidance that clearly identifies the compliance verification requested of the licensee.

As I mentioned yesterday, the LCH and the licence are draft until the Commission renders its decision and we amend the LCH.

Again, the LCH itself is associated with

the licence and, as I stated, modifications to the LCH is reported to the Commission on an annual basis with respect to regulatory changes or regulatory enhancement associated with the LCH.

THE CHAIRMAN: Okay.

So I'd like to move on now to the last round of questions on OPG and staff.

And who wants to start?

Ms. Velshi, I thought you could start for us?

MEMBER VELSHI: So given the discussion around safety case and PRA and PSA, I thought I'd start off with that.

And as I look at staff CMD 13-H2.B on page 5, the top paragraph says:

"During the current licensing period, OPG was required to revise both Pickering A and B PSAs to align with S294."

And as we've heard, the Pickering B one has been submitted but staff need a year and a half or so to review it. So another year or so before we'll hear what the staff's final verdict is and the Pickering A is not due or not expected until the end of June 2014.

So a number of questions around that,

before I get into the specifics, is so this was a licensing requirement, I gather, that was not met.

So what are the consequences of that and is that putting the Commission in an awkward situation today where the required information that would have helped us assess the strength of this application is missing?

DR. RZENTKOWSKI: Greg Rzentkowski, for the record.

Before I answer the question, let me explain maybe what is a safety case because we are referring to safety case, but we never really define what it is.

The safety case, in general, is the design basis of a facility and supporting safety analysis. So this is what is described in the safety analysis report.

PSA is not a part of the safety analysis report. PSA is not a part of the safety case. PSA is a tool which allows to identify potential enhancements to the design basis of the plant; so that means potential enhancements to the safety case.

That's true that in case of Pickering A we didn't get the revision of PSA as requested. However, the previous PSA was completed in 2009 and now OPG was working on extending this PSA analysis to include external hazards.

In view of the lessons learned from Fukushima, the scope of this work has changed because we are reassessing the external hazard based on Fukushima actions and this external hazard has to be considered as the input to the PSA.

So there were many variables which affected the completion date for PSA for Pickering A, but I wanted to ensure the Commission that PSA for Pickering A exists.

However, it is not complete because, as I described yesterday, this is work in progress and OPG is still working developing methodologies for treatment of external hazards. That's in short.

And safety case is still valid because; how I explained PSA per se is not a part of the safety case. It's only a tool allowing to enhance the safety case.

MEMBER VELSHI: Right. So here is how Pickering in its -- or OPG in its submission describes what the PRA is:

"It provides an integrated view of the adequacy of the safety of the current station design and operation."

So critical piece of information, you'll agree; right? Whether it's your safety case or not, critical piece of information.

And as we looked at the table that I know

is in staff CMD and Greenpeace used the table that shows what the goals and the limits and the targets and what the large release frequency is, what has been presented to us is that the total risk for large release frequencies is very close to the goal. I think it was $.8E^{-5}$ compared to a goal of $1E^{-5}$. And that for flooding and high wind that assessment has not been done.

But then we heard from OPG that there is a whole lot of other mitigating measures that are not reflected in these numbers.

So, again, the question is when can we, as the Commission, get numbers that are meaningful to us that we can assess what the picture, the integrated view is of the adequacy of the safety of the current station design and operation?

DR. RZENTKOWSKI: In accordance with the Fukushima Action Plan, the assessment of external hazards should be completed by the end of 2013 and PSA by the end of 2014.

In view of those discussions, however, I do recognize that we have to accelerate this work and, as you probably recall, there's a hold point in the licence.

I think we have to bring this information together before we get to the hold point to make sure that the story is very consistent and it takes all factor into

account to define the safety case.

THE CHAIRMAN: I'd like a process question here. I want to understand how come that what was required under the licence was not delivered? And how come it was not monitored, inspected, and how come OPG did not deliver what the licence says? How about that?

And how come that was not told or raised up the line that they're not compliant with their requirement?

MR. RZENTKOWSKI: Yes, typically we use the Licence Condition Handbook to identify measures which are needed to transition to the new standard or to the new methodologies.

