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Safety Commission

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sûreté nucléaire

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Salle des audiences publiques  
14<sup>e</sup> étage  
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Mr. Dan Tolgyesi  
Dr. Sandy McEwan  
Ms Rumina Velshi  
Mr. André Harvey

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M. Marc Leblanc

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Ottawa, Ontario / Ottawa (Ontario)

--- Upon commencing on Thursday, August 18, 2016  
at 9:05 a.m. / L'audience débute le jeudi  
18 août 2016 à 9 h 05

**Opening Remarks**

**M. LEBLANC** : Bonjour, Mesdames et Messieurs. Good morning. Bienvenue à la continuation de la réunion publique de la Commission canadienne de sûreté nucléaire.

We have simultaneous translation. Please keep the pace of speech relatively slow so that the translators -- I should say interpreters -- have a chance to keep up.

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

Please identify yourself before speaking so that the transcripts are as complete and clear as possible.

La transcription sera disponible sur le site Web de la Commission vers la fin de la semaine prochaine.

I would also like to note that this

proceeding is being video webcast live and that archives of the proceedings will be available on our website for a three-month period after the close of the proceedings.

Please silence your cell phones and other electronic devices.

Monsieur Binder, président et premier dirigeant de la CCSN, va présider la réunion publique d'aujourd'hui.

President Binder...?

**LE PRÉSIDENT** : Merci, Marc.

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

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

Je vous souhaite la bienvenue and welcome to all of you who are joining us via webcast.

I would like to start by introducing the Members of the Commission.

On my right is Monsieur Dan Tolgyesi; on my left are Dr. Sandy McEwan, Ms Rumina Velshi and Monsieur André Harvey.

We already heard from our Secretary, Marc Leblanc, and we also have with us here today Ms Lisa Thiele, Senior General Counsel of the Commission.

**MR. LEBLANC:** The *Nuclear Safety and Control Act* authorizes the Commission to hold meetings for the conduct of its business.

The agenda was approved yesterday. Please refer to the agenda, CMD 16-M39.B, for the complete list of items to be presented today.

**CMD 16-M30/16-M30.A/16-M30.B/16-M30.C**

**Oral presentation by CNSC staff**

**THE PRESIDENT:** So the next item on the agenda is an information item to provide us with the 2015 Regulatory Oversight Report for Canadian Nuclear Power Plants, as outlined in CMD 16-M30 and 16-M30.A.

We have representatives from OPG, NB Power, Bruce Power, Innovation, Science and Economic Development Canada, and Health Canada who are in attendance.

Also available by teleconference, Hydro-Quebec, the Durham Emergency Management Organization, and the Office of the Fire Marshal and Emergency Management. They all are available to answer questions.

So why don't we start with the CNSC presentation.

I understand, Mr. Frappier, you are going

to make the presentation. Over to you.

**M. FRAPPIER** : Merci, Monsieur le  
Président.

Good morning to Members of the Commission,  
Mr. President. My name is Gerry Frappier and I am the  
Director General of the Directorate of Power Reactor  
Regulations.

Today, I have the pleasure to present for  
information the 2015 edition of the Regulatory Oversight  
Report for Canadian Nuclear Power Plants contained in CMD  
16-M30.

The report, hereafter referred to as the  
NPP Report, provides a summary of the regulatory oversight  
and safety performance of Canadian nuclear power plants.

The NPP Report will be presented by the  
management team from the Directorate of Power Reactor  
Regulation. They are assisted by Directors from the  
Technical Support Branch who are available to answer any  
technical questions the Commission may have.

Today's presentation will begin with  
highlights of the nuclear power industry safety performance  
in 2015. The presentation will continue with details  
regarding the stations' safety performance and regulatory  
developments. Towards the end of the presentation, we will  
focus on industry's regulatory developments and we will

close with general remarks.

While CMD 16-M30 and this presentation do address actions arising from Commission proceedings, items associated with Exercise Unified Response -- and I would suggest emergency preparedness in general -- and discussions of radio interoperability are specifically addressed in CMD 16-M30.A and 16-M30.C, which will be presented later today after this presentation.

Before I turn the presentation over to the Directors, I would like to present the executive summary of the industry's safety performance. This summary will provide you with the context for the station-specific highlights, including current challenges the industry is facing.

As summarized on this slide, CNSC staff have made the following observations with respect to safety performance of the nuclear power plants in 2015:

- there were no serious process failures of operating systems at any nuclear power plant that could potentially challenge protective barriers;

- no members of the Canadian public received a radiation dose above the regulatory limit of 1 mSv per year;

- there were no exposures of nuclear energy workers at Canadian nuclear power plants above the

regulatory dose limit of 50 mSv per year;

- there were no environmental releases from nuclear power plants above the derived release limits;

- the frequency and severity of injuries and accidents involving workers were minimal -- in fact, the overall accident severity rate and accident frequency for Canadian nuclear power plants remained lower than all the other Canadian industries, including the energy sector;

- all licensees complied with their licence condition concerning Canada's international obligations regarding the peaceful use of nuclear energy;

and

- no nuclear power plant event above international nuclear event scale level zero were reported to the IAEA.

I would like to point out that these positive outcomes were the results of a multitude of provisions undertaken by each licensee and are in general a reflection of good organizational management and control by the licensees.

This slide summarizes the ratings for the safety and control areas and the integrated plant ratings for the licensees and the industry as a whole.

As you may recall, we have four rating categories, namely, fully satisfactory, satisfactory, below

expectation and unacceptable.

Regarding the overall station's safety performance, the integrated plant ratings were fully satisfactory for Bruce A, Bruce B, Darlington and Pickering, and were satisfactory for Gentilly-2 and Point Lepreau.

The integrated plant ratings for Bruce A and Pickering improved from satisfactory in 2014 to fully satisfactory in 2015. For the remaining stations, their integrated plant ratings were unchanged from the previous year.

Across the industry, the average ratings were fully satisfactory for conventional health and safety and waste management, as they were in 2014.

In 2015, the industry operating performance rating improved to fully satisfactory, while the industry security rating returned to satisfactory from fully satisfactory.

The industry rating for the remaining 10 safety and control areas were satisfactory. Overall for the stations, 19 safety and control areas were fully satisfactory and the remaining areas were satisfactory. This represents an improvement of five additional fully satisfactory ratings in comparison with 2014.

No safety and control areas were rated as

below expectation or unacceptable. The absence of below expectation or unacceptable ratings is the same result as in 2014, reflecting the CNSC's confidence in the licensees' safety performance during 2015.

NPP ratings are based on findings from inspections, desktops and other compliance verification activities conducted by the CNSC staff.

Whereas in 2014 there were no medium or higher rating findings assessed to licensees, there were this year four medium findings. These medium findings relating to weaknesses in New Brunswick Power's management systems were identified during compliance activities at Point Lepreau.

CNSC staff have increased their regulatory oversight activities to ensure that the licensee addresses these medium findings and continues to monitor the implementation of corrective measures in 2016.

I would now like to discuss the performance rating methodology.

CNSC staff assesses the safety performance of licensees using a rating methodology that was established in 2010 and is based on multiple sources of inputs covering 14 safety and control areas.

The inputs for the assessments include findings extracted from desktop reviews, site inspections,

observations, walkdowns and follow-ups. These findings come from the assessments conducted by CNSC staff at the specific area, which as you will recall is just below the safety control area.

You may recall that each safety control area is made up of a number of subtopics that we call specific areas. For example, the fitness-for-service safety and control area has six specific areas, including maintenance, structural integrity, aging management, to name a few.

The specific area ratings are then rolled up using a computational method resulting in the SCA rating. When there is uncertainty, the computational method is augmented with professional judgment. This assessment process is conducted for all safety and control areas.

The safety and control area ratings are then combined using a risk-based weighting factor to produce the integrated plant rating, that is, the overall rating for each nuclear power plant.

This table outlines the process used to determine the ratings.

First, we identify the findings of the non-compliance with a requirement or criteria.

Next, the findings are rated according to

their safety significance level. These are either rated as high, medium, low, negligible or no risk. The levels are approved by CNSC management or supervisory staff.

The significance of the findings are then used to determine the ratings for each of the 69 specific areas. The ratings are unacceptable, below expectation, satisfactory or fully satisfactory, and each of these are assigned a discrete value of either zero, 4, 7 or 10, respectively, which allows for computational analysis.

Step 4 integrates the numeric values for the specific area ratings into an overall numeric value for the safety and control area. This numeric value is then converted to the corresponding qualitative rating of either unacceptable, below expectation, satisfactory or fully satisfactory.

In Step 5, values for the 14 SCA ratings are combined using a weighted formula to determine the integrated plant rating. The weighting values in the formula are based on safety significance of each safety control area.

Finally, the industry average safety control area ratings are determined by averaging the numeric values for each station.

This concludes the highlights section.

I would now like to turn it over to Mr.

Richard Cawthorn to continue with the overview and the industry safety performance section of this presentation.

**MR. CAWTHORN:** Good morning. Richard Cawthorn for the record. I'm the Acting Director of the Power Reactor Licensing and Compliance Integration Division.

Thank you, Mr. Frappier.

I would like to provide some background information on the 2015 MPP report, its public comment process conducted earlier this summer, as well as some overall safety performance information on the Canadian nuclear power industry.

NPP licensees are responsible for ensuring the safe operation of their reactors, whereas compliance verification conducted by CNSC staff independently verifies that each licensee is meeting all applicable requirements in the regulations and their licence conditions set by the Commission.

Following licensing, and as directed by the Commission, CNSC staff establish a Compliance Verification Program which verifies that each NPP maintains compliance with all regulatory requirements and the conditions of licence following a risk-informed and performance-based approach.

The safety performance presented in this

2015 NPP Report is determined by CNSC staff using the results of the activities planned through the Compliance Verification Program. This Compliance Verification Program is composed of several compliance activities which are integrated to direct and inform each subsequent activity.

These activities include surveillance and monitoring by onsite inspectors, announced and unannounced inspections, desktop reviews. CNSC inspectors track all licensee corrective actions until closure and verify closure through follow-up inspections.

In 2015, over 800 compliance findings were derived from these compliance activities and were assessed by CNSC specialists. NPP licensees also submitted 258 situation and event reports and 98 scheduled operating performance reports that were reviewed and analyzed by CNSC specialists. The CNSC staff assessment of these compliance findings provide the safety performance and the ratings published in this 2015 NPP Report.

The duration and manpower required to conduct compliance verification activities varies from a couple of hours by a single staff member up to a couple of weeks by a team of CNSC staff.

To give a more accurate picture, in 2015, compliance activities conducted by CNSC staff are presented here in total amounts of effort in person-days.

This table shows the amount of effort that was required by CNSC inspectors and specialists to conduct all compliance verification activities by the type of activity, onsite inspections, event reviews and other compliance activities including walkdowns, surveillance and monitoring, and desktop reviews.

These efforts represent over 17,000 person-days of effort by approximately 200 CNSC staff. The results of compliance activities demonstrate that in 2015 all NPP licensees operated their reactors in a safe manner and complied with regulatory requirements.

During 2015, CNSC staff presented three event initial reports to the Commission for situations that met the EIR reporting criteria. CNSC staff followed up all licensee corrective actions for these events and concurred with the actions implemented. CNSC staff are available to provide additional details to the Commission on these events if requested.

The 2015 NPP Report was posted on the CNSC website for public and aboriginal comments. The posting was announced on the CNSC website through social media and through the CNSC's email distribution list. In addition, advertisements were placed in 15 Canadian newspapers.

In April of this year, the CNSC issued a notice for participant funding and one application for

participant funding was received. However, the Funding Review Committee determined that the application did not meet the funding requirements.

As a result of the posting, eight interventions were received. Their comments can be summarized as follows.

Positive feedback was received on the thoroughness of the report. Acknowledgement was received from Bruce Power for the strong integrated plant rating. Some concerns regarding probabilistic safety assessment were raised by an intervenor. These comments were addressed yesterday in CMD 16-M46.

As shown on this map, there are five nuclear power plants in Canada: three multiunit plants in Ontario, a single unit plant in Quebec and a single unit plant in New Brunswick. These five NPPs have operating licences for a total of 22 nuclear reactors, of which 19 were operational in 2015.

The three reactors which were not operating are one in Quebec which completed transition to safe storage on December 2, 2014, and Units 2 and 3 at Pickering in Ontario which have been defuelled since 2008.

The Canadian nuclear power industry continues to supply approximately 17 percent of Canada's electricity needs. In 2015, 66 percent of Ontario's

electricity and 31 percent of New Brunswick's electricity was generated by nuclear power.

This graphic depicts the 22 licensed nuclear power reactors previously discussed and their status as of 2015 in Canada. As stated earlier, 19 reactors were operating and have been returned to service, as shown by the blue and green bundles respectively.

The three reactors in safe storage state, as depicted here by the red bundles, are Unit 2 and Unit 3 -- the two units at Pickering, and the single unit called Gentilly-2. These are identified in red.

This ends the section of the background presentation. I'd now like to continue with a summary of the industry's safety performance for 2015.

The CNSC began to report on performance comparisons between Canadian nuclear power plants and between international organizations a few years ago. The publication of Regulatory Document 3.1.1 enabled the collection of updated safety performance indicators, four of which are presented today. Two are international benchmarks and two are national benchmarks.

The first international benchmark safety performance indicator is the number of unplanned reactor trips for the Canadian nuclear industry, seen here in purple, in comparison with the World Organization of

Nuclear Operators, or WONO.

This indicator provides an indication of the success of improving plant safety by reducing the number of undesirable and unplanned power transients, which cause automatic reactor shutdown by special safety systems. It also provides an indication of how well the plant is operated and maintained.

As the purple data shows, the Canadian nuclear industry has achieved a significant reduction in unplanned trips in 2015 to about one-third of the international performance target, represented by the horizontal red line on the table.

