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Safety Commission

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sûreté nucléaire

Public hearing

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Le 13 avril 2017

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Salle des audiences publiques
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Ottawa, Ontario / Ottawa (Ontario)

--- Upon resuming on Thursday, April 13, 2017
at 8:35 a.m. / L'audience publique reprend le
jeudi 13 avril 2017 à 8 h 35

Opening Remarks

M. LEBLANC : Bonjour, Mesdames et Messieurs. Bienvenue à cette audience publique de la Commission canadienne de sûreté nucléaire.

The public hearing today is regarding the application by Ontario Power Generation for the renewal of the Waste Facility Operating Licence for the Pickering Waste Management Facility.

During today's business, we have simultaneous interpretation. Des appareils d'interprétation 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 please keep the pace of your speech relatively slow so that the interpreters have a chance to keep up.

Les transcriptions seront disponibles sur le site Web de la Commission dès la semaine prochaine.

To make the transcripts as meaningful as

possible, we would ask everyone to identify themselves before speaking.

I would also like to note that this proceeding is being video webcast live and that the proceeding is also archived on our website for a three-month period after the closure of the hearing.

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

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

Mr. President...?

LE PRÉSIDENT : Merci, Marc.

Good morning and welcome to the continuation of the public hearing of the Canadian Nuclear Safety Commission.

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

Je souhaite la bienvenue aux gens ici présents and welcome to those watching the webcast or participating by videoconferencing.

I would like to introduce the Members of the Commission that are with us here today.

For those who were not here yesterday for

the public hearing, we introduced two of our new Commission Members, Dr. Soliman A. Soliman to my right and Dr. Sandor Demeter to my left. And Mr. Rob Seeley is not available this week to participate, but I'm sure he will join us in a future proceeding.

We also have with us Dr. Sandy McEwan and Ms Rumina Velshi.

We have heard from our Secretary Marc Leblanc. We also have with us Ms Lisa Thiele, General Counsel to the Commission.

MR. LEBLANC: The Notice of Public Hearing and Participant Funding 2017-H-04 was published on November 4th, 2016. A revised notice was posted on March 16th, 2017, to change the date of the hearing from April 12th to April 13th.

The submission from the Ontario Power Generation (or OPG) and the recommendations from CNSC staff were filed on February 10th, 2017.

The public was invited to participate either by oral presentation or written submission. March 13 was the deadline set for filing by intervenors. The Commission received 13 requests for intervention. One request was received after the deadline and was denied.

Participant funding was available to intervenors to prepare for and participate in this public

hearing. A Funding Review Committee, independent of the Commission as it is made up of external members not related to the CNSC, rendered its decision and provided funding to the four applicants. One applicant later decided not to use the funding. The funding decision will be available on the CNSC website at a later date.

April 5th, 2017, was the deadline for filing of supplementary information and presentations. I note that these were filed by OPG, CNSC staff and intervenors.

We will begin with the presentations by OPG and CNSC staff, followed by the presentations from intervenors. The Members will have the opportunity to ask questions after each intervention.

After the oral interventions, we will then proceed with the written submissions filed by the intervenors. We will end with final rounds of questions.

We would ask you to please avoid acronyms as much as possible to assist our new Members.

Mr. President...?

LE PRÉSIDENT : Merci, Marc.

Before beginning with the presentations, I would like to check some technology. We have some -- we have a representative from Environment and Climate Change Canada.

Mr. Kim, can you hear us?

MR. KIM: Yes, Mr. President, we can hear you.

THE PRESIDENT: We also have Mr. Hénault from Natural Resources Canada.

Mr. Hénault, can you hear us? Not with us?

MR. LEBLANC: No, Mr. Hénault is not with us, but he told us he would be on standby should we have any questions pertaining to nuclear liability.

CMD 17-H5.1/17-H5.1A

Presentation by

Ontario Power Generation

THE PRESIDENT: Okay. So I would like to start the hearing by calling on the presentation from Ontario Power Generation, as outlined in Commission Member Documents 17-5.1 -- I think it's 17-H5.1 and 17-H5.1A.

I understand, Ms Morton, you still have the podium. Over to you.

MS MORTON: Good morning, Chairman Binder and Members of the Commission.

For the record, my name is Lise Morton, Vice President of Ontario Power Generation's Nuclear Waste

Management. I am accountable for the safe and reliable operation of our Waste Management Facilities, including the Pickering Waste Management Facility.

With me today are:

- to my right, Gord Sullivan, the Director of Eastern Waste Operations and Deep Geologic Repository;

- to my left, Raphael McCalla, the Director of Environment Operations Support;

- behind me and to my left, Allan Webster, the Director of Operations Business Support; and

- behind me and to my right, David Witzke, the Director of Nuclear Waste Engineering.

We also have other OPG personnel in attendance to respond to any questions the Commission may have.

We are here today to seek approval to operate the Pickering Waste Management Facility to 2028. We are also here to request approval for some planned expansions, the effects of which have been assessed and confirmed to pose no significant risk to the environment.

I will be repeating some of the messages that we delivered yesterday for the purposes of the proceeding.

At OPG, we speak about the "three pillars" of Nuclear Waste Management. These are: stewardship,

lasting solutions and peace of mind.

"Stewardship" is a word that resonates with our staff as well as with the public in the communities where we operate. "Stewardship" speaks to the level of serious thought and consideration with which we transport, process and store the waste.

Lasting solutions are the plans we are making to store waste in the very long term, not just in the interim, but with a sustainable and permanent solution that will protect the environment long into the future.

Peace of mind is what we provide to the public. We know the public relies on nuclear energy as a safe, clean and reliable source of electricity. By taking care of the waste responsibly and safely, we ensure the public has no cause for worry. As a matter of accountability, we manage our operations with openness and transparency. We know that we have to maintain the trust and confidence of our regulators, our communities and the wider public.

We have a proud history at the Pickering Waste Management Facility of over 22 years safely transferring, processing and storing used fuel from Pickering Nuclear Generating Station.

Today, we will review our stewardship over the past nine years and look at improvements over the next

licensing period.

OPG uses the classifications of low level, intermediate level and high level to describe radioactive waste.

At the Pickering Waste Management Facility, minimal low-level radioactive waste is generated from activities conducted. Due to stringent programs to minimize waste, annual volumes produced within this facility amount to less than one drum.

Intermediate-level waste is not generated at the Pickering Waste Management Facility. OPG has safely stored the Pickering A retube waste in dry storage modules at our Pickering Waste Management Facility for over 30 years. We have an aging management program for the dry storage modules that has confirmed their integrity. OPG does not plan to receive or store additional intermediate-level waste at the Pickering Waste Management Facility.

Used fuel is classified as high-level waste and the main operational activity at Pickering Waste Management Facility is the processing of dry storage containers which contain the used fuel from the Pickering station. OPG does not process fuel itself in the Processing Building, but rather we process the dry storage containers. No liquids are produced when processing dry

storage containers in the Dry Storage Container Processing Building.

Since beginning operation of the Pickering used fuel facility, we have processed and stored over 800 dry storage containers. We have done this while meeting all requirements for safeguards under the International Atomic Energy Agency.

Nuclear Waste Management uses an integrated aging management approach to ensure systems, structures and components remain fit for service at all times. Systems, structures and components are screened based on safety-related function, criticality to plant operations and potential environmental and economic impact.

Preventive and predictive programs are developed and implemented to ensure the systems, structures and components will perform required functions when called upon. System performance monitoring plans are developed by system engineers to monitor for aging and degradation of structures and components and ensure that any required corrective actions are in place. Parts are sourced and replaced through rigorous engineering processes to ensure the design basis of the system is maintained.

Monitoring, inspection and trending results are documented in System Health Reports by the system engineers and presented to the Plant Health

Committee, which has senior management oversight.

Along with reliable operation, we must verify that our Pickering Waste Management Facility is safe to the workers and the public.

The operation of the Pickering Waste Management Facility is supported by comprehensive safety analysis that has been developed using conservative bounding assumptions. Under normal and accident conditions, the safety analysis demonstrates that releases of radioactivity are within CNSC regulatory limits. This is documented in the Safety Report.

A public summary of the Pickering Waste Management Facility Safety Report is available on opg.com.

We also completed a post-Fukushima review of our nuclear waste facilities, including all of our used fuel facilities. All actions were completed and accepted as closed by the CNSC as of January 2015. No significant gaps were found, but improvements and enhancements were made.

During this past licensing period, Nuclear Waste Management implemented the Human Performance Management Program that is used across the OPG nuclear fleet.

The program includes placing a rigorous focus on event-free tools, including procedural use and

adherence, effective communications, questioning attitude and situational awareness, as well as encouraging the reporting of low-level events, addressing and analyzing these events, and applying the lessons learned.

In 2015, a Nuclear Safety Culture Assessment was performed which included a detailed survey sent to all of our personnel, as well as interviews and field observations conducted by a team which included external support. The assessment team concluded that Nuclear Waste Management Division has a healthy nuclear safety culture.

As part of our commitment to continuous improvement, we are currently designing a new survey for waste management staff in 2017, looking more closely at which event-free tools they use the most in their daily activities and what improvements they believe can be made in the usage of these tools.

OPG's health and safety objectives are to achieve and maintain continuous improvement in safety performance. The Pickering Waste Management Facility has not had a lost-time accident since it began operations 22 years ago. We are very proud of this safety record.

Nuclear Waste Management Division's All-Injury Rate performance was better than target from 2010 through 2016 and is also better than target

year-to-date in 2017.

In November 2016, OPG received the Canadian Electricity Association President's Gold Award of Excellence for Employee Safety in recognition of our company-wide All Injury Rate and Accident Severity Rate performance for 2013, 2014 and 2015.

Despite this good performance, we at OPG are still not satisfied with the overall conventional safety performance and we believe we can always do better. In 2016, an initiative entitled "iCare" was launched. Across OPG and within the Pickering Waste Management Facility, employees and work groups demonstrated their commitment to safety by reflecting on and documenting their individual and group commitments to care for themselves and each other. This initiative was well received by employees and continues this year.

The Pickering Waste Management Facility has continued to show strong performance in the area of radiation protection. In the past 10-year licence period, our worker dose has been consistently below OPG's action levels and CNSC regulatory limits.

Fundamental radiation safety practices are used through consistent anticipation of hazards, then rigorous planning and control of those hazards throughout task execution and completion. Promotion of the principle

to keep dose as low as reasonably achievable engages our staff to continue to keep doses well below OPG's individual exposure control level and to routinely explore opportunities to modify work practices and drive doses even lower.

Environmental protection is an important element of good stewardship.

Nuclear Waste Management holds itself to a high standard, based on a commitment to the principles of sustainable development.

OPG maintains a corporate-wide Environmental Management System which is certified to the ISO 14001 Standard and is compliant with REGDOC-2.9.1, Environmental Protection Policies, Programs and Procedures. OPG's Environmental Management System requires assessment of environmental risks associated with the activities of our facilities, including the Pickering Waste Management Facility, and ensures that these activities are conducted such that any adverse impact on the natural environment is as low as reasonably achievable. All regulatory and legal requirements are achieved through the implementation of this management system.

OPG's monitoring program at the Pickering Waste Management Facility consists of an Environmental Monitoring Program, an Effluent Monitoring Program and a

Groundwater Monitoring Program. These programs remain consistent with applicable CSA standards.

The Effluent Monitoring Program is designed to characterize the risk associated with the contaminants released during the operation of the facility on an ongoing basis. Our program includes evaluating emissions based on the designated discharge points as well as from other sources of emissions. Through our Effluent Monitoring Program, OPG has demonstrated that the emissions from our operations are well understood and meet all regulatory requirements.

The Environmental Monitoring Program is designed to verify the predictions made in the Environmental Risk Assessment, demonstrate effectiveness of containment and effluent control, and through environmental sampling and analysis, support the calculation of public dose.

The radiological waterborne and airborne emissions at the Pickering Waste Management Facility continue to be well below 1 percent of the derived release limits and well below 1 percent of the public dose limit of 1 mSv.

The Pickering Waste Management Facility Biodiversity Plan has been integrated into the Pickering Nuclear Generating Station Biodiversity Plan. Multiple

site biodiversity and natural area management plans have been implemented in order to maintain a diverse site and achieve the Wildlife Habitat Council Certification. The Wildlife Habitat Certification adds value to the programs by providing third-party credibility and an objective evaluation of projects.

These plans have included:

- monitoring of amphibian, bird nest boxes, habitat structures, butterfly and dragonfly inventory, and participation in electrofishing monitoring;
- onsite habitat enhancements such as beaver controls to reduce damage to mature trees, naturalization areas have been created, and planting of a native pollinator garden;
- offsite habitat enhancements include funding to Duffins Creek Marsh Rehabilitation Project and installation of a boardwalk in Altona Forest to reduce soil compaction.

The Pickering Waste Management Facility has a rigorous emergency preparedness program which is integrated with the plans of Pickering Nuclear Generating Station and the municipalities. Pickering nuclear site has comprehensive onsite emergency response capability and continually drills and trains staff to test procedures, equipment and people.

The Pickering Waste Management Facility has never had a real fire emergency, but our Emergency Preparedness Program ensures that staff know the procedures for fire or other station emergencies.

In the vein of continuous improvement, OPG makes enhancements as regulations and standards improve. We always strive to the highest standards.

The Pickering Waste Management Facility also meets all requirements of the *Nuclear Security Regulations* in all of its operations, including transferring dry storage containers from the nuclear generating station to the waste facility, which is done in accordance with all security requirements.

We recognize that waste operations are of keen interest to the public. We work hard to earn the public's trust through open and transparent communication and continuous outreach.

On a quarterly basis we publicly post on opg.com performance reports on nuclear waste operations, along with a new quarterly report on environmental performance, in an easy to read format. And starting in 2015, we have taken the additional step of publicly posting the occurrence of waste-related reportable events each quarter. If approached with a request for additional information, OPG will endeavour to provide that additional

information.

We meet face-to-face with members of the public, the media and local municipal councils. Over the past nine years, we have provided over 50 organized tours of the Pickering Waste Facility to interested groups, including students and teachers, journalists, elected officials, Indigenous communities, service clubs, and other members of the public.

OPG is committed to building and growing long-term, respectful, mutually beneficial working relationships with Indigenous communities whose traditional territories are, or may have been, near our Pickering Waste Management Facility.

During the licence period OPG continued to work with 12 communities across the province, holding approximately 15 meetings a year to share information, to consult on issues and concerns, and to work collaboratively on areas of common interest. The relationships continue to mature and build trust and understanding.

Specifically, regular meetings are held with the Williams Treaties First Nations, Mississaugas of New Credit, Mohawks of the Bay of Quinte and the Métis Nation of Ontario, to share information about nuclear generation.

OPG participated in the second annual

Aboriginal Apprenticeship Board of Ontario Day in the Trades event in November 2016 hosted by LiUNA Local 183 at their facility in Cobourg. Representatives from various building trades, suppliers and contractors interacted with Indigenous high school students from diverse communities. OPG also participates in local Indigenous career fairs and open houses.

During the next licensing period, OPG has requested its planned expansion of three additional used fuel dry storage buildings and a new Dry Storage Container Processing Building. The expansion will increase the processing capability and the storage capacity to accommodate dry storage containers from Pickering Nuclear Generating Station until the end of commercial operation. This is in alignment with OPG's business plan.

Nuclear Waste Management has a comprehensive process called system planning which calculates future waste volumes for each waste stream, and specifically for Pickering Waste Management Facility, forecasts fuel bundles to be generated through reactor operations at Pickering. Using system planning, we can then forecast the need for additional buildings even as assumptions change.

The licensing process for the Pickering Waste Management Facility expansion project requires that

OPG makes adequate provision for the protection of the environment and human health and safety.

The construction of two new dry storage container storage buildings and a dry storage container processing were assessed within the scope of the Pickering B Refurbishment & Continued Operation EA which was completed in 2007. The Environmental Assessment concluded that with mitigation measures, the environmental impacts of constructing and operating additional storage buildings would not be significant. The environmental effects from constructing and operating these types of buildings are well characterized and understood. Similar Environmental Assessments have been completed at the Darlington and Bruce sites.

OPG completed an Environmental Risk Assessment of the Pickering site in 2013. The assessment met the requirements of CSA, Canadian Standards Association, N288.6-12. The Environmental Risk Assessment included a Human Health Risk Assessment and an Ecological Risk Assessment for radiological and non-radiological contaminants and physical stressors.

The environmental risk assessment concluded that there were no significant environmental impacts from the operation of the Pickering Nuclear Generating Station, including the Pickering Waste

Management Facility. There were some uncertainties identified, none of which involved the operations of the Pickering Waste Management Facility.

OPG has since completed additional studies which confirmed earlier assumptions of no off-site impacts. OPG is currently updating the environmental risk assessment for the Pickering Nuclear site.

Based on our values of stewardship, lasting solutions and peace of mind, we continue to look for ways to improve our performance while ensuring the safety of our workers, the public and the environment. We continue to communicate our operations in an open and transparent manner, and we continue to examine and explore opportunities to reduce our environmental footprint even further.

Our results over the last nine years and our future plans demonstrate that OPG is qualified to operate the Pickering Waste Management Facility, and OPG has and will continue to make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

We respectfully request that the licence renewal and expansion be approved. Thank you.

We are available to answer any questions.

THE PRESIDENT: Thank you. I would like now to proceed to the presentation from CNSC staff as outlined in CMD 17-H5 and H5.A.

I'll turn to Ms Haidy Tadros to make this presentation. Go ahead, please.

CMD 17-H5/17-H5.A

Oral presentation by CNSC Staff

MS TADROS: Thank you, sir. And good morning, Mr. President, Members of the Commission.

For the record, my name is Haidy Tadros and I'm still the Director General of the Directorate of Nuclear Cycle and Facilities Regulation at the CNSC.

Ms Karine Glenn, Director of the Wastes and Decommissioning Division, as well as Ms Shirley Oue to her right of the same division, are with me again today to present Ontario Power Generation's application for the continued operation of the Pickering Waste Management Facility.

We are also joined by technical CNSC specialists and colleagues familiar with this file who are available to answer any questions that you may have.

Our presentation summarizes and highlights

CNSC staff's written submission CMD 17-H5. This slide provides an outline of what we'll be describing for you today.

Ontario Power Generation's licence renewal application was submitted in October of 2016. In their submission, OPG has requested that the Commission renew its operating licence for a period of 11 years and authorize the site preparation and construction of additional new buildings for the storage of dry storage containers.

As a result of staff's review of the application, as well as operating performance at the Pickering Waste Management Facility for the current licence period, staff recommends that the Commission issue OPG a licence for 11 years, until August 31st, 2028.

I will now pass the presentation over to my colleagues who will begin by providing an overview of the facility.

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

My name is Karine Glenn and I am also still the Director of the Waste and Decommissioning Division at the CNSC.

The next few slides will provide an overview of the location and layout of the Pickering Waste Management Facility and discuss the activities carried out

at this facility.

The Pickering Waste Management Facility is located adjacent to the Pickering Nuclear Generating Station on the north shore of Lake Ontario. Almost all of the waste at the Pickering Waste Management Facility is used nuclear fuel, and the remaining small portion is intermediate-level waste.

--- Off-record discussion

MS GLENN: We seem to have a technical difficulty. This does not appear to be the right version of our presentation.

MR. LEBLANC: That is correct. Perhaps we can take a minute and that can be verified --

MS GLENN: Thank you.

MR. LEBLANC: -- because we're not following from the same slides.

MS GLENN: Thank you.

MS TADROS: Thank you.

MR. LEBLANC: Thank you.

--- Pause

THE PRESIDENT: We have the correct deck here. So, if you can follow the logic, just continue until we try to resolve this.

MS GLENN: Thank you very much.

We'll proceed. We are on Slide 6 for

those who have a copy of the deck. We apologize for the webcast for this technical difficulty.

So, as I was saying, the Pickering Waste Management Facility is located adjacent to the Pickering Nuclear Generating Station on the north shore of Lake Ontario.

Almost all of the waste at the Pickering Waste Management Facility is used nuclear fuel, and the remaining small portion is intermediate-level waste from the re-tubing of the Pickering "A" Nuclear Generating Station, and this waste is located in a re-tubed component storage area. That area is now closed to the receipt of new waste.

The dry storage containers, or DSCs, are loaded with used nuclear fuel at the Pickering Station and they're clamped shut. They are then transferred to the Pickering Waste Management Facility where they are welded and placed into storage. OPG does not process waste at the Pickering Waste Management Facility.

OPG's current licence was issued by the Commission on April 1st, 2008 -- we're now on Slide 7 -- and it is valid until March 31st, 2018.

The licence authorizes the safe handling, management and interim storage of radioactive waste, solely from the Pickering Nuclear Generating Station, and the

construction of two dry storage buildings, one of which was constructed and commissioned in 2009.

Moving on to Slide 8. OPG submitted its licence application in October, 2016, although the current licence does not expire until March, 2018.

CNSC staff performed a technical assessment of OPG's application and undertook a review of OPG's performance over the current licence period. OPG's performance in all SCAs has remained stable or improved over this period.

Through CNSC's Compliance Monitoring Program, CNSC staff have also verified OPG's implementation of program improvements.

The request for renewal was submitted early because OPG had anticipated requiring some additional buildings as early as 2018. An 11-year licence period would result in an expiry in 2028, which is 10 years from the current licence expiry date of 2018.

Slide 9. In addition to the construction of the remaining DSC storage building authorized in their current licence, OPG has requested approval for site preparation and construction of two additional DSC storage buildings, and one DCS processing building to replace the existing one. As with their current licence, CNSC staff have proposed licence requirements for OPG to submit

documents prior to the commencement of construction, as well as a hold point that requires the commissioning reports to be submitted and accepted by CNSC prior to the operation of the additional structures.

CNSC staff recommend that the Commission authorize the delegation of authority for acceptance of the commissioning reports as outlined in staff CMD 17-H5.

Moving on to Slide 10. This slide is a map showing the Pickering Nuclear site that provides the location of the Pickering Waste Management Facility in relation to the Pickering Nuclear Generating Station.

Phase I is located at the southern-most point of the map, while Phase II at the eastern-most point of the site.

So, we're on Slide 11 now. Thank you. An overall view of the Pickering Waste Management Facility is provided on this slide. OPG has requested approval for the site preparation and construction of additional buildings. These are shown in Phase II on the right of the slide as follows:

The two DSC storage buildings are represented by "H" on the far right side of the slide; and the one DSC processing building to replace the current processing building is represented by "F", also on the right side of the slide.

The next few slides discuss CNSC's regulatory oversight of the Pickering waste management facility.

Thank you very much.

The CNSC has a robust regulatory framework in place to ensure the continued safe operation of licensed nuclear facilities. Regulatory oversight is provided by CNSC staff to ensure licensees operate in a safe manner and in compliance with regulatory requirements. The CNSC verifies compliance through site inspections and the review of operational activities and licensee documentation.

Licensees are also required to report routine performance data and unusual occurrences.

In addition, CNSC staff carry out investigations of unplanned events or accidents that occur at the licensee's site.

CNSC's approach to compliance includes activities to encourage compliance, verification activities to assess compliance and graduated enforcement actions in cases of non-compliance.

Over the current licence period, CNSC staff spent 848 person days on regulatory oversight effort for the Pickering waste management facility. This increased -- the increased licensing effort noted in 2016 on this slide is a reflection of the effort associated with

the reviews of the documents submitted in support of the renewal and staff's preparation for this hearing.

Over the same period, CNSC staff conducted 30 on-site inspections as well as other numerous site visits, meetings and events involving CNSC technical specialists.

Inspections conducted by CNSC staff during the current licence period did not identify any safety significant findings.

When a non-compliance is identified, CNSC staff assess the significance of non-compliance, determine the appropriate enforcement action and relay this to the licensee in a detailed inspection report. The implementation of corrective actions is continually monitored by CNSC staff through to closure.

All corrective actions for the Pickering waste management facility have been closed.

OPG is required to report to the CNSC situations or events of potential safety significance. OPG has also implemented a public information program that includes a disclosure protocol. Under the requirements of this program, events or incidents of interest to stakeholder community are disseminated to the public. OPG submits compliance and performance reports and routinely reports on the results of ongoing monitoring activities

that cover a variety of safety-related topics to the CNSC.

Event reports that are significant in nature or may be of public interest are brought to the attention of the Commission during public meetings by CNSC staff. OPG also publishes information about events and compliance reports as well as key licence renewal documentation placed on their web site.

In addition, CNSC staff report annually to the Commission through the Regulatory Oversight Reports.

I will now pass the presentation over to Ms Shirley Oue to present CNSC staff's performance assessment of current operations at the Pickering waste management facility.

MS OUE: Good morning, Mr. President and Members of the Commission. My name is Shirley Oue, and I'm a Senior Project Officer with the Waste and Decommissioning Division.

Regulatory oversight is performed in accordance with the standards set of safety and control areas, or SCAs. SCAs are technical topics used across all CNSC regulated facilities and activities to assess, evaluate, review, verify and report on licensee regulatory requirements and performance.

The table on this slide provides the overall ratings for each safety and control area at the

Pickering waste management facility.

As detailed in CNSC staff's written submission, CMD 17-H5, OPG has maintained a satisfactory rating across all SCAs during the current licence period and, since 2011, a fully satisfactory rating for operating performance, safety analysis, conventional health and safety, and security.

To summarize CNSC's evaluation of OPG's performance for the current licence period and as detailed in CNSC staff's CMD, OPG's Pickering waste management facility programs have met regulatory requirements and are effectively implemented by OPG. Worker doses and environmental releases have remained well below regulatory limits, and OPG's performance has been satisfactory or fully satisfactory in all safety and control areas for the current licence period.

CNSC staff will continue to monitor OPG's performance through regulatory oversight activities to verify that OPG has made adequate provision of the protection for workers, the public and the environment.

The following slides will provide a summary as well as highlights from CNSC staff's CMD. While CNSC's written submission covers all 14 SCAs for the current licence period, the following matters of regulatory interest were considered to be particular interest to

stakeholders, Aboriginal groups, the public and the Commission.