I will ask Mr. Miguel Santini to describe what happened in the case of PSA.

MR. SANTINI: Miguel Santini, for the record.

I think that we are confusing a little bit what is required within the current licence, what the licence application should consist of

In the licence, we required OPG to submit the PSA for Pickering A by the end of 2013. The timeline was prescribed in the LCH.

During conversation with AEC -- with OPG, and given that the condition was put in place prior to

Fukushima, OPG requested the completion of the PSA to be extended in order to allocate the resources to work on Fukushima-related tasks.

The three aspects that -- I am going to go Yolande Akl now to explain a bit more in detail what were the aspects that were postponed in the delivery of the PSA for Pickering A.

THE CHAIRMAN: While you are deliberating this, you have to understand from our perspective that you knew that the licence is coming up for renewal in June. You knew that we would like to know the PSA on Pickering A particularly because it's being the oldest kind of a thing.

So how could you allow that to allow for an extension before June licence renewal?

And by the way, and after that I'd like to hear from OPG that you knew about this particular date in June, that it's coming your way. I don't understand why you hold the files, including Fukushima, is not being spelled out to that particular moment so all the material, all the knowledge would be available in front of us right today.

So let me start with staff.

MR. SANTINI: Miguel Santini, for the record.

I will pass on again to the specialist afterwards but just a reminder that the PSA is -- it's a tool to find what improvements could be introduced in the plant design.

THE CHAIRMAN: Don't keep saying this. We understand that it's a tool, but it's a tool, a design that post-Fukushima what is required to do enhancement to an ageing plant.

We understand that.

MR. SANTINI: So it is a thing that is done periodically. It is a major endeavour. It's several person years of effort to do and that's why it's done in a cyclical way. And every time the cycle is complete ---

THE CHAIRMAN: We understand that again. It's done in a normal situation when you don't have -- you get to end of life situation. It's normal. It's cyclical. You got the manual and you know what to do.

We are talking about an unusual situation. When you get to the end of life, life extension, this is not normal.

MR. SANTINI: Okay.

MS. AKL: Good afternoon. Yolande Akl, for the record.

OPG will complete almost all the elements of the PSA by 2013 as per the licence. They ask for an

extension for three elements and they gave us a reason. We accepted this because the risk of these three elements from their initiating event is too low. And how did they know that? They knew that from the Pickering B and the Darlington PSA.

In their request, they showed us that. They say the results of the Darlington PSA and the Pickering B PSA show that the Level 1 internal event at shutdown and the Level 1 and 2 fire PSA, Level 1 and 2 internal flood, was very low.

And the second reason is for to put their effort into working onto Fukushima Action items.

So this was the reason for which CNSC staff accepted the extension.

THE CHAIRMAN: To OPG. What was done is done. What I want to know is can you -- before you get to the 210,000 hold points, can you produce all the material, all the studies, and all the information that is required before that particular date, if I hear this end of year of 2013.

MR. JAGER: Glenn Jager, for the record.

I'll ask Mark Elliott to comment on -- on our ability to meet that.

MR. ELLIOTT: Mark Elliott, for the record.

Just -- just to backing up, the -- the

request was made as, was discussed to -- to be able to do kind of a -- it was a risk-informed decision that we made. The lower risk items were the ones we asked to be deferred and had that deferred in writing, and that allowed us to carry on with what we thought was more significant work. For example, the analysis of containment on the Fukushima, so that we can come up with the right answer on containment-filtered venting, for example.

So it was that kind of basis that we -- on that kind of basis that we made the decision to request those three that were low risk to go into 2014.

And normally, we have a how before when that we -- we would get the people doing the work to map it all out and to be able to say, yes we can meet -- do this before the hold point.

Given -- given your request and given that we -- we have the rest of this year and -- and a little bit into next year, we'll do our best to make that -- get these three things done before the hold point.

THE CHAIRMAN: Thank you.

Ms. Velshi?

MEMBER VELSHI: That's fine.

THE CHAIRMAN: Dr. Barriault?