The second international benchmark safety performance indicator is forced loss rate for the Canadian industry versus the World Association of Nuclear Operators. The purpose of this indicator is to monitor industry's progress in minimizing outage time and power reductions that result from unplanned equipment failures, human errors and other conditions during the operating period. This indicator also reflects the effectiveness of plant programs and practices in maintaining systems available for electrical generation.

The force loss rate for Canada in 2015, seen here in purple, is above the international average, but remained at the same level as last year.

The first national benchmarking safety performance indicator is the annual dose to the public resulting from airborne emissions and liquid releases. This slide compares Canadian nuclear power plants between themselves and shows the past five-year trend for each nuclear power reactor in multi-coloured bars.

The five-year trend for each nuclear power plant has continued to be consistently low. During the period of 2012 to 2014, Gentille-2 had some small increases associated with dismantling equipment and transition to safe storage. With the completion of this transition, the 2015 value for Gentilly-2 has returned to its normal low level.

Please note that because the doses are very low, we have used a logarithmic scale on this chart as seen on the left. Each unit on the logarithmic scale represents a 10-fold increase in the value of the estimated dose.

Overall the data shows that radioactive releases from Canadian nuclear power plants result in a public dose of about one-tenth of a percent, or 1,000 times lower than the 1-million sievert public dose limit, as shown by the horizontal red line.

For a comparison, this graph also shows the dose from Canadian nuclear power plants is much lower

than the dose resulting from natural background radiation, as shown by the blue horizontal line.

The public dose data confirms that Canadian licensees' programs continue to be effective in protecting the public and the environment from radiological releases.

The second national benchmark safety performance indicator is the annual occupational dose received by workers in the nuclear power industry. This shows the five-year trends in the multi-coloured bars for each dose distribution among workers. This data shows that more than three-quarters of Canada's nuclear power plant workers received an occupational radiation dose of less than the minimum that the dosimetry devices can measure and more than 96 percent received less than the public dose limit of 1 millisievert.

Eighty-six percent portion of workers has increased by 4 percent from 2012 to 2015, which is a testament to the continued effectiveness of the licensees' radiation protection programs. In addition, during 2015 no worker among the more than 27,000 monitored workers received a dose exceeding the occupational dose limit of 15 millisieverts.

This data clearly shows the radiation protection programs implemented by the nuclear power

licensees are protecting workers in the Canadian nuclear industry and resulting in reduced numbers of workers in the higher dose ranges.

This concludes the safety performance section of this report. We now present the summary for each nuclear power plant, consisting of safety performance ratings, highlights, regulatory focus and major projects and initiatives.

Beginning with the Bruce Nuclear Generation Station, I'd like to introduce Mr. Ken Lafrenière.

**MR. LAFRENIÈRE:** Thank you, Mr. Cawthorn.

My name is Ken Lafrenière. I'm the Director for the Bruce Regulatory Program.

Bruce Power has a licence to operation the Bruce A and B Nuclear Generating Stations, each located on the shores of Lake Huron. Both stations consist of four CANDU units. In 2015, all eight units were operational. In May 2015, the Commission renewed the Bruce A and B licences as a single licence. The new licence is for five years and will expire in 2020. In the licence renewal decision, the Commission authorized the operation of the Units 1 to 8, up to a maximum of 247,000 equivalent full-power hours.

During the licence renewal hearings, CNSC

staff committed to reporting to the Commission on the outcome of the CSA N293-12 Technical Committee discussions relating to Bruce Power's concern over a qualified third party. I wish to report to the Commission that Bruce Power decided not to pursue this issue regarding third-party reviews. CNSC staff considered this issue closed, and therefore requests that the Commission close action item H2015-09.

This table shows the 2015 performance rating for the safety and control areas for both Bruce A and B. The performance and conventional health and safety, security and in waste management at both Bruce A and B, as well as the operating performance at Bruce B, remain unchanged at "Fully Satisfactory." Operating performance for Bruce A improved to "Fully Satisfactory" in 2015. Overall the integrated plant ratings for the Bruce A increased to "Fully Satisfactory," while the integrated rating for Bruce B remained at "Fully Satisfactory."

I would like to outline some safety performance highlights in the next two slides.

Both stations operated safely in 2015. Bruce A experienced no unplanned trips and Bruce B experienced one unplanned trip. In total there were 12 forced outages at the end of 2015: six at Bruce A, six at Bruce B. These outages were mainly to proactively service

or repair equipment, and outages were conducted successfully in accordance with regulatory requirements.

Bruce Power continued to exceed regulatory requirements in the area of conventional health and safety. In 2015, the accident severity rate at Bruce A and B during the year was zero, which is an indication of outstanding safety performance.

The Bruce Power Nuclear Waste Management Program met or exceeded regulatory requirements at both Bruce A and B. All radioactive waste is disposed of properly and in accordance with regulatory requirements.

The Bruce Power Security Program continued to meet or exceed regulatory requirements. Bruce Power participated in the International Physical Protection Advisory Service mission to Canada in October 2015. Bruce Power hosted an Incident Command Course and the World Institute for Nuclear Security Workshop for the industry. Also, Bruce Power has taken innovative steps to improve security by implementing digital fingerprinting to improve their site access security clearance program.

The following slides will look at three areas of regulatory focus for the CNSC at Bruce. The first area is Periodic Safety Review and Refurbishment, the second area is the Department of Fisheries and Oceans authorization under section 35 of the *Fisheries Act*, and

the third area is the Environmental Assessment Follow-Up Monitoring Program.

For the PSR Review and Refurbishment, Bruce A safety factor reports were submitted to the CNSC in August of 2015. CNSC staff have completed the review of these reports and concluded that Bruce Power has properly identified the strengths and gaps presented in the safety factor reports.

Bruce Power has also submitted the Bruce B PSR basis document in January, which has been accepted by CNSC staff, and Bruce Power plans on submitting a combined Bruce A and B Global Assessment Report and Integrated Implementation Plan in November of 2016.

For the DFO authorization process, under section 35 of the *Fisheries Act*, in 2015 Bruce Power submitted a draft assessment on the need for the DFO authorization for the impingement and entrainment of fish. CNSC staff have reviewed this draft assessment and concluded that Bruce Power has correctly understood CNSC staff expectations. Bruce Power, DFO and CNSC staff have been meeting monthly to ensure that the application process is on track and the application for authorization to DFO is expected to be submitted in September of 2016.

For the Environmental Assessment Follow-Up Program, Bruce Power continued to implement the program for

the Bruce A environmental assessment related to Units 1 and 2 refurbishment project. The program has shown that there were no significant, and continues to show, that there are no significant adverse environmental effects as a result of the refurbishment of Bruce Units 1 and 1. CNSC staff have been working closely with Environment and Climate Change Canada and aboriginal groups on environmental issues that have arisen through the Environmental Assessment Follow-Up Monitoring Program and the Follow-Up Monitoring Program is expected to finish in 2016.

The 37M fuel project was successfully implemented by Bruce Power in 2015. Bruce A and B units continue to transition to the new 37M fuel bundle. CNSC staff have concluded that there are no appreciable changes or operating anomalies associated with the use of the 37M fuel bundles.

Bruce Power participated in the International Atomic Energy Agency Operational Safety Review Team mission in December of 2015. The IAEA OSART Program has been in place since 1982 and provides a forum for countries from around the world to share best practices and support continuous improvement for operating nuclear plants. The OSART Team is independent from both Bruce Power and the CNSC. The OSART mission confirmed that Bruce Power has operated safely and has met all current

regulatory requirements.

The mission's report included 10 good practices and 5 recommendations. Some of the recommendations are being addressed through the development and implementation of new regulatory requirements, such as those found in the Periodic Safety Review and the fitness-for-duty regulatory documents currently before the Commission.

This concludes the summary for Bruce A and B. I will now turn over the presentation to Mr. Miguel Santini, Director of the Darlington Regulatory Program Division.

**MR. SANTINI:** Thank you, Mr. Lafrenière.

Good morning, Mr. President, and members of the Commission.

Ontario Power Generation is located in Clarington, Ontario, and is licensed to operate the Darlington Nuclear Power Plant, which consists of four units. All four units at Darlington were operational in 2015. In December 2015, the Commission renewed the Darlington operating licence. With a new licence, the Commission authorized OPG to undertake the refurbishment and life extension of the four reactor units comprising the Darlington NPP. The Commission also authorized OPG to operate the four reactor units beyond the 210,000

equivalent full-power hours to the proposed refurbishment outages up to a maximum of 235,000 equivalent full-power hours.

This table shows the performance rating for the safety and control areas for Darlington. The ratings for operating performance, radiation protection and waste management remained unchanged at "Fully Satisfactory."

The rating for safety analysis and conventional health and safety improved from "Satisfactory" to "Fully Satisfactory."

The rating for security was "Satisfactory" in 2015, which is lower than the "Fully Satisfactory" obtained in 2014.

Overall Darlington received an integrated plant rating of "Fully Satisfactory." Darlington has received this rating consistently in the past eight years.

Next, I would like to outline some examples of performance highlights at Darlington in 2015.

The safety analysis rating for Darlington improved to "Fully Satisfactory." CNSC staff noted that OPG is showing a strong commitment to safety through its safety analysis program.

In the area of radiation protection, OPG continues to implement at Darlington a highly efficient and

well documented As Low As Reasonable Achievable or ALARA program, which is based on the industry best practices.

The conventional health and safety rating for Darlington also improved to "Fully Satisfactory." CNSC staff noted that the accident severity rate for Darlington decreased from 4.4 in 2014 to 0.2 in 2015.

One of the areas of regulatory focus at Darlington is the oversight of the refurbishment project and the implementation of the Integrated Implementation Plan approved in 2015 by the Commission at the hearing. Due to its magnitude and complexity, OPG has set up a separate organization to manage the refurbishment project. In the meantime, the operating organization must continue their routine to safely operate the other three units.

Our focus would not only be the safe operation of the three operating units and on the refurbishment activity, but also on the interface between the refurbishment and the operating organizations. The importance of this interface is compounded by the presence of a large number of contractors at the site for the next few years.

As you may recall, Darlington's Integrated Implementation Plan was incorporated into the power reactor operating licence in December 2015, after the licensing hearing. The plan and a change control process for

non-intended changes to the IIP are included in the *Licence Condition Handbook*. This aims at controlling scheduled changes or changes to the specific tasks listed in the Integrated Implementation Plan.

To date all Integrated Implementation Plan items have been completed by OPG per schedule, with the exception of the installation of one station improvement opportunity. This improvement, which was to be completed by December 2015, consisted in the installation of the shield tank overpressure device on Unit 3. This device is a large rupture disk used only for severe acts and mitigation.

The installation was delayed as a result of a waterhammer discovery during installation. The problem of the device was solved by OPG through a design change and it was recently installed on Unit 4 as per the IIP schedule. The device will be installed on Unit 3 in September 2016, thereby fully meeting the safety intent of the IIP.

With respect to the refurbishment of Unit 2, all preparatory work is on track to start the outage activities in October of 2016. During the licensing hearing, the Commission included regulatory hold points in the Darlington licence and LCH. Further, specific details related to the exact work that needs to be completed by OPG

before hold points can be released by the CNSC is under development, and will be reported in the next NPP report.

One important component of the IIP was the Environmental Assessment Follow-Up Program. Activities in this area continue as planned. This includes a continuation of aquatic sampling and the Thermal Monitoring Plan for long-term operations.

This concludes the summary on Darlington. I will now turn over the presentation to Dr. Hatem Khouaja, Acting Director of the Pickering Regulatory Program Division.

**DR. KHOUAJA:** Thank you, Mr. Santini.

Good morning, Mr. President and members of the Commission.

The Pickering Nuclear Generating Station consists of eight reactor units. The current operating licence for Pickering is in effect from September 1<sup>st</sup>, 2013 to August 31<sup>st</sup>, 2018. In 2015, Units 1, 4 and 5 to 8 were operational, and Units 2 and 3 were in a safe storage state.

This table shows the 2015 performance ratings for the safety and control areas of Pickering compared to the industry average.

The ratings for operating performance, safety analysis, conventional health and safety and waste

management all improved from "Satisfactory" to "Fully Satisfactory" in 2015.

The performance and radiation protection remained unchanged at "Fully Satisfactory" in 2015.

The rating for security was "Satisfactory" in 2015, which is lower than the "Fully Satisfactory" obtained in 2014.

Performance for Pickering in the remaining safety and control areas was "Satisfactory."

Overall the integrated plant rating for Pickering was "Fully Satisfactory" in 2015, an improvement from the previous year.

Next I would like to outline Pickering's safety performance highlights, focusing first on good practices.

As we've seen, the ratings indicate that OPG operated Pickering at a high level of performance. In the single unplanned reactor trip that Pickering experienced in 2015, all outages and transients were controlled properly and successfully in accordance with requirements.

Pickering has a robust severe accident management program that has been fully implemented.

CNSC staff performed an assessment of the safety analysis implementation and concluded that OPG shows

a strong commitment to safety throughout.

In the area of radiation protection, OPG continues to implement at Pickering a highly effective and well-documented ALARA, or As Low As Reasonably Achievable, based on industry best practices.

OPG exceeded regulatory requirements in the area of conventional health and safety. Accident severity rate at Pickering decreased in 2015, with only a single reported lost time injury.

CNSC staff note that the waste management program for radioactive and hazardous waste exceeded CNSC requirements. The program is highly effective and promoted waste minimization, segregation, storage and handling.

Regarding the regulatory focus for Pickering, the Commission removed the regulatory hold point for continued operation for the Pickering licence in 2014. A commitment derived from the removal was that OPG would submit an annual update on, first, the aging management program and fitness for service of major components and, second, a detailed risk improvement plan.

The 2015 update on the aging management program and fitness for service of major components comprised scheduled inspections of fuel -- excuse me, comprised scheduled inspections of fuel channels, feeders and steam generators.

These inspections determined that the mean diameter of the pressure tubes were within service limits, the highest hydrogen concentration in pressure tubes was also within service limits, the inspected feeders had wall thicknesses greater than the minimum allowable, and no steam generators exceeded the limits of tube plugging.