So much of the same safety areas are covered in yesterday's presentation, so this is a shorter version relevant to Pickering.

For the management system, OPG has effectively implemented CSA N286-12. In 2013, OPG implemented a new organizational structure consolidating some corporate programs and updating its governing documentation. These documents describe the management system under which OPG carries out licensed activities at the Pickering waste management facility.

Further changes in the OPG organizational structure remain within OPG in 2016. Following a thorough review, CNSC conducted -- excuse me, CNSC concluded that these changes did not result in any changes to the Pickering waste management facility organization structure or impact the safe conduct of licensed activities and that OPG maintained the management system at the Pickering waste management facility that complies with CSA N286-12.

The human performance management SCA covers activities that enables effective human performance through development and implementation of processes. These processes ensure a sufficient number of licensee personnel are in all relevant job areas and the necessary knowledge,

skills, procedures and tools are in place to safely carry out their duties.

OPG has a robust and documented system approach to training, or a SAT-based training system and a training plan that meets regulatory requirements identified in CNSC Reg Doc 2.2.2.

The next three slides cover the operating performance safety and control area.

Operating performance includes an overview -- excuse me, an overall review of the conduct of licence activities and the activities that enable effective operating performance. Operating performance is divided into high level waste operations and construction activities.

High level waste operations cover the processing of dry storage containers, or DSCs, which store used fuel. This table provides the number of DSCs stored annually over the current licence period, which totals to 394. As of December 31st, 2016, 836 DSCs are stored at the Pickering waste management facility. The current total capacity is 1,176 DSCs.

Under the current licence, OPG is authorized to construct two additional storage buildings. The licensee cannot conduct operations within the additional DSC storage buildings without the submission of

a commissioning report that is acceptable to a person authorized by the Commission as outlined in the current licence.

In 2009, CNSC staff reviewed and accepted the commissioning report for storage building number 3.

OPG has requested that storage building number 4 be carried over to the proposed licence.

The safety analysis safety and control area covers the maintenance of the safety analysis that supports the overall safety case for the facility. CNSC staff have reviewed and are satisfied with OPG's safety report that was submitted in 2013. A revised safety report is expected in 2018.

Over the next licensing period, OPG has committed to implementing enhancements to their safety analysis program.

The next safety and control area is physical design. CNSC staff have assessed OPG's design program and concluded that it meets regulatory requirements. OPG has a formal service agreement with the technical services -- excuse me, with the Technical Standards and Safety Authority as the authorized inspection agency.

Over the next licence period, OPG has committed to implementing the requirements of CSA N393-13,

the *National Fire Code of Canada 2010* and the *National Building Code of Canada 2010*.

The fitness for service safety and control area covers activities that impact the physical condition of structures, systems and components to ensure that they remain effective over time. CNSC staff verified that OPG's fitness for service program for the Pickering waste management facility complies with the requirements of CNSC Reg Doc RD334.

OPG has committed to transition to compliance with the requirements of CNSC Regulatory Document Reg Doc 2.6.3.

The next five slides cover the radiation protection safety and control area. The maximum effective dose received by a worker in the current licence period was 1.6 milliSieverts, which is 3.2 percent of the regulatory dose limit of 5- milliSieverts.

Throughout the licence period, no nuclear energy worker's radiation exposure exceeded the CNSC regulatory dose limits.

As shown on this slide, the maximum dose received by a worker was in 2008. This was attributed to a maintenance worker addressing a backlog of dry storage containers that required painting. Overall, the maximum and average whole body dose trends have remained consistent

over the licence period.

As shown on this slide, during the licence period there have been no action level exceedances related to dose to workers, and there were no contamination control events in excess of OPG's contamination control action level for the Pickering Waste Management Facility.

The Pickering Waste Management Facility is located within the site boundary of the Pickering nuclear site, adjacent to the nuclear generating station. Dose to the public is estimated for the site including both the generation station and the waste management facility. The dose to the public associated with the Pickering Waste Management Facility accounts for a very small fraction of the site dose to the public. As shown on this slide, the environmental releases outside of the site over the licence period have resulted in low doses, well below the regulatory limit of 1 millisievert per year to members of the public.

OPG recently conducted a comprehensive review of the current radiological action levels for workers. The review was performed to ensure that the action levels remained adequately sensitive to detect the emergence of the potential loss of control of OPG's radiation protection program elements. The results of the review, which outline the basis and selection of action

levels for the Pickering Waste Management Facility, was submitted to CNSC Staff for verification. CNSC Staff concluded from the review that the two action levels proposed by OPG for surface-level contamination and individual external dose are acceptable; however, CNSC Staff have requested OPG to provide further information on additional action levels.

The conventional health and safety safety and control area covers the implementation of a program to manage workplace safety hazards and to protect personnel and equipment. As shown in the table presented on this slide, there were no lost-time injuries during the current licence period. OPG has implemented an effective health and safety program during the current licence period and continues to demonstrate its ability to keep workers safe from occupational injuries.

The environmental protection safety and control area will be covered in the next five slides. OPG has developed and implemented a corporate-wide environmental management system which includes activities such as establishing annual objective targets and is verified through internal non-compliance audits.

CNSC Staff have verified that OPG's environmental management system for the Pickering Waste Management Facility complied with the requirements of CNSC

REGDOC 2.9.1. While OPG has established derived release limits that are in compliance with CSA 288.1-08, OPG has committed to updating the derived release limits for the Pickering Waste Management Facility to be in compliance with CSA 288.1-14 by the end of 2017.

This table shows the annual total emissions for the radiological parameters listed. The active ventilation exhaust from the dry storage container processing building is monitored for radioactive particulates. Stack emissions continue to be effectively controlled and remain consistently below the respective DRLs for the current licence period.

A small quantity of radioactive liquids from the Pickering Waste Management Facility phase 1 buildings could be generated during the DSC decontamination in the DSC processing building. The active liquid tanks in the DSC processing building are sampled for tritium and gross beta-gamma prior to being routed to the Pickering nuclear generating station active liquid waste system, where it is monitored and accounted for in the nuclear generating station releases.

As shown in this table, tritium releases were well below the derived release limits, all the data reported to CNSC Staff to the Pickering Waste Management Facility quarterly reports.

The table on this slide provides gross beta-gamma in liquid effluents, which were all below the derived release limits.

OPG had committed to the implementation of three CSA standards as listed in this slide. CNSC Staff have determined that these deadlines are acceptable based on the effective implementation of OPG's current program. CNSC Staff will review all submissions related to the implementation of these standards and monitor program implementation through the conduct of compliance verification activities.

OPG conducts regular exercises involving the City of Pickering fire department and emergency medical services to ensure their familiarity with the site, opportunities to train together as well as to ensure compatibility of response resources between the on-site and off-site response organizations. OPG prepares post-exercise reports regarding emergency response services team performance, plan, and procedure adequacy, and any subsequent opportunities for improvement are then entered into the action tracking system for correction or improvement.

CNSC have verified that OPG's emergency management and fire protection program for the Pickering Waste Management Facility is in compliance with applicable

CNSC regulatory and performance objectives.

CNSC staff have verified that OPG's emergency preparedness measures met applicable regulatory and performance objectives. Staff monitor OPG's implementation of this program to the regular compliance activities. OPG has committed to the implementation of REGDOC 2.10.1 by the end of 2018.

The next safety and control area is waste management, which will be covered over the next four slides. The specific areas that comprise waste management at the Pickering Waste Management Facility include waste minimization, waste management practices, and decommissioning plans.

In 2013, the Pickering Waste Management Facility instituted a "Likely Clean" waste segregation initiative to improve its own performance in the area of waste minimization. Specific waste collection stations were set up at the facility. Through enhanced radioactive contamination monitoring and procedures, waste that was once considered radioactive by default is now thoroughly monitored and released if clean.

OPG has committed to implementing the requirements of three CSA standards related to waste by October 31st, 2017, and these are listed on this slide.

In terms of decommissioning, the objective

of decommissioning is to permanently retire a facility from service in a manner that ensures the health, safety, and security of workers, the public, and the environmental are protected.

OPG's preliminary decommissioning plan, or PDP, for the Pickering Waste Management Facility sets out the strategy and the preliminary plan by which the facility will be decommissioned in the future. The PDP must be kept current to reflect any changes in the facility or operations. CNSC requires OPG to revise the PDP for the Pickering Waste Management Facility at a minimum of every five years or when required by the Commission. The Pickering Waste PDP was last revised and presented to the Commission in 2012. CNSC verified that OPG's PDP complies with the requirements of CSA N294-09, which is Decommissioning Facilities Containing Nuclear Substances.

The figure here on this slide shows the lifecycle timeline for the Pickering Waste Management Facility using the dates from OPG's preliminary decommissioning plan for the Pickering Waste Management Facility that was submitted to CNSC in early 2017. OPG's strategy for decommissioning the Pickering Waste Management Facility is to dismantle the facilities once all waste is removed and the facility is no longer required.

Since all waste will be removed from the

facility prior to decommissioning, little residual radioactivity is expected to be present at the facility. As a result, there will be no need for a deferment of decommissioning. OPG's PDP for the Pickering Waste Management Facility states that the site will meet the release criteria for a licence to abandon.

In terms of security safety and control areas, CNSC Staff verified that OPG has implemented and maintains an effective security program at the Pickering Waste Management Facility. The program exceeds regulatory requirements based on OPG's performance, including the enhancement of security of phase 1 of the Pickering Waste Management Facility and updated security operating procedures for that facility.

The safeguards and non-proliferation safety and control area. CNSC have reviewed OPG's safeguard program, and confirmed that it conforms to CNSC requirements to meet Canada's international safeguards obligations and that it complies with the requirements of CNSC regulatory document RD-336. OPG supported the IAEA new technology development and application including the field trials to the laser mapping container verification, as shown in the photos on this slide. The intent is for this technology to replace the metal seals currently applied to the dry storage containers.

And lastly, the packaging and transport safety and control area. OPG has a packaging and transport program for on-site shipments for the Pickering Waste Management Facility that provides an equivalent level of safety to workers, the general public, and the environment as is required for off-site transportation. CNSC Staff confirmed that Pickering Waste Management Facility's packaging and transport program meets all regulatory requirements.

I will now pass the presentation back to Ms Glenn.

MS GLENN: Thank you, Ms Oue.

I will now discuss other regulatory matters that may be of particular interest to stakeholders, Aboriginal groups, the public, and the Commission.

CNSC Staff identified eight Aboriginal groups and affiliated organizations who may have an interest in the proposed licence renewal, as listed on this slide. These groups were identified, as the proposed activities are located within their respective treaty lands or asserted traditional territories, and they have requested to be kept informed of licensing reviews.

CNSC Staff sent letters of information in November 2016 to the identified groups with information on the renewal and followed-up with phone calls. Each group

was also directly notified of the CNSC 101 public information session that was held in Pickering in February 2017.

All of the identified First Nations and Métis groups have been encouraged to participate in the review process and in the public hearing to advise the Commission directly of any concerns they may have in relation to the licence application.

The public, Aboriginal groups and other stakeholders were informed of the availability of participant funding through a series of public communications, as listed on this slide.

To support public participate in the regulatory review process, participant funding of up to \$50,000 was offered to intervenors. Funding up to \$42,251 was awarded to the three groups listed on this slide. As Mr. Leblanc mentioned previously, one applicant has withdrawn their request for funding.

CNSC Staff and OPG CMD were made available to the public on February 10, 2017.

Hearing interventions covered a broad range of topics, several of which were addressed in this presentation, including long-term planning to extend onsite storage, safety and control area rankings and operating performance, monitoring of liquid effluents, surface water,

storm water and groundwater, transportation of dry storage containers, and OPG's public information program.

Staff are prepared to respond to questions the Commission may have regarding all interventions associated with these proceedings.

Following the Fukushima Daiichi accident, the CNSC developed an action plan that required OPG to re-examine the safety case for its waste management facilities, including the Pickering Waste Management Facility. While OPG did not identify any significant issues that required immediate corrective measures at the Pickering Waste Management Facility, they did identify additional improvements and enhancements.

CNSC Staff have reviewed and are satisfied with OPG's implementations of these improvements to date. CNSC Staff have reviewed OPG's update on Fukushima-related activities submitted in December 2014 and concluded that all identified activities for the Pickering Waste Management Facilities have been completed.

At the last licence renewal for the Pickering Waste Management Facility in 2008 the Commission directed CNSC Staff to prepare interim status reports after the third and seventh year of the licence period. These status reports were presented in 2010 and 2015 at Commission public meetings. The CNSC Staff now report on

these facilities through regulatory oversight reports, which replace the interim status reports.

The most recent regulatory oversight report for the Pickering Waste Management Facility was presented at the Commission meeting on December 2016 in CMD 16-M50. Beginning with the report covering 2017, the Pickering Waste Management Facility will be presented to the Commission as part of the regulatory oversight report for Canadian nuclear power plants.

Natural Resources Canada has confirmed that OPG has adequate nuclear liability insurance under the *Nuclear Liability and Compensation Act*, which came into force on January 1st, 2017.

Under paragraph 24(5) of the *Nuclear Safety and Control Act*, OPG is required to provide a financial guarantee in a form that is acceptable to the Commission. OPG maintains a consolidated financial guarantee for all of its nuclear assets, including the Pickering Waste Management Facility which was accepted by the Commission in 2012.

At the end of 2016 the total guarantee was valued at \$17.96 billion, which is higher than the decommissioning cost estimates of \$15.55 billion for all of OPG's nuclear assets. CNSC Staff have received and conclude that OPG's financial guarantee meets the requirements for

2016.

OPG submitted a revised preliminary decommissioning plan and financial guarantee in early 2017, and CNSC Staff will be presenting this revised financial guarantee to the Commission by the end of 2017.

CNSC Staff also confirm that OPG complies with the cost-recovery fees regulation, and that OPG's public information and disclosure program conforms with the requirements of CNSC RD/GD 99.3.

The next three slides will cover the CNSC's Independent Environmental Monitoring Program, or IEMP. The objective of the IEMP is to verify that public health and the environment around the CNSC regulated facilities are not adversely affected by releases to the environment, confirm that the licensee's environmental program adequately protects the public and the environment, and to compliment the CNSC's compliance program.

Sampling plans are developed for publicly accessible locations and are site-specific.

In 2014 and 2015 CNSC Staff carried out an IEMP campaign around the Pickering site. Air, water, soil, sediment, vegetation, and milk samples were analyzed for a number of parameters, including tritium, organically-bound tritium, gross alpha and gross beta, radioactive particulates of Cesium-137, Cobalt-60, and radioactive

Iodine.

The measured radioactivity in all samples were below CNSC reference levels. These reference levels are based on conservative assumptions about the exposure that would result in a dose of .1 millisievert per year, which represents one-tenth of the CNSC's public dose limit of 1 millisievert per year.

Overall, the IEMP results are consistent with the results of OPG's Environmental Protection Program, and indicate that the public and the environment around the Pickering site, which includes the Pickering Waste Management Facility, are protected.

This slides shows the surface water monitoring results from the IEMP. The measured radioactivity in surface water samples taken around the Pickering site were below Health Canada's drinking water guidelines.

I will now turn the presentation over to Ms Tadros who will discuss the proposed licence and licence conditions handbook, as well as CNSC Staff's overall conclusions and recommendations.

MS TADROS: Thank you. CNSC Staff recommend that the Commission issue OPG a licence that contains standard licence conditions, plus three facility-specific licence conditions. A copy of a proposed

licence was appended to CNSC Staff's written submission, CMD 17-H5.

A draft licence conditions handbook also included as part of Staff's CMD provides compliance verification criteria used to verify compliance with the conditions in the licence and also includes non-mandatory recommendations and guidance on enhancing the effectiveness of the safety and control measures.

These next two slides outline CNSC Staff's conclusions and recommendations for the Pickering Waste Management Facility licence renewal.

So in conclusion, CNSC Staff have found that OPG is qualified to carryout the activities authorized by the licence and will, in carrying out the activity, make adequate provision for the protection of the environment, the health and safety of persons, and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

CNSC Staff recommend that the Commission renew the Pickering Waste Management Facility operations licence for a period of 11 years, to August 2028. In recommending an 11-year licence term CNSC Staff took into consideration OPG's operating experience and demonstrated compliance in carrying out the activities under its current licence.

CNSC Staff also took into consideration the robustness of OPG's existing programs that provide assurances that safety significant activities are examined and that safety is maintained.

CNSC Staff also note that annual reporting to the Commission of public proceedings allow for frequent public updates regarding CNSC's regulatory oversight activities and OPG's implementation of new and upcoming CSA Standards and CNSC Regulatory Documents.

Therefore, taking all of this into consideration, CNSC Staff view that an 11-year licence term would allow OPG to continue its safe operation while maintaining transparency of operation, public engagement and adequate regulatory oversight.

Thank you, and we are available to answer any questions you may have.

THE PRESIDENT: Thank you. Marc.

MR. LEBLANC: We will now move to the interventions. Before we start, I would like to remind intervenors appearing before the Commission that we have allocated 10 minutes for each oral presentation, and we would appreciate your assistance in helping us to maintain that schedule.

Your more detailed written submission has already been read by the Commission Members and will be

duly considered. There will be time for questions from the Commission after each intervention, and no time limit has been ascribed to the question period.

Mr. President.

THE PRESIDENT: Thank you, Marc. So the first presentation is by the Lake Ontario Waterkeeper, as outlined in CMD 17-H5.11. I understand that Ms Feinstein will make the presentation. Over to you.

CMD 17-H5.11

Oral presentation by

Lake Ontario Waterkeeper

MS FEINSTEIN: Good morning President Binder and Commissioner Members. Thank you for the opportunity to address you all today. For the record, my name is Pippa Feinstein and I'm representing Lake Ontario Waterkeeper, which has been granted intervenor status in the hearing concerning the Pickering Waste Management Facility.

Founded in 2001, Waterkeeper is a non-political registered charity focusing on environmental research and justice issues in the public interest. It is dedicated to protecting and celebrating the swimability, drinkability and fishability of the Lake Ontario watershed.

Waterkeeper has been involved with decision-making processes for the Pickering Nuclear Generating Station for many years and has developed considerable expertise concerning the facility's significant adverse impacts on local lake water quality and aquatic ecosystems.

The Pickering site is located in an ecologically stressed but resilient part of the northern shoreline of Lake Ontario. Recently, this area has been the focus of increasing remediation and conservation efforts. The Pickering site is surrounded by parks to the west and north, wetlands to the east and by Lake Ontario to the south. Conservation areas, beaches, fishing and paddling spots, and trails are also located close to the site. Rouge Beach and Frenchman's Bay Beach are located just to the west of the Waste Management Facility, and Rotary Beach is located just to the facility's east. Two drinking water intakes also lie on either side of the Pickering site. Ajax's drinking water intake lies just to the east of the Pickering site, while the F.J. Horgan drinking water intake is located just to the west of the site. Of the 90 fish species found in Lake Ontario, 60 have been found in historical sampling at the Pickering site. These have included species at risk and species of concern such as lake sturgeon, American eel and salmon.

At the same time, the Pickering site has been, and continues to be, a major ecological stressor. It is responsible for significant tritium contamination of lake water, as well as other contaminants, and is responsible for killing large quantities of fish in the Nuclear Generating Station's cooling water intake system. In fact, Rotary Beach, located just east of the Pickering site, has been closed due to water quality concerns.

Both Phase I and II of the Waste Management Facility border the northern shore of Lake Ontario. They are also separated by a water channel. As such, the adequate containment of stored waste at these facilities is especially important in order to protect the quality of nearby lake water. It is imperative that the facility be held to high standards that protect the swimmability, drinkability and fishability of the local area.

The current expansion plans for the Waste Management Facility, which would require approval by the Commission in these licence renewal proceedings, are the largest and most ambitious we have seen to date. OPG is requesting approval to build an additional four buildings on the Phase II site: one to process used fuel bundles for storage and three new buildings to store this waste. OPG argues these buildings are required to store used fuel

until the end of the Nuclear Generating Station's commercial operating life. The new requested processing building will double the facility's processing capacity from 50 to 100 dry storage containers per year.

With the requested expansion, Phase I and Phase II facilities would be able to hold up to almost 1.2 million bundles of high-level radioactive waste and over 2,000 cubic metres of intermediate-level radioactive waste.

However, to date, there has been no environmental assessment for the expansion under the *Canadian Environmental Assessment Act*. As such, the Commission does not currently have sufficient information to assess whether OPG's proposed expansion will "make adequate provision for the protection of the environment" -- a requirement that must be met in order for any licence to be granted under the *Nuclear Safety and Control Act*.

OPG's application and CNSC staff's review of it rely on past EAs conducted for projects that they deem "similar" to the current project. However, Waterkeeper submits that this "mix and match EA" approach is not sufficient for the Commission Tribunal to determine whether the Phase II site and its expansion will adequately protect the environment.

The past EA that is relied on most

frequently by OPG and CNSC staff concerns a 2003 Screening EA for the Phase II site that was conducted under the previous version of the *Canadian Environmental Assessment Act*, or CEAA. This EA concerned an expansion of the Pickering Waste Management Facility. However, it didn't consider Phase II expansions as are currently proposed. In fact, when determining that the Phase II expansion would not result in significant adverse environmental impacts, the 2003 EA explicitly based its decision on the fact that there would be "no active effluent streams" in the new facilities, and this is no longer the case.

Other EAs relied on by CNSC staff concern different types of facilities at the Pickering site or else potentially similar facilities that are located off the site and around the province. Relying on past EAs in this way downplays the fact that there has been no proper assessment of the currently proposed new processing building or accompanying active liquid waste infrastructure, or the 500 metre transfer route extensions and their potential impact on stormwater at the site, or the two additional storage buildings at the site, buildings 5 and 6. This is despite the fact that an EA may be required under CEAA according to the *CEAA Regulations Designating Physical Activities*.

An EA under CEAA would be preferable than

any EA conducted pursuant to the *Nuclear Safety and Control Act* because EAs conducted under CEAA are required to collect information and data to more thoroughly assess potential environmental impacts of projects, as well as potential project malfunctions, mitigation measures and alternative means of carrying on a project. EAs under CEAA also require specific follow-up studies and provide multiple opportunities for distinct public input. EAs undertaken pursuant to the powers under the *Nuclear Safety and Control Act* do not have these legislated requirements.

The lack of a thorough environmental assessment is partially responsible for some significant information gaps concerning the Pickering Waste Management Facility's current and expected impacts on local lake water quality. There are also three potential waterborne pathways of radioactive contaminants to the lake from the site. These are liquid effluent, surface and stormwater runoff, and groundwater.

Liquid effluent is generated at the Waste Management site and sampled monthly prior to being routed to the Nuclear Generating Station where it is treated and ultimately released into Lake Ontario along with the Nuclear Generating Station's other liquid effluent. According to sampling averages Waterkeeper was able to obtain, it appears as though tritium concentrations have

been increasing between 2008 and 2015. However, no recognition of this deterioration of water quality has been included in OPG's application or CNSC staff's review of it. As such, Waterkeeper submits that it should be further investigated by OPG and CNSC staff, especially given the fact that these concentrations may increase even more if the expansion is granted and the processing building is built that doubles the rate of waste processing at the facility.

Surface and stormwater runoff can also be an issue for the Pickering nuclear site. In the past, several Provincial Water Quality Objectives for heavy metals have been exceeded in samples of stormwater at the site. Further, past studies have shown considerably high tritium activity in precipitation around the Pickering site, measuring over 600 Bq/L in certain locations.

Waterkeeper has yet to see a comprehensive surface and stormwater management plan and monitoring plan for the Pickering Waste Management Facility and has yet to find any comprehensive data of all stormwater monitoring.

Also of concern to Waterkeeper is OPG's plan to direct untreated stormwater from Phase II into the wetlands to the east of the Pickering Waste Management Facility.

In terms of groundwater, there are over

200 groundwater monitoring wells at the Pickering site, six of which are dedicated to assessing water quality in groundwater underneath the Waste Management Facility. The Nuclear Generating Station's monitoring wells generally exhibit high levels of contaminants, though contamination from the Waste Management Facility itself doesn't appear to be as high. Regardless, groundwater sampling is conducted in the second quarter of each year, which is also a period of particularly high water flow. As such, this means that the contaminant measurements in monitoring wells underneath the waste management facility may be lower than during other times of the year due to dilution.

Waterkeeper has also identified several potential deficiencies in OPG's public information protocol and disclosure policies for the Waste Management Facility.

I just have a few more paragraphs.

These deficiencies in information compound other information gaps in this hearing that I have mentioned earlier. The Waste Management Facility's Public Information Protocol suggests that notifications should include various events that may impact the environment. However, no mandatory terms in the procedure or Public Disclosure Protocols require these kinds of environmental performance information-sharing.

Further, there is very sparse

environmental monitoring data reporting by OPG of the Pickering Waste Management Facility's performance in publicly available reports. What little is available is insufficient to adequately demonstrate to the public OPG's assertions of the Waste Management Facility's safe operation and high performance. While actual fulsome monitoring data may establish the facility is completely safe, it would be impossible for members of the public to verify this based on OPG's current limited disclosure.

I have my conclusion paragraph, if I can briefly read it.

THE PRESIDENT: Okay, please conclude.

MS FEINSTEIN: Thank you.

OPG's Public Information Protocol requires the disclosure of information to be commensurate with the public perception of risk as well as actual risks. Given the facility's proximity to Lake Ontario and the recreational opportunity it affords, and given the historical and continuing adverse impacts of the facility to the local environment, Waterkeeper submits that OPG must regularly provide more monitoring data for public review. This would be fairly easy to do if all the necessary testing is already being done and it could just be included in periodic reports for the facility which are already prepared by OPG.

So thank you for listening to the presentation. I look forward to answering any questions and hopefully being able to ask some questions of my own.

THE PRESIDENT: We have lots of questions for you here.

Okay, let's start with Ms Velshi.

MEMBER VELSHI: Thank you, Mr. President, and thank you for your intervention.