MEMBER BARRIAULT: Thank you, Mr. Chairman.

The question is quite simple really, it

deals with the issue of emergency management. And my understanding is that the licence requirements are such that OPG should be prepared to handle any emergency scenario. And post-Fukushima, obviously that involves as we discussed really, evacuations and whatnot.

Are you comfortable that this can be done ASAP prior to relicensing?

MR. JAGER: Glenn Jager, for the record.

Are you asking if -- if we have evacuation plans in place or ---

MEMBER BARRIAULT: That you have an evacuation plan and that you're satisfied that it will meet the requirements of a major disaster.

It's a difficult question, I know, because you're not the only player in this thing. But -- but my understanding is that it's the responsibility of the operator to make sure that that is done.

MR. JAGER: Glenn Jager, for the record.

We -- for all the information that we have available on accident sequences -- and I might ask Mark Elliott to talk about the -- the bounding limits of those -- those accident sequences -- we ensure that the necessary response and plans are in place and we work very closely with EMO and DMO -- DEMO to ensure that those plans are well integrated and we can respond within all

the timeframes as per our analyses.

So I'd first ask Mr. Elliott, Chief Nuclear Engineer, to talk about the bounding limits and how we set that and then finally Mr. Jim Coles to talk about the evacuation plans and the development of those plans within those -- within those limits.

MR. ELLIOTT: Mark Elliott, for the record, Chief Nuclear Engineer.

We've talked a lot this week about a Fukushima style accident, station blackout is what we call it, and that we've put a lot of effort into analyzing that and the earliest release of -- of significant radioactivity would be the 18 hours and we talked a lot about how we -- how we would use time to alert and -- and evacuate.

I do want to bring another issue up related to that is that that was a kind of a special process that we did after -- after Fukushima. For -- you know, in our licensing basis we have lesser events as well, and people -- some people remember that they're called single failures and dual failures.

The dual failure is -- is a category where you would have a -- a process failure like a loss of coolant accident and a safety system doesn't work. And part of our licensing basis is even in that -- that kind

of very unlikely situation, we -- the radiation that we would release would not hurt anyone. It's kind of the low end injurious dose, it's called.

So that's -- that's a dual failure. Now, when we -- in our licensing basis, some of those dual failures would actually require a release earlier than 18 hours and -- and so evacuation could be triggered by the province earlier than 18 hours. But it would be a limited evacuation confined to the zero to 3 kilometre zone, not a widespread, such a station blackout.

So I did want to bring that to the attention that we don't only focus on the -- the 18 hours, but these lesser events that could require evacuation.

I think you heard from EMO two days ago that -- that they don't really care about the time; when they get the word, they go into action. They see the results, they would start evacuating. So I think -- there's no doubt that they can handle what's -- what we're telling them in this licensing basis, but I wanted to bring -- bring that to your attention.

MEMBER BARRIAULT: Thank you. Thank you.

If I could ask CNSC, would you recommend licensing if all the parameters of emergency management were not in place?

DR. RZENTKOWSKI: The licensee has to be in

compliance with the licence conditions which describe -- which describe what needs to be put in place for an effective emergency response.

However there are also some other organizations involved in making sure that the emergency response plan is, in fact, effective and allows for a seamless transition from onsite emergency to offsite emergency. And that's where we have a problem because this particular aspect cannot be covered by the licence condition. We would like to see it happen ---

THE CHAIRMAN: Okay, let me stop again ---

DR. RZENTKOWSKI: Okay ---

THE CHAIRMAN: Because you heard CELA, a petty legal organization that says that's not true, that CNSC does have the authority.

Now, I don't want to get any legal debate here, but it was a presentation to us that we have the legal authority to -- on all players. Now, we also heard that one of the working group that's now dealing with putting a standard together will take a look at all of CELA, kind of set of recommendation, and try to design something that everybody will be happy with.

And I think this is the best outcome and I still would like to see, in August, the draft report and then if there's further things that's required to be done,

we can then react to that.

I don't know how does one translate what I just said in expectation into an LCH or in a licence condition and I think this is what Dr. Barriault is after.