Overall, CNSC staff are satisfied with the results of the 2015 major component inspections and confirm the findings meet CNSC regulatory requirements.

CNSC staff are satisfied with the current status of the implementation of the risk improvement plan and note that the planned improvements will result in further reduction in plant risk. The implementation of whole site based PSA methodology is ongoing and on target for the completion by two seventeen -- I should say 2017.

This topic is discussed in more detail under the industry regulatory development section of this presentation.

Regarding projects and initiative under way at the station, I would -- I will describe activities in the area of management and of commercial operation. The Continued Operation Plan, or COP, covers the implementation of the integrated safety review completed for Pickering B to ensure safe long-term operation.

The Sustainable Operations Plan, or SOP,

became effective January 2016, and its focus is on actions required to ensure safe operation of the units to the end of commercial operations and while approaching permanent shutdown.

In 2015, OPG submitted documents addressing changes in operations, and CNSC staff are reviewing these documents.

In January 2016, the Ontario government announced the approval of OPG's plan to pursue continued operation of Pickering beyond 2020 up to 2024. To support this plan, OPG would conduct a Periodic Safety Review, or PSR, in accordance with Reg Doc 2.3.3 published in April of 2015.

In accordance with the licence condition in the current operating licence, OPG would formally communicate to the Commission the permanent shutdown dates and their plan for the end of operation for each unit by June 30<sup>th</sup>, 2017.

This concludes the Pickering presentation.

I will now turn the presentation to Monsieur Benoit Poulet, le directeur de la Division du programme de réglementation de Gentilly-2 et Point Lepreau.

**M. POULET** : Merci, Dr Khouaja.

Monsieur le Président, Membres de la Commission, bonjour.

La centrale de Gentilly-2, qui est maintenant en état de stockage sûr, est la propriété d'Hydro-Québec. L'exploitation commerciale de la centrale de Gentilly-2 a pris fin le 28 décembre 2012, et la transition vers l'état de stockage sûr en piscine a été complétée le 2 décembre 2014. Gentilly-2 est maintenant en transition vers l'état de stockage sûr à sec, simplement appelé ESS sec.

L'atteinte de l'ESS sec, prévu pour 2020, marquera le début de la période de dormance avec surveillance. À ce moment, tout le combustible qui se trouve présentement dans les piscines ainsi que tous les autres déchets de moyenne et basse activité auront été transférés aux installations de gestion des déchets présentes sur le site de Gentilly-2.

Suite à une audience publique tenue le 5 mai 2016, la Commission a délivré à Hydro-Québec un permis de déclassement de réacteur nucléaire d'une durée de 10 ans. Ce permis permettra à Hydro-Québec de compléter les activités requises pour l'atteinte de l'ESS sec et d'amorcer la période de dormance de l'installation. Le permis sera valide du 1er juillet 2016 jusqu'au 30 juin 2026.

Ce tableau montre les cotes de rendement attribuées à Gentilly-2 pour l'année 2015 pour chacun des

domaines de sûreté et de réglementation. Le rendement de Gentilly-2 pour chacun des domaines de sûreté et de réglementation a été jugé satisfaisant. Le rendement global à Gentilly-2 a lui aussi été jugé satisfaisant.

Tel que déjà mentionné, Gentilly-2 est présentement en état de stockage sûr, avec le combustible usé entreposé dans les piscines. Cet état est simplement appelé ESS piscine.

L'ESS piscine est un état sûr transitoire d'une durée d'environ six ans qui assure le refroidissement des grappes de combustible retirées du réacteur avant leur transfert dans les modules de stockage à sec, appelées CANSTOR.

Hydro-Québec a poursuivi les travaux de transition de l'installation de Gentilly-2 vers l'ESS sec tout au long de l'année 2015. Les travaux et les activités réalisés par Hydro-Québec en 2015 sont basés sur un plan de fin d'exploitation qui a été revu et accepté par le personnel de la CCSN en mai 2014.

Ces travaux et activités incluent le transfert des grappes de combustible usé de la piscine de stockage à l'aire de stockage à sec, le transfert de déchets radioactifs vers les installations de déchets, la reconfiguration de certains systèmes, et la construction de deux modules CANSTOR.

Le personnel de la CCSN a maintenu la surveillance réglementaire de ces activités tout au long de 2015.

Tel que mentionné, Hydro-Québec a réalisé plusieurs activités reliés à la gestion des déchets tout au long de 2015 et entend poursuivre ce type d'activités qui sont requises pour l'atteinte de l'ESS sec.

Les activités de transfert de déchets de faible et moyenne activité aux installations de déchets situées sur le site de Gentilly-2 et prévu à cet effet se poursuivent toujours en 2016.

Des campagnes de transfert du combustible entreposé dans les piscines vers les modules CANSTOR situées à l'aire de stockage à sec seront complétées à chaque année jusqu'à ce que toutes les grappes de combustible soient transférées hors des piscines.

Le personnel de la CCSN effectue des inspections à chaque année pour vérifier que le programme est conforme aux exigences réglementaires et que les pratiques d'Hydro-Québec sont efficaces pour assurer le maintien de la sûreté.

Le domaine d'intérêt réglementaire pour Gentilly-2 en 2015 était l'aptitude fonctionnelle. Hydro-Québec a soumis en juillet 2014 des mises à jour de ses programmes de surveillance et d'inspection pour les

structures, systèmes et composants importants sur le plan de la sûreté.

Le personnel de la CCSN et Hydro-Québec ont tenu des réunions tout au long de 2015 pour préciser l'information et les détails nécessaires afin que les programmes répondent aux exigences réglementaires.

Le personnel de la CCSN a complété une inspection des programmes de surveillance d'Hydro-Québec en janvier 2016 pour vérifier qu'ils étaient en conformité avec les exigences réglementaires.

Au cours de la période de rapport, le permis d'exploitation a été modifié une fois par la Commission. Cette modification avait pour objectif de mieux aligner les exigences du permis avec les activités de stabilisation complétées ou en cours, l'état des systèmes et de l'équipement de la centrale, et la diminution du niveau de risque relié aux installations de Gentilly-2.

Le Manuel des conditions de permis a aussi été révisé une fois. Les changements apportés étaient principalement de nature administrative. À titre d'exemple, le Manuel des conditions de permis a été modifié pour inclure des mises à jour au document d'application de la réglementation, notamment la mise en œuvre du REGDOC-3.1.1 qui a succédé au document S-99.

I will now continue with the Point Lepreau

generating station safety assessment portion of the report.

The Point Lepreau nuclear power plant consists of a single CANDU 600 reactor that is operated by the New Brunswick Power Corporation. The Point Lepreau generating station was operational throughout 2015. The operating licence was renewed in February 2012, and it will expire in June of 2017.

This table shows the 2015 performance rating for the safety and control areas at Point Lepreau. The performance for the station in conventional health and safety remained at fully satisfactory, while the other safety and control areas were all rated as satisfactory. Overall, the integrated plant rating for Point Lepreau was satisfactory, the same as for the previous year.

Based on the information assessed, CNSC staff concluded the conventional health and safety SCA, or Safety Control Area, at Point Lepreau met or exceeded performance objectives in all applicable regulatory requirements. As a result, the station received a fully satisfactory rating, unchanged from last year.

The accident severity rate at Point Lepreau remained at zero in 2015, unchanged from 2014.

Accident frequency was also below the industry average in 2015.

The NB Power radiation protection program

continues to meet regulatory requirements. Although the overall rating remains unchanged at satisfactory, through compliance verification activities, CNSC staff concludes there is an improving trend in this area.

In particular, improvements have been confirmed in the specific areas of ALARA, or As Low As Reasonably Achievable, and worker dose control. Extensive updates to incorporate industry best practices have been made to the radiation protection program documents and the Point Lepreau five-year ALARA plan based on benchmarking activities.

NB Power was also responsive in address CNSC staff inspection findings raised in 2014. All findings were of low safety significance and were addressed promptly by NB Power staff.

CNSC inspectors confirmed that all of these regulatory findings were effectively addressed.

CNSC staff continued to conduct regulatory oversight activities in the area of fire protection design in 2015, including inspections that verified the effectiveness of plant equipment and of the on-site industrial fire brigade.

CNSC staff concluded that Point Lepreau maintained a comprehensive fire response capability that includes effective equipment procedures, training and

maintenance of proficiency.

As part of the 2012 Point Lepreau licence renewal, the Commission required NB Power to complete a site-specific seismic hazard assessments for Point Lepreau. The final assessment, which included a probabilistic seismic hazard assessment and a paleo-seismology investigation were submitted by NB Power on June 30<sup>th</sup>, 2015.

NB Power also submitted its other external hazard assessment, mainly a high wind assessment and a site-specific probabilistic tsunami hazard assessment as required by Fukushima action items 2.1.1 and 2.1.2, including the plans for any follow-up activities based on these assessments.

Staff from the CNSC, Natural Resources Canada and Environment and Climate Change Canada reviewed and accepted the NB Power submissions.

NB Power has posted the Point Lepreau seismic hazard summary report on its public web site. It provides further details on the evolution of seismic evaluation methodologies as well as an update on seismic-related work.

Updated seismic probabilistic safety assessment Levels 1 and 2 have also been submitted, and are currently under review by CNSC staff.

In accordance with CNSC requirements, NB

Power continued to maintain and implement an effective environmental risk assessment and management program for the protection of the environment and human health at Point Lepreau. NB Power submitted an environmental risk assessment in 2015 according to CSA Standard N288.6 that is entitled "Environmental risk assessment at Class 1 nuclear facilities and uranium mines and mills".

NB Power continues to work on addressing identified gaps in its environmental protection programs.

Fish mortality monitoring due to cooling water intake continued throughout 2015. CNSC staff will review the final NB Power reports expected later this year.

This concludes the Gentilly-2 and the Point Lepreau presentations. I will now turn the presentation back to Mr. Gerry Frappier.

**MR. FRAPPIER:** Thank you, Mr. Poulet.

This next section of the presentation will highlight some industry regulatory developments. Specifically, I'll provide some updates on the neutron overpower protection methodology, the counterfeit suspect fraudulent items program, probabilistic safety assessments, the industry response to Fukushima Daiichi accident and the new nuclear project at Darlington.

A key highlight that we would like to bring to the Commission's attention is associated with

emergency preparedness as noted in supplementary CMD 16-M30C, and these highlights, however, will be presented in a separate presentation that will follow the conclusion of this presentation.

CNSC staff have been providing annual updates on the status of the review of the new enhanced neutron overpower methodology since 2009. The 2015 update is found at Section 2.2.2 of the NPP report.

You will recall that to address impacts of heat transport system aging on neutron overpower protection trip set points, Bruce Power and OPG proposed a new enhanced neutron overpower protection methodology. The new methodology uses a statistical approach to compute the neutron overpower set points.

CNSC has been reviewing industry submissions and subsequent updates and improvements to their approach over the past several years.

OPG and Bruce Power submitted their final response to the CNSC in March 2015. CNSC staff completed their review of this final response in January of 2016.

CNSC staff concluded that Bruce power and OPG stations are well protected by the neutron overpower trip set points calculated using the enhanced neutron overpower methodology.

This will be the final annual update to

the Commission regarding this methodology. However, CNSC staff will continue monitoring the implementation of the methodology and will perform additional inspections with the aim of verifying additional precautions taken by licensees to ensure the trip set points remain conservative at all times.

Regarding counterfeit, suspect and fraudulent items, in March 2015, a valve supplier notified licensees of Canadian nuclear power plants that materials contained in its valve assemblies and components may not conform to accepted standards, specifications or technical requirements.

Licensees immediately notified the CNSC about this event, which encompassed valves supplied to Canadian nuclear power plants between 2001 and 2013.

CNSC staff have maintained continuous regulatory oversight of this event and remain satisfied that licensees continue to ensure adequate provisions for the protection of workers, the public and the environment.

CNSC staff have provided the Commission with updates on this issue on two occasions in 2015 as well as in April of this year. CNSC staff concluded that the engineering assessments and reviews conducted by licensees, suppliers and authorized inspection agencies have been performed thoroughly and in a robust manner.

Based on the outcome of these assessments and reviews, there is no safety risk for the continued use of the affected valves.

CNSC staff are developing a new Reg Doc that describes the management system requirements applicable to counterfeit, suspect, fraudulent items and define CNSC's expectations. A new CSA quality assurance standard is also being developed. This new standard will contain requirements for the prevention and detection of counterfeit, suspect and fraudulent items.

I would now like to highlight our PSA program, or probabilistic safety assessment program. This has been an area of keen interest for the Commission over the past few years. We talked a little bit about it yesterday as well.

Before elaborating on the whole site probabilistic safety assessment, I would like to start by highlighting that the role of the probabilistic safety assessment within the CNSC regulatory framework as well as the benefits gained through the probabilistic safety assessments.

All Canadian nuclear power plants were designed and their safety case developed based on deterministic approaches, not probabilistic approaches. Canada is one of the few countries that requires a PSA of

all the nuclear power plants.

We believe that a good PSA helps to identify safety improvement opportunities.

The PSAs are performed on a per unit and per unique hazard basis. The unique hazards are internal events, seismic events, fire or high winds. This provides a wealth of risk informed information used in identifying the safety improvement opportunities for a unit to be protected against a very specific type of hazard.

As one of the many benefits of the PSA, CANDU PSAs have identified safety improvements well before the events and lessons learned from the Fukushima accident. Examples are the identification of inclusion of extra emergency power generators, filtered venting systems, enhancing the relief capacity of the shield tank and the enhancement of the power house venting systems.

It is important to mention that, as per the international practice, PSA results are not used as the sole basis for a regulatory decision, nor as a pass/fail line without due consideration of other important aspects of the overall plant safety. The results of a PSA are used in conjunction with analysis and evaluations.

While Canada is the leader in the application of PSA, the Commission has pushed for more to come -- to be done, pardon me.