So I will start off with the first issue that you raised and I will ask that of OPG first and then of staff, which is why -- well, the issue here was why has there not been an adequate environmental assessment done? In the written submission there were concerns raised that information wasn't forthcoming, that OPG is updating the assessment for the whole Pickering site and may be coming later on. So my question is: Why an early application for relicensing when you have yet another year and a bit left in your licence and you don't really need any new facilities for a while yet? I'm sorry, and the reason for that question is would that have allowed additional information to make a better informed decision for the relicensing?

MR. SULLIVAN: Gord Sullivan, Director of Eastern Waste Operations and DGR.

The reason why OPG has come earlier for

the licence was trying to align ourselves around the Pickering Nuclear Generating Station licence renewal. They are in the process of coming for a licence renewal of 10 years from 2018 to 2028. This would help us in alignment down the road to see if we have any opportunity or flexibility in terms of combining licences going forward. Roughly in 2028 the Pickering Nuclear Generating Station should be in a SAFSTOR position, so that's one of the reasons why we came early.

MEMBER VELSHI: I'm sorry, I'm not understanding or following that logic. Pickering is coming in front of the Commission I think sometime next year. Why could you not have delayed yours until, say, the environmental assessment was updated that would inform this licensing and how would that have not allowed you to align with Pickering's licensing?

MS MORTON: Lise Morton for the record.

So Mr. Sullivan explained kind of one reason for that. The other reason was that when we did the licence application we were anticipating constructing the processing building earlier and so therefore we would have had to come earlier for the licence. But through our business planning very recently, I believe it was in the latter part of Q4 last year and then the beginning of this year, through reviewing our business planning as well as

our project portfolio, we have reassessed that project and determined that we can push out the processing building. So it really was because the decision changed on when we would be building a processing building as well that fed into that. It was a combination of those two factors.

MEMBER VELSHI: Okay. So the second factor is no longer in play. The first factor I still don't understand. How does an early application allow you to be better aligned with the Pickering licensing?

MS MORTON: Again, maybe we have explained them then in reverse order, maybe it's really the fact that the processing building was going to be first and so that, you know, forces us to have to come early, but then long term you end up with that benefit of the two licences being combined or potentially coming due at the same time in 2028. So perhaps we have explained them in reverse order a little bit there.

MEMBER VELSHI: Okay. So let me put you in the intervenor's shoes. Would a later application not have been better when there would have been more information available on the impact of the facilities being assessed?

MR. McCALLA: Raphael McCalla for the record, Director of Environment Ops Support.

The construction of the two new processing

buildings as well as the -- I mean storage building as well as the processing and amenities building were captured in the 2007 EA that was conducted. What we are currently doing is updating our ERA. We have conducted a number of EAs which have accurately characterized all the environmental concerns pertaining to these activities. So it's OPG's position that we fully understand the environmental impacts and the mitigation required in order to offset those impacts. So from our perspective we are confident that there would not have been any really additional information that we would have gathered, if you will, from going through the exercise of conducting another EA.

MEMBER VELSHI: Staff, any comments on that?

THE PRESIDENT: Just clarification. You are now building and doing an ERA for Pickering Nuclear Power Plant renewal?

MR. McCALLA: That is correct.

THE PRESIDENT: So isn't that -- it's one site, one lake. How can you do an 11 -- how can you apply for 11 years when the ERA, the real ERA that will determine the whole site impact on the environment is not available?

MR. McCALLA: Raphael McCalla for the record.

OPG conducted an ERA in 2013 which characterized the site. We are actually updating that ERA right now. That ERA was submitted to the CNSC back in I believe January of 2015. So the site has been characterized.

THE PRESIDENT: I understand that, but just as you felt that you have to update it for another 10-year licence, why doesn't the same logic apply for a big chunk of that site right now and what's the big rush? Staff, I am really trying to understand what was the big rush.

MR. RINKER: Mike Rinker for the record. I am the Director General for the Directorate of Environmental and Radiation Protection and Assessment.

So, first of all, there are two terms that are very similar and I want to make sure that they are understood.

There is an "Environmental Risk Assessment," which is the technical scientific document that is being conducted and in conformance with a CSA Standard for environmental risk assessment for nuclear facilities. The second term is an "Environmental Assessment" and the environmental assessment is an overall assessment of the project. It takes into account the findings of an environmental risk assessment, it takes into

account a lot of other information, monitoring data, our independent environmental monitoring program, previous EAs, and puts it together as an overall package. So those are two somewhat separate things.

In 2014 OPG conducted their first environmental risk assessment for this site based on the new Standard. It was provided to staff, we reviewed it. In addition, while OPG was updating for their next environmental risk assessment, they provided that information relevant for this hearing to staff and so that information was taken into account when we developed our EA under the NSCA that is appended to the Commission Member Document today.

Generally, the environmental risk assessments are living documents, where it is conducted, submitted and after five years it will be resubmitted, or it could be shorter where it could be resubmitted and updated depending on if there is a major change to a facility or activity. In this case the renewal hearing for the overall Pickering site was a trigger for them to come in even earlier than the five-year cycle for the environmental risk assessment and that's the one that we would expect to come for the nuclear power plant renewal.

But from CNSC staff's perspective, we have a very good understanding of what the environmental risks

are, as documented in the 2014 Environmental Risk Assessment. We have the updated information that we received several months ago and that helped us inform what went into our EA under the NSCA.

THE PRESIDENT: I'm sorry, forgive me, I'm still confused. For the renewal of the Pickering Nuclear Power Plant you have asked for an updated ERA, whatever you want to call it, under the NSCA. They are preparing it now. It's not available for assessment of the site waste management. Why not? I mean if it's -- if you think it is required for renewal of the nuclear power plant, why didn't you wait until it's available so you can put the two together as one site? That's what I don't understand.

MR. RINKER: Mike Rinker for the record.

As an example, what we heard yesterday, the Environmental Risk Assessment specifically for the Western Waste Management Facility was provided and that helped us support our EA under the NSCA. And in the case for this facility, the Pickering Waste Management Facility, we do have the 2014 version and we have the updated information relevant to the Pickering Waste Management Facility that was under review and helped inform us for the EA under the NSCA.

THE PRESIDENT: But the last one for the Pickering was not available to the intervenors; correct?

MR. RINKER: Mike Rinker for the record.

So that is a different question. I just wanted to make sure that it was clear that staff's review of the information required for environmental protection was complete and the information when into our CMD and the EA under the NSCA was complete. I think the availability of that information to the intervenor is also an important question to ask, but it doesn't take away from the fact that we did have all the information that we needed.

THE PRESIDENT: Go ahead.

MEMBER MCEWAN: Sorry, I'm confused. So is there an EA or an ERA being performed for the relicensing of the power generation site?

MR. RINKER: Mike Rinker for the record.

So the answer is both. For every relicensing hearing there will be an EA under the NSCA which is based on many things.

MEMBER VELSHI: So we will get to the secondary question about availability of the 2013 or 2014 ERA to the intervenor, but I'm still trying to grapple with that first question on why the rush. OPG is saying, well, we have all the information, why delay. Originally we thought that there was a compelling need for the facilities, but that is not there. But there is going to be additional information coming up with this updated ERA,

so I'm not -- again, it's that similar issue of yesterday, are we undermining the whole licensing process by not having sufficient information to make a decision when it's needed or is it presupposing a decision early on? I'm trying to understand why. Things changed, your needs changed, so why not wait until there is better information available that can help with the decision-making?

MS GLENN: Karine Glenn for the record. I am the Director of Wastes and Decommissioning Division and I would like to speak to the licensing driver behind the early application.

As we mentioned in our presentation, and OPG did also mention in their response to you, they approached us in 2016 and informed us that they saw a need for the construction of the new DSC building. At that time we advised them that this would require an amendment to their licence because it was not currently authorized under their licence. They were authorized to construct two DSC storage buildings but not a new DSC processing building. Given -- and that would have meant that they would come for a request for an amendment in 2017 and then immediately followed in the following year, in 2018, with the request for the renewal. So rather than coming back in short succession, they decided to come early with that request for both the new construction as well as a request for the

renewal.

CNSC staff has all of the information that they require to assess, both from a safety and environmental point of view, using the ERA that was performed in 2013, the previous EAs and then the additional information that OPG submitted that was specific to the Waste Management Facility. That information will indeed be rolled into the ERA that will be provided for the Pickering side and presented at the NGS, but all of the information that is required to assess the request before the Commission from an environmental and safety perspective has been submitted and has been reviewed by CNSC staff.

I will ask Mr. Rinker to add from an environmental perspective.

MR. McALLISTER: Andrew McAllister, Director of the Environmental Risk Assessment Division.

I guess just more to confirm what we have heard from Mr. Rinker and Ms Glenn is that, you know, CNSC staff, as we typically do with any sort of licence application, we get it, we look at it and we identify what are their deficiencies, what are some of the information referenced in there that we need. Pickering had a 2014 Environmental Risk Assessment, requested that that be included as part of that, and in doing our review of that with a focus on the Pickering Waste Management Facility,

because it is a site-wide ERA, we requested additional information to get a sense of the specificities with the Pickering Waste Management Facility in addition to that additional information that we would expect in the updated ERA. So we do have those. Admittedly, it is not all in one complete updated document. We do have those pieces of information that were before us that we undertook a technical review on and the results of that are reflected in the EA report.

The question of whether the intervenor had received the same information that we had, that's a question that OPG is in a better position to respond. But just to reiterate that CNSC staff had the needed information it needed to draw conclusions on whether the environment and the human health remain protected.

MEMBER VELSHI: Thank you.

So I understand why the CNSC felt they had the adequate or the necessary information to make a licensing decision if OPG wanted to go ahead with building their processing facility, the DSC processing facility. I read in your CMD you have not received, or at least at that time you had not received your Board approval for the DSC processing facility, which again begs the question why come for a licence renewal when you may not be needing this building or may not be building this? It's just that it

seems premature. Now, maybe this is hindsight, but as I sit here I think you are undermining the updated ERA by making a decision today -- or you may be undermining the ERA that is coming up later by making a decision today, with the best information available today but not necessarily what may be six months down the road or later. Thank you.

THE PRESIDENT: I would just like to add one more point here. I'm not buying the fact that just because CNSC had all the information on the EA, it's unacceptable that you will make this, not that you will be satisfied by not -- by having all this information without it being available to the public. The whole idea of an EA or ERA are public documents, so all intervenors can actually look at them and make, you know, comments. That's why we have this hearing. So it is not sufficient to have all this documentation internally and not available to the public.

Dr. McEwan, please.

MEMBER MCEWAN: Thank you, Mr. President.

I have a definitional question because it is going to help me understand I think again some of these risk issues. In one of staff's opening slides -- let me go back to them -- there is a -- thanks. You make -- apologies. You make a very clear statement at the bottom,

in that little highlighted green bit at the bottom, that no waste processing occurs at the facility. Yet, we are being asked to approve the construction of a new processing building. If I am a member of the public, to me, those two statements are -- they don't make sense because they are discordant. So can you explain to me that? And then I will ask the next question, depending on the answer.

MS GLENN: Karine Glenn for the record.

The processing building that is requested by OPG is a building for the processing of the dry storage containers only. So the activities that occur there is that the dry storage containers come in, they are prepared prior to being loaded. They are then brought to the station, they are loaded at the station and we heard quite a bit of the explanation of how the fuel is loaded yesterday when we spoke about the Western Waste Management Facility. The process is very similar, although it is the OPG facility in this case. The fuel is loaded at the station, the dry storage container is clamped shut and then transported over to the dry storage processing building, or the dry storage container processing building. The fuel is at no time removed from the container. The container is not opened. The activities that take place is the welding of the lid to the base, a second decontamination if need be of the exterior of the dry storage container, the drain

plug is welded shut. There is a -- prior to that happening, there is an additional drying step to make sure that the fuel is dry. So the activities are -- it's the DSC that is being processed, not the fuel or any of the waste that is brought to the facility.

MEMBER MCEWAN: So again, although you have that very nice diagram, it would have been helpful to have a little text to discriminate between the two because of that very clear statement. So I'm still not clear. This building is additive. So where are the activities taking place that will take place in the new building currently?

MS GLENN: Karine Glenn for the record.

I will ask OPG to complement my answer, but they currently have a dry storage container processing building. They are replacing it with a new one where they will be implementing some operational experience that they have acquired at their other DSC processing facilities in other waste management facilities to increase the throughput of the DSCs.

I will ask OPG to complement my answer.

MS MORTON: Lise Morton for the record.

Yes, that is correct. So currently the processing of the containers is done in a very similar processing building located I believe -- we have commonly

called it Phase 1. It was shown on the map, so it would be located -- it's located where the current storage buildings 1 and 2 are located. So the activities that would occur in the new processing building are identical to what is currently happening in the processing building at the Phase 1 part of the site.

MEMBER MCEWAN: And the current building will be decommissioned, repurposed or continue with added capacity?

MS MORTON: Lise Morton for the record.

When the new processing building would be constructed, the original processing building would be taken out of service. It would be decommissioned though at a later date in accordance with our preliminary decommissioning plans, but it would be taken out of service and processing would then transfer to the new building.

THE PRESIDENT: Dr. Soliman...?

MEMBER MCEWAN: I'm not finished.

THE PRESIDENT: Oh, sorry.

--- Laughter / Rires

THE PRESIDENT: Go ahead.

MEMBER MCEWAN: So this is really, if I can call it, the typical activities that would occur in an engineering industrial park?

MS MORTON: Lise Morton for the record.

Yes, that's correct and it is the same processing that is done now in terms of -- and Ms Glenn discussed that -- welding activities, painting of the dry storage container, verification of the weld. It would be the exact same process we are doing now, just simply in a newer building. The original building is quite a bit smaller than our current used fuel facilities at Darlington and Western and that can cause some congestion issues, some difficulty in terms of managing throughput.

THE PRESIDENT: Dr. Soliman...?

MEMBER SOLIMAN: Thank you.

Waterkeeper is raising many recommendations. I would like OPG to discuss two recommendations, recommendation number 3 and number 4 on page 13. OPG needs to clarify its exact waste processing activities at the waste site as this remains unclear in the available documentation. I would like to know from Waterkeeper first what is not clear and what exactly you want to see regarding these waste processing activities. And I would like after that OPG to respond.

MS FEINSTEIN: Thank you.

There are a few points that I would like to make with regard to the processing, but I would also like to put on the record that I was trying to respond to some of the EA discussions, so I would like the opportunity

to maybe return to some of the responses that I heard.

But for the moment, concerning processing at the site, in OPG's original application it was stated that when the dry storage containers were received at the Waste Management Facility from the Nuclear Generating Station that they were sprayed down for contamination. So when we first read an application, Waterkeeper was quite concerned with how that water was being treated after spraying. Our organization was given a tour of the facility -- which was very appreciated -- from OPG and it became clear from the tour that this spraying hasn't been performed, at least recently. Maybe it had in the past or maybe it hadn't, we are unclear about that.

So the discrepancy between that description of how water was involved in the processing of the dry storage containers informed some of our concerns about what was actually happening at the site and some discrepancies between what we learned at the tour as well as what we read in the applications.

And some of those discrepancies also extended to issues like stormwater monitoring, which I hope we will be able to discuss in a little more in detail as well. In the application, stormwater monitoring or monitoring of potential runoff from the facility was discussed in a very sort of cursory way in the application.

When we asked for more information about that from OPG, OPG let us know that actually they had been exempted from any stormwater monitoring by the Ontario Ministry of Environment and Climate Change. When we asked the Ontario Ministry about that exemption, the Ministry wasn't aware of any such exemption and so we brought that information back to OPG to ask for a response and we were told actually there is some monitoring, but we still to date haven't received a plan, any kind of comprehensive plan of what that monitoring looks like or what the plan looks like.

So there have been various instances -- and I can give other examples too -- where there is just a discrepancy between the CMD documents that we were able to review and what OPG staff has explained about their processing.

MEMBER SOLIMAN: OPG, please respond.

MS MORTON: Lise Morton for the record.

So thank you for the clarification in terms of that recommendation. And I will just echo what Ms Feinstein has said. So I don't have our application right in front of me. If there is an error in the application, I definitely want to clear that. We do not do any spraying of the dry storage containers when they come to the processing building and I apologize if we did have an error in the application. I'm not sure, I don't have

that right at my fingertips. So as they have indicated, we did clear that up. So we do not spray the dry storage containers with any kind of liquid when they come to the storage building and so that was a confusion in terms of the processing. Perhaps that's part of the confusion.

And then I believe that the other part of the confusion was what we had been trying to address earlier, which is that we don't do processing of fuel itself, you know, reprocessing fuel as they would typically do in the States for American-designed reactors. We don't need to reprocess fuel. So we believed or we thought that there was confusion there as well. The term "processing" being applied to dry storage containers as well as fuel I think is what has caused some confusion here.

MS FEINSTEIN: Something that I would also like to bring to the Commission's attention again is the interrelationship between the nuclear generating station and the waste management facility. So while Waterkeeper has more recently learned that really the DSCs are just vacuum-sealed again at the processing facility, there is a significant amount of waste processing that is occurring at the nuclear generating station. And so for Waterkeeper, this would highlight the value of postponing the current hearings until the hearings that have been planned later in 2017 for the nuclear generating station and at that time

Waterkeeper would be able to comment on the whole waste processing process, aspects of which would be held at the nuclear generating station and then aspects of which are held at the waste management facility, and how those two things are related.

When Waterkeeper was inquiring about the treatment of active liquid waste produced at the waste management facility, we were told that all of that treatment occurs at a special facility that is technically part of the nuclear generating station and not the waste management facility and on those grounds we were prevented from getting any more information about exactly how active liquid waste is treated. So certain barriers to information being received would be addressed if those hearings were held together and we would be able to cross-reference between the different types of waste processing and storage that happen between the two sites together.

MR. McALLISTER: Andrew McAllister for the record.

Just to -- we have been hearing a theme about lack of information or availability of information and I guess it gets to a bit of lessons learned. So we checked, we recognize that Lake Ontario Waterkeeper has received participant funding from our Participant Funding

Program. They themselves did not receive any requests from Lake Ontario Waterkeeper via that channel for the additional information, specifically the 2014 ERA, and so I think when we look from a lessons learned perspective, and I would suggest for future ones, that if the funding recipients are having trouble getting information from licensees for sure to make sure that we are aware of it and we can make things happen from our end with that in that respect.

MS FEINSTEIN: This is again Pippa Feinstein for the record.

Waterkeeper has been intervening for a number of years and this is an issue that comes up in every hearing that we have been a part of, is the difficulty obtaining the requisite information to inform a comprehensive review of the projects. In the past when we haven't received adequate information, we have gone to CNSC staff and generally it has been explained to us that if there is information that we require from CNSC staff, such as their review of a document, that might be something that we can obtain from CNSC staff. However, if there is a document that is prepared by OPG or the proponent, then we are repeatedly told by CNSC staff to contact the proponent directly. So Waterkeeper had been involved in a series of emails and information requests with OPG throughout our

intervention. You know, it is news to us now to hear that we should have gone through the CNSC when that channel hasn't proved helpful in the past. So if this is --

THE PRESIDENT: We are talking about 2014, I just heard? We are now three years later, why is that ERA not public somewhere? Staff...?

MS TADROS: Haidy Tadros for the record.

I just want to bring us back to sort of the licence application before you, and as it was explained, so the process that staff takes when we look at an application is the application is supported by a lot of other documents as well and we had on hand the 2014. So as part of our EA report, all the referenced information that was used to assess the environmental assessment, the environmental risk assessment and the predictive analysis that was done was part of the application, part of the CNSC staff's submission to the Commission. So that was at least available.

The ERA, again, is OPG's to look at and the other component that we have to look at is the Public Information and Disclosure Protocol that is in place from OPG's perspective. So maybe to that I will ask Ms Lisa Donnelly, who is our Communications Executive with regards to the Public Information and Disclosure Program, if she has any details to share with regards to OPG's Public

Information Disclosure Program.

THE PRESIDENT: But I really want some clarity on this from staff. The moment you accept an ERA or EA or anything like that, why is that not a public document automatically? If they don't release it, CNSC should release it. Would somebody please explain this to me?

MS TADROS: Haidy Tadros for the record. So the environmental assessment and how the environment is reviewed and assessed is our document. So the Environmental Assessment Report is made available and is part of our CMD.

With regards to the Environmental Risk Assessment document that OPG submits, I will pass the question to Mr. Mike Rinker.

MR. RINKER: Mike Rinker for the record. So certainly a document that is referenced that would support an EA under the NSCA, it's our view that these are public documents. I do understand that there were issues in the past where a draft such as a document to support *Fisheries Act* authorizations, whether a draft, an interim document, that we wanted to have those -- the licensee requested and we agreed to have the document finalized before it was released. Those are some of the information exchanges that were probably the example that

proved difficult with the Lake Ontario Waterkeeper.

However, it is our view that anything related to an EA, whether it's a reference document from the licensee or whether it is our science or whether it is Health Canada or Labour Ontario, these should be publicly available and perhaps the onus is on us to reach out to the Lake Ontario Waterkeeper to make sure that these information channels are improved.

THE PRESIDENT: Thank you.

We have to move on.

Dr. Demeter for this one. Then we will take a break I think.

MEMBER DEMETER: Thank you for the presentations. You had a series of 21 recommendations.

--- Off microphone

MEMBER DEMETER: There we go. Sorry.

Thank you for the presentation. You had a number of recommendations from your presentation and your submission. On page 4, Recommendation 4, it says that:

"OPG and CNSC should investigate the cause for increasing tritium concentrations in 2008."

And if I go to CNSC's submission, so that's H5, page 58, the tritium concentrations per year in liquid are given there and they literally just go up and

down every year and there is actually no trend. There is a high point in 2015, but if you look in 2016 that's a six-month value and you impute it, it actually goes down again. So it seems to just go up and down, up and down, up and down, but I don't understand your comment that there is a trend of increasing concentrations.

MS FEINSTEIN: So Pippa Feinstein, for the record.

This was a calculation that was made by our expert, Dr. Markelova, on -- in her report. And I'm trying to find the page number of her report.

I think it would be page 2 or 3 of her report under Liquid Effluent.

So I'm sorry I can't speak more exactly to her own calculations. Suffice to say that when she was looking at all available data from the applications together, she was able to detect some kind of increase in concentrations.

I'm afraid if you require more information about her exact calculations that are used to support her findings on that page, I wouldn't be able to answer them now but I can take an undertaking to ask her about it.

THE PRESIDENT: But this is our opportunity to ask.

But you really are concerned about the

impact on the lake, and all the data on the lake are that staff has calculated through our independent environmental monitoring is that the water is not impacted by tritium. So what is really your concern here?

MS FEINSTEIN: So our concern is what would happen -- well, a few concerns.

The first is what would happen in the case of an expansion, so if there was a trend in which tritium concentrations of the active liquid waste management centre is increasing, then our question would be, how would that increase the impact by an expansion of the facility. Would more tritium be released via active liquid waste outfalls? So --

THE PRESIDENT: But that's part of the design that would be kind of under scrutiny in a review into the future. I guess that's really -- I thought you were still worried about the existing facilities increasing the tritium output.

MS FEINSTEIN: As we are. We're asking if there is an increase then we're asking what the impacts on the lake would be of a continued increase or of the increase since 2008 which our expert seems to have identified.

And so that would be our concern. All of the tritium that's being processed is ultimately released

into the lake by the active liquid waste outfall and we haven't received any information about how that liquid waste is treated because we were told that that was done at the generating station, not the waste management facility.

So our concerns are that we've identified some trend where there could be an increase in tritium concentration at the site, and so we haven't been able to see how that increase, if it does exist, would be treated before released. And so for us, that's a concern about what impacts that would have on lake water quality.

THE PRESIDENT: So staff, have you detected this particular increase in tritium?

MS TADROS: Thank you for the question. Haidy Tadros, for the record.

So we -- as you know, we go through these interventions and look at all of the methodology and the models that are put before us to ensure our own calculations are accurate and to look for information there, so I'll pass that question to Mr. Mike Rinker to explain how the review went.

MS SAUVÉ: Kiza Sauvé. I'm the Director of the Environmental Compliance and Laboratory Services Division.

So in looking at this recommendation from the intervenor, the numbers that were provided were the

same as what are provided in the annual reports from the Pickering waste management facility. We review those reports and we review those reports and this, as Dr. Demeter mentioned, we're seeing similar numbers kind of going up and down. We're reviewing those numbers.

I should note that all of those results are below Pickering waste management facility's internal investigation levels, so it wouldn't have triggered anything at the site and, had it triggered something, those would have been reported during inspections that CNSC staff do and they would have looked at how the facility dealt with those increases.

So as I mentioned, they didn't trigger any of the internal investigation levels and, based on a risk-based regulation, CNSC staff haven't followed up with this any further due to the numbers being quite low and not an increasing trend.

Dr. Binder, as you mentioned, we do have the independent environmental monitoring program, and Pickering has their -- OPG has their monitoring programs, and we're not seeing increases of tritium in the lake.

The results are very, very low and, therefore, staff hasn't followed up on this any further.

THE PRESIDENT: OPG?

MS MORTON: Lise Morton, for the record.

So similarly to what's been discussed, the data is presented through to 2016 in our CMD, page 61, Figure 16. We do not see any evidence of an increase in tritium in that stream.

You can clearly see in 2016 a decrease, and there's just a variation year over year.

I just want to be very clear that these levels that we're talking about are very low, small percentage of the derived release limit, and we do not see any evidence of an increasing trend.

THE PRESIDENT: On that? Okay.

MEMBER MCEWAN: Are any of the new buildings or the new DSC processing facility associated with the production of tritium?

MS MORTON: Lise Morton, for the record.
No.

THE PRESIDENT: Okay. There's a consensus here, we're going to take a break for 10 minutes. Back at five to.

Thank you.

--- Upon recessing at 10:42 a.m. /
Suspension à 10 h 42

--- Upon resuming at 11:00 a.m. /

Reprise à 11 h 00

THE PRESIDENT: Okay. We are back and I would like to continue with the question session, and I think we're into the next round with Ms Velshi.