MEMBER BARRIAULT: Exactly, yes.

MR. JAMMAL: It's Ramzi Jammal, for the record.

Dr. Barriault is asking a very pointed question. The answer is, if we were not satisfied that there is a plan in place, we will not be recommending to issue the licence and that's the key point here.

MEMBER BARRIAULT: Exactly.

MR. JAMMAL: In its record of decision Darlington, the Commission asked to establish the plan. As we heard during the presentation that there is a plan in place, does it require refinement? Potentially. It will be -- but there is a plan in place and that's the key element.

As we progress -- as the whole work progresses with respect to emergency management and the integration of emergency management at all levels, refinements will take place.

However, in addition to the refinement of the plan itself, exercises have been conducted at licensee sites. One of them was recently at Bruce Power, and then

there is planned exercises to be done in this area. But I will -- I will refer it to -- to my colleagues in the Emergency Management Division.

But again, we will never recommend to you the licence if the plan was deficient. So the plan does exist it is in place, and then the integration of the plan as you saw in the presentation has -- quite a bit improvement has taken place and that they -- they'll be tested, and it's going to be tested.

So I'll pass it on to Mr. Sigouin or Mr. Awad.

MR. SIGOUIN: Thank you, Ramzi. Luc Sigouin, for the record.

If we just back up, Dr. Barriault, to address all aspects of your question.

So OPG has extensive emergency plans to manage beyond design basis accidents onsite and -- that's right. And we've reviewed these plans and we've reviewed their performance during exercises and they meet our expectations. They're -- they're conforming.

We also heard from the joint presentation from EMO on -- on Day One, morning, that there is good integration between all the organizations so that they can make each other aware in a timely fashion.

The region and the province have nuclear-

specific plans in place that have evacuation-specific sub-plans that support them.

So the region and the province have evacuation plans in place for the 3-kilometre contiguous zone and for the 10-kilometre primary zone.

There have been traffic analysis that have been done -- one that was done by OPG -- that confirmed that an evacuation of the 10-kilometre zone of over 200,000 people could be completed within the times that we heard for some of the worst case accidents.

CNSC staff hired a contractor to do an independent peer review of OPG's study and that also confirmed that the timing was within the timing that we had heard.

So staff are of the opinion that Durham Emergency Management Office, the Province of Ontario's Emergency Management Organization are qualified. They're competent to undertake these -- these evacuations, if necessary. They have plans to do them.

I think, as Mr. Jammal has pointed out, there may be some refinements that are -- are required and I think what we've heard from a lot of intervenors is there's an issue of public awareness about how the plans are to be put into place.

But staff is satisfied that the plans are

there and that the authorities have the ability to execute them.

MEMBER BARRIAULT: You're satisfied the plans are there but are you satisfied that the evolution of the plan is up to scratch?

We've heard all kinds of -- potassium iodide pills, for example, are not available except at these four or five pharmacies.

We've heard, really, that in terms -- in terms of an evacuation, there'd be problems involved.

I guess it begs the question really that I'm not really comfortable with that "it's all in place".

I think the potential is there to have it all in place but I'm not sure that it is and I would like to get, I guess the -- the confirmation from the CNSC that they are sure that this would happen.

And I guess that's where I'm coming from and that's a bit of my anxiety, if I may say.

DR. RZENTKOWSKI: Greg Rzentkowski, for the record.

I would like to continue my response because what I was leading to is the seamless transition between onsite and offsite emergency response. This is really the last level of defense in depth.

In our responses, we are often referred to

defense in depth -- effective implementation of the defense in depth. And we are doing something about it because this is also an action under the Fukushima Action Plan; and that's where we are bringing all the players together, like this happened also yesterday here.

And I am very thankful that -- that all of them were present because this also allows us to advance this Fukushima action and bring it to closure.

I am quite confident that we will succeed but it's still work in progress. We made a huge progress but we are not there yet.

THE CHAIRMAN: Okay, thank you.

Monsieur Harvey?

There was a follow-up? Dr. McDill?

MEMBER MCDILL: Thank you.

My question or my comment is very much echoing the previous one.