During the Pickering hearing in May 2013, the Commission noted that the PSAs are developed on a reactor basis and the PSA results are expressed on a per reactor year. The Commission wanted us to consider how to undertake a PSA type assessment that would include multiple units, a so-called whole site PSA.

As a result, during the May 2014 Pickering hold point hearings, the Commission directed the CNSC staff to include in annual reports a clear timeline for the development and implementation of whole site-based safety goals and a PSA methodology to go along with it.

As requested by the Commission, this nuclear power plant report includes a clear timeline for the development and implementation of the whole site based safety goals and the associated PSA implementation. I would like to talk about both of those now.

The current PSA are conducted on unit reactor basis. However, we should note that effects and contribution from adjacent units at multiple-unit stations are fully accounted for in the calculated PSA results. These PSA are fully in place for each MPP in Canada. Furthermore, they are updated and submitted to the CNSC every five years or as needed.

The following is an overview of CNSC staff's actions during the last three years associated with

developing a new approach to multiple units:

- First, and as a follow-up to the Fukushima accident lessons learned, CNSC staff updated the regulatory documentation on PSA and reissued it as REGDOC 2.4.2 in May of 2014. The new REGDOC 2.4.2 specifically requires the inclusion in the PSA of the multiple unit impacts.

- Second, CNSC staff established a working group on safety goals. In November of 2014, CNSC staff organized with the Nuclear Energy Agency an international worksite on -- workshop on whole-site PSA. This workshop brought together eminent international experts, regulators, academics, consulting organizations and industry to share experiences on the topic of whole-site PSA and site-based safety goals.

The picture in this slide shows the members of the workshop technical committee which included internationally recognized experts in the field of PSA, so that says Joe de Pasalakis who is a professor at MIT and a former NRC Commissioner; Karl Fleming of KNF Consulting Services, Mohammad Modarres of the University of Maryland and many others.

CNSC staff is also heavily engaged in bilateral cooperation with the U.S. NRC and we are active in the Nuclear Energy Agency's working group on risk

assessment or on risk, pardon me, which is making assessments on whole-site PSA.

The major outcome from these international consultations and benchmarking include that there is no international consensus for conducting whole-site PSA and there is no internationally established site-based safety goals.

All these observations are showing that the topic of safety goals is complex. Achieving an international consensus on this topic will be challenging.

Canada is the first country to look into the area of site-based safety goals and whole-site PSA and currently leads the international effort to help develop a technical basis for the development of whole-site PSA. This is being done through the Nuclear Energy Agency in Paris.

CNSC staff target the development of site-based safety goals concurrently with the industry's efforts towards implementation of a whole-site based methodology which I'll update in the next slide.

As directed by the Commission, OPG is developing a whole-site PSA for the Pickering Nuclear Generating Station and will be the first site to develop such a whole-site PSA. Therefore, on this slide I will provide a status update regarding the development of this

methodology.

In March 2014 OPG submitted a concept-level whole-site PSA methodology which was accepted by CNSC staff. This concept-level methodology is based on the results of an international workshop on whole-site PSA organized by Canadian industry in January of 2014.

OPG staff are considering all reactor units, spent fuel bays, internal and external hazards and all operating modes for this Pickering whole-site PSA. This is expected to be completed by August of 2017.

There is no change in the timeline from the last update that we provided the Commission at the August 2015 Commission hearings. CNSC staff is closely monitoring the progress of this undertaking through regular information exchange meetings and will report again to the Commission at the upcoming Pickering licensing hearing to be held in 2017.

With respect to Fukushima-Daiichi Accident Response, all Fukushima action items are closed based on deliverables as defined in the action plan and the defined closure criteria. With the exception of a very small number of modifications that require design changes by the licensees which are on schedule for completion, the implementation of all the regulatory requirements has been completed. Verification for each facility is tracked

through the normal compliance verification processes.

In December of 2015 the IEA published its Director General report on the Fukushima-Daiichi accident. The CNSC action plan that was done earlier is well aligned with the 45 lessons learned identified in the IEA report.

In particular, actions related to strengthen defence in-depth, enhancing emergency response, improving the regulatory framework and enhancing international collaborations were quickly imposed on licensees at major nuclear facilities. Additional lessons learned related to public communications are well aligned.

Post-accident recovery guidelines addressing the elements of the IEA report that speak to off-site measures related to the transition from emergency early response to recovery are being drafted by the CNSC in conjunction with local federal and provincial authorities and the licensees so what remains is the post-accident recovery guidelines that needs to be done with other jurisdictions. So this is a project that's ongoing.

For the Fukushima action items, the licensee submitted their last round of progress update reports in 2015. All short, medium and long-term Fukushima action items are closed for all stations. Compliance verification of Fukushima-related modifications and upgrades, the CNSC staff completed inspections at all

Canadian nuclear power plants to verify implementation of the Fukushima plant modifications and emergency mitigating equipment.

CNSC staff participated in all large-scale exercises to verify in situ the demonstration of equipment performance.

Regarding the new nuclear project at Darlington, this slide provides the annual update on the Darlington new nuclear project. Two important areas of activity were around bird habitat and land planning around the site. OPG continued monitoring the artificial nest habitat during the 2015 season. In March 2016, CNSC staff received and are currently reviewing the OPG 2015 Bank Swallow program results.

Key activities in progress to date regarding land use planning are as follows:

- The revised Provincial Policy Statement in 2014 includes new policy on land use compatibility which is further supported by definitions for sensitive land users and major facilities that include energy generating facilities such as the nuclear power plant.

- The Region of Durham has committed to updating by 2018 its regional official plan and ensures it aligns with this PPS 2014.

- A draft official plan for the

Municipality of Clarington was released in March 2015 and it includes policies to address the PPS 2014 around land use planning.

In closing, I would like to summarize the overall concluding remarks on the safety performance of nuclear power plants in Canada and the safety improvements being introduced by licensees.

Based on all compliance activities, CNSC staff made a number of general conclusions with respect to safety performance of nuclear power plants in Canada in 2015; namely that nuclear power plants operated safely; the integrated plant ratings were determined to be fully satisfactory for Bruce A, Bruce B, Darlington and Pickering and satisfactory for Point Lepreau and Gentilly-2.

All licensees received either satisfactory or fully satisfactory ratings in the specific control areas.

Licensees have implemented safety enhancements by addressing actions and making continuous improvement to the safety operations of their facilities.

The licensees are continuing their work on the safety analysis improvements and the CANDU safety issues as discussed in yesterday's meeting under CMD 16-M34.

This report shows that the licensees

continue to improve safety at Canadian nuclear power plants.

Mr. President and Members of the Commission, this concludes the presentation of the regulatory oversight report for Canadian nuclear power plants and thank you for your attention. The CNSC staff are now available to answer any questions the Commission may have.

**THE PRESIDENT:** Thank you. I thought you will continue with the presentation of Exercise Unified Response. Is that not the plan?

**MR. FRAPPIER:** Yes, we can do that. It will take us a couple of minutes to just change some staff around and then we can continue with the question period after if you want.

**THE PRESIDENT:** Yeah, because the question period will put them together and we can open it up for general questions.

--- Pause

**THE PRESIDENT:** Okay. Just everybody hold on for a second. I am just being -- we always are fans of efficiency. Since all the industry people are sitting here, maybe we can ask them for comments on this particular part while -- and then we'll flip over to the next one which they will have to answer on that one too. So I am

not going to know how much efficiency we gain here.

But go ahead on this report. Why don't we start, you know? Go ahead.

MR. MANLEY: Thank you very much, Mr. President. Robin Manley for the record. I'm the Vice-President of Nuclear Regulatory Affairs and Stakeholder Relations at Ontario Power Generation.

First off, I would like to thank the CNSC staff for your usual thorough review and report on Canadian nuclear power plant performance. I'd like to thank you for your recognition of Darlington's continuing fully satisfactory integrated plant rating for either years.

And especially we are proud of the improved performance at our Pickering station which has been recognized by CNSC staff with our best ever, first ever, fully satisfactory integrated plant rating.

We will also be very pleased to take comments and questions from you during the day. We have a team of people here to respond to that.

Before I conclude though, I'd like to provide the Commission a brief update on one item that's outlined in the CNSC staff's regulatory oversight report. It has to do with irradiated fuel.

In some previous Commission hearings at Pickering and Darlington, there was discussion of whether

OPG planned to start moving our used fuel out of our irradiated fuel bays into dry storage after six years versus the current practice of 10 years. So I'd like to give you a quick update on that.

As part of our program for continuous improvement, OPG has evaluated opportunities for potentially moving the used fuel out of the irradiated fuel bay wet storage into the dry storage containers, or DSCs, sooner than allowed under our currently approved safety analysis. Post-Fukushima, we did additional analysis to demonstrate that there is no safety risk to the fuel remaining in the irradiated fuel bay storage under our current program. In addition, there is no demonstrated safety benefit to moving the fuel into dry storage more quickly.

We have performed technical assessments that indicate that our dry storage containers can safely store six-year old fuel and retain their integrity. In fact, with CNSC staff acceptance we have one demonstration dry storage container loaded with six-year old fuel. We have monitored it for any signs of degradation and didn't find any problems and it is now part of our regular DSC population.

However, because of the increased heat load that would result from storing a whole building full

of six-year old fuel, there remains some questions related to conventional safety of workers that have not yet been fully evaluated such as the potential need for additional ventilation or cooling in the DSC storage buildings.

I would also say the evaluations of our fuel bay capacity and our rate of processing used fuel into dry storage containers shows that we have sufficient bay capacity without changing our program to go to six-year old fuel. Therefore, with no safety drivers or clear production drivers, OPG has no plans to move this six-year old dry fuel storage at this time.

And with that I'll close my remarks and turn it over to the next team. Thank you.

**THE PRESIDENT:** Thank you. Who wants to go next, Bruce...?

**MR. SAUNDERS:** Yeah. Frank Saunders for the record.

Yes. We are pleased to be here. We think this is an excellent opportunity annually to come and talk about our programs answer questions that people have. We have been proud of the progress we made and the investments we made over the last few years and we think this is a good chance to discuss both the positive and the negative aspects.

With me today I have Kevin Kelly, our

Chief Financial Officer on our left; Len Clewett is our Chief Nuclear Officer on the right, Gary Newman, our Chief Engineer slightly farther on the right, and James Scongack, our VP for Corporate Affairs on the far right.

I am going to turn it over to Kevin Kelly for a few opening comments and we'll go from there.

Thanks.

**MR. KELLY:** Thank you, Frank, and good morning, Mr. President and Members of the Commission.

I just want to talk about a few developments since our last annual meeting. I think as most of you are aware, Duncan Hawthorne announced his retirement earlier this year. With that, the Board of Directors initiated a search for his replacement and the board made an announcement in July that Mr. Mike Rencheck will take over as President and CEO of Bruce Power. So Mike started earlier this week and through working through his transition this week and is very much looking forward to building a relationship with the senior CNSC staff and will reach out to you in due course.

I guess one of the other major developments since our last annual review was the announcement we made last December which was effectively the contract to extend the operations of our facility to 2060. That has resulted in over a \$15 billion investment

in our facility over the next 20 years, really driven off of two programs; a major component replacement program and continued asset management work.

The first NCR program for Unit 6 will start in 2020 and off the back of that we have informed the Commission that we will seek to renew our licence for 2018 licence renewal, and we will have that submission in for 2017.

As an operator we recognize that safe, reliable operations go hand in hand with financial success. We are going to continue as we always have, with an active asset management program and it's that asset management program that has really driven significant improvements in our operational results.

And with that, I am going to turn it over to Lem Clewett, our Chief Nuclear Officer, to go through some of those examples.

**MR. CLEWETT:** Good morning. Len Clewett for the record.

With a focus on continuous improvement, I would like to note a couple of operational highlights in 2015 and 2016.

With regards to radiation safety, we continue to invest in new first of a kind tooling and, to date, we have saved over 300 REM with this effort over the

last three years and in 2015 we commissioned a tool that typically will save us 20 to 25 REM per outage. So we will continue with this effort on an ongoing basis to minimize those to our staff.

Another major focus for us has been with human performance. We have, over the past couple of years, we have received 50 percent reduction in our error rate and we will continue to work on that, focussing on low-level events.

The other new focus for us, really, is doing more work with our vendor community, our major contractors which will bode us well for the increased project work we have onsite to address asset management and to set us up for success in our 2020 NCR.

On equipment reliability we have continued to receive very significant gains with equipment reliability including the best ever forced loss rate for the Bruce site, for the eight-unit site in 2015. We completed a vacuum building outage at Bruce B in 2015 and a station containment outage earlier this year at Bruce A. Of note today we have achieved a new operational run on our Unit 7 reactor of 465 days.

And the other focus is with work management and we have seen some improved efficiencies over the year. As of last week we had a record low of 23

corrective critical work orders. Those are our most important work orders that we status and those 23 corrective work orders are over the eight-unit stations, so now less than three work orders per station.

Now, with that, Mr. President, I will close. Thank you.

**THE PRESIDENT:** Thank you.

Can we hear from Point Lepreau?

**MR. HARE:** Good morning. My name is Mike Hare and I am the Station Director at the Point Lepreau Nuclear Generating Station.

With me today as our team is Mr. Rick Gauthier, our Regulatory Affairs manager; Dean Taylor, our Reactor Safety Manager, Kathleen Duguay, our Community Affairs and Nuclear Regulatory Protocol Officer; Charles Hickman, our Corporate Director of Environment and Emergency Planning and Jason Nouwens who is our Director of Regulatory Affairs and Performance Improvement at the station.

I appreciate the opportunity to address the annual report with the CNSC Commission and welcome the findings as part of our station's continuous improvement process.

We concur with the 2015 regulatory oversight report findings and although we were pleased that

our latest assessment sustains our 2014 overall satisfactory rating, including a fully satisfactory rating in the area of conventional health and safety, we are focused on continuous improvement.