MEMBER VELSHI: Thank you, Mr. President.

And actually, I'll get back to my first question, which is around the adequacy of the EA.

So OPG, we haven't heard from you on the intervenor's claim that the 2014 ERA was not available to her. Can you comment on that, please?

MR. McCALLA: Raphael McCalla, for the record.

OPG was approached to provide the 2014 ERA. At the time, we were pretty close to completing the update that we were working on, and we took the position that we would forward that particular update.

Unfortunately, there was an additional challenge which presented itself after that decision was made which delayed the issuance of the current update. In hindsight, perhaps it would have been appropriate for us to release the 2014 document. And I would say, going forward, we'll ensure that when we do complete the ERAs, we'll post them on our site, which is something that we don't

currently do.

MEMBER VELSHI: Is that just a waste policy or is that an OPG policy of not posting ERAs, once they're completed, on your web site?

MR. McCALLA: So the standard -- Raphael McCalla, for the record.

The standard requires us to do these every five years, and if there's a licence hearing coming up, then we're required to do one as well. So -- and those would be normally provided at that particular time because of the hearings that would take place.

However, listening to all of this discussion, I think it makes sense going forward that we start posting them regardless of whether or not we are going to be in front of the Commission for a licence hearing.

MEMBER VELSHI: Thank you.

And Ms Feinstein, you'll get your opportunity to respond to all of this.

Staff, your proposal that the intervenor approach you if they don't get information that they need such as the ERA, I was a little surprised that you actually prefaced that with "those who've received participant funding". Why would that not apply to every intervenor? Was there a reason why?

DR. DUCROS: Dr. Caroline Ducros, the Director of the Environmental Assessment Division, for the record.

I think that was just an add-on. Anything, as Mr. Rinker noted, that's referenced in the environmental assessment is available to the public, so we would have provided it. Unfortunately, we didn't realize it was missing.

MEMBER VELSHI: Thank you.

Okay, Ms. Feinstein. Now you have an opportunity more around the adequacy of the environmental assessment that staff has done and what are your thoughts on that now that you've heard on how that has been done.

MS FEINSTEIN: Thank you. Pippa Feinstein, for the record.

There are three broad points that I'd like to make about the EAs and ERAs.

So far at the hearing, we've been focusing mostly on the ERAs. There was one for 2014 and then again for 2015.

It's wonderful for us to hear that in the future these ERAs will be posted, and those will be very helpful as much of our assessment for this hearing was relying on the 2003 EA which we were actually given by OPG. But of course, that EA is quite outdated now.

With regard to the requirement for an EA under the *Canadian Environmental Assessment Act*, in our research, it looks like there could be three potential sections of the Regulations for designated activities under the Act that would require an EA under *CEAA* for this current expansion. They were sections 33(c), 34(c) and 37(a).

37(a) especially concerned waste processing facilities that are regulated by the Canadian Nuclear Safety Commission that would require an EA if there was an expansion outside of a licensed area.

From our research, it looks like buildings 5 and 6 as well as part of building 4 and the new processing building were all outside of the current licensing area for the waste management facility, so it looks to us as though an EA under the *Canadian Environmental Assessment Act* might be required for the current expansion.

Regardless, there was no discussion in OPG's application or CNSC staff's CMD document about why an EA under *CEAA* would not be required. In fact, an EA under *CEAA* wasn't discussed at all in both applications.

So Waterkeeper would like to ask why an EA wasn't done and specific answers from either OPG or CNSC staff for why those sections of the Regulation designating

physical activities do not apply to the facility and why an EA under *CEAA* would not be required, and then we would be able to, obviously, answer to those arguments.

THE PRESIDENT: So why we don't take them one at a time?

Staff, you want to address that particular question?

DR. DUCROS: Yes. It's Dr. Caroline Ducros, Director of the Environmental Assessment Division.

So yes, the CMD has an EA report. It's the elaboration of the safety control area for environmental protection. But I'm going to go directly to the process that's followed.

Outside of the case of pre-consultation for projects, there's -- the first step, really, is a letter of intent or a licence application that is submitted to the CNSC.

We review those, and that's a process that we call the EA determination phase.

At the EA determination phase, we scrutinize what is being proposed against the Regulations designating physical activities, which is a Regulation under the *Canadian Environmental Assessment Act 2012*, and we see whether any of those activities as proposed would require a *CEAA*.

So we did do that exercise. The Regulations that apply to nuclear facilities are Regulations 31 to 38. As Ms Feinstein mentioned, she was more particularly concerned with 33 and 37, and 34(c).

We looked at all those. In terms of 33 and 37, this is not a new facility and it's not on a -- it was not outside the boundaries of a licensed site by OPG and, therefore, we don't believe that that section applies.

The other section 34(c), it doesn't apply because the Pickering waste management facility doesn't process and use nuclear substances other than uranium, thorium and plutonium.

So those are the sections that were cited, and we're very confident in our assessment that this wasn't a CEAA EA. However, I would like to note that there -- the EA process that we undertake under the NSCA is as robust. It does, contrary to what the intervenor had mentioned in her presentation, look at all the same environmental project effects.

And there are more than two previous *Canadian Environmental Assessment Act* that we did rely upon for some of the information as input to this EA under the NSCA. It was the 2004 EA where a decision was made and the 2009 EA -- sorry, the 2003 and 2009.

So the 2003 was for the conduct for the

expansion of the PWWF and the 2009 was for the refurbishment EA and continued operations.

Those EAs included elements that -- elements that aren't necessarily asked for all the time in NSCA EAs, but can be required, so cumulative effects, alternative means.

And in terms of the public participation, which was one of the comments that was noted that was lacking, the reason why we post these EAs as part of the CMD is so that -- and provide participant funding for those who want to scrutinize the whole CMD or, in particular, the EA and the NSCA, is so that we can have that type of engagement.

On a case-by-case basis, we can go out earlier if need be, so I believe that addresses the question.

THE PRESIDENT: Thank you.

Your next point?

MS FEINSTEIN: So -- well, I'd like to respond to that as well.

Perhaps I'm not understanding, but in Figure 8 of OPG's relicensing application, there's a map of the currently licensed area and from that map, it looks as though the newly-proposed processing building and buildings 5 and 6 are outside of the current licensed area.

Perhaps I'm reading it incorrectly, but then it can be corrected for the record.

THE PRESIDENT: OPG, staff, anybody?

DR. DUCROS: Dr. Caroline Ducros.

So I have the Regulations in front of me. Section 37(a) states:

"A facility for the storage of irradiated fuel or nuclear waste on a site that is not within the licence perimeter of an existing nuclear facility." (As read)

And it is within an existing nuclear facility. It may not have been for this particular waste management facility area, but it is within the perimeter of a facility as we regulate and oversee it.

MS FEINSTEIN: So for clarification, sorry, is that then the Pickering nuclear generating station? So the fact that the Pickering waste management facility is within the licensed area for the generating station, is that why an EA would not be required?

MR. RINKER: Mike Rinker, for the record.

I guess the opposite way of looking at this is, are the proposed facilities being proposed in an unlicensed area. And the answer to that is no, they're being proposed within the boundaries of licensed --

THE PRESIDENT: And as much as I'd love to get into a legal debate here, I think you heard the argument, so let's move on to the next point, please.

MS FEINSTEIN: Okay. So the other one -- the other point is the difference an EA under the *Nuclear Safety and Control Act* compared to that under *CEAA 2012*.

So for example, to compare the scope of these EAs, there was an EA done in 2003-2004, and that was for Phase 2 of the waste management facility. And that EA basically concerned only two waste storage buildings.

That EA was over 500 pages, and it gave a really good snapshot at what, exactly, the ecological conditions of the site were and how the proposed new storage buildings would impact that site.

By comparison, the EA under the *Nuclear Safety and Control Act*, which was undertaken for this expanded project, is less than 40 pages, and that's including a new processing facility, as well as two more storage buildings, as well as a 500-metre extension of a transfer route, as well as the new active liquid waste infrastructure that would need to be installed.

So, I'll direct you to our written submissions that detail exactly what kind of information is missing on each of those things.

But, suffice to say, there's a huge

difference in the scope of environmental assessments under CEAA compared to the *Nuclear Safety and Control Act*. And not only are there differences in the scope of information that's provided, there's a significant difference in the scope of public participation.

So, for environmental assessments conducted under CEAA, 2012, there are several distinct opportunities for public input. That's done at the scoping stage, it's done at the stage where we can comment on the final screening report and then, a third time for follow-up studies. None of those distinct opportunities are available for an EA under the *Nuclear Safety and Control Act*.

THE PRESIDENT: Okay. A quick reply from staff. We need to move on to some other points that were raised by the intervention.

DR. DUCROS: Thank you. Dr. Caroline Ducros, for the record.

I think a key focus on the EA under the NSCA that I think affords a much greater robustness in terms of participation is that annually we come back and we report at the Regulatory Oversight Report Review. So, there's an annual opportunity for the public to intervene at those events.

The information may not be in a 500-page

report, but I think what's important is that the information isn't just the past EAs, where those existed, it's also the ERA, the inspections, the compliance verification, monitoring reporting -- both on-site -- the IEMP off-site. All of that data is synthesized into the report as part of the CMD.

And any opportunity that people want to discuss it, we are available. They're not concerted opportunities in the sense of CEAA, but there are those distinct opportunities at the Regulatory Oversight Report and at every re-licencing hearing. Because it's a lifecycle EA, it will be updated with new information every renewal, every amendment to every licence until the abandonment of the facility.

THE PRESIDENT: Okay. Thank you. I'd like to move on to Dr. McEwan.

MS FEINSTEIN: I'm sorry, I just have one more point about an EA, if I can make it briefly.

THE PRESIDENT: Please not. We already have done and it's been contested the way we do business. Let's leave this as is now.

Go ahead, please.

MEMBER MCEWAN: So, I guess this is a question for Waterkeeper and it really reflects the recommendations that you put on basically waste processing

and effluent.

You made two statements with no evidence or justification in your opening remarks. The first was that there have been significant adverse effects to the lake caused by -- and I'm not sure whether you said the generating station, the combined, or the waste facility, but that was a fairly inflammatory statement to start with without any justification. So, I'd like to understand why you make it.

The second is the closure of Rotary Beach. Again, you didn't give reasons why it was closed. So, I think it would be helpful to help us understand those two comments because it lets us reference back to some of your recommendations.

MS FEINSTEIN: Yes, of course. Pippa Feinstein, for the record.

So then, our expert, Dr. Markelova, was looking at water quality concerns in Lake Ontario. She found that the Pickering site -- so that would be the nuclear generating station, as well as the waste management facility, has -- let me make sure that I quote it properly, that:

"...the average level of tritium contamination at the Pickering site is significantly elevated compared

with all other Canadian facilities
that process tritium." (As read)

And, according to her calculations, when she's talking about significantly elevated, she says it's about approximately 50 times at the Pickering station compared to other nuclear facilities.

So, Dr. Markelova had spoken about how the Pickering site, because it is an older site, is responsible for significant tritium contamination of local lake water.

Evidence of this is also included in the 2003 EA that we looked at for groundwater.

MEMBER MCEWAN: I'm going to interrupt, because what you said was "significant adverse effects".

MS FEINSTEIN: Yes.

MEMBER MCEWAN: So, what is an adverse effect?

MS FEINSTEIN: Well, so, another example of an adverse effect are then the tritium contamination locally, would be the significant fish kills at the site due to the cooling water intake structure. Now, both of these things are --

THE PRESIDENT: We're not talking about the Pickering Nuclear Power Plant --

MS FEINSTEIN: Yes.

THE PRESIDENT: -- we're talking about the

waste.

MS FEINSTEIN: Yes, which illustrates, again, the use of having both hearings at the same time where the impacts of the waste management facility can be understood in the context of the larger nuclear site, the larger Pickering nuclear site which, as past Waterkeeper interventions have shown, have significant adverse impacts on local aquatic biota due to the cooling system, as well as chlorine and tritium contamination of local lake water.

THE PRESIDENT: Okay. Thank you.

MEMBER MCEWAN: Sorry. I would just like for OPG to respond to that.

MS TADROS: Haidy Tadros, for the record. Just a few things. And thank you, sir, because we are not in a Pickering Nuclear Generating Station hearing.

But based on staff's review of the environmental assessment and environmental risk assessment, there are no impacts to the lake from the Pickering Waste Management Facility activities.

And just as a correction, there are no tritium processing happening at the Pickering Waste Management Facility location either.

THE PRESIDENT: Okay. Dr. Soliman?

MEMBER SOLIMAN: Thank you very much.

There is two recommendations. The last recommendation, recommendation No. 20, recommendation No. 21 on page 25. These recommendations are related to the release event reporting incidents.

My question is for Waterkeeper. What incidents do you feel is not reported, or reported inadequately? And after you highlight it, I would like to hear from OPG, please.

MS FEINSTEIN: Thank you. Pippa Feinstein, for the record. So, this concerns several of Waterkeeper's recommendations for the public information protocol and public disclosure for the site.

In those documents which were provided by OPG upon our request, we noticed that there were certain types of reporting that were discretionary and other types that were mandatory.

We noticed that the types of environmental reporting seemed all to be discretionary, while other types of reporting, such as doses to workers, for example, were mandatory.

So, we're asking for all of the types of reporting that are already included in Appendix E -- sorry, Appendix A of OPG's reports to become mandatory.

So, those are some examples of what that reporting would include and that's events with off-site

effects which could result in public or media interest or concern, as well as unplanned events, including those exceeding regulatory limits, as well as abnormal liquid emissions below notification requirements, and issues related to significant environmental aspects.

So, these are already included in Appendix A of the protocol, but they're all discretionary. And from what we were able to see when we looked at the actual types of reporting that's done, it doesn't look necessarily like those types of reports are being made.

The types of reports that appear mandatory from OPG's documents, again, are things like doses to workers or lost time events, accidents for workers.

THE PRESIDENT: Okay. OPG, can you, please. What is it --

MS MORTON: Lise Morton --

THE PRESIDENT: I thought CNSC developed a pretty extensive regulatory document about, not only mandatory, but particularly any incident should be posted somewhere.

So, maybe you can hear from CNSC whether you believe they're compliant, not only with the mandatory, but also in the public interest.

MS TADROS: Haidy Tadros, for the record. Thank you for the question, sir.

So, you are correct, we have our REGDOC, Regulatory Document, RDGD 99.3 on public information disclosure protocols and, effectively, the regulatory requirement is for the licensee to establish the information that is pertinent for their community to hear about, to know about and that would be up to OPG to define.

CNSC staff would then be in a position to look at that, confirm that and then hold OPG to account based on their public information disclosure protocol.

So, maybe OPG can describe for us what their public information disclosure protocol contains.

MS MORTON: Lise Morton, for the record. I'm going to ask Kevin Powers who's come up to the table to answer that.

MR. POWERS: Kevin Powers, for the record. OPG is committed to transparency and living up to its transparency protocol which is posted on its website.

Among the items committed to in that protocol, is to communicate any significant nuclear operational developments and to communicate within one business day any unplanned events exceeding regulatory limits, off-site effects, or events which could result in public interest or concern.

We believe that we have and continue to post as required by the protocol.

MS FEINSTEIN: Again, we still have continuing concerns about liquid emissions that might be below notification requirements, for example, which are discretionary under Appendix A but not mandatory under their own disclosure requirements.

As well, I'd like to direct the Commission's attention to the final recommendation which you were talking about as well. When events are reported, we're requesting that they be provided along with incident dates as well as reporting dates and exact description of the event including actual data for any measured releases. And we ask that any data be provided that's accompanied with DRLs and ALs, action levels, so that members of the public can understand the severity of any event.

THE PRESIDENT: OPG?

MS MORTON: Lise Morton for the record.

We believe that we post that data. So we do have environment reports that are posted on a quarterly basis that include the emissions limits as compared to DRLs and action levels.

THE PRESIDENT: Thank you.

Dr. Demeter?

DR. DEMETER: I'm good, thanks.

THE PRESIDENT: Ms Velshi?

MEMBER VELSHI: I want to give OPG the

opportunity to respond to the intervenor's concerns about stormwater monitoring, what the requirements are, what do you do, and what are the plans, please.

MR. McCALLA: Raphael McCalla for the record.

So with respect to stormwater monitoring, the requirement coming out of an EA with respect to how we've managed the Pickering Waste Management Facility requires us to ensure that we're meeting the water quality objective around stormwater. And what that entails is to develop a stormwater management plan and to capture things like one-in-100-year storm, how the storm system -- the system you put in place -- would manage suspended solids, oils, that kind of thing. So you'd have the required storm receptors in place.

And then you provide that design to the Ministry of the Environment for their review in support of your application for an amendment under their regulation. So based on that review, if you meet all those requirements, then your ECA, environmental compliance approval, is revised and in that document it will prescribe any conditions which you need to meet.

With respect to the environmental compliance approvals that currently exist for the Pickering site, including the Pickering Waste Management Facility,

there are no requirements listed for us to monitor on a continual basis or even periodically our stormwater runoff from our facilities. However, OPG has taken the approach with respect to the waste management facilities to monitor the runoff, and we do report the gross beta-gamma activity associated with the rainwater that's actually discharged from those facilities.

THE PRESIDENT: I think we are -- you exhausted us, I think, for now. But you have the final word.

MS FEINSTEIN: Thank you for your time.

I did want to mention quickly that the environmental monitoring plan reports and environmental emissions data reports don't include a lot of information that we have been requesting that be shared concerning groundwater monitoring, non-catchment basin monitoring, and this aggregated data for the site. So I'd like to first draw the Commission's attention to that aspect of our written submissions.

But to close, as I have just presented, a lot of information is still needed to complete the current application for the Pickering Waste Management Facility's continued operation and expansion. A proper environmental assessment for the Pickering Waste Management Facility, more information about current and past impacts to local

surface and groundwater and how they're monitored at the Pickering Waste Management Facility as well as more clarification and information concerning protocols and reportable events that impact the local environment.

As Waterkeeper discussed in its written submissions, a considerable amount of information was also held back by OPG on the grounds that it concerned the generating station at Pickering rather than the waste management facility -- a difficult stance to defence, as the two facilities are fundamentally interconnected.

However, with this in mind, it is important to note that the current licence for the waste management facility will only expire on March 31st, 2018. As such, the licence renewal hearing for the facility could be postponed until the nuclear generating station relicensing hearing, which is planned for later in 2017. At that point, the two relicensing applications could be held in parallel processes that would permit cross-referencing between applications and supplemental materials. This would be a relatively simple method of addressing information gaps in the current waste management facility relicensing process.

Postponing any decision in the current hearing to later in 2017 could also help ensure the Commission Tribunal is provided with a better sense of both

Pickering nuclear generating facility's operations and interactions, and it would allow OPG time to provide more information to supplement the current waste management facility's EA.

We did hear from CNSC Staff that there are opportunities throughout the year for members of the public to comment on the operations of all facilities. Again, Waterkeeper would ask what's the point of having a licence hearing if all of that information can't be condensed and collected together to inform particular licence decisions.

And on that I'll thank you for your time.

THE PRESIDENT: On that point, the Commission can intervene any time to change a licence. So in any annual report, if something comes up that the Commission feels that the licence needs to be amended, it can be amended on our motion. So don't discount the importance of such a performance -- annual performance test, if you like.

What I would like also to ask you, you mentioned that you will take an undertaking about tritium. I think the tritium increase, I thought we had some pretty good explanation. And I've read your expert report. So if you want to do that, that's fine, but I'm not sure you need to do it anymore. It's up to you.

MS FEINSTEIN: Okay, thank you.

THE PRESIDENT: Okay, thank you.

I'd like to move on to the next submission, which is an oral presentation by Women in Nuclear-Canada, as outlined in CMD 17-5.10 and 5.10A. And I understand that Ms Kleb will make the presentation. Over to you.

CMD 17-5.10/17-5.10A

Oral presentation by Women in Nuclear-Canada

MS KLEB: Good morning President Binder, Commission Members, and members of the public. My name is Heather Kleb, and I am the president of Women in Nuclear-Canada, or WiN-Canada. I'm also the vice-president of Women in Nuclear Global, and a senior manager in Regulatory Affairs at Bruce Power.

With me here today is Pauline Watson, the consultant WiN-Canada retained to conduct a review and survey of member views of the Pickering Waste Management Facility licence renewal. Ms Watson also happens to be a long-time WiN-Canada member.

Now, it is important to note that we are not here today to speak on behalf of Canadian women. No organization can accurately make that statement. What we can claim is that WiN-Canada represents about 1,600 women

and men across Canada and nearly 1,000 of them live here in Ontario. You may also be interested to know that WiN Global has over 26,000 members in over 100 countries and regions around the globe.

While many WiN members are employed in the nuclear energy sector, WiN-Canada welcomes members from industries that use other nuclear and radiation technologies, such as medical facilities, research institutions, and mining operations as well as all of the suppliers that support these industries. Together, our mission is to:

1. Share the many contributions that nuclear technologies make to society;
2. Facilitate the exchange of knowledge and experience among our members and chapters; and
3. Promote an interest in nuclear-related careers among women and young people.

As our industry is made up of about 20 percent women, WiN-Canada works to showcase the vital contribution that women are making as leaders in the industry. Women are strong opinion leaders in Canada, and it is important for our voices to be heard, our support of all aspects of the nuclear industry, and including the renewal of the Pickering Waste Management Facility licence.

Ontario Power Generation has been very

supportive of WiN-Canada programs and events, the advancement of women, and highlighting the important role women play. OPG supports its 450 WiN-Durham chapter members by mentoring the WiN-Durham board, sponsoring the skilled trades networking dinners, and hosting our annual conference in 2015.

Now, these opportunities to network within and beyond WiN are important as they provide an opportunity of our nuclear engineering, science, technology, trades, and other nuclear-related professionals to connect and share their expertise. We are highly skilled workers who work in any industry, but we choose to work in nuclear because we know that we are helping to produce a clean, safe, reliable, low-carbon power that is an important part of Canada's clean energy portfolio.

As women, we are concerned about the environmental legacy we are leaving our children and grandchildren. We know that nuclear-generated electricity produces virtually no greenhouse gases and therefore does not contribute to climate change. Nuclear power plants also produce large amounts of continuous power, enabling the use of intermittent power sources, such as wind and solar.

And we understand our responsibility to work safely not only to ensure the safety of our

colleagues, but to ensure the safety of the communities where our families and friends live. Many of our members have raised children in close proximity to the Pickering Waste Management Facility. We would not work in this industry and live in these communities if we did not feel it was safe to do so. As employees, we know that Canada's nuclear power operations and waste management activities have a proven track record of being among the safest in the world.

There is also great economic value in nuclear, due to its low operating costs. Over the years, OPG has had positive socio-economic effects, such as increased employment, income, business activity, and municipal revenue within the community. Although women are generally underrepresented in the nuclear sector's workforce, WiN-Canada members play key roles in the safe operation of the Pickering Waste Management Facility and the renewal will provide continued professional growth opportunities for women who work in waste management.

As you know, we undertook a study of women employed in nuclear, and in waste management particularly, and the training resources available to prepare women as they pursue these careers. While such training programs exist, women and young people need to see a clear path to these careers and training programs that support them.

We were also interested in understanding the real and perceived barriers to women entering the sector. While perceived barriers regarding a woman's ability to perform in science and engineering have largely been dispelled, some real barriers continue to exist. The pipeline of talent has achieved gender parity in many areas, but it is a leaky pipeline for women. With each step in their education along their career path, their numbers can drop. This can be addressed through increased attention to the number of women entering careers in the sector, and measures to ensure employment equity so that they stay in the sector.

WiN's activities serve as a first step in this process of recruitment and retention and our consultant review of the Pickering Waste Management Facility licence renewal application offers a few more. There is a recognition of the need to make full use of all of Canada's talent to be competitive in the skilled trades, science, technology, engineering, and math. And with the support of organizations like WiN-Canada, the industry is poised to take advantage of this largely untapped resource.

Now I'm going to invite our consultant, Pauline Watson, to provide you with an overview of her review of the licence renewal application and survey.

MS WATSON: Good morning.

On behalf of WiN-Canada, I reviewed the Pickering Waste Management Facility licence renewal application and the related Commission Member Document and submitted a report. I am a professional engineer who has worked in the nuclear industry in Ontario for over 40 years, including some consulting work at the Pickering Waste Management Facility. I am also a CNS council member and was plenary chair for the recent nuclear waste management conference.

The objectives of this review are shown here -- and I'll just quickly go over that -- to disseminate information about the Pickering Waste Management Facility licence renewal; to gather information about any issues of concern to women at PWF that are relevant to the review; and to identify issues of concern to WiN members related to the continuing operation of PWF.

For this review, I developed a survey that was posted on the WiN-Canada website. We received 63 responses, seven of whom were past or present employees at PWF.

General questions were asked about gender, age, and education, as shown here. Responses from 13 men allowed us to see if there were gender differences. You can see that most respondents were in the age range of 35 to 54, and it is a well-educated sample with two-thirds of

the respondents having university degrees.

Note that no statistical analyses were conducted because of the small sample size and given that we were trying to retrieve qualitative observations.

The survey asked about current knowledge of the nuclear waste management process. Eighty-three percent felt they had an understanding of the waste management process in Ontario, 75 percent felt they understood what happened at the Pickering Waste Management Facility, and 68 percent would be interested in learning more about the processing and storage of used fuel.

Because the survey questions included a summary of what OPG was doing in each of the SCAs, we were able to share this information with WiN-Canada members. As Ms Kleb said earlier, one of WiN's goals is the exchange of knowledge about all aspects of the industry amongst our members. This provides them with information to help education our families, friends, and members of the public.

The first part of the survey was for workers at PWWF. After describing how the SCA is to be addressed, respondents were asked if there were issues of particular relevance to women. They were also asked whether they thought the SCA was being satisfactorily addressed and if they had additional comments on any issues.

The respondents who work at PWWF were asked about the risks related to continued operation of the facility. Personnel training, work organization, and job design are covered by the management system and human performance SCAs.