It's clear to me there's a plan. It's clear to me that the -- the partner stakeholders believe in the plan. It's even clear to me, I think, that staff believe in the plan but the intervenors who've come before us are very engaged in the process and they -- as they are more engaged in the process and they have uncertainties, I can't imagine what the uncertainties would be like in the general public.

If the people who are -- are intervenors who are engaged have these concerns.

So my comment is just to echo what we just heard. There are many questions and there are many uncertainties in the people who live here.

THE CHAIRMAN: Mr. Rzentkowski?

DR. RZENTKOWSKI: Greg Rzentkowski, for the record.

And we understand this concern. The plan which has been put in place can be only verified through exercises and many exercises are planned including the integrated one which will be conducted in 2014.

I will ask Mr. Luc Sigouin to describe precisely what would be the scope of this exercise.

MR. JAMMAL: Just before we pass it to Luc, Dr. McDill, you're asking a very valid question and we share the concern of the Commission and that's why we will be coming to you on multiple updates.

We will be providing you with an update on Fukushima -- Fukushima Action Plan on a yearly basis and so is the NPP Annual Report because the Fukushima Action Plan and requirements is one of the emergency management integration.

You're correct. The plan -- and if we believe in it and the other authorities engaged believe in

it but the public does not know what to do, there is some things to be discussed here.

So as these exercises are taking place, as these plans are being tested, it does not mean that you cannot issue the license because of refinements that are required to be put in place.

Its continuous enhancement that will take place all the time. Exercises are already planned and that we'll be reporting back to the Commission on the progress of this integrated plan and the results of staff's assessment of these exercises.

I will pass you now to Mr. Luc Sigouin for any details.

THE CHAIRMAN: No, I think we've heard enough of this.

What I would recommend is, as a way forward, when the standard body come up with their August plan, I would strongly recommend that OPG, the Committee, staff, and EMO and DEMO, hold a public hearing or hold some community meetings and -- and socialize the plan and see what kind of reaction you get at least in understanding and what does it mean and that some of the consequences.

We're not talking about just a plan. We're talking about the medical, the sheltering, the

transportation, the gridlock, all of the above.

You've got a lot of work to do in here and I think that getting the -- all the players together in one is just the beginning because the public outreach is going to be the difficult part here. You've got to maintain the knowledge and the awareness on an ongoing basis.

So I still look for the August as a first milestone to try to understand where we are in this file.

If everybody agree, I'd like -- any follow-up on that?

MEMBER VELSHI: Yes, just a quick question because my notes didn't reflect that and it was a question I'd had before: Does the EMO plan -- is the design basis for the plan the doomsday scenario?

I mean, is that what the plan is based on?

I know we heard beyond design basis but there's beyond design basis and there's this black swan event. So what is their plan base?

DR. RZENTKOWSKI: Greg Rzentkowski, for the record.

I understand two scenarios are taken under consideration. One is design basis accident and the second is beyond design basis accident or maybe even the doomsday scenario.

I will ask Mr. Luc Sigouin to describe this in more detail.

MR. SIGOUIN: Luc Sigouin, for the record.

The -- I think it's important to remember that the -- EMO's plans, the provincial plan and the Durham plan are to address any emergency no matter what the initiating event.

EMO's on the phone and they can maybe provide more -- specific detail about the -- about the basis of their plan but, as I understand it and to put this into perspective, the -- when we met in Darlington and discussed the EA, we were talking about accidents that had an effect of a few millisieverts at 1kilometre from the -- from the station.

My understanding is that the planning basis that's used in the Ontario plan is an accident on the order of 250 millisieverts at 1 kilometre from the plant; so almost two orders of magnitude higher.

Does that constitute the doomsday scenario?

I don't know if that constitutes the doomsday scenario but it's certainly beyond design basis accident and it's certainly a very serious accident.

THE CHAIRMAN: Okay.

Anybody else? Any other questions?

No, by -- yes.

MEMBER HARVEY: Thank you.

OPG has submitted to the staff three plans: a Continued Operation Plan, a Sustainable Operation Plan and decommissioning or a Decommissioning Plan.