In the 2015 report, CNSC pointed out the progress we are making to complete the site-specific seismic hazard assessment requested at the time of our last licence renewal. In mid-January 2016, CNSC, Natural Resources Canada and Environment and Climate Change Canada staff completed their respective reviews of the work and were satisfied with the results and the related follow up.

We are also happy to see that the CNSC finds Point Lepreau Nuclear Generating Station to be among all the other Canadian nuclear licensees in terms of our tracking to final implementation of safety enhancements indicated by the tragic events in the Fukushima-Daiichi station in Japan.

We are pleased that these outcomes in the report reinforce our concerted effort to sustain the implementation of our station business improvement plan we entitled "Navigating for Excellence".

We do, however, take note of the items identified by the CNSC where a corrective action plan is in place to ensure improvement in the area of operating performance and management system.

We continue to drive our plan with five station goals: safety excellence, leadership excellence, operational excellence, process excellence and equipment excellence.

I would like to provide a more specific update on how our business improvement plan is focused in 2016 based on the 2015 performance.

2015 was designated as the year of human performance to allow us to focus on the consistent use of human performance tools representing nuclear best practices.

The CNSC assessments acknowledge our high achievement in conventional safety as well as a satisfactory rating in human performance.

At NB Power and Point Lepreau, safety is our number one priority and it's everybody's responsibility. It is fundamental to our success and essential to achieving our long-term business goals. A strong safety culture and healthy work environment are the heart of everything that we do. Our employees reached over 4.8 million person hours without a lost time accident.

This is an example of our ongoing shared commitment to safety. The credit lies with the employees of the corporation and the station who come to work every day with safety as their number one priority.

We have recently completed an important planned outage to address scheduled and preventative maintenance and also to address equipment reliability which will be the primary emphasis of our improvement activities in the foreseeable future. The state of readiness of the station is a fundamental condition for success and it represents another important step on our journey to excellence.

Notwithstanding these positive results, the CNSC report identifies areas for improvement in some of our activities and we are actively addressing these. Under the management system we are still executing our improvement plan to update, process and procedure documents and enhance procedural use and adherence at all levels within the station. This is a fundamental area focus for us as a station and aggressive actions are being implemented to establish performance on par with the industry best.

Under operating performance Point Lepreau experienced a higher forced loss rate in 2015 when compared to 2014. The station was interrupted by a series of unplanned shutdowns that challenged our continuous operation output and drew attention to our ongoing equipment challenges. As a result, we have adjusted the relative importance of our equipment excellent station

goal, introduced an equipment reliability improvement plan based on the INPO AP-913 methodology and increased focus on the equipment reliability index as our primary measure. These adjustments will also ensure safe and predictable performance of the station in the years ahead. The approach is consistent with the industry best practice of employing more aggressive preventative maintenance and monitoring strategies to achieve better equipment reliability performance.

The report also acknowledges our progress in radiation protection amongst workers, which has been an important focus of our safety program. We continue to work actively on improvements in this area, based on an industry benchmark study that we did complete in 2015.

Our emergency drill Intrepid was a 2015 high point for our station. It will be discussed later in this meeting.

A summation of this report affirms the hard work done since 2013 to improve our station. We appreciate the work of the CNSC in preparing the report and we look forward to your future review of our efforts. Thank you very much.

**THE PRESIDENT:** Thank you.

Gentilly-2?

**M. OLIVIER :** Oui.

Donc, Monsieur le Président, Mesdames et Messieurs les Commissaires, je suis Donald Olivier, directeur des Installations de Gentilly-2. Je suis en compagnie d'Annie Désilets, ingénieure aux Affaires réglementaires.

Comme vous le savez, sur le plan réglementaire, Hydro-Québec a obtenu cette année un permis de déclassement d'une durée de 10 ans. Lors de l'audience publique tenue à Ottawa le 5 mai dernier sur ce sujet, nous avons fait part à la Commission des activités de déclassement réalisées au cours des trois dernières années ainsi que celles prévues pour la prochaine période d'autorisation. Ce permis permettra de bien refléter la nouvelle réalité des installations de Gentilly-2.

Ainsi, il s'agit du dernier rapport annuel sur les centrales nucléaires qui couvrira une section sur Gentilly-2. Les installations de Gentilly-2 seront dorénavant comprises dans le Rapport de surveillance réglementaire des installations de gestion, de stockage et de traitement des déchets au Canada.

Voici quelques éléments pertinents à souligner depuis notre passage en mai dernier.

Nous compléterons le 25 août prochain la campagne 2016 de transfert de combustible de la piscine vers les modules CANSTOR. De plus, deux nouveaux modules

d'entreposage sont actuellement en construction sur le site afin d'accueillir l'ensemble du combustible. Les travaux devraient être complétés d'ici novembre.

Concernant la maintenance associée au système de sûreté, le taux de réalisation de l'entretien préventif pour le premier semestre 2016 est de 91 pour cent.

En termes de santé et sécurité, nous avons atteint 267 jours sans assistance médicale et perte de temps. Ainsi, pour le premier semestre 2016, le taux de fréquence de même que le taux de gravité sont à zéro.

La santé et la sécurité des travailleurs continuent d'être une priorité pour Hydro-Québec. Les efforts nécessaires sont déployés pour assurer un environnement de travail sécuritaire.

Enfin, le 26 mai dernier, l'Organisation régionale de la sécurité civile de la Mauricie et du Centre-du-Québec a annoncé à la population qu'en fonction des risques résiduels aux installations de Gentilly-2, les comprimés d'iode n'étaient plus requis, et a invité la population à s'en départir.

Tel que nous l'avons toujours fait, nous allons assurer la planification et la réalisation des activités de la prochaine période ainsi qu'une surveillance de nos installations dans le respect des exigences

réglementaires et des impératifs de sûreté et de sécurité.

Merci de votre attention.

**LE PRÉSIDENT :** Merci beaucoup.

So the way we are going to operate from now, we are going to take a 10-minute break, then we will go through the Exercise Unified Response, and then we'll talk about both the annual report and this particular update on the Exercise, after the interventions. Did you get that? Okay. I think I got it right.

See you later.

--- Upon recessing at 10:39 a.m. /

Suspension à 10 h 39

--- Upon resuming at 10:56 a.m. /

Reprise à 10 h 56

**MR. LEBLANC:** We are waiting to resume, please take your seats. Prenez vos sièges, s'il-vous-plaît.

**THE PRESIDENT:** Obviously, there was a pent-up need to meet and talk. Maybe we should have taken a longer break here.

Okay, so we are jumping now to the Exercise Unified Response Action Plan Update.

Over to you.

**MME HEPPELL-MASYS :** Bonjour, Monsieur le Président, Messieurs et Madame Membres de la Commission.

Mon nom est Kathleen Heppell-Masys, et je suis la directrice-générale de la Direction de la sûreté et des garanties à la Commission canadienne de sûreté nucléaire.

Avec moi aujourd'hui sont : Luc Sigouin, directeur de la Division des programmes de gestion des urgences; Barclay Howden, conseiller stratégique de la Direction de la réglementation des centrales nucléaires; et Bernie Beaudin, agent des programmes, Gestion des mesures d'urgence à la CCSN.

Also present for the discussion on Exercise Unified Response are representatives from OPG and Health Canada.

In addition, we have the Region of Durham and Ontario Office of the Fire Marshal and Emergency Management joining us by teleconference.

Also, for the discussion on radio interoperability, we also have a representative from Innovation, Science and Economic Development Canada, ISED, as well as representatives as well from Durham Region.

**THE PRESIDENT:** Could we verify that Durham and the Office of the Fire Marshal can hear us?

**MR. NODWELL:** Office of the Fire Marshal

and Emergency Management is here.

**THE PRESIDENT:** Okay, thank you.

Anybody from --

**MR. LEONARD:** Durham Region is here.

Thanks.

**THE PRESIDENT:** Thank you.

And Health Canada is...?

**MS QUAYLE:** In the room.

**THE PRESIDENT:** Thank you.

**MS HEPPELL-MASYS:** So CNSC staff are here today to provide the Commission with an update on three topics.

First, we will provide an update on the action plans as a result of the Exercise Unified Response. These include the CNSC Staff Action plan as well as the action plans of OPG, Durham Region, Ontario Office of the Fire Marshal, and finally, Health Canada. In addition to the update on the action plans, staff will also request closure of action items.

Second, we will provide an update to the Commission on the status of the revision of the Ontario Provincial Nuclear Emergency Response Plan, also known for short as PNERP.

Third and finally, staff will provide information to the Commission on the matter of

interoperability of radio systems between OPG and the Region of Durham.

As you may recall, Exercise Unified Response was held in May 2014. This was a three-day full-scale national nuclear exercise simulating a severe accident at the Darlington nuclear station. It had the participation from OPG, all levels of government, and key international stakeholders such as the U.S. NRC, or also known as U.S. Nuclear Regulatory Commission, and the IAEA.

At the Commission meeting held in November 2014, CNSC staff and stakeholders presented key findings and overall results of the exercise.

At the December 2015 Commission meeting, the Commission was also provided with a progress update regarding various stakeholders' action plans.

Much progress has been made since that time and we will provide you with an update on the CNSC staff action plan and on information that CNSC staff have received from stakeholders for their own action plans.

I will now turn the presentation over to Monsieur Luc Sigouin to update you on the current status of those action plans.

**M. SIGOUIN :** Bonjour. Mon nom est Luc Sigouin. I am the Director of the Emergency Management Programs Division here at the CNSC.

I will begin by addressing the CNSC Staff Action Plan from the Exercise Unified Response and the Commission action M2015-16.

Independent evaluations of Exercise Unified Response were performed by external consultants.

Ms Purdy and Mr. Harlick, the consultants, identified 35 recommendations that were listed in the CNSC staff action plan. All of the actions listed in this plan have been addressed. Thirty-two of the 35 recommendations have been closed and three items are in process. These three actions that remain open or in process remain open as these projects require more time to complete.

The first open action is a reconfiguration of the CNSC Emergency Operations Centre, or EOC, which is located in this building; the second open action item is the availability of NPP plant data in the CNSC Emergency Operations Centre; and the third and final open action item is the development of regulatory guidance for the post-emergency recovery phase.

Regarding the reconfiguration of the CNSC Emergency Operations Centre, a project to improve the work space and equipment for our technical assessment team has recently been completed. We will be able to benefit from these improvements during the upcoming Bruce Power exercise in October. Planning is now underway to improve the work

space of our Command Group, our regulatory team and our logistics team. This work will start in the fall after the Bruce Power exercise and will be completed during the current fiscal year.

In regards to the availability of NPP plant data in the CNSC EOC, staff and NPP licensees have worked together to identify a reasonable number of key parameters and the frequency of their transmission to the CNSC EOC. OPG and New Brunswick Power have committed to developing an automated data collection system that will provide updates on 15-minute intervals. They expect to complete this work in 2017. Bruce Power have opted to use a manual data collection system which will be trialed during the exercise this coming October.

The third and final open action item is the development of regulatory guidance for the post-emergency recovery phase. CNSC and Health Canada staff have begun the development of a discussion paper on this topic. The discussion paper will be shared with provincial and federal partners in September 2016 and the final discussion paper will be made available for public comment in November 2016. The results of the public consultation will serve as input in the development of a regulatory guide which will be published as a REGDOC in January 2018.

This concludes the update on the CNSC staff action plan and Commission action M2015-16.

I will now turn to the stakeholder action plans that are captured under Commission Actions M2015-15 and-17.

Among the improvements initiated from the After Action Report, there were four multipartite issues where OPG took the lead.

These were: first, OPG's plan for a staff rotation centre; second, the concept of operation for radiation surveys; third, guidance on the management of dose for emergency workers; and fourth, dose projection modelling for beyond-design-basis scenarios.

OPG has provided the following information to CNSC staff on the status of these four actions.

First, regarding the staff rotation centre, OPG has developed plans that will facilitate the movement of OPG workers during an emergency. The plan, known as the Staff Rotation Centre Guidance, is scalable for minor accidents through to severe accidents where several sectors surrounding the site may have been evacuated and the access roads are under the control of the municipality. The guidance document is now available for use.

Second, regarding the concept of operation

for radiation surveys, OPG has worked in cooperation with Health Canada and the Office of the Fire Marshal to develop a Radiation Survey Guidance document. This guide addresses the alignment and coordination of all organizations performing field radiation surveys. OPG is making the survey guide available to the province.

Third, with regards to the dose control for emergency workers, a final draft of a Dose Control Guidance document has been prepared with input from a working group consisting of staff from OPG, Bruce Power, Health Canada, the Ontario Ministry of Health, the Ontario Ministry of Labour, Durham Region and CNSC staff. The finalized document will be provided to the province for use within the emergency plans.

Fourth and finally, regarding the dose projection modelling for beyond-design-basis scenarios, OPG has engaged a contractor to improve the modelling software for additional scenarios and is partnering with Bruce Power and the CNSC in this collaborative activity. The updated software will be deployed in June 2017.

So this concludes the update on the OPG portion of Commission Action M2015-17.

The next update is for Durham Region and addresses both Commission Action M2015-15 and-17.

The Regional Municipality of Durham has an

emergency management program involving all eight municipalities and it covers a wide range of emergencies. Durham's focus during Exercise Unified Response was designed to primarily test internal processes both for operations and communications within and between their regional Emergency Operations Centre, the local EOCs and with the provincial EOC.

Durham region has informed staff that since the conduct of the exercise they have completed many improvements. Some of the highlights include the following:

- Durham has revised and updated their Nuclear Emergency Response Plan and has posted it on the Durham webpage in addition to submitting it to CNSC staff;
- Durham has also completed a revision of their nuclear emergency support functions and they have updated the demographic sector data;
- Durham is also actively exploring the use of web-based tools to enhance information management in their EOC;
- Durham region has also informed staff that they have undertaken several communications activities;
- Durham staff have briefed the Regional Committee of Council on coming changes to the Ontario

Nuclear Emergency Response Plan;

- Durham staff have also briefed the Durham Nuclear Health Committee on the 2016 emergency management program;

- finally, Durham staff continue to deliver training for regional staff on the implementation of the Incident Management System in the Durham EOC.