Safety culture is addressed in the management system SCA. Because we represent women working in the nuclear industry, WiN is concerned that the strong nuclear safety culture will continue during the proposed continued operation period.

As shown in the first graph, the top graph, PWWF workers didn't see any issues specifically related to women in the areas of organization and safety culture. One comment was provided as shown here.

The second graph shows that planned initiatives in this area were considered to be at least somewhat satisfactory.

Training is covered by the human performance SCA. As shown in the first graph, there were no issues specifically related to training for women. Most respondents agreed that the plans for training are at least somewhat satisfactory.

The areas where there was some degree of concern among the PWWF respondents included radiation protection and conventional health and safety.

A general radiation protection question was posed, as shown here, radiation protection being of particular importance to female employees of reproductive age. One respondent thought radiation protection may have unique issues for women. Comments were that Pickering was thought to be leading the industry in this area.

Conventional health and safety covers workplace safety hazards and protection of personnel and equipment. One respondent agreed that there are issues specifically related to women. Four thought that this was being at least somewhat satisfactory.

Although the sample size of workers at PWF was small, as indicated by education levels, this was a very knowledgeable group.

All 63 respondents were asked about the remaining SCAs. Environmental protection and waste management were areas where most thought there were issues of relevance to women.

And a statement posed here, as shown here, about women being particularly concerned about nuclear or hazardous releases to the air or water was agreed by 56 percent.

I've just got -- I'll finish up really quickly here.

The other area where there were thought to

be issues relevant to women was waste management. And I'll just skip along there. Twenty-four percent agreed there were issues related to women in this area, but 41 percent agreed that waste management was somewhat satisfactory.

Now, an interesting thing here is that the green bars show that at least half of the 63 respondents didn't know if these issues were being satisfactorily addressed.

So this one shows responses by gender, and it shows that there were some differences in emphasis between men and women, women being more concerned about environmental protection and security than men.

And this is just a graph showing respondents by age. And you can see some variations there that could be discussed later.

And I'll just get on to the conclusions.

So the conclusions were that based on the technical review and survey results, that initiatives planned by OPG will ensure that continued operation of PWF to 2028 is well managed, safe, and environmentally responsible. The majority of those who completed the survey agreed the SCAs are at least somewhat satisfactorily addressed.

Some PWF workers thought there may be issues of relevance to women in the areas of radiation

protection and conventional health and safety. But training programs appear to be appropriate and well managed and no issues were identified in work organization or job design.

These respondents are well educated and knowledgeable in the area of waste management.

And finally, environmental protection and waste management were areas where a majority of respondents didn't know enough to make an assessment, and these are areas where more information is needed.

MS KLEB: So to sum up, we believe that the plans for the continued operation of Pickering Waste Management Facility to 2028 will provide satisfactory consideration of the health and safety of its employees, will make efforts to maintain its skilled workforce, and will address the safety and control areas that were of particular interest or relevance to survey respondents, including environmental protection, waste management, nuclear proliferation, and safeguards related concerns.

Finally, we want to stress that WiN-Canada members are not only knowledgeable, but highly skilled workers and would not be working in the nuclear industry if we did not believe in the technology and its safety. And because of our day-to-day interaction with the nuclear industry, our strong belief in the expertise of OPG's

employees, and their proven history of safe operation and responsible waste management, WiN-Canada supports OPG's application for a licence renewal.

Thank you.

THE PRESIDENT: Thank you.

Let's start the question session with Dr. McEwan.

MEMBER MCEWAN: Thank you, Mr. President.

Thank you for the presentation and the survey.

Just one question about the survey. Why did you pick a three-point scale and not a five-point scale, which would be a more usual approach to trying to understand perceptions about an area.

MS WATSON: We had two scales, one for whether they thought there were issues, and whether we thought the issues had been satisfactorily [sic] or not. And it was neutral, disagree, agree, so it wasn't just -- is that what you mean? It just wasn't the three? We just summarized the results --

MEMBER MCEWAN: No, but I mean most surveys that I see of this sort would be a five-point scale, strongly disagree, disagree, neutral, agree, strongly agree. That would be a more robust way of getting these type of qualitative data to understand perceptions of

an area.

MS KLEB: Heather Kleb for the record.

I think what we also attempted to do was to be consistent with the approach that the CNSC takes when they're rating SCAs during annual status updates. And our members would be familiar with that sort of categorization.

THE PRESIDENT: Ms Velshi?

MEMBER VELSHI: Thank you.

How many women are there are Pickering Waste Management Facility?

MS MORTON: Lise Morton for the record.

So just to set some context as well, the employee population in total at the Pickering Waste Management Facility is relatively small. I believe currently it's approximately 26 employees. Out of that, currently there is one female employee, but over the years -- sorry, and that's one directly working at the Pickering Waste Management Facility. There are these other employees that come from other what we call central-led functions, so for example security, radiation protection, correct, that will interface with the facility.

So there's one permanent employee right now at the Pickering Waste Management Facility, there are others within the Pickering station that support the Pickering Waste Management Facility, and certainly over the

years we have had higher numbers of women that have kind of come and gone through the facility.

MEMBER VELSHI: So the six or seven that responded here, who would those be? First of all, are they all women?

--- Off microphone / Sans microphone

MS WATSON: ... had ever worked at the Pickering Waste Management Facility or in a central-led support role. And in fact they were all women.

MS KLEB: Heather Kleb for the record. And they also spanned disciplines from security to maintenance and quite a range.

MEMBER VELSHI: Thank you.

THE PRESIDENT: Dr. Demeter?

MEMBER DEMETER: Thank you for the presentation.

I think it is refreshing to have a specific approach looking at the views and perceptions of women as we do with different groups that may be impacted, working women. I think when I saw the survey, I see this to be more of a pilot to give you a certain amount of direction and probably some hypothesis generation.

Just, if I may, there's two directions: one would be a larger survey that might actually give you statistical numbers to make some conclusions; or a more

ethnocultural qualitative research which is much more -- small numbers, but very in-depth interviews to look at cultural and gender-specific issues related to the study.

So I don't have a specific question. As I say, I appreciate the work that's been done. I think it's a foundation perhaps if you wanted to go further, either qualitatively or quantitatively, but the methodology would have to be I think much more robust for quantitative or a slightly changed methodology for qualitative.

MS KLEB: Heather Kleb, for the record.

Thank you. We agree, and that's why we cautioned that no statistical analyses had been undertaken. However, there were 63 respondents and they're very knowledgeable respondents, so we're quite pleased with that. But we viewed it as more of a qualitative survey pulling in information rather than a statistically rigorous one, so we agree.

MEMBER DEMETER: Thank you.

THE PRESIDENT: Dr. Soliman?

MEMBER SOLIMAN: Thank you. Thank you very much for the presentation and the surveys. I would like to go directly into the recommendation you gave in Section 12. There is some lack of information or knowledge about the safety control areas. I would like to ask OPG what they can do in order to reach to WiN and give them the knowhow or

knowledge in the safety control areas?

MS MORTON: Lise Morton, for the record.

Absolutely, OPG, we already do engage with WiN and, in particular, our Durham Chapter is very active and of course that's where the Pickering Waste Management Facility is located, is within the Durham Chapter of WiN. So, you know, we do have information exchanges with them.

I think we take the information from this survey with great interest, and it indicates some areas where we could enhance and increase our information exchange. So we absolutely will work with WiN Canada on opportunities to do so.

THE PRESIDENT: So 63 apply. You said you have 1,600. So why, particularly in nuclear, I thought you'd generate a lot more interest. I don't know what the callout...? Did you tell them how you're going to use it? I wouldn't get too excited about 63. Why would you allow males to go in there? You're looking after WiN and you don't want males to skew it, because we're looking for the women issues here, not to be gender correct.

MS KLEB: Maybe I'll start. So within Ontario -- well, our WiN Durham community is roughly 400 women, so 63 out of 400 who are likely to be the most interested, it's not bad. Pauline can also speak to how the survey was distributed.

But we are very inclusive. Men and women can all join and we encourage them to join, and it wouldn't be a complete survey if it excluded anyone.

MS WATSON: Pauline Watson, for the record.

We posted the survey on the website and we also had the chapter leads distribute it. However, we found that a lot of women could not access that website from their work computers, so we got a lot of feedback initially that, yes, I'd like to do it, but I can't access it at work. So given some of those difficulties, you know, I think we did pretty well.

The other aspect of it, we did ask for male and female so that we can take out the males that answered to analyze the female responses. But we took that as an opportunity to see if there were differences in perception and found that there were some. I don't know whether they were significant but, as you say, it provides a lot of ideas for a future more in-depth survey.

THE PRESIDENT: Why couldn't they access it from work? Is that a security issue?

MS WATSON: Yes, it was a firewall.
Pauline Watson, for the record.

MS MORTON: Lise Morton, for the record.
So I'm not aware of that, and we will

certainly look and understand if the women at OPG, and understanding there are other people in the chapter that don't work at OPG, but we will certainly take a look and understand if there are any issues with accessing the WiN website from work. I'm not aware of that, but we'll take a look.

THE PRESIDENT: Well, next time you should send it Lise here, I think she's qualified.

--- LAUGHTER/RIRES

MS MORTON: I'm in a different chapter.

THE PRESIDENT: Questions? Okay, thank you. Thank you very much.

MS KLEB: Thank you.

THE PRESIDENT: The next submission is an oral presentation by Northwatch, as outlined in CMD 17-H5.13 and CMD 17-H5.13A. I understand that Ms Lloyd will make the presentation.

CMD 17-H5.13/17-H5.13A

Oral presentation by Northwatch

MS LLOYD: Good morning, it's still morning. I thought it might be afternoon, I thought we might break for lunch.

My name is Brennain Lloyd and I'm here on

behalf of Northwatch. Northwatch is a regional organization based in north-eastern Ontario. Our interest in the Pickering Waste Management Facility is related to our more general interest in the short, medium and long-term management of nuclear fuel waste.

We had four key areas of focus in this licensing review: the expansion plans; the security if medium to longer-term viability of OPG's selected locations and methods for waste management at the Pickering Facility; the consistency of their approach with best practices and particularly in terms of environmental assessment; and, the maturity and robustness of their decommissioning plans.

So our submission included summary comments on a number of matters, which we'd be pleased to speak to, but in 10 minutes we won't go into detail in our opening remarks.

So the absence of any rationale for applying in 2016 for a licence that was in effect until 2018 some of these matters have been already subject to discussion. The approach used in safety control areas, it's a continuation of a discussion we've had with Commission members in previous licensing.

The lack of clarity around security improvements and some omissions in that field. Shortcomings of the Independent Monitoring Program. The environmental

risk assessment not being available for Pickering Waste Management Facility despite it being available for the Western Waste Management Facility, this has already been noted in discussion.

The OPG schedule construction for new and expanding processing facility for 2024 and some questions about their timing of that given our calculation based on figures provided from other sources, not OPG's, that this would take an additional 20 years to actually move the radiated fuel from the fuel bays to dry storage. So we're wondering about their decisions to delay, doubling of processing ability for in effect six more years.

So the proposed expansion, we have three general contentions with respect to the OPG licence application and, in particular, their proposed expansion. The first is that the site design does not optimize safety, particularly with respect to the selected locations of the additional storage buildings; the environmental assessment is not an environmental assessment in the full sense of that practice of environmental assessment; and, the decommissioning plan is inadequate.

Some of these items have been discussed already in this hearing.

I do want to though come back to this discussion about environmental assessment and our view of

why what was undertaken does not meet the test of it being an environmental assessment. Our reasons for that are three-fold.

One, despite the declaration of CNSC REGDOC 2.9.1 that that is an environmental assessment, the practice of environmental assessment in Canada is well-developed and it includes some very basic principles or practices; examination of need and purpose, examination of alternatives, and examination of alternative means. The environment assessment report provided as part of the Commission Member Document simply don't meet this test.

The second is that we did review the regulation designating physical activities under *CEAA 2012*, and we determined that it did meet this regulation, in particular 32(f), I think it is, Class 1B facility, for the processing of a radiated nuclear fuel with a radiated nuclear fuel input capacity of more than 100 tons per annum.

I note the discussion this morning and the rationale or the explanation that this isn't reprocessing, therefore it doesn't meet the regulation. The regulation doesn't talk about reprocessing. I think it was Ms Morton made a reference to the kind of reprocessing done in the U.S. I don't think the U.S. actually does reprocessing. But the regulation doesn't say reprocessing, it says

processing. This is a processing building, it's a processing facility, so I think it meets the regulation.

The third is the examination of alternative means for carrying out the project is insufficient. In the 2003 EA, which is where there is the most substantive discussion, the 2007 which I think Ms Morton referenced today for refurbishment simply refers back to the 2003 EA. It doesn't do a substantive examination. So I think that the EA done is inadequate and doesn't meet the requirements.

The decommissioning plan is also inadequate. The decommissioning plan basically says it's a plan to have a plan, and they'll have a plan before they begin decommissioning. Well, that's not adequate.

I think that there's a real opportunity here to do some site-wide decommissioning planning for both the Pickering Nuclear Generating Station and the Waste Management Facility, and I think that having a shorter licence or not extending the licence and directing them to come back next year might be the opportunity to actually -- I expect we're going to have more serious decommissioning planning for the generating station next year given that it's on course for shutdown might be an opportunity to do a site-wide decommissioning plan, which I think would be more appropriate.

Some of the other areas of concern. We did have some assistance from Mr. David Lochbaum, Director, Nuclear Safety Project with the Union of Concerned Scientists, and he identified for us some safety concerns and safety hazards. The first was a drop of a DSC, which OPG has elsewhere identified as an event with maximum reasonable potential for harm, but it was not addressed in these documents.

Mr. Lochbaum did not contend that the DSC drop risk is unduly elevated, he just said he couldn't examine -- he couldn't come to any conclusion based on OPG not having addressed it at all.

Then a primary security hazard was sabotage of the dry storage containers. There's a significant difference going forward in that currently the dry storage containers are processed and sealed within the secure area. Under the new scenario they would actually be transported unprocessed to the new dry storage processing building, and that prevents an additional security risk, particularly for malice, as Mr. Lochbaum refers to it, or what we would in Canadian terminology more call malevolent acts. That's detailed/outlined in our submission.

So an additional issue is the potential for sabotage of the dry storage containers, and this is both in transport and as it moves into new locations.

There's additional security hazards with the exposure of the fuel facilities, including direct exposure from the lake, and straight sightline from the lake. This is with the selection of the new location or the additional location for the additional dry storage container facilities. There are two causes for concern: one is extreme weather, namely tornadoes; and, the second is exposure to malevolent acts.

The issue of tornadoes is briefly addressed in the 2000 EA, and it summarizes, "As designed, DSCs can resist overturning." That's about the sum of the discussion. Malevolent acts are not discussed. In the CMD CNSC Staff say simply in the licence condition handbook that OPG must address, but to our assessment they have not addressed. The OPG application simply doesn't address this.

So the Commission has the opportunity now to do something exemplary. You have the opportunity to direct OPG to configure the site in a way to not only meet the short-term needs of addressing DSC storage and processing buildings, but also the medium-term needs of decommissioning and potentially the longer-term needs of extended onsite storage. Their selection of placement for the dry storage containers -- additional dry storage containers do not address that opportunity, and the Commission has that opportunity to direct OPG in that

manner.

So I'll just quickly touch on the opportunities for improving security on the site. Those are employing some strategies to make the storage conditions more robust, more passively safe, hardening the facilities, removing line of sight access, reducing exposure to extreme weather, and seeing that the fuel wastes are disbursed on the site.

This is internationally a more developed discussion. We discussed this in 2013 in the Pickering relicensing discussion. OPG has the opportunity to maximize safety with changes to both design and location.

I'll just point you to our Northwatch request, which summarize our recommendations. They focus on particularly directing OPG to initiate a full environmental assessment, including alternative means of carrying out the project and to not authorize construction activities as outlined in the proposed licence and as requested by OPG until such time as that full environmental assessment has been completed.

Again, our interests are in the short, medium and long-term safety of the fuel waste and its storage. Our interests have begun with concerns in our own region and have extended to conditions of the fuel at the reactor safe, and there is an opportunity now to make the

waste the waste more secure in its current location. Decisions you make now are going to have very long-term consequences. Thank you.

THE PRESIDENT: Thank you. So let's jump right into the question session with Ms Velshi.

MEMBER VELSHI: Thank you, Mr. President. So I'll start off asking OPG about what your response is to the intervenor concerns about your processing schedule and capacity constraints perhaps?

MR. SULLIVAN: Gord Sullivan, for the record.

We are currently processing in our current storage building and we have indicated today that we will be looking for a new processing building. Our current capacity is currently around 50 DSCs, approximately, in our current processing facility. We would be looking to increase that in the new processing building to about 100 dry storage containers. We anticipate, with that kind of capacity, to unload the irradiated fuel base in a timely fashion, as early as 2035.

MEMBER VELSHI: I'll ask the intervenor. Is that consistent with your understanding?

MS LLOYD: We look for information available. What we did is a very simple calculation. We looked at the nuclear fuel waste in Canada, fuel

projections provided by the Nuclear Waste Management Organization effective 2016. We looked there at the number of bundles in wet storage -- 399,655 -- and the number in dry storage, and then we did a calculation based on the amount of processing, and it took us out to a -- that the current processing rate is below production rate, and we did come to a conclusion and I'm not seeing it now, but that it would take an extended amount of time.

So I think if they're saying 2035, I'm not seeing the notes and I don't want to take your time while I look for it, I think the point is there's no -- we haven't heard from OPG why they're delaying to 2024 for construction. Is that just the time necessary? Can they tighten that up?

Why are they decommissioning the first facility rather than going with the opportunity to have two facilities and be processing 150 DSCs per year?

So I think that the opportunity to move the fuel from wet storage to dry storage is one that should be seized, not just in a timely fashion but in the most timely fashion. So I think 2035 is a long time, that's in effect 20 years, not quite, 18.

MEMBER VELSHI: OPG, a quick response on that and then maybe Staff may have something to add?

MR. SULLIVAN: Gord Sullivan, for the

record.

If the Pickering Nuclear Station shuts down in 2024, if they have approval to do that, it will take at least 10 years for the fuel to cool. So that would put us in the 2035 range to put it into dry storage.

MEMBER VELSHI: Is there an option to keep the existing facility operational even once the new facility comes in service?

MR. SULLIVAN: We don't see that as a need right now because of the throughput and the requirement to wait.

MEMBER VELSHI: Thank you. Staff, anything to add?

MS GLENN: Karine Glenn, for the record. First of all, I would like to clarify one more time, there is no processing of the fuel that occurs. It is a transfer from wet storage to dry storage, but --

MEMBER VELSHI: Look, they call it a processing facility, so I think we would need to accept, you know.

MS GLENN: And there is no safety driver behind removing the fuel from the pool earlier than 10 years. This was discussed quite at length of the Darlington Nuclear Generating Station in the last hearings that we had. CNSC staff did speak to that extensively, so

I would direct the intervenor to take a look at that, but there is no safety driver behind removing the fuel earlier than 10 years from the pool. The safety of the pool has been assessed at length, both through the safety reports and through the Fukushima review.

THE PRESIDENT: Thank you.

Dr. McEwan...?

MEMBER MCEWAN: Thank you, Mr. President.

The suggestion that the drop of a DSC could be a significant safety hazard, how realistic is that? How much of a risk is that and what could the consequences be?

MS MORTON: Lise Morton for the record.

I'm going to ask Carlos Lorencez to give a fulsome response in a moment, but I do also want to point out that with respect to the drop of the DSC scenario, that is documented -- because I think there was some mention that perhaps there wasn't enough information on that -- that is documented in that -- we mentioned in our presentation there's a public summary of the safety assessment report available on opg.com. So I was just looking that up and it is documented in that document, so it should be available publicly. But again, I will ask Carlos Lorencez to answer your direct question.

MR. LORENCEZ: Carlos Lorencez, Director

Nuclear Safety for OPG.

Yes, we have looked into the possible accidents when loading the dry storage containers in the irradiated fuel bay. Those are documented in the safety report for the Pickering Power Station. They are not documented in the Pickering Waste Management Facility safety report. We looked at those accidents in the case of loading the dry storage container and lifting it above the water in the pool and accidentally dropping it, so we know that the consequences are minor. We don't expect failures of the fuel because it drops into the water at 7 metres deep to an impact path 1.1 metres thick at the bottom of the pool. If the container is dropped on the floor of the -- on the deck of the pool, there is another impact path, but the drop, it wouldn't be more than 15 centimetres because it is being transported from the pool towards the deck. So we have also analyzed that accident and the doses are minor. Now, it has never occurred. Does that answer your question?

MS GLENN: Karine Glenn.

If I might just add, this is all at the station and as OPG accurately pointed out, this is captured in the station's safety report. At the Waste Management Facility the maximum height at which the DSCs are lifted is 60 centimetres. The DSCs are also certified as transport

containers and they are able to withstand a drop of 9 metres.

THE PRESIDENT: OPG...?

MS MORTON: Lise Morton for the record.

Correct. I just want to add to that. So Carlos Lorencez is right, there is a drop of a DSC scenario assessed within the station, but there is also a drop of a DSC scenario assessed within the Pickering Waste Management Facility and Ms Glenn has added that additional information. So I just wanted to make sure that was clear.

THE PRESIDENT: Thank you.

Dr. Soliman...?

MEMBER SOLIMAN: Thank you.

I am interested in the finding of Dr. Landsman. There is one question for the intervenor Northwatch. In the first item you say:

"None of the available documents describe with sufficient detail and clarity how site preparation for the Waste Management Facility, including such fundamentals as fill removal, removal of upper till, replacement of any..."

Anyway, this is -- what exactly is the driver behind this question?

MS LLOYD: My apologies, Commissioner Soliman, but I'm not sure, could you redirect me to where you are in the document?

MEMBER SOLIMAN: Oh, this is page 21.

MS LLOYD: Twenty-one of our submission?

MEMBER SOLIMAN: Yes. In the first item.

MS LLOYD: So this is -- what we have presented to you here is the overview of dry storage containers and buildings that Dr. Landsman completed for us in a previous licensing review. So we have re-presented it here because we brought it to the Commission in the review of the Pickering Nuclear Generating Station licence review in 2013. When we were reviewing those documents, we thought it was appropriate to bring it forward, particularly given there are some new Commission Members and it is from four years earlier. So that's its source.

So Dr. Landsman at that time reviewed all the documents that we could make available to him through various requests and searches and so on and he had noted that some of the information that he had identified as necessary to assess the robustness or the design of the dry storage container buildings were not available. That's the context for that statement.

MEMBER SOLIMAN: OPG...?

MS MORTON: Lise Morton for the record.

If I am understanding the information on page 21 adequately and from what Ms Lloyd has said, so if we are talking about is there sufficient design detail available at this point, no, because we have not completed the preliminary design for site preparation for the enhanced or the new Pickering Waste Management Facility. So we follow a design process that will include designing site preparation, everything that is mentioned here in terms of till and compaction, et cetera, from a civil engineering perspective, and then as we discussed I believe yesterday during the Western Waste Management Facility process, you know, there are documents that then have to be submitted to the CNSC pre-construction and one of those is a project design requirements document as well and I believe these kinds of aspects would be captured in there. So no, that information detail right now isn't available because the detailed engineering is not complete.

MS LLOYD: And I think, Commissioner Soliman, this illustrates again why a full environmental assessment would be of benefit. The information isn't available. Dr. Landsman in 2013 went and looked at previous environmental assessments, including the 2003 environmental assessment, which I think is the environmental assessment of record. He didn't find it available there, but it certainly isn't available in a

going forward basis because we don't have an environmental assessment for this project.

THE PRESIDENT: Okay, staff. The intervenor mentioned section 32(f), if I am correct. I thought this section no longer exists. Somebody let me know what we are talking about.

DR. DUCROS: Dr. Caroline Ducros for the record.

Yes, the intervenor mentioned section 32(f) but quotes the section. So I believe what she is quoting is the comprehensive study list from the 1992 CEAA, and it's section 19(f), which is I believe why Ms Glenn wanted to clarify that there is no processing of irradiated fuel at this facility because that is the section that is being quoted. So the inclusion list and the comprehensive study list and the exclusion list from CEAA, 1992 have been replaced with the *Regulations Designating Physical Activities*, in other words a project list, and these activities on an existing site that had been previously assessed do not find themselves on that project list.

THE PRESIDENT: Okay, thank you.

MEMBER SOLIMAN: I have another question.

THE PRESIDENT: On the same topic? You will get the next round.

--- Laughter / Rires

THE PRESIDENT: We are going in circles here.

Ms Velshi...? Oh sorry, I'm totally confused here now.

Dr. Demeter...?

MEMBER DEMETER: Thank you for the presentation.

I wanted to ask staff about security issues. On page 19 of the intervenor's report it talked about the additional 500 metres for the transport to the new processing building, which I'm looking at the map from the staff's oral presentation. So I'm looking at -- which is slide 11 from that. Current processing of B to the proposed new of F there's a distance -- there's two issues. One, what are the security implications for that extra half-kilometre of transport in an unsealed state? And the other thing that the intervenor talked about in her report was the possibility of these transport vehicles being potentially remote controlled and what safeguards are being put in place so that can't be clandestinely piggybacked on and used by someone else who wants to control that vehicle and override the radio frequency that you are using?

THE PRESIDENT: And I would like to piggyback on that question. What about malevolent acts, which I thought was always a tick you have to go through

every time you do risk assessment?

MS GLENN: Karine Glenn for the record.

I will ask Mr. Mike Beaudette, the Director of the Nuclear Security Division, to add to my answer, but I will start off by saying that the transfer of the DSCs occurs within the site boundary of the Pickering site. Therefore, it never travels on public roads, it never leaves the confines of the site. It is also always at all times accompanied by a nuclear security escort that accompanies it.

But I will ask Mr. Beaudette to add to that.

MR. BEAUDETTE: Thank you and good afternoon. For the record, Michael Beaudette, Director of the Nuclear Security Division.