So what is the status of the -- of the review of those plans?

Have been they -- they have been accepted or not? They are under revision and, if not, when will they be accepted?

DR. RZENTKOWSKI: I will refer this question to Mr. Miguel Santini.

MR. SANTINI: Miguel Santini, for the record.

Those plans are submitted by OPG on -- on an annual basis as they are -- these are leading documents as they are -- as they evolved.

The Continued Operations Plan is -- is a plan that is supposed -- or is planned to be completed by 2015. The Sustainable Operations Plan looks into -- into the organizational and the facility aspects that allows the facility to be operated until 2020.

Those plans again are submitted on a yearly basis. In the proposed licence condition, what we have is a condition to -- to do the tracking of the implementation of those plans.

Those plans are summarized what we call the end of life action log, and the condition refers to that particular -- to that action log. And that's the way we track the implementation of the plans.

The third document that I believe you were referring to is the decommissioning strategy. The decommissioning strategy, as has been described in our CMD, lays out the long-term plan until the release of the site in 2060, and we are in agreement with the proposed strategy.

MEMBER HARVEY: Is this to say that you don't have to accept those plans? You just accept -- they are submitted and you just verify if they are going to do what they have planned to do?

MR. SANTINI: Well, the first -- Miguel Santini, for the record.

The first step is the agreement with the -- with the actions, which is equivalent to acceptance, and then the tracking of the implementation of them.

MEMBER HARVEY: But do you have any request or obligation or they are free to propose what they want to do?

MR. SANTINI: Miguel Santini, for the record.

The acceptance on the plan is a must. We

are establishing right now a protocol with OPG to establish the timelines of the annual cyclical review of those plans. And we expect OPG to revise the plan, as per CNSC feedback, on a yearly basis.

MEMBER HARVEY: So it's a moving target.

THE CHAIRMAN: Okay. Anybody else, any other questions?

MEMBER HARVEY: Yes, about the human performance management under initial certification examination:

"OPG is currently implementing corrective action plan to address the deficiencies that were identified. Based on the information provided to date, CNSC staff conclude that the initial certification examination program at the Pickering NGS is improving."

I don't know it's satisfying but improving.

"OPG is expected to provide the CSNC with further information by June 30."

So it's vague. I mean expect that and there's no schedule. I mean, well, maybe I should ask OPG if it will be submitted in June. And well -- okay, go ahead.

MR. JAGER: Glenn Jager, for the record.

Just to begin with as a point of clarification, that is our initial training program. So our certified staff that currently stay and watch on the units are -- there is no question. They are fully qualified and competent.

So we're talking about individuals that were proceeding through the training program towards certification. That's where these issues were identified and we have been working on and I'll ask -- on all those issues to meet the satisfaction of the CNSC.

I'll ask Shane Ryder to discuss in detail what those issues were and the current status of those items.

MR. RYDER: Shane Ryder, for the record. I am Director of Ops and Maintenance at Pickering.

The CNSC identified some issues with our training program in 2011, how we conducted our training program and our examination process.

It also had implications for throughput on our program. In fact, we had low throughput through the training program which had impacts on our ability to put licensed personnel into position.

We conducted a root cause investigation following that discovery and we formulated actions from

that root cause investigation.

Those actions are essentially complete now. We're reporting out to the CNSC on target for June 30th.

The main actions were revision of our entire initial training program for control room supervisors and also the process we use for selection and preparation of candidates before they go into the program.

Since we -- we took those actions in 2011 and, since that time, we have had a 100 percent success rate of the personnel that have gone through the program under the revision process.

Our actions in that program built on successes that we'd had at Pickering A and Darlington where their programs had run into problems in previous -- previous times and we built on that success. And so far the results are good and we'll continue to monitor that going forward.

MEMBER HARVEY: Thank you. Want to add something? If not, it's okay.

MR. SANTINI: Miguel Santini, for the record.

As described in the CMD, we have described -- found several deficiencies during the inspection on the initial certification exam. And before I go to the specialist in order to provide more technical details, I

would like to emphasize that this is with respect to the initial certification and before OPG makes the application to get those staff certified by the CNSC's designated officer.