This concludes the update to the Commission on the Durham portion of Commission Action M2017 as well as on Commission Action M2015-15.

The next update is for Ontario and the Office of the Fire Marshal and Emergency Management. It addresses two Commission Action items, M2015-17 and M2016-09.

OFMEM has reported to CNSC staff that the primary focus has been on updating the 2009 PNERP, or nuclear plan. In undertaking the review of the nuclear plan, OFMEM has held consultations with select stakeholders regarding specific areas of concern such as roles and responsibilities, legislative basis, emergency public information and severe accidents.

In addition, OFMEM has progressed in their review of the planning basis with a stakeholder consultation that took place in early 2016. OFMEM plans to undertake formal public consultation on the PNERP revision

during the fall of 2016.

In addition to the work on the PNERP revision, OFMEM has informed staff of additional improvements. The OFMEM offices have recently relocated from downtown Toronto to a new facility near Pearson Airport that includes an enhanced EOC with increased space and updated technology.

As previously stated, OFMEM is participating in the Emergency Worker Dose Control Working Group that is led by OPG.

And finally, OFMEM participates in a working group led by the Ministry of Municipal Affairs and Housing that is examining the processes for compensation.

So this concludes the update on the OFM portion of the Commission Action for updates on Unified Response.

I will now turn to the Commission Action M2016-09 to provide a status update specifically on the revision of the Ontario PNERP.

As noted earlier, OFMEM has undertaken updating the Provincial Nuclear Emergency Response Plan. The OFMEM has requested CNSC staff support in understanding the various accident scenarios possible.

CNSC staff are working in close collaboration with OFMEM. OFMEM and CNSC staff formally

met in December 2015, in April 2016 and most recently on August 11. At this time, OFMEM has received all the information they require from CNSC staff.

OFMEM has developed a clear set of principles on how to proceed with defining their planning basis. This has been shared with CNSC staff and we are supportive of their approach.

OFMEM is also working with Health Canada relating to dispersion and dose modelling.

OFMEM briefed all stakeholders during a December 2015 meeting and has indicated they plan for a similar briefing in the fall of 2016.

In addition to stakeholder involvement, the Office of the Fire Marshal has indicated the revision will consider lessons learned and new guidance such as CSA N1600 Standard on Emergency Management and various reports on Fukushima lessons learned.

OFMEM has also informed us that they continue to plan for a fall 2016 public consultation.

This concludes the update on the Provincial Emergency Plan.

The next update is on the federal government action plan relating to Commission Action M2015-17.

As the Commission has previously been

informed, Health Canada led the development of the Federal Interdepartmental After Action Report for Exercise Unified Response. The general conclusion from the Federal After Action Report was that the federal government was able to demonstrate its capability to effectively respond to a nuclear emergency.

Health Canada has provided the following update to CNSC staff. Health Canada's Radiation Protection Bureau and its federal partners report that they have fully addressed and closed 35 of the 45 recommendations in the Federal Interdepartmental After Action Report from Exercise Unified Response.

Key accomplishments among the 35 completed action items include: strengthened arrangements for rapidly notifying federal partners of an emergency; enhanced capabilities to conduct technical assessments and sharing of these results; and improved procedures for communicating technical information to the public and/or senior officials.

Of the 10 recommendations still to be completed, five are being addressed by Public Safety Canada through broader revisions of their All Hazards Emergency Response Plan and Procedures.

Four others are in progress and require ongoing consultation with partners. One is led by Health

Canada, one by Ontario Power Generation, and two being led by the Province of Ontario.

And one, finally, is deferred pending completion of the federal government-wide email transformation.

This concludes the updates on Exercise Unified Response action plans for Health Canada and all others identified in Commission Action item M2015-15, -16 and -17 as well as action M2016-09.

I will now pass the presentation back to Ms Kathleen Heppell-Masys.

**MS HEPPELL-MASYS:** So this concludes the portion of the CNSC staff presentation that updates the Commission on those actions arising from Exercise Unified Response.

CNSC staff requests that the Commission close items M2015-15, -16 and -17 relating to Exercise Unified Response. This exercise was a successful national exercise that brought all response organizations together to test their emergency response plans, procedures and processes.

Staff have been informed by participating organizations that they have addressed key findings to improve the integrated response to a nuclear emergency.

CNSC staff requests that action M2016-09

remain open until the Ontario Provincial Nuclear Emergency Response Plan is finalized, in particular to present the results of the province's public consultation expected in the fall of 2016.

I will now pass the presentation to Mr. Barclay Howden, who will introduce the matter of interoperability of emergency radio systems between OPG and the Region of Durham.

**MR. HOWDEN:** Thank you.

Barclay Howden for the record.

In 2014, after several years of preparatory work, the Region of Durham launched a new radio system called NextGen. The system, which works off of the 700 MHz band, supports the police and fire services as well as many other municipal services, with approximately 2,800 users in all.

OPG currently operates a TELUS system called iDEN. This system will no longer be supported by TELUS. Thus, it is scheduled to be retired at the end of 2016.

As a result, OPG has been examining a replacement system to run off its existing 800 MHz infrastructure. The system being examined is called TETRA.

Since the Region of Durham provides offsite police and fire support to OPG's onsite security

and fire response teams, it is very important that the two radio systems work together. That is, they need to be interoperable to support the onsite and offsite responders.

Durham has raised concerns regarding the interoperability of the two systems, specifically that the two systems working together through an electronic gateway has not been proven. These concerns have been discussed at several meetings over the past eight months between Durham, OPG and CNSC staff. As a result, OPG committed to re-examine its current approach by September 1, 2016.

I have an update on this. OPG has completed its review and has decided to put its emergency responders, so we are talking about security and fire, on Durham's NextGen system. If desired, OPG can provide further details following the presentation.

With this decision, Durham's concerns are being addressed. Nonetheless, I will provide some background on the topic for the Commission's information.

The current state of interoperability is described on this slide. When Durham responders come onsite, they are provided with OPG handsets or escorted by OPG staff. This arrangement is supported by protocols and is exercised regularly. However, this arrangement is not considered a best practice in the technology portion of radio interoperability.

Durham has outlined its expectations for radio interoperability, which are articulated in the last three bullets.

With regard to regulatory requirements, they are outlined in our *Nuclear Security Regulations*, REGDOC-2.10.0, which is called Nuclear Emergency Preparedness and Response, and CSA Standard N293. Two extracts of requirements are highlighted on this slide.

Note that the regulatory requirements are performance-based, which provides flexibility to licensees and their offsite partners to work out suitable arrangements using technology and equipment as they continuously evolve and improve.

The current state of radio interoperability is considered to be meeting requirements but is at the low end of the interoperability scale for the technology. Lessons learned from Fukushima and recent terrorist attacks reinforce that there is always room for improvement.

OPG has made significant commitments to improving the radio interoperability between itself and the Region of Durham. The main commitments are shown on this slide. With OPG's recent decision, they will be able to meet all of Durham's expectations.

I will now return the floor to Ms

Heppell-Masys, who will wrap up and summarize the presentation.

**MS HEPPELL-MASYS:** Thank you.

Returning to the issue of action items arising from the Unified Response Exercise, CNSC staff requests that the Commission close actions M2015-15, -16 and -17 relating to Exercise Unified response. Staff is satisfied that the participating organizations have addressed key findings to improve the integrated response to a nuclear emergency and that any outstanding items will be closed with minimal delay.

CNSC staff proposes that action M2016-09 remain open to ensure the Commission continues to receive updates on the revision of the Ontario Provincial Nuclear Emergency Response Plan, in particular the presentation of the results of the consultation expected in the fall of 2016.

Finally, as more information becomes available, CNSC staff will continue to update the Commission on the matter of radio interoperability.

CNSC staff and our stakeholders are prepared to answer any questions the Commission may have. Thank you.

**THE PRESIDENT:** Thank you.

Before getting into the questions, we

would like, as per normal procedure, to go through some of the interventions we received.

Marc, are you going to take us through the eight intervenors?

**CMD 16-M30.1**

**Written submission from Greenpeace**

**MR. LEBLANC:** Yes. So I will be reading each of the interventions individually and the Members will be able to ask questions on each.

So the first submission is from Greenpeace, as outlined in CMD 16-M30.1.

Do the Commission Members have questions on this submission?

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** Thank you, Mr. President.

I will skip the discussion we had on the anonymous letter allegedly from CNSC staff, but I do want to talk about number 2, which was on misrepresenting the Severe Accident Study and what's in the Regulatory Oversight Report.

And again, we have discussed this at great detail at all our licensing hearings, but it was particularly the table that has been attached on page 3 of

the CMD that I wanted to get staff's clarification on around INES rating and what the SARP study read, and the comment in the annual report that says the SARP study was based on whatever that resulted in dose rates that are equivalent to the Fukushima accident, which was an INES 7. Is that a quote from the study itself that's publicly published?

**MR. FRAPPIER:** Gerry Frappier for the record.

Thank you for the question. We thought this might come up.

What I'd like to start with is having Ms Melanie Rickard talk a little bit about the SARP study, as you just requested, and then have Mr. Ben Poulet explain the INES rating calculations that would go with such an event.

--- Pause

**MS RICKARD:** My apologies, a long walk up there.

For the record, my name is Melanie Rickard and I work in the Radiation Health Sciences Division at the CNSC.

Yes, so just to start with some context regarding this study.

The study direction from the very

beginning was to assess a severe accident and one in particular that was larger in magnitude and more severe than any that had been assessed in previous major EAs -- pardon me, environmental assessments.

So the process that we went through was to first identify a suitable source term, and we use what's called a generic large release, which is described in a current regulatory document.

The source term was then released into the environment and radiation was dispersed and transported through the environment, and as a result of that dispersion, doses were calculated.

I should note that we worked collaboratively with OPG on this assessment and they did the majority of the work that I've just described to you in terms of the transport modelling and the dose assessment.

From that point on, CNSC staff did something fairly unique, at least to date in terms of CNSC experience, in that we took those doses and we assessed them to determine what the health consequences would be. So we determined essentially what the cancer incidence might be. We looked at various different forms of cancer and, as has been discussed several times in front of the Commission, twice at Commission meetings and also at the Darlington hearing, we did describe that the effect of note

was that childhood thyroid cancer would be increased because of this hypothetical accident.

Then we assessed the results and we discovered that the radiological impacts were quite similar to those experienced in Fukushima. We came to this conclusion based on two things. One was literature that we had already reviewed and another was that we worked with the Australian Regulatory Authority, with two experts that were involved in the UNSCEAR assessment as well, and they also came to the same conclusion.

So the reason why those words are used in the report is that, well, frankly, they are factual and they are also found in the study report itself.

And with that, if you need more context with regards the INES rating system, I would pass that back to Gerry as a start -- Mr. Gerry Frappier, pardon me.

**MR. POULET:** Thank you.

My name is Ben Poulet. I am the Director of the Gentilly-2 and Point Lepreau Regulatory Program Division. I am also the INES National Officer for Canada. I am one of approximately 60 such designated officers worldwide.

Just for the context of this public meeting, I think it's important that we remind people what INES is about. It's the International Atomic Energy Agency

scale, it's called the International Nuclear and Radiological Event Scale.

INES is strictly a communications tool that was first developed in the 1990s through a joint effort between the IAEA and the Organisation for Economic Co-operation and Development Nuclear Energy Agency and all the member countries.

The purpose of INES is to promptly and consistently communicate the safety significance of events associated with sources of radiation, including the industrial uses such as radiography, nuclear medicine applications, transport of radioactive materials, and nuclear facilities such as nuclear power plants.

Although the guidance for rating actual events is available in the User's Manual that is publicly available on the IAEA website, the responsibility for rating rests with the individual member state from which the event originated. This is a particularly important aspect.

The respective IAEA member state is not obligated to apply INES. However, should it choose to do so, the member state will be solely responsible for the rating of an event. This ensures the rating is based on best available and actual event data and professional interpretation of the rating methodology.

The IAEA Manual is very clear that INES is not meant to be a predictive tool nor intended to be used to develop and implement emergency response programs. Similarly, the implementation of emergency response actions such as sheltering or evacuation cannot be correlated backwards to an INES rating because these measures may be precautionary in nature.

The postulated radiological consequences on people and the environment, described by my colleague Ms Rickard, compare very well with the definitions of the INES Level 6 and INES Level 7 events provided in the IAEA User's Manual. Both of the definitions cover events involving the occurrence of a radiological atmospheric release involving a portion of the reactor inventory which would likely require protective action such as sheltering and evacuation to prevent or limit health effects on members of the public.

The IAEA User's Manual provides additional guidance to assist countries in rating events as follows. This is from page 17 of the IAEA User's Manual and it is a quote:

"... it is inappropriate to use precise numerical values in the definitions of the levels. However, in order to help ensure consistent

interpretation of these criteria internationally, it is..."

And I emphasize this.

"...suggested that the boundaries between the levels are about 500, 5000 and 50000 TBq 131 I."

So this is for INES Levels 5, 6, and 7, respectively.

So to summarize, based on the following criteria, which is the intended purpose of the IAEA INES rating methodology, the postulated event data that was presented in the SARP, the postulated radiological consequences on people and environment that were described by Ms Rickard, the nature of the guidance provided in the IAEA Manual and the use of actual and not postulated radiological event data, the professional judgment and interpretation of the INES methodology by the member state that is responsible for rating the event, CNSC staff concludes the postulated and very improbable event presented in the SARP report would likely be rated as an INES Level 7 event should it occur.

**THE PRESIDENT:** Okay. We have discussed SARP many, many times, many, many places, but since Greenpeace is here, I have decided to recognize and allow you to intervene and share with us your thoughts about

that.

**MR. STENSIL:** Thank you.

I will also have a comment to make on the whistleblower letter.

But I guess to summarize this, the story of the SARP has been effectively, over the past four years now, Commission staff avoiding modelling a Fukushima-scale release and what -- calculating what its consequences are. That is the crux of the debate.