With me I have Mr. Yves Poirier, the Team Leader for the High Security Nuclear Facilities for the Nuclear Security Division, and Mr. Michael Snow, the Senior Security Advisor for the Waste Management Facilities.

Just to follow on to what Ms Glenn has said, for these transport activities there is actually a transport security plan that is submitted for each occasion. Those transport security plans are reviewed by the Nuclear Security Division staff and approved before they are allowed to move any of those materials.

I would also like to add that the CNSC is responsible for producing a design basis threat document and that design basis threat document outlines these exact scenarios of potential sabotage and theft of nuclear materials or nuclear facilities. That document is then shared with the licensees so that they can demonstrate their capacity to mitigate any such scenarios that are included in that design basis threat, and in accordance with the *Nuclear Security Regulations* 36(2), they have to demonstrate that capacity on a regular basis for the CNSC in inspection forms, either in typed inspections and nuclear security exercises.

I will ask Mr. Poirier I think. All right. Thank you.

THE PRESIDENT: And I would like to remind everybody that some of the material is confidential and we discuss it normally in camera about security matters.

MEMBER DEMETER: Yes, thank you.

I just wanted a specific response, understanding that there may be some security confidentiality, that you have looked at and addressed the potential for any remote manoeuvring or control of these vehicles, that that has been taken into consideration. That is really what I wanted to understand.

THE PRESIDENT: Is that a yes, someone?

MR. SULLIVAN: It's Gordon Sullivan for the record.

With respect to the remote control, is that your question? Remote controls have a range of about 100 metres, so it's not very far. And there is a switch in our transfer vehicle that has to be activated in order for the remote to be used. Our operators don't use the remote control because they sit up fairly high in the transfer vehicle and there is quite a lot of clarity in where they are going. So we are not currently using them, nor have we used them. The other thing that we are doing is we are refurbishing our transfer vehicles and we are actually disabling that capability going forward because we are not using it.

I think the last thing that we have in our vehicles is we have emergency stops on all four corners so anytime that vehicle can be stopped very quickly by either an operator or a flag person that travels with the vehicle.

MEMBER DEMETER: Thank you very much.

THE PRESIDENT: Ms Velshi...?

MEMBER VELSHI: Thank you.

Before I get to my question, just to follow up on the onsite transfers. I think it's in the OPG CMD and I can't get my finger on it, but something about there are no regulations around that. Maybe I will ask

staff to comment on that. Should there be regulations? What are the requirements? Or if you want me to find the specific section, I can look for it.

--- Pause

MS GLENN: Karine Glenn for the record.

Although specifically the *Packaging and Transport of Nuclear Substance Regulations* apply when we are transporting materials on public roads -- and I may ask our transport specialist to add to my answer with respect to that -- they are being transported in the DSCs which are approved transportation containers when they are welded, I should say, and there are additional impact limiters that go onto those containers before they are transported offsite. But there is an equivalent level of safety and compensatory measures that are put in place to ensure that the safety level is equivalent for that transfer onsite and perhaps our transport specialist can add to that.

MR. GARG: Good afternoon. I'm Raj Garg, I'm the Transport Specialist here at the CNSC.

You are right, Ms Velshi, that the CNSC *Packaging and Transport of Nuclear Substance Regulations* do not apply when they are shipping onsite, they apply offsite only. However, saying that, CNSC ensures that the transport conducted by the licensee onsite is safe and provides a level of safety which is similar to those living

offsite and we control that by a number of restrictions. Like these DSCs can be -- there is a limitation on their use, on the weather conditions, they can be only lifted by a maximum of 20 centimetres above the ground, there are weather condition limitations during the transfer, there is a speed limitation on this specialized vehicle. So there's a number of factors.

Beyond that, OPG has also demonstrated for the credible accident scenarios that may happen onsite for this DSC, in case accidents happen like tornadoes, if it's overturning, so whether there is a transport plan. All the DSCs, they have been analyzed by OPG and the staff has reviewed their submission and accepted their submission that any onsite transfer meets equivalent level of safety as if it was like offsite.

MEMBER VELSHI: Thank you.

So my question was should there be specific regulatory requirements for onsite transfers or are you comfortable with the current practice?

MR. GARG: So basically onsite transport is covered by the onsite licence. The only thing is it is not covered by the *Packaging and Transport of Nuclear Substance Regulations*, but they are still covered -- they still need to ensure the safety by the onsite licence and there is a requirement for onsite licence, yes.

MEMBER VELSHI: Thank you.

So then getting to my question, which is the concern the intervenor has raised around the liquid waste sampling and some confusion and I think you have had an event report. So is it semi-annual and then you said it was supposed to have been monthly but it was being done semi-annually and over what period of time and then there is some mention of quarterly as well. So could you just bring some clarity to what the requirements are and when you were not in compliance, for how long was that? I think you have already talked about corrective actions, but I just wasn't clear on how long that had been going on for.

MS MORTON: Lise Morton for the record. Sorry, just give us a moment and Gord Sullivan will pull out that information.

--- Pause

MR. SULLIVAN: Gord Sullivan for the record.

With respect to the sampling of the active liquid waste tanks, they are done on a monthly basis and they are sampled for tritium and gross beta gamma.

I think your second question with respect to -- that one of the reports we made with respect to a sampling, yes, that did occur and we found out that probably we were looking more at the safety documents and

didn't look at the licensing basing documents to make sure that those two were aligned. So when that was brought to our attention we immediately made the change. We were doing it every six months as opposed to monthly, but since that incident, which I believe was in 2011, we have been continuing on for a monthly basis.

MEMBER VELSHI: Thank you, but I wanted to know how long had you been doing it on a semi-annual basis as opposed to monthly before you found out that you needed to do it more frequently?

MR. SULLIVAN: Gord Sullivan for the record.

We will have to check the report event and the SCR just to confirm the number.

MEMBER VELSHI: Thank you.

And staff, I guess the quarterly comment was based on the regulatory oversight report that says OPG does it on a quarterly basis? This is page 11 of Northwatch's CMD H5.13.

--- Pause

MS TADROS: Haidy Tadros for the record. Maybe we can pass it to Mr. Mike Rinker with regards to the sampling and the monitoring that was looked at.

MS SAUVÉ: Kiza Sauvé for the record. I am the Director of the Environmental Compliance and

Laboratory Services Division.

So the reporting of this sampling is done quarterly, but the actual sampling is done monthly.

THE PRESIDENT: So what was the deficiency in the IEMP that the intervenors were talking about? What's your concern with this Independent Environmental Monitoring Program of CNSC?

MS LLOYD: Well, I think there were a couple of concerns. One is in the location and the number of sampling stations and surface water for example. The second is that groundwater sampling is not reported in the Independent Environmental Monitoring Program even though groundwater sampling is done. So there are different -- you know, and we have had this discussion around other IEMP programs and it's a continued concern that Northwatch has. So the limited number of surface water sampling is an example. There is only one sample location for food and it's at quite a distance northwest of the station. We are just not convinced or confident that it is a sampling program that really tells the story.

THE PRESIDENT: Staff...?

MS SAUVÉ: Kiza Sauvé for the record.

So I will work backwards and hopefully I will catch everything, but I'm happy to keep going if I have missed something.

I will start with the food sample location. So Pickering site is located in an urbanized area and we try to do food sampling from farms in the local area and, as you can imagine, near the Pickering site the farms are hard to find. So we did find the closest farm that we could sample from, keeping in mind that the IEMP is a spot check monitoring program and we do look at the results from the licensee as well. So that's the food.

In terms of the groundwater monitoring, I want to go back to the publicly accessible part of the Independent Environmental Monitoring Program and the groundwater itself is not publicly accessible, which is why we use surface water as the indicator and then we can go back. If we were to see results in the surface water, we would then go back and see if we could find where that might be coming from. We do review the results of the licensee's Groundwater Monitoring Program and we also do inspections on that Groundwater Monitoring Program, but the actual Independent Environmental Monitoring Program from the CNSC doesn't include groundwater as it is not a publicly accessible area.

In terms of surface water locations, in 2015 we had five locations that we monitored surface water, one on each side of the plant, one in Ajax, which is right near the municipal drinking water plant, and a few more in

the area. So we believe we are getting a good sample of drinking water samples -- or, sorry, surface water samples and we do look at the full facility and the activity and the releases that come from the facility. We look at the environmental risk assessment to see where we should be sampling and what we should be sampling.

I think I caught everything, but...

THE PRESIDENT: Thank you.

Dr. McEwan...?

MEMBER MCEWAN: So I have actually had with those answers much of my question answered, but two questions.

One, the intervenor specifically mentions offshore sampling. Is that done? Is it helpful? Is it doable?

The second question is if I look at Table 4.1 on page 29 of the EA report, you give data for organically bound tritium in milk and you give data for tritium and cesium in vegetation. So if you went somewhere else in Ontario, Ottawa farms or London or somewhere else, what values would you get? It presumably wouldn't be zero.

MR. RINKER: Mike Rinker for the record.

So we can dig up those numbers, I don't have them at my fingertips, but I would like to add that the CNSC does in its Independent Environmental Monitoring

Program. We choose our locations, first of all, based on publicly accessible areas, but secondly to understand that there is other independent environmental monitoring that is going around nuclear facilities. For example, the drinking water intakes around nuclear facilities are monitored and they are reported by Labour Ontario. So we know that the drinking water intakes around Pickering over the last decade have been ranged very closely to background in the 3 to 6 Bq per litre range. Air is being monitored for tritium and for other particulate matter by Labour Ontario and this is reported. So we have access to this independent data. In addition, Health Canada has fixed point source gamma monitors that are more specific to noble gases around nuclear power plants. And Labour Ontario does have a specific special study on milk for example and we should be able to pull up background information when we can get access to that data. So we take it into context with all that other independent monitoring that's going on.

THE PRESIDENT: I think if I understand correctly you are making a very important point that should be emphasized. You are not a substitute for the licensee responsibility for environmental monitoring. If I recall, the reason this program was set up is to verify that their environmental monitoring is realistic and gives real data. So I don't expect that your program would be as

comprehensive as the licensee in a different location. Did I get this right?

MR. RINKER: Mike Rinker for the record.

That's correct. For example, we do not have a statistical defensible database of environmental samples, but we do have a protocol that if we find something that is unusual, that is different from those robust programs from licensees and that has followed up and led to changes to a licensee's compliance program, but in this case we are finding things that are verifying what we would expect to see.

MEMBER MCEWAN: So I mean what you are describing is a quality assurance program.

MR. RINKER: Mike Rinker for the record. That's correct.

THE PRESIDENT: Dr. Soliman...?

MEMBER SOLIMAN: Thank you.

I am still with the comments made by Dr. Landsman. Second -- third bullet on page 21, there is no description of the inspection quality control/quality assurance for the manufacture of the dry storage containers. I understand that OPG performs reviews on all the manufacture and that's one of the processes at OPG. Can you give your word of assurance that the quality assurance and quality control on the dry storage container

has been done and all the quality control and the quality assurance of OPG at least has been met in the manufacturing?

MS MORTON: Lise Morton for the record.

I will ask David Witzke to add a little bit to my answer in a moment, but yes, we can assure the public and the intervenor that we have a very extensive quality assurance, QC/QA program on the manufacture of dry storage containers, everything from all of the welds, the steel, et cetera. But again, I will let Dave Witzke elaborate on that. And that is also accompanied with site visits to the manufacturers through our supply chain processes in terms of verification of their processes and compliance verification, and every dry storage container when received by us from manufacturers comes with a very extensive history docket which also further elaborates. I will ask Dave Witzke to add any further detail.

MR. WITZKE: Dave Witzke, Director of Nuclear Waste Engineering, for the record.

We have a very detailed design requirement specification for the construction of the dry storage containers. Some of the regulatory standards and codes that are applied, it is designed as a type BU transportation package in accordance with the *Regulations for the Safe Transport of Radioactive Materials*. The

constructor of the dry storage containers must be qualified to CSA Z299.2-85, which is the main quality assurance program that is applied to those containers. The QA program that is applied to the constructors is verified by Ontario Power Generation's Supply Division and they conduct ongoing audits to make sure that we are in compliance with the codes and standards.

MEMBER SOLIMAN: Okay. Are you satisfied with this answer?

MS LLOYD: I think again, Commissioner Soliman, it leads us back to the discussion of why we need a full environmental assessment review of the proposed dry storage container building, their placement, their design, in the context of a site which is moving towards decommissioning.

THE PRESIDENT: Thank you.

MEMBER SOLIMAN: Thank you.

THE PRESIDENT: Dr. Demeter...?

MEMBER DEMETER: I'm good, thanks.

THE PRESIDENT: Back to the top.

Ms Velshi...? Dr. McEwan...?

Okay. I think you have the final word.

MS LLOYD: Okay. Thank you, President Binder and Commissioners.

Four points in my closing remarks.

The first is an apology. There is an error on page 14 of our submission and if I had had my imaginary staff behind me they could have passed me forward a piece of paper and I could have read the section out as soon as the error was noted, but we should have cited section 33(c) and 34(c) of the *Regulations Designating Physical Activities*. I was in some kind of a time warp and pulled forward a no longer in effect regulation and I do apologize for that and I would like to, with your permission, file an errata. I think it does some harm to my intervention because I have embarrassed myself with this, but I don't think it does harm to the argument that we -- you require for your decision-making purposes a fuller discussion and that discussion, that examination of alternatives, alternative means, including design and placement, can be best achieved through an environmental assessment, which we haven't seen. So my apologies again for that error.

The second point is we have heard a couple of references, I think both times from Ms Glenn, I think yesterday in the context of the Western Waste Management Facility and today discussing Pickering, that these will be addressed in the next Regulatory Oversight Report on Nuclear Power Plants. In our written submissions in December on the Waste Regulatory Oversight Report on Waste

Management we noted that there were some gaps and that fuel, irradiated fuel, was not, by our assessment, adequately addressed in the waste management or the nuclear power plant. So this might achieve that by moving the waste management facilities, if that's what was moving the waste management facilities which are located within the nuclear generating station properties into the Nuclear PowerPoint Regulatory Oversight Report. That could be helpful. I would again suggest that it would be very helpful to have some kind of a matrix of the Regulatory Oversight Report and what fits where and what the schedule is for those public interest intervenors like Northwatch who try to responsibly comment on certain items in a consistent fashion. I know that would be helpful to us, but I would welcome a move of the waste management facilities into the nuclear power plant reports.

The third is in the question and answer yesterday with the Historic Saugeen Métis, Commissioner Velshi asked whether it was safe to conclude -- and I don't have this word for word -- whether the Union of Ontario Indians had no concerns because they had not intervened, and I think it was Ms Noble who said they did do follow-up with them, she clarified that they are not rights holders, that the individual First Nation is, but I don't think it was clearly enough stated that the Union of Ontario Indians

or any potential intervenor not intervening is not a statement of lack of concern. Northwatch didn't intervene yesterday on the Western Waste Management Facility. That was due to limits of capacity. It wasn't because we didn't have a concern or have comments we would like to make. I certainly don't speak on behalf of the Union of Ontario Indians or the Chiefs of Ontario, but I am familiar with remarks on record by both Chief Day and Chief Madahbee and there are concerns with the nuclear chain, with nuclear waste, and so I just caution you to not ever conclude that if an entity doesn't intervene that it doesn't mean they don't have concern.

Finally, in closing I really want to encourage the Commission to think about the opportunity that's before you to require OPG to take another look at their site configuration in particular, to really look at the additions to the waste management facility in the context of a site that is moving towards closure and then decommissioning, to look at it in the context of a world where unfortunately malevolent acts do have to be considered and by our assessment the placement of these facilities in site line and so close to the shore of Lake Ontario are problematic. I don't think it's the best they can do and I think you can require them to do better. So thank you for your attention.

THE PRESIDENT: Thank you.

This is the lunch break, I think lunch break. We shall return at 1:45.

--- Upon recessing at 12:49 p.m.

Suspension à 12 h 49

--- Upon resuming at 1:54 p.m. /

Reprise à 13 h 54

THE PRESIDENT: Okay. We are ready to proceed.

So, is there something you want to add?
Please, OPG?

MR. SULLIVAN: It's Gord Sullivan, for the record.

Commissioner Velshi, we owe you a response with respect to the active liquid waste sampling frequency. We checked our records and the frequency was changed in 2001 from four weeks to 26 weeks.

However, we were always taking samples prior to transferring the active liquid waste from the Pickering Waste Management Facility to the Pickering Nuclear Generating Station, so nothing was sent from our facility until a sample was analyzed.

MEMBER VELSHI: So remind me, when was it

that you found out that you weren't following the requirements of the monthly sampling?

MR. SULLIVAN: Gord Sullivan, for the record. It was 2011 when we found out.

MEMBER VELSHI: Okay. So, 10 years.

MR. RINKER: Excuse me, Mike Rinker, for the record.

We had mentioned earlier about tritium in milk samples and I said we'd have a look over lunch time of what we could find.

So, I know there's a lot more data out there than what we saw but, in general -- and I don't have OPG data, I know it's out there as well.

So, in general, in the exposure areas around Pickering and Darlington tritium levels are around six Becquerels per litre, which is very similar to the municipal water drinking plants and it's less than five Becquerels per litre in the non-exposure areas and that was the detection limit on the studies we saw.

And generally, background for water is in the three to five Becquerels per litre range, so it seems like the milk tritium values are similar to what you would see in the water they're consuming.

In addition, we are coming to the Commission in November of this year with an update to the

Commission on our tritium research and we'll have a more fulsome discussion on this topic at that time.

MEMBER SOLIMAN: Thank you.

THE PRESIDENT: Great. Thank you.

So, let's move on to the next submission which is an oral presentation by the Canadian Nuclear Association as outlined in CMD 17-H5.9.

And I understand that, Mr. Coupland, you will make the presentation. Over to you.

CMD 17-H5.9

**Oral Presentation by
Canadian Nuclear Association**

MR. COUPLAND: Thank you, Dr. Binder and Commissioners.

My name is Steve Coupland and I'm the Director of Regulatory and Environmental Affairs for the Canadian Nuclear Association. Our President and CEO, Dr. John Barrett, was unfortunately unavailable today, so I'm subbing for him.

I appreciate the opportunity to say a few words in support of Ontario Power Generation's application to renew its waste facility operating licence for the Pickering Waste Management Facility.

Much of what I have to say is similar to Dr. Barrett's comments yesterday about the Western Waste Management Facility as this is also an OPG facility and has the same high safety and environmental standards and practices as all OPG facilities do, but since this is a separate licence, I did want to ensure that some comments are on the record.

Like all members of the Canadian nuclear industry, OPG is committed to the safe, clean, reliable operations of all its facilities and this means not accepting the status quo, but continually working towards improvement in safety programs and environmental stewardship.

We believe that the best indicator of future performance is past performance. In this regard, OPG has an outstanding safety record. It is rooted in a strong nuclear safety culture. Effective safety communication, clear accountabilities and a continuous learning approach, as well as the use of audits, many of which are conducted by the CNSC itself, these are just some of the means by which OPG ensures its safety performance gets even better. This is true of all operations at the Pickering Generating Station, including the waste management facility which we're looking at today.

The licence renewal application and its

supporting documentation testifies to the unrelenting safety commitment in both the handling of low- and intermediate-level waste, and the processing and interim storage of used fuel.

This has been recognized by a variety of prestigious awards, such as the Canadian Electricity Association's President's Gold Award for Employee Safety and OPG's leadership in its employee engagement in safety and risk mitigation has helped make it a top 50 corporate citizen in Canada for the past five years, which is an outstanding achievement.

OPG has a proven track record of safely storing nuclear waste and used fuel, not just at the Pickering facility, but all three of its waste management facilities and this application reinforces that safety with some increased security measures to accommodate the additional facilities which are required over the course of the new licence.

Due to this strong safety culture and commitment and the long track record throughout the organization, OPG employees and the Canadian public can have the highest confidence that the unblemished and impressive record will continue.

Turning briefly to environmental stewardship, I'd like to draw your attention to some of the

improvements made by OPG in the most recent licence period in emissions -- or highlight some of the most recent emissions reductions, environmental protection and operational reliability.

I think it's important to point out the Pickering Waste Management Facility meets both the ISO 14001 standard, as well as OPG's own stringent requirements. The environmental protection program identifies all air and water emissions, as well as impacts on land. Programs are in place to monitor all releases and ensure they are well below applicable limits.

OPG identifies, controls and monitors all releases of pollutants, including radioactive and hazardous substances. They ensure that all systems and equipment at the Pickering Waste Management Facility operate on the ALARA principle to minimize adverse effects.

In addition, the environmental impact of the facility's expansion has been documented. OPG's fact-based engineering approach to environmental impact mitigation will result in the reduction of pollutants, as well as the enhancement of its monitoring mechanisms.

In summary, OPG's commitment to excellence in safety and environmental protection, as well as its actual operational performance at the Pickering Waste Management Facility over the course of the current licence

period, demonstrates that OPG is qualified to implement the activities outlined in the licence application.

I'd like to close by thanking the Commission for the opportunity to provide our views. In our view, OPG has clearly demonstrated excellent practices in their ability to safely and reliably carry out the activities in their licence. The application supporting documentation, in our view, reaffirms this commitment to protect employees, the public and environment, and we strongly support the application.

Thank you.

THE PRESIDENT: Thank you.

Dr. McEwan?

MEMBER MCEWAN: Thank you, Mr. President.

This is a very broad generic question that sort of goes back to the discussions we had a little bit earlier.

The timing of these as you look from the experience you've had in the industry more broadly and looking at other sites, what is the planning cycle that most organizations would look at to sort of start creating new infrastructure to support ongoing expansion -- ongoing and expansion of activities? And is it reasonable to say this is a five-year cycle that we'd be looking at or, in your experience in the industry, is there a sort of a more

compressed or a much more prolonged timeline?

MR. COUPLAND: It really depends on what type of expansion you're looking at doing. If you're looking at a new facility like a plant or amine, then it's a much longer timeframe than if you're looking at expansion on a -- on an existing site. Then it can be a little tighter timeline. So I'm not sure I can -- it really -- I'm not sure I can give you a sort of categorical answer. It kind of depends upon what the exact project is.

But certainly we need to -- we need to plan the long term. In the case of spent fuel, you need to plan for the long-term storage of it over the -- over -- and that will change over how long the plant will run the facility.

MEMBER MCEWAN: So given what we heard this morning and OPG's plans, what we're reading in the CMDs and the way in which this will roll out for that long-term plan, it seems reasonable, based on your sort of other interactions with them -- with the industry.

MR. COUPLAND: Yes.

MEMBER MCEWAN: Yeah.

THE PRESIDENT: Ms Velshi.

Dr. Demeter?

Thank you. Thank you very much.

The next submission is an oral

presentation by Mr. Seitz, as outlined in CMD 17-H5.2.

Mr. Seitz, the floor is yours.

CMD 17-H5.2

Oral presentation by Tim Seitz

MR. SEITZ: I'd like to thank you for inviting me here to speak today. I'm coming pretty much as a private citizen and a ratepayer.

However, two facts about me. All my adult life, I've been for abolishing all forms of nuclear fissioning outside of research, and certainly everybody's against the most dramatic form which we call military, but I'm against all of it because the product is the same. The product is nuclear waste, and I don't see nuclear waste as something that is dying and something to bury. I see it as very much alive.

It's much more alive than the fuel that we fed in to the reactor.

Further to that, it's not efficient. Only 30 percent of the heat coming out of a reactor can be utilized to produce electricity. The other 70 percent is just simply wasted, mainly because you wouldn't want to share that as heating for hospitals or other buildings like you can do with fossil fuel types.

So the nuclear thing began with an unfulfilled promise, and I'd like to go back from a historical standpoint to 1943 and talk about just tritium. Tritium was only produced in the high ionosphere, and there was less than 0.05 Becquerel per litre at that time. So that was natural.

Everything that's accrued since is because of our actions and activities.

Now, we're not the only ones. There's 400 and some of these around the plant, and they all leak.

Our CANDUs are notorious because they use heavy water to enact the fissioning of uranium, so we produce an awful lot more tritium. And my question is, is where is all that tritium?

Now, when I look at the Fukushima site, I see big black tanks everywhere where they keep this radioactive water, and I'd like to know where ours is. So I'll just leave that as an open question.

In 1976, Fred Melman wrote a book about the unforgiving technology of nuclear. He says you cannot make mistakes.

Since 1976, we've witnessed TMI, which was caused by operator error, Chernobyl, again some operator errors, and Fukushima, which couldn't foresee a huge earthquake and tsunami coming, and they had stacked their

nuclear waste above their reactors. So that is an ongoing bleeding ulcer.

Now, Chernobyl, they're putting a sarcophagus over their reactor which they figure will be good for 100 years because the radiation embrittles and destroys any kind of containment that is put over it.

And the TMI stuff, I don't remember. I just remember the morning in March of 1979 and waking up and there's this line going across the TV about TMI.

So those are the things that are where I'm coming from.

My background was in physics, and I was invited to go to the math department. And there, I didn't encounter any difficulties about my opinions.

So I want to -- just to address those things.

Nuclear waste is something, again, that's alive and will remain alive for a long time, so we have to think very long term because it's going to last for a long term. And we need to rethink the whole idea of burying it.

Who would bury something that's alive?

I can only conceive in my own mind of elevating it *in situ*. Now, they were talking about the DGR as a place for intermediate waste and other places further north for the bad stuff. And you're going to have to

remove a lot of ground, limestone, whatever to put it in a hole.

Now, it might be in 20 years or 200 years somebody comes along and is going to be able to fulfil the promise of undoing this doo-doo, and so if that was the case, then we'd have to be running to these remote sites where the elevators would probably be worn out, the pumps and everything else. So I'm suggesting that we pile the stone up on the site.

You know, 5,000 years ago, they knew how to make these stone pyramids, and that might solve the question of security. And it also means that we would not have to move it. We wouldn't have to create a whole other agency for moving it if we just simply moved it up above the water table and then set up an arrangement for its permanent looking after.