And also I would like to emphasize that we are satisfied with the number of certified staff and qualified staff at OPG.

I would like to call on ---

MEMBER HARVEY: No, I think it's okay. I mean I don't think we have to go deeply in it.

THE CHAIRMAN: Anybody else, any other question?

I have one last, I should have asked it before.

Still on the KI pill, is it a problem to distribute the KI pill to all residents within the 10-kilometre zone? And does anybody know how many KI pills Ontario has? I mean, I'm just curious. Does anybody know? Is there inventory? How is it being kept track? And is there a national kind of bank or monitoring of this stuff?

MR. JAGER: Glenn Jager, for the record.

Let me begin by saying first of all -- and I echo what CNSC staff said -- is that, you know, we heard the intervenors and acknowledge that we can do more in

terms of outreach and better informing on our emergency plans.

Our emergency plans we think are robust, adequate for all events that we would anticipate on both beyond design basis and within our design basis.

So we're very confident in our -- in our emergency plans, but we recognize that clearly we need to do more in terms of informing the public. And we'll undertake to do that with EMO and DEMO.

So I'll ask Jim Coles to respond in particular about the number of KI pills that we have available to deploy, whether it's prudent or otherwise to pre-distribute or how we should best approach that.

MR. COLES: Good afternoon. Jim Coles, Director of Emergency Management and Fire Protection.

Specifically, there are well over 700,000 KI pills available for the public in Durham Region.

Supplies are provided by OPG on a renewing basis because they have an expiry date. So as part of our requirements under the provincial plan, we provide that support to the region to ensure that there's adequate supplies for everybody, inside both the Pickering and Darlington 10-kilometre primary zones. So we do that.

There are additional supplies, I believe as mentioned earlier, that are housed at reception centres

that would be utilized and made available during an emergency. And I believe EMO's presentation highlighted on a map the locations of those centres.

In addition, it's my understanding as well that additional supplies are available from Health Canada in the event of an emergency and they could also be deployed.

THE CHAIRMAN: So just remind me, you did mention that in your working group you will look at the cost benefit. It seems to me -- and I'm not an expert in this -- that sending it via Canada Post to all households may be just as efficient as sending it to pharmacies and telling all citizens go and get it.

Am I missing something?

MR. COLES: Jim Coles, for the record.

Dr. Binder, you're not missing anything. And I commit to you that, as the Chair of the Technical Committee for the CSA Standard N1600 development, we will have a hard look at KI distribution and what is the right thing to do for the public.

THE CHAIRMAN: Thank you.

Okay, any -- all right. Well then, I think this -- Marc, unless you tell me otherwise, this completes the hearing. Thank you all for being so patient for this marathon.

(SHORT PAUSE/COURTE PAUSE)

THE CHAIRMAN: And, actually, I stand corrected, you're right, absolutely, like everybody else, you have the final words here and I shouldn't deprive you of this.

I don't know if staff wants to say final words?

Okay, so I let you do the final words and you really will have the final words. Thank you.

MR. JAMMAL: It's Ramzi Jammal, for the record.

THE CHAIRMAN: Mr. Jammal.

MR. JAMMAL: Okay. Thank you, Mr. President. For the record, it's Ramzi Jammal.

One thing I'd like to emphasize, you've heard before you a lot of interventions, a lot of unhappiness. However, CNSC staff will not compromise safety. So what is before you is: the safety case associated to this Application is valid and it's robust.

As part of our -- that's why in addition to the questions with respect to the full power pressure tube's life, we have a hold point -- we are proposing a hold point in place for a specific reason in order to demonstrate the condition assessment of these -- of the pipes.

However, first and foremost, is the recommendation of staff it is based on a solid safety case, taking into consideration the ongoing safety improvements.

So that's the last word of the staff.

THE CHAIRMAN: Thank you.

OPG?

MR. JAGER: Glenn Jager, for the record.

Chairman Binder and Members of the Commission, I'd like to thank you for the fair and open way in which you've conducted these hearings.