The SARP study did not look at a Fukushima-scale release. It looked at a generic large release, which has been done in previous EAs. It was almost nothing new.

And my point here is when public intervenors such as Greenpeace started saying, let's look at an INES scale release Level 7, first, the Commission started with, no, no, no, we don't have to do that, we are looking at severe accidents. But when we continued to push them, in their public documentation they would start to claim that it was an INES 7 release.

And if you look closely at the IAEA guide, for accidents above Level 5, they calculate those -- the definition or categorization is based on releases in Becquerels, and you see that I think in the briefing note that I attached to it.

And the allegation I'm making here is what I see as internally CNSC staff were doing that and talking about it in those terms, but whenever we dealt with the SARP study publicly, what would go into the press release was a line about it being INES 7, and then "comma," which is equivalent to the doses received around Fukushima.

So they're not being I guess in line with what the actual categorization is in that IAEA document, and my request is in future communications the Commission stop doing that.

We could put the IAEA guide on the record, but I really find this is an example where we're not getting to the crux of the debate over these past four years, is the IAEA guide is very specific, but in public communications the CNSC is doing something very different. So I just want that wording removed.

In general, I think the SARP study has been basically discredited over the past four years, so it doesn't really matter that much

**THE PRESIDENT:** Questions?

Staff, do you want to reply?

**MR. FRAPPIER:** Yes. Gerry Frappier for the record.

I think our intervenor is confusing a couple of things here.

I think as we mentioned and as is clearly in the guide, the INES scale is a communication tool to allow comparison between countries, to allow appropriate responses to an event.

The SARP study was put together as a hypothetical analysis to support emergency planning, real stuff, as far as what would we do under these circumstances. It was very important the Commission directed us to ensure that we had a release that was higher than what was typically required under an environmental assessment such that we would be able to demonstrate that the emergency planning can handle something that would give doses of a significant magnitude.

So the SARP study, by virtue of it coming up with similar doses as what Fukushima resulted in, is an appropriate study, although, to be honest, when it started, it was not about trying to be equivalent to Fukushima, it was about being important enough so that emergency preparedness exercise would happen.

This idea of INES scale is interesting, but again, it's a communications tool. The people responsible for making the decision as to what INES scale level this would be agree we would be sitting -- if this ever -- the hypothetical accident, the SARP happened, we would call it an INES 7. And it's not the intervenor who's

going to decide what it was called, it's the people responsible and trained as to how to handle the IAEA program associated with INES.

**THE PRESIDENT:** Before you get a reply, I would like to hear from the Office of the Fire Marshal whether you found the study, the SARP study, useful for your planning requirements. I would like to hear if that was the original intention, was it useful for the Office of the Fire Marshal?

Office of the Fire Marshal.

**MR. NODWELL:** Good morning. Dave Nodwell for the record, Office of the Fire Marshal and Emergency Management.

I will just check that everyone can hear me.

**THE PRESIDENT:** Yes, we can. Go ahead, please.

**MR. NODWELL:** Thank you.

Just a very brief answer to that question.

SARP indeed was helpful and is a consideration as we look at the PNERP and the planning basis. I think it's important to point out, however, that we are not going to hang our hat on SARP or any other particular study in isolation, but that it is one of many tools that would be used in that assessment process and the

determination of a planning basis.

So given that I think SARP was very helpful, it was a very detailed analysis related to what those health consequences are, a lot of very good work went into that, but again, it's one of those reports that's being considered, it's not the sole report.

**THE PRESIDENT:** Thank you.

Greenpeace.

**MR. STENSIL:** Thank you.

Again, in one of the recommendations they make is we need the ability moving forward to cross-examine staff for exactly situations like this, where we're just dancing around an issue.

First, Mr. Frappier did not acknowledge. What I said is that INES levels 5 to 7 are based on releases. That's how they're categorized within the guidance from the IAEA. What I am saying is that it doesn't meet those criteria. You shouldn't be miscommunicating using that in a scale now, and that's what I'm alleging the Commission's been doing: is that you're saying that the SARP study is INES 7 to respond to public concern about the scale of accident being dealt with, but in fact it's not doing that, and that's why it's being somewhat intellectually dishonest.

So again to my point, we could ask to put

it on the record, the IAEA guide, but levels 5 to 7 are based on releases, not doses. That's my point.

Second, regarding emergency planning, this is why we need to have good open debates on this, frankly. I think if you look at the briefing note that went to Mr. Binder that I attached to this, I think there's statements by staff that the SARP study shouldn't be used for emergency planning assessment. That was internally, but publicly on the cover it says emergency planning.

And, frankly, it has been informing. The SARP study, as mentioned, was also given by OPG to the province as a basis for its renewal of the planning basis. That has been, again, the crux of the controversy in a lot of hearings.

Why did OPG probably give that source term to the province? I've gone back and looked at the source term used in the 1990s to establish the current planning basis. It's the same. We weren't actually stress testing emergency management. We were just confirming what we already knew.

I'm happy to put these documents on the record, but this is the back and forth. It's been very frustrating over the past four years.

What has happened since the Darlington hearings, where this was discussed, is that what I can

ascertain is Commission staff went to the province and say, "Yeah, you shouldn't use the SARP study. It's not a worst-case. You should look at RC1 as well."

That was the one I originally pointed to in the 2012 Darlington renewal hearings. That was the scenario that's very close to Fukushima -- scale releases -- that I said we should look at this. We know the pathway to this accident. In light of Fukushima, we've looked at all the other steps of defence in depth. This probability is near that line. We should be looking at this. And that's what was avoided in the SARP study.

I've seen since then Commission staff have given a source term for RC1 to the province to look at. The doses are quite high. They also trigger evacuation, from what I can tell, out to about 50 kilometres for some of those scenarios. And I'll allege this: that's what was -- we were -- that's what was being kept out of the relicensing hearings last year: was the focus on that, on what does this actually mean for relicensing a station for up to 30 years, and do we have adequate emergency management in place?

Again, I think there's an implicit assumption that accidents like this won't happen, but we need to look at them. Germany and Switzerland have.

So, again, this goes back to how we're

presenting things and what information is being released to the commissioners, and as well the public, for an open discussion about risk and what is acceptable. That is a fair point, and I am very disappointed in the way this has been carried out over the past four years now. I have intervened in good faith again at those hearings in 2012, and it feels like we've just been played the entire time.

**THE PRESIDENT:** Okay, thank you.

Any -- go ahead.

**MR. SIGOUIN:** Luc Sigouin, for the record.

I think Ms Velshi had a few other questions. I'd like to give you a brief response to those, and also just make a comment on the issue of SARP, and its impact on the Ontario plan and its planning basis.

You made reference to a statement in the intervenor's submission about the incorrect statement or the statement about page 108. I'd like to point out that the statement that was made in the intervention, the last sentence of the first paragraph of section 2, on page 2, that "CNSC and others have used the study to assert the current emergency response is adequate," this is not the case.

Page 108 of the Regulatory Oversight Report clearly states that the accidents used in SARP would be dealt with appropriately with the plan, but not that the

plan is appropriate for any accident. So we're not affirming that.

You had a question on the table that's in the intervenor's submission. So that table is a draft of information that was provided to the province by CNSC staff, as we mentioned earlier, in our assistance to them. It is information that was put together from information that exists in the public domain, either put in the domain by CNSC staff or information that OPG has put out publicly on their website as far back as the Darlington hearings.

So this is not new information that we've just put out there. It's information that exists publicly. We've just categorized it and summarized it here.

And I think the fact that the province does have this information is an indication that they are looking at many scenarios, and a broader set of information, in reviewing their plan, as we heard from Mr. Nodwell on the phone a while ago.

**THE PRESIDENT:** Okay.

**MR. SIGOUIN:** Okay, thank you.

**THE PRESIDENT:** Ms Velshi.

**MEMBER VELSHI:** I know this won't put it to rest, but I hear the frustration.

Would it not -- just to make sure that we're very clear that -- with just a simple statement to

say that the SARP study, if we use the pure clinical classification, is in INES 6, if it's just based on emission release. And then, you know, there's all this saying it's a communication tool and it's up to the regulator to decide what it is, but I get the sense, and many feel, that we're just -- we're pulling wool over their eyes, and that was never the intent.

**MR. FRAPPIER:** Gerry Frappier, for the record.

I think it would be incorrect to put that on the record, though, that's the problem. If we look at the IAEA guide, and this -- I know the intervenor is trying to make it sound like there's a hard line there and the calculations are done and it's sourced, but that's not what it says.

So the IAEA guide is very clear. I have page 17 of the guide right here. It says that the -- "it is suggested that the boundaries between the levels are about" these sort of numbers, and it goes on to talk about how there's many other things that have to be taken into consideration and need to be there to ensure that there's proper communication.

The value of this is that it communicates the severity of the accident, not that it's a mathematical calculation done by a computer in the back. So it would be

awkward for us to be doing it.

But we've put the numbers out there, so anybody can see the numbers. It's not like we're trying to hide what the source term was or what the INES source guidelines say. But you have to have the full package. That would be my concern about doing something like that.

**THE PRESIDENT:** Other questions to the intervenor?

Dr. McEwan.

**MEMBER MCEWAN:** Part of this might be use of English.

You said that the SARP study has been discredited. "Discredited", in my mind, is a fairly malleable term that can be applied in a number of different ways.

Do you mean that the study, and all of the underlying science that went into it, have been invalidated? Do you mean that some of the implications that have arisen out of the study and applied have been unhelpful or wrong? Or are you -- what I think I understand you are saying is that the study, whilst scientifically rigorous, may not actually achieve the level of certainty around the severity of the accident that you think would be desirable.

**MR. STENSIL:** Good question.

The SARP study does not respond at all to what public intervenors were asking for in 2012, point blank. In terms of whether it's internally cogent to itself, sure. But as I said before, it is very close to what OPG produced for the 2011 pre-Fukushima environmental assessment for building new reactors. I don't see it as new information. I see it as just confirming what is already there, the status quo.

In terms of how it's also discredited, it's how it's been used by the Commission. This discussion about whether it's INES 7 or dealing with a Fukushima-scale accident is about subtly misleading the public and other decision makers that either need to make decisions on emergency management, such as the province, the City of Toronto, Durham Region, Kincardine, and public intervenors that are concerned about it.

What I'm -- again, I think it would be a good thing for the Commission to request that the INES guide be given to you. Mr. Frappier is cherry-picking one line from the beginning. He did not deny what I said about events 5 till 7 on source term, but it's taken us five years to get to this point.

So, yes, in terms of being discredited, yeah, it didn't respond to stakeholder concerns. And I also think that's validated by what's going on behind the

scenes after the Darlington hearings, because what was -- CNSC staff then told the provinces, "You can't use the SARP study alone to validate emergency management. Look at RC1."

That's what we asked for four years ago, and it didn't come up. We didn't have that information during the licensing hearings, that's my really big frustration. And I have proposals on how we can deal with that moving forward, but a lot of it has to do with the way we run hearings.

**THE PRESIDENT:** Anybody have a question?  
Monsieur Tolgyesi.

**MEMBER TOLGYESI:** Merci, monsieur le président.

On submission point 3, page 3, following through staff commitments, on page 4 there is a commitment which was -- which failed, and this commitment was done by the executive vice-president, where he specifically stated there is an extract.

So could you comment on this?

**MR. LEBLANC:** Yes. This is -- I'll take this one.

The document has been given to Mr. Stensil yesterday. It had been provided, as committed by staff, on November 27<sup>th</sup> to the Secretariat. We had copies available.

We did not receive any requests. It's a question -- and we should have sent one to Mr. Stensil right away. We hadn't, and we gave it to him yesterday.

But staff did follow on their commitment on November 27<sup>th</sup>. I even gave Mr. Stensil the copy of the staff commitment asking the Secretariat to make it available to intervenors.

So it was available, but we were waiting for a request. There had been more than 300 intervenors, and we didn't think that everybody would want a copy, so we waited for it. And Mr. Stensil had already indicated he was interested in getting one, so he should have gotten one then. And he would have, but we never followed up.

**THE PRESIDENT:** Any other questions?

**MEMBER MCEWAN:** Yeah.

**THE PRESIDENT:** Dr. McEwan.

**MEMBER MCEWAN:** Can I come back to this discredited statement, because I think you were using it imprecisely?

What I think I heard you say is this: that the SARP study was a good study, that it produced data that were at worst confirmatory of previous studies, perhaps at best a little more; that if the SARP study was used only as the basis of a regulatory decision, or a planning decision, more importantly, for emergency

preparedness, it may not be adequate.

So we heard the fire marshal say that that is simply one element of a number of factors that are taken into consideration in the planning exercises and the strategic view of how to respond.

What is it additional that you would require to make you happy? Leaving aside your complaints about information in the past, we're now here, if we go forward what is it in the next series of modelling exercises that would be required to persuade you that we were giving the fire marshal additional information that would create a better plan?

**MR. STENSIL:** That's a great question. I always enjoy how you nitpick at my English, so much appreciated.

In terms of moving forward, I think the Commission should strive to be like other best practice regulators and to give -- again, I started off by saying it was discredited because it didn't respond to intervenor concerns about a Fukushima-scale release.

In all of the risk assessments, for all of the stations, at least in Ontario, there are pathways to a Fukushima-scale release. And when you go elsewhere -- for example, I was doing Internet research in March, came across a PowerPoint presentation from Germany's review of

its emergency management, and in that PowerPoint they had modelled Fukushima-scale accidents at not just Darlington, all of their stations, to look at what would the implications be for emergency response.

What was amazing in this presentation, it says, "Copies in English are available upon request." So I sent an email and I got a copy of the specific study that looked at the scale of accidents at all of the German emergency stations, with recommendations on the implications for emergency response, and that's informing decisions.

And when I received that in a language that wasn't even -- there was no obligation for Germany to translate that, I said, you know, look at how much more transparent and thorough that regulator is compared to what we've had to go through with the CNSC over the past five years. The same thing with the Swiss study, where they modelled -- it was talked about last year. They did the same thing. They modelled these scenarios at all of the plants. That needs to be done on a regular basis moving forward to avoid this kind of complacency.