So that's my approach. And I'm thinking on Pickering particularly because it's the oldest one in Ontario. And further to that, when it was originally built, it was built out in a very farm-like area with pastures around it and, since, the city has been built around it. So I think it -- the level of danger that it poses is much greater because people are living all around this thing. And that's nowhere else that I know of.

You know, people -- other countries have

their reactors away from the city, but ours is surrounded by the city, so anything that might happen, you know, people make mistakes like at TMI, like at Fukushima, this would be calamitous. It would put the whole City of Toronto at risk.

So I'm for abolishing, shutting down the nuclear fissioning process as soon as we can. I don't know when that is. You people are closer to it. But my objective would be to shut it down quicker. We have other sources of hydro. We have Quebec. We have renewables. We have conservation.

I don't think it would be missed, and then we could focus on long-term storage because I think that's the future of the whole nuclear industry. And we have to succeed.

You have to succeed in -- I don't know how else to say, but I'm just bringing this to you as a citizen's response to it. And maybe what might be good is that if we had a set of policy people overseeing this whole thing made up of people from the community who lived long and they can bring the wisdom of the community to address all of this.

I don't think the technical things are going to save us. This is how we've gotten the problem.

We listened to experts and we've listened

to their promises and -- not fault-finding, mind you. It just hasn't worked out so far.

So I would like to see that.

That's basically all I have to say.

THE PRESIDENT: Thank you.

So let's get into the question session starting with Ms Velshi.

MEMBER MCEWAN: Just -- thank you for the submission.

Just a question. Is a sarcophagus at all practice for long-term storage of waste or is it something -- because of the degradation of the concrete, it'll require too much ongoing maintenance and rebuilding to be workable?

MS GLENN: Karine Glenn, for the record.

It is not a solution that is typically envisioned when we're talking about the long-term or very long-term management. We need a solution when it comes to fuel that will be able to contain the waste for periods well above 1,000 years, and so this -- an above-ground facility such as Mr. Seitz proposed would require maintenance and introduce other problems that other solutions such as DGR are going to prevent.

So there would be long-term maintenance that would be required, the possibility of human intrusion

going forward. Some of the intervenors have brought in also discussions of sabotage and malevolent acts. All of those make this not one of the solutions that other states are envisioning at the time for the long-term storage of waste.

But again, we -- as the CNSC, we don't prescribe the solution. It is up to the proponent to propose, and we would assess it from a safety perspective.

MR. SEITZ: I'm not thinking of what they're doing at Chernobyl. That is agreed upon a temporary fix. They know it's not going to be any good after 100 years. It is not made of stone like the pyramids were.

As far as nefarious acts against the pyramids, the old ones may have been looted, but I dare anybody to loot this one. They'll get their pinkies burnt.

THE PRESIDENT: The one they put on Chernobyl, where do you guys get the 100 years? I thought it's supposed to last a lot longer -- I don't know if anybody knows -- than 100 years.

It was a big international agreement and money was put into it, so anybody knows, by any chance?

MR. SEITZ: (No microphone) building it, and it's just a temporary fix. They know it's not going to last.

THE PRESIDENT: But temporary can be a few thousand, not 100.

MR. SEITZ: No. No, just in the hundreds. They figure that the radiation coming out of there is so deleterious that it'll embrittle the whole thing within that 100-year period.

THE PRESIDENT: Thank you.

Dr. Soliman.

MEMBER SOLIMAN: I have a question for Mr. Seitz.

Thank you very much for your presentation.

Are you willing to read more about the nuclear industry and how it is contributing to the society and cheap energy, clean energy, all of that?

Are you willing to read more about it?

MR. SEITZ: I've been reading about it all my life. I was young. I was maybe 12 years old, 14 years old when Eisenhower came in with the atoms for peace program, and it was built on promises that some day they'll be able to take the spent fuel and recycle it.

Now, in one attempt they tried in Michigan called Fermi 1, they damn near blew up the whole city. And I don't know where else they've tried it since.

So this -- the stuff is -- once it's hot, it's not the same as uranium you get out of the ground.

This stuff is hot, and it's a handling proposition.

At Fukushima where they're trying to get in and handle the hot stuff that's burning, it's destroying the equipment after a couple hours, so it's very nasty stuff.

That's all I know about it.

MEMBER SOLIMAN: Thank you.

THE PRESIDENT: Dr. Demeter?

Okay. Thank you. Thank you for the intervention.

MR. LEBLANC: We will now move to the written interventions.

I will be identifying each of the written submissions, and the Commission Members will have the opportunity to ask questions on each of these.

THE PRESIDENT: There's another ---

MR. LEBLANC: We have another one?

Sorry. It's because Ms Rosario has informed us a few weeks ago that she would not present verbally and that she ask that her request for funding be withdrawn, so sorry about this.

So we will still deal with her intervention, but as a written submission. And she's the first information is from Ms Rasbinder Rasu Rosario as outlined in CMD 17-H5.3.

CMD 17-H5.3

Written submission from Rasbinder (Rasu) Rosario

MR. LEBLANC: Any questions from the Members on this intervention?

MEMBER DEMETER: The intervenor speaks in her submission of visiting the site. I was just curious if you have a sense of the volume of visitors you get per year to give tours to and if you keep track of how many are from the local community and from away from the local community?

MS MORTON: Lise Morton, for the record. Kevin Powers will provide an answer for that.

MR. POWERS: Kevin Powers, for the record. Over the course of any given year, the number of tours varies. However, we have had hundreds of people through the facility over the course of the past 10 years, and on any given year I would say there are more than 200 to 300 people who go through to visit the facility.

We do keep track of all of the visitors on a database and, you know, we're happy to provide that information if you're interested.

THE PRESIDENT: Thank you.

Anybody else? Question?

CMD 17-H5.4

**Written submission from the
Regional Municipality of Durham**

MR. LEBLANC: The next submission is from the Regional Municipality of Durham as outlined in CMD 17-H5.4.

Any questions?

MEMBER MCEWAN: They -- I mean, they raise a series of questions which are not really related to just the matter under conversation, but if I look at the tenor of the letter and particularly the second-last paragraph on page 3, it's a shame that nobody from Durham came to discuss this because I think some of these are important issues that would have benefited from a two-way conversation.

And I'm guessing that that paragraph with the two bullets is outside the remit of this meeting?

THE PRESIDENT: Which particular paragraph?

MEMBER MCEWAN: The second-last paragraph with the two bullets below it.

THE PRESIDENT: No, you can ask about it.

MEMBER MCEWAN: So in that case, is it realistic to try and put that conversation into a licensing hearing or is that a conversation that should be had between Durham and OPG or between Durham and the CNSC?

MS GLENN: Karine Glenn, for the record. This is more a conversation that should be held between the Durham and OPG.

THE PRESIDENT: Any other questions? So I'm a bit surprised by this intervention. Mr. Anderson should know better.

We've -- he knows most of the people and most of the community involved in here, and I particularly was -- noticed on page 1, the third paragraph, the last sentence, no matter how many times we say this, repeating "since this may be the last opportunity until 2028 for the region to comment on the community impact of ongoing waste storage", again totally ignoring the fact that we're going to have annual meeting in which we invite participation, et cetera, et cetera.

So I'm surprised by that intervention. I guess I better stop on this one here. OPG?

MS MORTON: Lise Morton, for the record. I'm going to ask Kevin Powers because he's been involved with the relationship between -- I just want

to address what was asked of Ms Glenn.

So we do have a relationship with Durham Region, and Kevin Powers can give a bit more detail with respect to that.

MR. POWERS: Kevin Powers, for the record.

We have a long-standing and very strong relationship with the Region of Durham. We conduct regular surveys, opinion leader surveys, in the Region of Durham and in our most recent survey, we asked 20 of the opinion leaders in Durham about their opinion on OPG on a number of matters.

Of those 20, 15 of them gave OPG a perfect 10 out of 10 rating on corporate citizenship and our openness and transparency. The other five gave us a nine out of 10.

That is, of course, the sign of a strong relationship. Another sign of a strong relationship is the ability to bring up issues. We have begun discussing these issues with the Region of Durham and are committed to continuing that discussion with them.

THE PRESIDENT: Okay. Thank you.

CMD 17-H5.5

Written submission from

Power Workers' Union

MR. LEBLANC: The next submission is from the Power Workers' Union as outlined in CMD 17-H5.5

Questions?

CMD 17-H5.6

Written submission from

BWXT Canada Ltd.

MR. LEBLANC: The next submission is from BWXT Canada Ltd. as outlined in CMD 17-H5.6.

Questions?

THE PRESIDENT: So remember we had a conversation about the strength of the DSC. Just curious, are they involved in any of the tests or stress tests on the DSC? Because they talk about that in the third paragraph.

MS MORTON: Lise Morton, for the record.

So BWXT is one of two suppliers of the dry storage containers, if that's what you're asking, and so certainly they have to meet all the QA, QC requirements we spoke of earlier, but they're actually a supplier of

containers.

THE PRESIDENT: So are the place also where they test some of the robustness? No?

MR. WITZKE: Dave Witzke, for the record. No. BWXT is only required to supply the DSC to our QA program and to the specifications that we provide them.

THE PRESIDENT: Okay. Thank you.

CMD 17-H5.7

**Written submission from the
Canadian Nuclear Laboratories**

MR. LEBLANC: The next submission is from the Canadian Nuclear Laboratories as outlined in CMD 17-H5.7.

Questions?

CMD 17-H5.8

**Written submission from the
Canadian Nuclear Workers Council**

MR. LEBLANC: The next submission is from the Canadian Nuclear Workers Council, as outlined in CMD 17-H5.8.

CMD 17-H5.12

**Written submission from the
Pickering Nuclear Community Advisory Council**

MR. LEBLANC: Any questions?

The next submission is from the Pickering Nuclear Community Advisory Council, as outlined in CMD 17-H5.12.

Any questions?

THE PRESIDENT: I just don't recall, is that a recent group or has it been around for a long time? And I'm just trying to remember whether they appeared in front of the Commission before. Because it looks like they're having a pretty good representation of the community.

MR. POWERS: Kevin Powers for the record.

The Pickering Community Advisory Council has been in existence since approximately the late 1990s. They have appeared numerous times at Pickering hearings and are chosen to represent a wide selection of the community.

THE PRESIDENT: So did they have any view on the particular -- did you present to them kind of the long-term view of the waste facility?

MR. POWERS: Kevin Powers for the record.

Senior station management meets with the Pickering Advisory Council once a month. And prior to any sort of intervention they request meetings on the subject matter. In this case, they did request meetings to learn more about nuclear waste, nuclear waste at Pickering, and the long-term vision for nuclear waste. And their intervention is a reflection of those discussions.

THE PRESIDENT: Thank you.

So this concludes the list of written submissions.

And now we'll get into the final rounds of questions. So let me start with Dr. McEwan.

MEMBER MCEWAN: So today and yesterday you mentioned I Care early in your presentation. Apart from saying it was a jolly good thing you didn't say anything else about it. What is the intent? What are you trying to do with it? What is your product? And how do you measure its effectiveness?

MS MORTON: Lise Morton for the record.

Thank you. That's an excellent question.

So initially what the program was about and what the campaign was about was trying to go beyond things like the event-free tools and the tools that we already have in place, and really trying to speak to the hearts and minds of employees.

And so sessions were held with all employees. And there were things like break-out groups that would go off on their own, employees themselves at all working levels, and really discussing and brainstorming so what do I personally care about. Why do I care about safety in the workplace? How do I care for my fellow employees, et cetera? And we heard everything from a range of, you know, for example, the transportation drivers being very specific about they care about safety on the roads and about the loads that they transport.

So it was really trying to hone in on what is it that our employees value, specifically things again such as I care about going home safely, I care about my family, I care about all of those things. So really again trying to make it more of a personal value mission.

And then what we did was we -- so the groups would write up those -- those almost commitments, and they're posted in the workplaces of those particular work groups. And it was very work-group-specific and crew-specific so that we weren't trying to broad-brush everything across the organization. Those remain posted locally as a reminder.

Then going forward, we're currently this year in 2017 expanding that program further to include things perhaps like the human performance programs and

other things.

And we still are developing to some extent how far we go with the I Care and what it becomes. But it's being used as a more continuous engagement tool with employees again to reinforce more of that personal aspect to safety and really the need to look out for each other.

It also therefore ties in to some of the human performance tools such as peer coaching. So we're doing a lot of work in terms of what we call coach the coach and personal coaching and peer coaching amongst employees and really advocating that notion that it's important if, you know, if you see a co-worker perhaps not -- I'm giving an example -- perhaps forgetting to wear their hardhat or something, that you take the time and care to say, oh, you know, to stop that person and coach them. So we're trying to integrate it with the human performance tools as well.

So it is an evolving program. It was fairly new, as I described. But it really did get a lot of uptake from employees, and therefore we're continuing to develop what that could look like going forward.

MEMBER MCEWAN: And how do you measure its effectiveness?

MS MORTON: Lise Morton for the record.

I'm not sure if Allan Webster --

Allan Webster engages with our safety group, so I'll ask him if he can add something. I think they are looking at metrics, but Allan will know more than I do on that.

MR. WEBSTER: Allan Webster for the record.

We're measuring it by the events that we have. And so the behaviours that the people said they were going to commit to in the I Care program, we look for instances where we can actually see them doing that in the field or, conversely, not doing it in the field. And we look for those instances and we trend those instances to see whether essentially people are living up to their commitment and using that as an opportunity to remind them as to what their commitment was.

THE PRESIDENT: Ms Velshi.

MEMBER VELSHI: Thank you.

So OPG CMD 17-H5.1 page 41. This is with respect to the agreement with the CNSC that freezes the code effective dates of applicable pressure boundary codes and standards throughout the duration of the Darlington NGS Refurbishment project.

Maybe I'll start with Staff first. That these frozen code effective dates are in place for the Pickering Waste Management Facility as well, and why is that and what are the implications of freezing that? I

understood why we were doing it for Darlington refurbishment, but I wasn't sure for the other facilities.

MS TADROS: Haidy Tadros for the record.

Thank you for your question. I'll ask Mr. Chris Cole to answer that question.

MR. COLE: For the record, Christopher Cole, director, Engineering Design Assessment division.

So if I could just reiterate your question, you're asking why are we putting code effective dates frozen for the Pickering relicensing of the waste management facility?

MEMBER VELSHI: Yes. Not just relicensing, it's just that you've frozen the code effective dates for Pickering Waste Management Facility; right?

MR. COLE: All right, so similar to the Pickering -- or Christopher Cole for the record.

Similar to the Darlington situation, when you go through a refurbishment or any sort of extensive period of time when you're going to change things, it's important to freeze the codes so that there's an efficiency throughout the process of coming up with a standard process 'til the end. So that's why we've applied it to Darlington. But I'm not sure if that's being applied to

the waste management facility at this time. That might be a mistake, because I don't know if that's true or not.

MR. WITZKE: Dave Witzke for the record.

The code effective date for the design-related codes and standards are frozen for the nuclear fleet. The intent of this was to allow OPG to have a consistent program for all power plants and waste facilities to allow mobility of the workplace workforce without additional training. And so we'd have no unnecessary reconciliations for the refurbishment projects.

The acceptance was given on the condition that OPG conduct code-over-code reviews of the frozen design-related codes and standards for any subsequent additions, and the code-over-code reviews are being conducted annually to meet that requirement.

MEMBER VELSHI: Thank you.

So CNSC, is this a fairly standard practice that we have followed when there's a major project that, you know, it's off the OPG fleet that has -- and I'm glad to hear that you actually do code reviews to make sure that you understand what the implications are.

MR. COLE: Christopher Cole for the record.

This is a standard procedure, you're right, when we have a major refurbishment in place.

MEMBER VELSHI: Thank you.

THE PRESIDENT: Dr. Soliman?

MEMBER SOLIMAN: I have a supplementary to the same question. The pressure boundary for the waste facility is CSA 285-10. And CSA 285-10 addresses change as repair, replacement, or modification. For the first two, which is replacement or repair, we don't need the -- to change the CED. The CED can be applied at the construction, CED can be applied. And I don't think we are going to do any modification, so that phrase is not necessary, as a matter of fact. If we manufacture a new one, it will have a CED for the new codes and if we don't wait to apply the CEDs to modify something in the old facility. So I am in the opinion that this phrase is not required.

MS WANG: This is Yangpeng Wang, technical specialist from Engineering Design Assessment division.

For the Darlington Waste Management -- for the Pickering Waste Management Facility, the code effective date, it seem as OPG nuclear power plant -- the code effect date it seem as it freezed because waste management facility, they adopt nuclear power plant pressure boundary program, and thinks they freeze the code effect date so OPG will do code-over-code review annually to the new addition to identify any significant change. They will be include

in their modification like mentioned, yeah. Code effect date only apply for -- the latest one only apply for modification, not for replacement and repair. For repair and replacement N285-0 [sic] allowed to use original code effect date.

MEMBER SOLIMAN: This is exactly this is why I'm saying it's not required.

MS MORTON: Lise Morton for the record.

I'll hope to add to this and not confuse, but definitely we do not do a lot of pressure boundary modifications within the Pickering Waste Management Facility. There are very few systems that are actually pressure boundary systems within the facility. But we are covered under the purview of the OPG nuclear fleet-wide pressure boundary program. And therefore we follow the, you know, the requirements of that program.

You may be correct in the fact that we may not end up having to enact this in terms of a modification. Because we really don't do that many pressure code -- or pressure boundary modifications at the facility.

MEMBER SOLIMAN: Non-technical question. In page 16, CMD 17-H5.1, the second paragraph from the bottom of the page, the same mistake like last -- like yesterday, "OPG is requesting a renewal of the operating licence for PWWF until August 31, 2018."

MS MORTON: Lise Morton for the record.

I do apologize for that. We read this so many times. I don't know how we missed that. Thank you.

--- Laughter - Rires

THE PRESIDENT: Dr. Demeter.

MEMBER DEMETER: Thank you.

I'd like to discuss emergency response a bit. So the two reference points for my questions are page 70 of OPG's submission and page 63 of Staff's.

So as I understand it, and this is a bit of a different model than Bruce, which seems to have an on-site fire and emergency medical response. At Pickering, as I read this, there is an on-site emergency response team which respond to phase 1 incidents, and after that you've got a memorandum of understanding for fire, ambulance, and security with the City of Pickering, which is about I guess around 90,000 people.

I want to -- because so this is a memorandum. I want to get a sense of surge capacity, skill sets of the individuals who may come to a larger incident when you need them, maintenance of competence. And these aren't your employees like they would be at Bruce relative to emergency response. So how do you maintain that sense that they will be available when you need them and they've got the skill sets you need?

MR. MANLEY: Robin Manley for OPG. I'm the vice-president, Nuclear Regulatory Affairs and Stakeholder Relations.

So I'm going to outline a little bit of a sort of a general background to start with in the hope that I will work my way towards the specific answer to your question.

So first off, OPG has an emergency response program which is a robust program which meets the regulatory requirements that were established by Staff through their regulatory documents. And we're well aware of the fact that the CNSC has published an updated regulatory document, and we're going to comply with that. We have an implementation plan to do so, and that -- those regulatory requirements have been evolving over time.

The program that we have right now, as I said, meets the regulatory requirements and is accepted by the Durham region and the Province of Ontario and is integrated with their emergency plans. So our plan does not stand on its own. It's an integrated plan which we have to test and exercise. And for example, a couple of years ago we had exercise unified response at Darlington which was a unified response exercise that integrated with some 50-odd different agencies, including the local region, province, federal agencies, et cetera, et cetera, to ensure

that the plan was adequate for a severe accident; right?

And that covers the scope of severe accidents for a nuclear power plant as well as accidents that could happen on the facility such as a waste management facility scenario.

We're going to do a generally similar large, integrated exercise at the Pickering facility. And by "Pickering facility," I mean the larger facility, not just specifically the PWWF. We're going to do that in December of this year. And again there'll be integration of our emergency response plans with various government agencies to establish that we meet all of the requirements and that we have a robust plan that would protect the public.

So to come around to your more specific question of the capacity of the region and emergency responders outside of our site, in order for those plans to be successful and to work, we have to have that integration. They have to have some familiarity with our site. And they have to have information provided to them by our emergency response organization so that they understand the site that they're going to be accessing. And they have to be provided with, for example -- and this was a topic that was discussed amongst the region and CNSC and OPG last year -- radio interoperability, the facility

to communicate well with our staff is an integral part of the program so that they can well communicate and be able to do all the things that are necessary.

So you know, the long-winded answer to your question is that there are many, many facets to ensuring that you have an emergency response organization that is fully capable of supporting the plant and our own on-site forces. And we have that. We exercise it, and we exercise it, and we continue to develop it.

MEMBER DEMETER: Okay. Maybe the specific question to Staff. If -- and I'm thinking very simply here with how many units do they have in the City of Pickering? Do they do both ambulance and fire? What's the tipping point where the surge capacity would be such that there might not be the appropriate availability? And has that been taken into consideration? I know that there's REGDOCs and so forth, but just on the ground with the number of individuals and the capacity in that sort of scaled scenario, are we comfortable? That's what I'm --

MS TADROS: So Haidy Tadros for the record. I'll have our colleague in Emergency Management, Mr. Richard Tennant, come and answer the specific details of your question.

And as he's making his way up, just to reiterate Mr. Manley's answer, I guess from an emergency

preparedness perspective, all of this comes together when we look at the probability at the Pickering Waste Management Facility proper in terms of accident response, I think that's where it's a little bit more difficult to untangle just specifically for the Pickering. But Mr. Tennant will probably be able to give you a perspective on the whole of the emergency response plan.

MR. TENNANT: Richard Tennant for the record, Emergency Management Program division.

Could I just ask you one question? You talking more specifically towards a fire-based scenario or towards an emergency within the facility type scenario?

MEMBER DEMETER: Yeah, I wasn't talking more about the broad-stroke emergency preparedness plan for the region or the province. Just I just was asking the question based on this relatively small city. I just wanted assurance that they have the capacity and equipment to respond to both medical and fire emergencies and that the capacity isn't compromised by having to -- you know, at what point does the surge capacity compromise them being able to attend because they've got so many limited units and they're attending to other things. I mean, it's -- I'm just curious where that line was drawn and how you assessed the physical capacity of them to to respond. Not as a planning or policy but just physically is there a point

where you would call them and say we're at another call?
And how have you assessed that?

MR. TENNANT: Okay, Richard Tennant for the record.

When we assess drills, fire drills on site or emergency drills, one of the venues that we look at is the mutual aid capability that can be provided from off site. So what we look at is what resources can they bring and like you say it's at a maximum capacity to aid.

There's only so far we can go with that, because what happens is when you get into a city fire department, they have other agreements and through the office at the fire marshal that they can draw resources from other regions if needed to supplement the response in different areas. So what we look at is how much -- how many resources are needed on site to respond to the postulated event that they've identified.

So we're satisfied that right now with Pickering fire department that would respond, that they can bring the resources and obtain the necessary resources needed to support the response for an extended effort.

MEMBER DEMETER: Thank you very much.

THE PRESIDENT: Okay. Back to the top, Ms Velshi.

MEMBER VELSHI: Thank you.

So again, OPG CMD 17-H5.1. On page 48, in radiation protection, on the Radiological Action Levels Table 3, OPG, you mentioned you'd submitted after you've reviewed these action levels, your recommendations to the Staff. Staff said they'd accept it, sent comments, and had recommendations for additional controls, I think.

So can you just bring us up to speed on actually what the revised, if any, action levels are, and what are some other areas or applications that you've recommended that they have action levels in.

MS TADROS: Thank you for the question. Haidy Tadros for the record.

We would ask our radiation protection specialist, Ms Sheri MacDonald, to take that question.

MS PURVIS: Caroline Purvis, director of the Radiation Protection division. I'll just start off, and then if you'd like some more details, we can pass it to Sheri, and Mr. Schwartz I think is prepared to speak to this.

So in advance of the renewal of the licence, as is our practice, we ask the licensee to revisit their action levels to ensure that they remain meaningful in the context of their activities taking into account also their operational experience.

Based on that review, they did make some

revisions to their existing action levels, bringing them down, and tweaking some of the action level values with respect to the contamination levels.

One area which we asked them to provide further consideration had to do with action levels for doses that might be received due to intakes. Currently there's an action level for external dose received in a shift. We asked them to look at tracking of doses and setting action levels for bioassay submissions as well.

MEMBER VELSHI: So, where is the risk for getting any internal doses? I think we'd heard that they really do nothing that would allow any tritium in their workplace, so what's driving that, or is this from any contamination, I guess?

MS PURVIS: Caroline Purvis, for the record. So, the action levels as set are more at a corporate level. So, the action levels that currently exist for the Pickering Waste Management are also applicable to the Western Waste Management. So, we asked them to look at that program and ensure that there wasn't a need for them and so, that's the piece that we're waiting on and, in fact, we have a meeting next week to clarify our expectations.

But the risk, of course, is from the possibility of intakes due to contamination either on

surfaces or in the ambient air.

THE PRESIDENT: So, this is an opportunity for me to jump into this DRL and action.

And why don't we look at staff Slide 37 for me to try to download my angst in all of this arrangement, okay.

So, the first thing that jumps at me, we have action level in Becquerel per week against DRL Becquerel per year. So, how do I make any sense out of this? And then, the actual reading is Becquerel per year again.

And the name 'action level', the way I read it, it reminds me of a Dr. Greening intervention, they will never, never, never reach -- the action level is so much orders of magnitude higher than the actual reading, so there's never going to be any action here.

So, again, I'm not looking at the science, I'm looking at the story line. I think we have to come up with something that's called, I don't know, management levels because, for example, 2015 when I see a peak of 10:9 which was higher than everything else, I may want to look at what's going on. It's not even close to the action level.

So, how are we going to fix this?

MR. RINKER: Mike Rinker, for the record.

So, first of all, the units. It's important that action levels are meaningful, as mentioned before, and when we're -- when DRLs, I should say, are not worker protection action levels for operational radiation protection program, a DRL is for protection of the public.