I'd also like to personally thank Louise Levert and her team for her work in organizing these proceedings. It's a significant undertaking, clearly; and to the City of Pickering and the Pickering Recreation Complex for being good hosts.

I'd also like to thank the intervenors who have taken the time to participate in this open and transparent process. OPG appreciates hearing the diverse public perspectives and it reminds us of our obligation, and I think also accountability to operate safely on their behalf.

I'd like to take a few minutes to address a few of the issues that we heard before this hearing ends.

OPG is able and ready to respond to events

that can happen at our plants. You've heard that there are integrated emergency response plans in place and there are sufficient supplies of KI pills.

However, we heard and acknowledge the concerns and the passion expressed by the public about communications around emergency planning.

As a result, I've directed staff to work with our partners to focus on public awareness of the emergency plan, how to proactively prepare and how to obtain the KI pills.

As discussed over the past three days, we are proud of our safety, environmental and operational performance and, at OPG, safety is a way of life.

Some have called into question the safety of operating Pickering until the end of 2020. I'd like to reemphasise that nuclear safety is and always has been our overriding priority.

Research, monitoring, inspection and maintenance programs are in place for the ageing management of fuel channels and critical plant components. We do not rely solely on our analysis, we confirm by looking at every opportunity that our components continue to meet or exceed the requirements necessary.

We will continue to inspect the fuel channels and other major components to confirm their

integrity remains high and that our plant can safely operate to 2020 with safety margin.

I've heard a lot today and the previous days about PRA analysis. This analysis forms an important tool to assist us in identifying safety improvements and opportunities for our plant and we're already using it. We will continue to do this over the remaining life of Pickering in accordance with our licence.

We've listened carefully through these proceedings to the participants and heard their concerns regarding openness and transparency regarding our continued operation, safe storage and decommissioning.

We'll continue to work with other government agencies, stakeholders and interested parties to communicate our plans and receive their input. OPG believes in open and honest public communication and access to the information. We are a very transparent operator.

Some raised concerns about the availability of environmental data. As Dr. Thompson described earlier today, a CNSC project that has been launched to publish this information -- or, has been launched to publish this information. OPG is committed to ensuring that environmental data is made available to the public on a more frequent basis as the CNSC develops the requirements.

Questions have been asked about our plans to manage nuclear waste. This is a responsibility we take very seriously. Nuclear waste is effectively managed at Pickering. OPG is currently weeding the Canadian industry in its plans to construct and operate a world-class deep geological repository, or DGR, for the storage of low-level and intermediate-level waste.

Our plans for Pickering safe storage and decommissioning are in the early planning stages. As we develop those plans, we will be working with our communities to ensure their input is considered and addressed. This will include addressing waste management activities.

In summary, Pickering nuclear generating station has an excellent safety performance that have been recognized by the CNSC and by external industry peers. Radiation dose to the public will continue to be low.

The Pickering Station is a significant public asset and OPG is committed to providing clean, reliable power in a safe, economic manner for the people of Ontario. OPG is the only rate-regulated electricity producer in the province and, as such, we're held accountable for our costs and investments to the province and the public.

We respect the Commission's mission for

nuclear safety and thus won't stake our case for nuclear power economics, but I'll only say that nuclear power provides real and substantial economic and environmental benefits to the citizens of Ontario.

We live and raise our families in this community and would never bring forward a proposal that is not safe or that does not add value to the people of Ontario. You have my commitment that we will continue to operate this plant with the high standards of today, including meeting the regulatory obligations up to the last day of operation in 2020.

We respectfully request the Commission approve the renewal of the Pickering Station licence for a five-year period.

Thank you very much.

THE CHAIRMAN: Thank you all.

MR. LEBLANC: So this brings to a close the public hearing.

With respect to this matter, the Commission will confer with regards to information that it has considered during the last three days and during Day 1 of the proceeding back in February and then determine if further information is needed or if the Commission is ready to proceed with a decision and we will advise accordingly in all respects.

Thank you.

--- Upon adjourning at 2:35 p.m.

L'audience est ajournée à 14h35