And so, the action level is calculated in a way that is protective to make sure that the derived release limit is not exceeded, that's how our existing guidance is provided. So, it is really to make sure that we don't end up with a dose that's greater than one millisievert per year and that there's an early warning. So, in this case it's set at 10 per cent of the derived release limit.

The units, though, want to be protective; we don't want to wait until the 11th month and realize that we're getting close to an action level, we would rather have an earlier warning. So, action levels can be set depending on the type of work or the type of release on a weekly or a daily or a monthly, depending on the type of facility and how the releases could be achieved.

So, the time unit is in the end to make sure that that derived release limit, which is an annual number, is never exceeded.

However, we are across the industry working to improve to a new way of dealing with action

levels. And I would agree that in the licences that we've talked about this week and some others where the existing and the older framework is to set the action level as 10 per cent of the DRL, is not an effective control. It's effective to make sure that we don't exceed the release limit, but it's not effective on improving a program.

So, the CSA standard that CNSC staff participated as authors in this new standard and so did other regulatory agencies, as well as industry, was published about six weeks ago, is to come up with a different way of setting action levels that are performance-based and data-based. And so, you would look at past performance and when there was an event, for example, in the past that should trigger an action level.

So, when a program was not a hundred per cent effective where there was an incident at the facility, that would trigger an action level and if your program -- if your facility's operating as expected, you wouldn't. So, it's really based on the facility, on what their typical and expected performance are.

And so, the action levels from a program performance point of view are going to become more meaningful from that perspective. However, we are -- so, we recognize the issue that you raise. The improvement to that has been articulated in a CSA standard that will be

rolled out and implemented.

THE PRESIDENT: All I can say is, I'm eagerly awaiting to see this improved because when I look at this table I don't know what I'm looking at and no way to compare whether this is tightly managed or not. I understand the dose to the people, but I'm looking at management of the actual what we monitor and I can't relate the two here.

MR. RINKER: If I could add one more thing, is that the action levels and derived release limits and, in fact, the licensee's internal investigation levels are all important. We look at the internal investigation levels and licensee response through inspection and action levels would get reported, but we'd also get quarterly and annual monitoring data. We do our own trending analysis to see how facilities are improving and so on, or how they're performing.

So, there are other metrics through which staff are aware of performance aside from these.

THE PRESIDENT: Okay. Dr. McEwan?

MEMBER MCEWAN: Mr. President, thank you for introducing my question, bless you.

--- Laughter

MEMBER MCEWAN: But I'd like to follow it on, because I think this is really important because as I

talk to people about some of -- when they've looked in on the Commission hearings, one of the questions they ask me is, what's the point of a DRL, because it's a number which is so large it means nothing in terms of us demonstrating overtly safety.

The other concern is that between 2012 and 2013, on that table it changed, randomly -- it changed from, not by a great deal, but it did change. So, it's not even a number that holds some stability as a reference point.

The next piece, also, if I look at the table on page 56 of the staff CMD, the action levels are not 10 per cent of the derived release limits, they're not on the table on the slide and they're not in any of the rows that I see in Table 9 and Table 10. So, where does the 10 per cent that you mentioned come from?

MS SAUVÉ: Kaiza Sauv  , for the record. I'm the Director of the Environmental Compliance and Laboratory Services Division.

So, to start with, the change in the DRL, as we talked about earlier, we revisit many of the documents submitted and the programs submitted by the licensee. The CSA Standard for DRLs, N288.1, does require a review of your DRLs every five years and so, at that time, should the critical receptor locations or some of the

pathways or some of the emissions be changing, then that DRL may require an update. And so, you would have seen this actually yesterday at the Western Waste Management Facility as well.

In terms of the 10 per cent, if we go back to the President's comment about the units being different, if you take the Becquerels per year and divide it by 52, then you'll get your action level in per week, and then you divide it by the 10 per cent.

So, I'm seeing a shaking of the head 'no'. It's approximately 10 per cent.

MEMBER MCEWAN: So, I think that sort of proves the point, that to experts this is modestly opaque I think, to the lay public who we're trying to reassure we have a regime that ensures their safety I think it must be utterly opaque.

THE PRESIDENT: And just to reinforce this, so you've got Becquerel per year, Becquerel per week, Becquerel per month and nowhere is the explanation as to the why and nowhere can you do this kind of a comparison on an ongoing basis.

MEMBER MCEWAN: We even have Becquerel per week.

MS SAUVÉ: Yes.

THE PRESIDENT: Oh yeah. So, you need to

think about the audience and in the audience is not only the Commission, it's the public at large who have got to understand this.

MR. RINKER: Mike Rinker, for the record. So, I think through explanation I think we can think about the audience, but through effectiveness I think we have to be careful not to just for the sake of being more simplistic and more clear on why they work to go to a yearly basis when, in fact, it may be necessary to have an action level that triggers attention on a weekly or monthly basis and not to wait until the 11th month where you may exceed the action level.

So, the time is important, even though the regulation for a DRL is an annual dose to public, is where we're trying to ensure that is never exceeded.

THE PRESIDENT: We don't want you to change the science, we want you to explain it and explain how you derive the various limits, action levels. I don't care if it's by week or by nanoseconds, you've got to explain to me how you did the calculations to get there.

MR. RINKER: Mike Rinker, for the record. Just one other instance. I think it's important to realize that after 2012, so they did mention that the CSA Standard gets revised. So we've heard interventions in the past saying there's new science about

tritium out there, how do you take this into account?

In fact, the 2012 update for that CSA Standard did take into account new science and how tritium cycles through the environment, but also how one would calculate internal dose to tritium. So that science was updated into the standard and so the DRL numbers changed across the board for all facilities.

MEMBER MCEWAN: So in terms of presentation, a little bullet, this is why we see the change in 2012, rather than just presenting two completely separate numbers with no text describing it. I mean, remember this is a document, this is a presentation that is targeted at the public.

You know, we heard yesterday I think that the entire tritium inventory in the Western Waste Management Facility could be put in the Lake Ontario and the DRL wouldn't be hit. That will suggest to the public that the DRL is not of particularly useful value.

So I understand the science behind it, I understand the 1 millisievert element behind it, but we have to come up with a much much better way of saying this is what we're trying to do with these numbers.

MR. RINKER: Thank you.

THE PRESIDENT: Go ahead.

MEMBER SOLIMAN: Page 43, CMD 17-H5.1, OPG

report. Section 3.6.2, dry storage containers Aging Management Plan. The second bullet, "periodic inspection and re-inspection of the base plates of the baseline population of DSCs."

The question is what is the frequency of this PI, what is involved within that? Because the bullet after that identifies ultrasonic. So the question I am saying, what is involved within that? Because you cover ultrasonic within the next bullet.

Another question is how corrosion is being monitored in the inner liner, which is carbon steel, of the DSC? So three questions.

MS MORTON: Lise Morton, for the record. I'll start and then, again, if Dave Witzke has anything to add. I hope to address your questions, if I miss one please let me know.

So the second bullet in terms of the periodic inspection, re-inspection of the base plates, I believe you asked what is involved in that. So, again, of a baseline population, what is involved in that is actually physically going with our transport vehicle in the storage building, lifting it up and actually doing an inspection of the underneath of the base plate, a visual inspection.

The frequency, I don't have top of mind, perhaps Dave Witzke could provide that.

The other question that you asked, I believe as well was the ultrasonic inspection of indications in the metal of the base. So the third bullet I'll let Mr. Witzke answer that.

Then the last one you spoke of was corrosion of the inner liner. So we did actually -- and this has come up before in previous hearings I believe, in certainly different discussions -- so we did fully instrument a DSC, a dry storage container at our Darlington facility for internal monitoring of the cavity, and I believe that was loaded. Again, Mr. Witzke will know the date, but we did actually -- instrument 1 dry storage container, load it with fuel, and it is currently in storage at the Darlington Waste Management Facility being monitored for the, to answer exactly that, the inner -- any corrosion mechanisms internally. So that's still a monitoring program going on.

So I'll ask Dave Witzke to answer that.

MR. WITZKE: Dave Witzke, for the record.

OPG does have a very extensive aging management program in place for the dry storage containers. The periodic inspection is completed on an annual basis, and we do a certain percentage of them every year where we move them out of storage, we lift them, and we do the visual inspections. We do report the results of all those

inspections to the CNSC on an annual basis.

With respect to the question on the corrosion monitoring of the DSC, Ms Morton is correct, that was installed on a single dry storage container at Darlington. We have been monitoring it on an ongoing basis. The results are submitted to an external expert for evaluation of the results. All of the results that we have back to date show that there is a very very small amount of corrosion happening on the inside of the container and, in essence, will be no impact to the lifespan of the dry storage container.

With respect to the ultrasonic inspection, I'm not sure that I understand your question. If I could ask for a clarification please?

MEMBER SOLIMAN: I don't have question about the ultrasonic. My question about bullet number 2, what is involved within this PI? Because non-destructive test is used, ultrasonic. But you are not using -- you have specified ultrasonic in a different bullet. Thank you.

MR. WITZKE: Dave Witzke, for the record. Can I just clarify? Is there a question?

MEMBER SOLIMAN: (off microphone).

MR. WITZKE: Okay, thank you.

THE PRESIDENT: Okay. I think we -- I don't remember the order anymore. Ms Velshi?

MEMBER VELSHI: So just some cleanup questions. One of the intervenors, I think it was Lake Ontario Waterkeeper had a recommendation about your groundwater sampling timing or frequency, that you do it in the second quarter of each year when there's high flow rate and you may get a more representative sample if you did it twice a year; one later in the year, although I can't remember when.

Did you have any comments on that, OPG?

MS MORTON: Lise Morton, for the record.

Yes, Raphael McCalla just needs a moment to find the information.

MR. McCALLA: Raphael McCalla, for the record.

So I'll start off by saying that the groundwater monitoring program was established back in 1999/2000. What we did at that time, we looked at historical information to design the program based on risk. So the program has been in place now for 17 years. We have a good understanding of the characterization of the site as well as the areas of concern.

Based on the areas of concern, annually we go back and we look at the monitoring frequency for the different welds and we revise those accordingly based on risk again. So that's how we manage the program.

In this particular area where the Pickering Waste Management Facility is located, there are no historical concerns and, hence, the welds that are in place from OPG's perspective we believe that it accurately reflects what's going on there and, from our perspective, we don't believe that there's a need for any additional monitoring -- updating the monitoring frequency or putting in any additional welds into service in order to understand the characterization.

MEMBER VELSHI: So have you done sampling other than the second quarter of each year? I think that was the concern, that when you do it it's high flow rates and it may be diluting what you're measuring.

MR. McCALLA: Raphael McCalla, for the record.

We understand the flow migration across the site. So based on that flow pattern, we can determine the frequency in which we need to monitor.

This particular site is monitored semi-annually, and we believe that adequately addresses our concern to understand the flow migration and any potential concerns.

MEMBER VELSHI: Thank you. For some reason, I thought the intervenor thought you just do it annually, but maybe I got that wrong. Okay, thank you.

THE PRESIDENT: Dr. McEwan?

MEMBER MCEWAN: Thank you, Mr. President. Staff CMD page 85. Again, in the environment and fish impact section, one of the sections that could have been helped by more information, numerous presentations on the efforts. Many communities are satisfied, that implies a significant number of communities are not satisfied.

So what were the areas of dissatisfaction? I mean numerous presentations, five, 50, 500...? How much detail is gone into in those presentation?

MS TADROS: Haidy Tadros, for the record.

Thank you for your question. So this is a section on our Aboriginal engagement. I'd ask Ms Kim Noble to take the details of how many times we've been out and the substance of those conversations as well.

MS NOBLE: Kim Noble, for the record. I'm Team Leader for Aboriginal Consultation in the participant funding program.

This was a summary of the REGDOC 3.2.2 Aboriginal Engagement, which was a requirement for the proponent too, so I think it's best that they describe what they did, as this was just a summary of one of their reports to us.

MS MORTON: Lise Morton, for the record.

I hope I'm answering the question. So again, just to clarify, you were pointing to page 85 of the CNSC's CMD, is that correct?

MEMBER MCEWAN: (off microphone)

MS MORTON: Okay, all right, thank you. To my understanding, so we do have collaboration and engagement with, again, many of the First Nations. The summary that you see here in terms of concerns; transportation of waste through the territory, laundry transportation, fish, et cetera. I'm not aware of current concerns that are outstanding with those communities. Having said that, I know that we continue to work through many issues and have ongoing dialogue.

I can certainly confirm whether there still are some outstanding issues, but I'm not aware of any. I see Kevin Powers has left, because he's the one that does all the engagement. So we can certainly get specifics on the fish if you're concerned about that.

Oh, I apologize, Raphael McCalla can answer that.

MR. MCCALLA: Raphael McCalla, for the record.

Over the last year we've met with a number of Aboriginal groups to discuss the performance of our plant. We can all appreciate that in terms of the Pickering

Waste Management Facility there are no real impacts to fish.

But on a more broader discussion around the impacts at the station, we have discussed the performance with respect to fish mitigation and there are no outstanding issues that we're aware of that we're still working through with any of the Aboriginal groups.

THE PRESIDENT: So remind me, where are you on the arrangement with DFO? Is that done now?

MR. McCALLA: Dr. Binder, I guess you're referring to the *Fisheries Act* authorization that we're applying for?

THE PRESIDENT: Right.

MR. McCALLA: Raphael McCalla, for the record.

The schedule is to apply for the authorization at the end of May, and we are on track to submit our application.

MEMBER MCEWAN: That's not a helpful description of what we heard from OPG. That's not even a particularly accurate description of what we heard from OPG.

MS TADROS: Haidy Tadros, for the record.

In terms of just a statement reflecting on the information presented. So, again, the section does

identify that this is the information that was submitted to CNSC Staff from OPG's Aboriginal engagement report, and we included it into our CMD.

But I completely understand the perspective, that if we are to include information like this, it needs to be more robust and tell more of a story with regards to how CNSC Staff view OPG's activities and are they inline with the regulatory requirements that we've put out. Understood, thank you.

THE PRESIDENT: Since this is a part of the Aboriginal consultation section here, if you look at page 82 there's a good list of Indigenous communities, and I'm curious why they're not here. You know, we've got some representation on the Western Facility, why not Pickering? Staff?

MS NOBLE: Kim Noble, for the record.

I think we've been here before on this question. First and foremost, I can't speak on behalf of the First Nations and the Métis communities. What I can say, and as Ms Lloyd brought up earlier, I don't want to say that there's no concerns, I think it's a combination of, one, from what we've heard, OPG is doing a lot of engagement activities with the communities, they reach out broadly and regularly.

For example, I note for a fact

Mississaugas of the New Credit First Nation, who have participated in previous Pickering hearings, when we followed up with them they said, no, this one we're not going to participate, but we're reaching out to OPG, we want to tour the facility. So we followed up with OPG and they said they're working on that.

We followed up with the Williams Treaty First Nation, made sure they had all the information. Followed up, and they said, we won't be participating, we'll continue our engagement with OPG at this time. So we kept hearing that.

As for the associations, as I mentioned earlier, the Chiefs of Ontario, that was a new addition, that was based on -- our staff were hosting a booth at the Canadian Aboriginal Mining Association last fall, and we were talking about this, so we added them onto the list because they were interested.

We send them the information, we follow-up, we share the information regarding our participant funding, help with capacity, and then if they don't choose to participate then we'll just continue to share the information.

We also encourage subscription to our info accounts and that they're getting regular information from the CNSC. So, as I said, I think OPG's doing a good job on

their engagement. We're reaching out, and if communities choose not to participate, I think it's also a matter of a number of priorities that they also have. As SON pointed out, they choose their priorities on what they want to participate on.

THE PRESIDENT: Thank you. Ms Velshi?

MEMBER VELSHI: Thank you. Just for clarity purposes, I've actually now found the reference that Lake Ontario Waterkeeper had in their submission. It's a broader issue that I want to get to. So it's page 16 of CMD 17-H5.11, and it's their recommendation 11 where they actually state in here that groundwater sampling is conducted annually and it's done in the second quarter and it should be done bi-annually. Yes, they're saying that it should be done every six months, and you're saying you do that anyways.

So I guess my question here is if there is stuff that's factually wrong, it's not people's interpretation or opinions, but if it's factually incorrect, how do we make sure that the record has it correct? If we fail to ask you those questions, do we just leave it out there? Do you folks have any thoughts on that?

MS MORTON: Lise Morton, for the record.

That's an excellent question and one that we've grappled with ourselves. So we did try to address

some errata, if you will, in some of the interventions in our supplemental, but mostly around Western Waste Management Facility. In short of trying to rewrite an entire supplemental that would address every errata, it's very difficult. Sometimes we try to incorporate that again into our presentation so that we can try to clarify the record. But there are sometimes these smaller items that do not get corrected, as you say, unless we get asked by them. It is a bit of a difficult conundrum we find as well.

MEMBER VELSHI: Staff, any thoughts?

MS TADROS: Thank you for the question. I would echo OPG's comments with regards to the opportunity to clear the record. I think it's very important you did ask the question, Madam Velshi, with regards to do we just leave it out there? I don't think it would be in anyone's best interest to leave it out there. I think these are proceedings and documents that go on and they are used in reference for others that come after us to ensure that decisions made today are based on sound and solid evidence and arguments.

So when the opportunity, as you've seen yesterday for the Western Waste Management Facility, for errata to happen we, from our perspective when there are mistakes caught on the CMD, we try to put those out there, as painfully as it is.

But, equally, when we do see mistakes in intervenor's submissions, as was the case today as well, we would need to find a better mechanism to either engage at the part of the Secretariat or at the part of Staff, either through supplementals to find a way to correct the record, as you say. But I don't think we're really given much thought to those mechanisms, but it's a very good question. Thank you.

MEMBER VELSHI: Thank you. Yes, I would highly recommend that you do some more thinking and follow-up on that.

So my question --

THE PRESIDENT: Just to follow-up on this. When the proceedings or the minutes or the records go out, if there's any mistake in there, I assume you will not be shy correcting please?

MS TADROS: Haidy Tadros, for the record.

You are right, sir. So the transcripts of this meeting get circulated to at least Staff, and we go through them to make sure that they are accurately representing of the words that we say. But the minutes are the Commission, so if there's anything there we'll have an opportunity to...

MEMBER VELSHI: Yes. Though, my issue was quite different, you know. Okay.

So my question is Staff CMD 17-H5 pages 117 and 118, this is Appendix F on reportable events. So there are 10 reportable events, 40 per cent of them, four of them are security-related events, and I guess because they're confidential there's no information provided on them. Yet, they have a fully satisfactory rating in that SCA.

I don't want to open up that whole debate on SCAs and rating and so on, and I know you can't share details on these events, but they do hit you between the eyes, that they're more than any other type of events, are security-related events.

Can you at least generally share with us are there common causes, were they fairly minor, anything?

MS TADROS: Haidy Tadros, for the record.

So thank you for that question and I'll probably need to ask my colleague Mike Beaudette to speak to the nature of the severity of those events. But, again, if they aren't events that the Commission hasn't seen in the back room or haven't heard about, then I would guess that they were of low safety significance that were dealt with at our level.

THE PRESIDENT: Go ahead.

MR. SNOW: Michael Snow, for the record.

There were no reportable events

security-related from 2014 to 2016. The other events that occurred from 2009 to 2013 were minor in nature. CNSC Staff reviewed OPG's response and concluded their corrective actions were acceptable and met our expectations and requirements, and all these events are now closed. They're all minor in nature.

THE PRESIDENT: Thank you. Dr. McEwan?

MEMBER MCEWAN: Thank you, Mr. President.

Table 3.1 on Staff CMD on page 17. I'm sorry, it's the environmental assessment, I apologize. I'm sorry, it's late.

So two things. One, you do have the revision reference on the bottom of that, so that's good. But if I annualize the action level for both the earlier and the more recent calculations and annualize it, it's identical to the DRL. So what am I missing?

MR. RINKER: Mike Rinker for the record.

So what that would serve is that in the course of a week we would know, like say week one in the course of a year, if they are operating in a manner that could exceed the DRL and we could take action in the first week.

MEMBER MCEWAN: But you have just told us that the action level is 10 percent of the DRL.

MR. RINKER: So I'm looking at the table

and I see for example 1.4×10^9 for the action level per week.

MEMBER MCEWAN: If you multiply that by 52, you get 7.28.

MR. RINKER: Times 10^{11} ?

MEMBER MCEWAN: Times 10^{11} . And if you multiply 4 by 52, you get 2.08×10^{11} .

MR. RINKER: We need to check our math. One minute, please.

--- Pause

THE PRESIDENT: If you take 10 percent of what you call the action plan, you may get close to the actual measurement that you get. You are still not there because it is still an order of magnitude higher, but it will be a lot better than what it is now.

MR. RINKER: Mike Rinker. It's a good question, but we have to make sure that this is correct.

THE PRESIDENT: OPG, what do you -- so that's an action level for you, not for CNSC. So tell me what you use as an action level or do you -- for the first time I hear the new concept called investigation level. Is there such a thing as an investigation level and is it, I don't know, 10 percent of the 10 percent?

MR. RINKER: Mike Rinker for the record.

So when we multiply 52 times 1.4×10^9 , we get 7.2×10^{10} , which is 110 percent of the next column.

THE PRESIDENT: That's why you're the experts.

--- Laughter

MEMBER MCEWAN: Trying to do mental arithmetic is...

THE PRESIDENT: Are these the action level that you guys are using?

MR. RINKER: We are trying to find them.

--- Off record discussion / Discussion officieuse

MR. PRESIDENT: No, they are right, it is 2^{11} .

MR. RINKER: It's correct because it's 40 and then you have to remove --

MS SAUVÉ: Mr. President...?

THE PRESIDENT: Yes...?

MS SAUVÉ: This is Kaiza Sauvé for the record. This would be a really good opportunity for me to correct the record on liquid effluents. The action level should be in becquerels per month. So the slide that we had up earlier as well, I know, and now it all makes sense. So the action levels should be in becquerels per month for liquid, becquerels per week for air. And so that's a correction to the record for both NEA report and in the slides and I apologize for that.

THE PRESIDENT: Okay, guys, you will have

to correct the math because some of us are doing this math in our head and 52 times 4×10^{10} gives us 2×10^{12} . So it's not 10 percent. So the second one is right I think, the first one is not.

MS TADROS: Thank you. We will look at the numbers and ensure that they are corrected.

THE PRESIDENT: Okay.

MEMBER MCEWAN: But I think this proves the point that we need a better way of presenting the data.

THE PRESIDENT: One more? Okay.

MEMBER VELSHI: A question, well actually it is for both staff and OPG and it's a discussion we had earlier today that had me thinking around -- this was Northwatch's question around the processing capacity and whether you would be able to empty out the fuel in the fuel bay on time, and OPG, you gave a date of 2035 and you said, you know, the fuel will have been in the fuel bay 10 years and you will be able to have removed it. So is there a requirement that fuel needs to be out -- no -- by 10 years, but it's just what you're aiming at. Because if I did that quick math -- and we all know how great we are at the math here -- if I did that quick math that would imply that Pickering would be operating until 2025 or something and I just didn't want that to be part of your planning assumption because it's a bit premature. But if it can be

in the fuel bay for more than 10 years, then that's not an issue.

MS MORTON: Lise Morton for the record.

So the minimum requirement is that it's in the fuel bay for 10 years. It can be in the fuel bay longer than 10 years.

THE PRESIDENT: Again, correct me if I'm wrong, I really don't want to open it up again, but I thought it could be faster. You're talking about longer. I was thinking about at one time we were talking about seven years, right, so you can actually speed it up if you wanted to. So I didn't like the minimum requirement.

MS MORTON: Lise Morton for the record. Robin Manley will probably love to answer your question, but I know six-year-old fuel has been discussed and so I will let Robin Manley speak to that.

MR. MANLEY: Robin Manley for the record.

For the benefit of new Commissioners or also for anyone who wasn't present last time around, back in August OPG provided an answer to the question of whether or not we could remove fuel from the irradiated fuel bay sooner than the current minimum of 10 years, and in summary -- and one can look at the transcript from August of 2016 to see the complete answer to that question, but the short answer is we have looked at it, it is technically

feasible to do, there is no safety driver to do so, there is no production driver to do so and there would be further requirements to assess issues around heat load for example for our personnel, workers in the fuel buildings, so we have chosen not to go further along pursuing that at this time.

THE PRESIDENT: Thank you.

Question...? Question...?

Okay, thank you. You have the final word.

MS MORTON: Lise Morton for the record.

Thank you, Chairman Binder, for that.

So just a few comments based on the proceedings of today and going back to the beginning of the day.

We do note the concern that was raised respecting the timing of our application and it was certainly not our intent to confuse the process. We do note the concerns that were raised and again, they are duly noted.

We have a long history of operation, of safe operation of this facility. We do know the environmental effects of these operations and we routinely update our information based on our monitoring results and enhanced understanding of potential impacts. We remain confident that we are aware of the impacts of our

operations and that the risk of our operations will remain very low.

We also recognize that our performance is routinely reviewed as part of the annual regulatory process, including appearances before this Commission.

I also want to reiterate the commitment that we made to publicly post our updated ERAs. So again, in light of the discussion we had today, I just wanted to reiterate that commitment.

And then again, finally, as a final note, the Pickering Waste Management Facility remains very proud of its 22-year safety record, but we do not rest on our laurels and we continue to focus on programs such as human performance and others in order to enhance and look for continued improvement in all aspects of our programs.

Thank you very much for your time today.

THE PRESIDENT: Thank you.

Do I need to say anything here besides --

MR. LEBLANC: So with respect to this matter, the Commission will confer with regards to the information that it has considered today and then determine if further information is needed or if the Commission is ready to proceed with a decision. We will advise accordingly.

So this concludes the hearing on the

application by OPG for the renewal of the license for the Pickering Waste Management Facility. Thank you very much for your attendance and participation, two heavy long days for the same participants. Normally we split that a little bit more, but thank you very much for all the hard work.

THE PRESIDENT: Thank you all for your patience.

--- Whereupon the hearing concluded at 3:34 p.m. /

L'audience se termine à 15 h 34