I think at root the problem that hasn't been addressed since Fukushima on the last level of defence in depth is just an acknowledgement that these -- no matter all of the gadgets that you install at the other levels,

these accidents can still occur, and how do we prepare for them?, what needs to be in place to do that?, and having that conversation. What I have seen since Fukushima is this Commission over and over again, or not the Commission, staff, have avoided that discussion.

So for moving forward, open and transparent reviews of these so-called worst-case scenarios on a regular basis. That would draw the right attention from, I think, both the Commission, but also staff, about the implications of the technology that we're using, and it will also help other government departments, such as the province, make more informed decisions.

And in response to the question -- the comment about the province now saying it's one of many scenarios, that wasn't true a year ago. They've been relying on the SARP study until about December. They've asked the CNSC for support four years into their review because they were relying on that study.

That's something I'm also trying to deal with at the provincial level, where there's a lot of other problems and a lack of capacity.

So, yeah, moving forward, can we just admit and acknowledge these types of events can happen, and model them, without dancing around, whether it's this or that?

**THE PRESIDENT:** So I think that's exactly what we have done. Post-Fukushima the whole idea was for us, as a federal agency, to try to influence the province to take action on KI pills, for example, and how to deal with severe accidents, assuming that severe accidents can happen.

So I'd like to finish with this because I have lots of questions for the Office of the Fire Marshal. When and where are we going to see this detailed plan, blessed by the provincial government, that will deal with severe accidents? And, in fact, that's actually the next challenge for us, and that's why we got the update.

What I would like to do is, if anybody has any other questions on this particular intervenor, to move on to actually the questioning of Canada and everybody else about all the things that need to be done.

You have the last word.

**MR. STENSIL:** I have a comment to make about the whistleblower letter.

**THE PRESIDENT:** We've dealt with it yesterday.

**MR. STENSIL:** I asked to be -- to talk about it yesterday, and I was told I couldn't. I would like to do it right now. I have put it on the record right here in my submission.

**THE PRESIDENT:** I'm sorry, we dealt with it yesterday and -- if you want to say one minute, I'll give you the floor for one minute.

**MR. STENSIL:** No, well, I just want it on the record, please, that a public intervenor with differing views has not been allowed to speak about this whistleblower level, only supportive comments were sought, even from outside of the Commission, and with that I'm done.

**THE PRESIDENT:** We didn't think any supportive document, we didn't think any comments from anybody else outside.

**MR. STENSIL:** You asked the union to come up and speak last night from the back of the room. They were not on the agenda, they're not Commission staff, and I had asked specifically to do that.

**THE PRESIDENT:** We asked the union for internal processes for raising issues, that was it.

**MR. STENSIL:** You asked for their comment (off microphone) I'm done.

**THE PRESIDENT:** Thank you.

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

**CMD 16-M30.2**

**Written submission from South Bruce Grey Health Centre**

**MR. LEBLANC:** Yes.

So the next submission is from South Bruce Grey Health Centre, as outlined in CMD 16-M30.2.

Any questions from members?

As there are no questions, we'll proceed.

**THE PRESIDENT:** So this is -- I noticed there were a couple of -- in a few of those submissions they were sending us a copy of memorandum of understanding, and particularly about -- I'm interested particularly about -- there was a clause in there about improved emergency preparedness. As we discussed recently, just before, emergency management is an interesting topic for us.

So what is the result of this MOU improvement in emergency management, as were done by all the -- by, for example, South Bruce Grey Health Centre?

Who can help me with this?

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

So, yes, we have MOUs with a number of agencies that would be involved in emergency response. And of course the health centre, the main thing there would be

in treatment of casualties and so forth. So we went through with them, both from a training and from an equipment point of view, you know, the kind of improvements that would be useful at the hospital in case of a major emergency, and, indeed -- you know, and we contributed funds towards upgrades to the hospital and contributed to the training of staff and so forth.

So it really was a relook at how does the hospital support us in an emergency? What kind of tools might be useful for them? What kind of training maybe should they have, and should we do that training more frequently, and so forth? And so, as well, sort of how they fit in the plan and the like.

I thought it was a -- there was quite a constructive discussion. We expanded some services, not only in Kincardine, but up in Port Elgin now. I think everybody was pretty satisfied at the end of the day that it was a significant step forward.

I'll ask Mr. Scongack whether he wants to add anything to that or not.

**MR. SCONGACK:** James Scongack, for the record.

Not much to add in addition to what Mr. Saunders alluded to. The only additional point that I would add, and I think it's important for both of the

hospital corporations who intervened and the municipalities, is, you know, recognizing that around the Bruce area these municipal governments and organizations are relatively smaller than we see in some of the urban centres. So creating a forum through an MOU like we've done, where we have, you know, regular conversation that's documented, we make that information available to the public, where people can see how we're -- not only from an emergency management perspective, but a range of other issues, how we're integrating a lot of these issues together is very important for the local community.

And so, you know, I think to Mr. Saunders' point, you know we've had a longstanding relationship with these organizations. This was a little bit of a lesson learned around, you know, how do we make it easier for them to engage on these issues? So this is a very active forum. It covers a range of areas.

For example, if we look the KI redistribution program, those are the kind of issues that are dealt through this forum and allow us to bring everybody to the table and make sure that we're dealing with everything in an integrated and coordinated way.

**THE PRESIDENT:** So will they all participate, all those organizations participate in your exercise, like an emergency exercise, et cetera?

**MR. SCONGACK:** James Scongack, for the record.

So there's really two MOUs here. There's one with the hospital corporations. There's one with our local municipalities. And they absolutely will be involved in Huron Resolve later on this year, and involved in the preparation of Huron Resolve. And of course, one of the things we do through this forum is, at a more senior level, ensuring that the right communications are taking place and that they're actually getting all the information and resources that they expect from Bruce Power.

**THE PRESIDENT:** Thank you.

Mr. Tolgyesi.

**MEMBER TOLGYESI:** Just one short one. In the Memorandum of Understanding, in bullet 3, you are saying -- they are saying that -- you acknowledge that there are 106,000 people in the area, thousands of seasonal residents, and over two million short stay visitors. I suppose they are not there are the same time.

But how do you manage the KI pills distribution in this case? Because they stay somewhere, maybe in hotels, et cetera, so how do you do that?

**MR. SCONGACK:** James Scongack, for the record.

One of the key considerations for us over

about 18 months ago when we started the KI redistribution program was exactly that, that factor.

Obviously, for permanent dwellings, whether it's in the 10-kilometre or the 50-kilometre area, we have a very concrete sense of who those individuals are, so that our big focus was exactly that, that sort of variable population.

We really dealt with that through three ways. The first way was in the immediate area around the site, the 10-kilometre area, a lot of focus working with some of the areas where these sort of transient or temporary visitors stay when they're in the area, so those are places like Invahuron Provincial Park, other locations such as that, and so we've effectively, within that 10-kilometre area, overstocked for that eventuality.

And then in an abundance of caution, we've also looked at our stocking at the various pick-up locations, as you'll see noted in the community safety guide, and that's in the pharmacies in the area.

So I think what we've done -- and again, this is where conversations with the municipalities and the health care corporations is very important because they have an understanding of what that bounding case could be in the summer days taking into account base residents and seasonal residents, and we've overstocked on that basis.

And a lot of engagement has really been around how do you reach those seasonal and temporary residents in the event of a nuclear emergency.

**CMD 16-M30.3**

**Written submission from Municipality of Kincardine**

**MR. LEBLANC:** The next submission is from the Municipality of Kincardine as outlined in CMD 16-M30.3. Any questions?

**CMD 16-M30.4**

**Written submission from Grey Bruce Health Services**

**MR. LEBLANC:** The next submission is from the Grey Bruce Health Services as outlined in CMD 16-M30.4. Any questions?

**THE PRESIDENT:** I actually -- which one I'm looking at now? I'm looking at Kincardine. I'm still looking at Kincardine.

Sorry. I really liked the personal guide to community safety that was attached here. I just wondered if it was distributed to all households and it's available to schools and hospitals, et cetera, et cetera. And I think that was kind of a very useful potassium iodide

fact sheet in there.

So it's the first time I've seen it, so maybe I'm easy to impress, but I don't know what kind of reaction you got from this brochure, people actually are reading it. Can you actually find it also online? And is it distributed throughout the whole region?

**MR. SCONGACK:** James Scongack, for the record.

Maybe I can just provide a bit of context as to what led up to this community guide.

About 18 months ago, we were having a conversation with the local municipalities and the Medical Officer of health about how could we effectively communicate around the KI redistribution program. And so coming out of that conversation, we agreed we would launch a web site around the KI distribution program and we also recognized the need to put something directly in everybody's homes.

Throughout that conversation, I think we realized very quickly that it would be a missed opportunity to launch a web site, to put information in people's homes that would just cover KI, so by partnering with the municipalities, what we agreed to do was create this guide. And we've committed to releasing this guide and updating it on an annual basis.

So 2015 is the first time we distributed that guide. It went to 65,000 households in the region around the site. This past June, we did our first update of that guide.

And the way I like to explain it to people because we often get this question is what was the main driver behind the guide is many, many years ago, virtually every single household had a telephone book. And if you wanted information on what to do an emergency, nuclear or otherwise, you'd go to the back page of that telephone book and you'd have all your numbers there. And most people knew where the telephone book was in their house.

Nowadays, a lot of people are not using telephone books. They get their numbers online. So we thought this was a very practical way to put that emergency information, again, not just nuclear, a whole range of things, right in people's houses.

And so we allowed the municipalities to partner with us and to take advantage of that communication.

Another very successful tool, and all of this is available online, is we launched a web called "Be Prepared, Grey Bruce and Huron". And again, all of the information you see in the guide is available on there.

Generally, the feedback that we get from

people is, you know, they like to have one spot where they have all their emergency preparedness information, so this is a -- it's a modest investment on our part to mail these to 65,000 households every year, but it's something we plan to continue to do on an annual basis and become part of our normal practice as an operator and, of course, partner with our municipalities and other authorities to make sure that they can utilize that communications tool.

**THE PRESIDENT:** So you have a potassium iodide voucher in the back. Do you keep stats about uptake? I mean, do you know whether people are actually using this voucher? Because I understand you distributed the potassium iodide to the home, so --

**MR. SCONGACK:** Yeah. I --

**THE PRESIDENT:** -- of the two million people who come to visit, do any of them use the vouchers?

**MR. SCONGACK:** So James Scongack, for the record.

Just let me add a bit of colour on that.

So if you look at the KI distribution in sort of two areas. You look at the immediate 10-kilometre area around the site, and as we've referred to, and I think CNSC staff can confirm this, we've got very solid uptake within that 10-kilometre area and we're pretty confident that in all those dwellings or areas individuals would be

that those KI tablets are right there available either in the home or provincial park or a residence in the area.

This booklet in terms of the voucher was really designed for the 50-kilometre area.

So as you can see in the booklet, what we've done is we've worked with our local pharmacies and other locations to stock these potassium iodide tablets.

And what we said to people is similar to those individuals within 10 kilometres, if you live in the 50-kilometre area and you would like to put them in your home, you're absolutely welcome to do that. You can take that voucher out, take it to a local pharmacy and a local pharmacy will provide you those KI tablets to keep in your house.

We do keep a running log of the uptake in that. I can tell you that, you know, from our perspective, providing the voucher was more of a comfort and an empowerment tool for people, so if they wanted to exercise that option, it was certainly available to them. But the general feedback in the 50-kilometre area is people are more than happy with these, you know, sort of stored at locations and they'll be available in the likely event of an emergency.

**THE PRESIDENT:** Okay. Thank you.

**MR. LEBLANC:** So just for the record, as

the President indicated, this was a part of the Municipality of Kincardine, CMD 16-M30.3.

So I'll repeat whether there's any questions with respect to CMD 16 M-30.4 from the Grey Bruce Health Services.

**CMD 16-M30.5**

**Written submission from Town of Saugeen Shores**

**MR. LEBLANC:** The next submission is from the Town of Saugeen Shores as outlined in CMD 16-M30.5. Any questions on this submission?

**CMD 16-M30.6**

**Written submission from County of Bruce**

**MR. LEBLANC:** The next submission is from the County of Bruce as outlined in CMD M30.6. Any questions on this submission?

**THE PRESIDENT:** In your second page of the -- it says that Bruce Power hosted a briefing session with key community stakeholders.

When you do those meetings, are they open to the public?

**MR. SCONGACK:** James Scongack, for the

record.

Generally, any briefings or workshops that we carry out are done in a public forum, whether it's the updates we do on a regular basis to county council or other items. This particular briefing was open to a range of stakeholders -- say open to the public.

The way I would characterize it was yes, it was open to the public, but it was really a focus briefing on regional business owners, regional governments, people that were interested in the economic impacts on the Bruce area and to brief them on the transaction. And there were a lot of things that Mr. Kelly alluded to earlier around, you know, as we're starting to invest in the site, you know, what are the -- you know, the number of workers we can expect in the area and those kind of things.

But as a general practice, we make these sessions available to anyone and everyone who wants to attend.

For example, on September 14<sup>th</sup>, in conjunction with the County of Bruce, we're having an economic development summit. And again, those are wide open to the public and, you know, it's -- they're all forums for us to get public input and certainly we never hesitate to have people involved.

**CMD 16-M30.7**

**Written submission from  
Canadian Nuclear Workers' Council**

**MR. LEBLANC:** The next submission is from the Canadian Nuclear Workers Council as outlined in CMD 16-M30.7. Any questions?

**CMD 16-M30.8**

**Written submission from Power Workers' Union**

**MR. LEBLANC:** The next submission is from the Power Workers Union as outlined in CMD 16-M30.8. Any questions from the Members?

So that concludes the intervention, Mr. President.

**THE PRESIDENT:** Okay. I think we have room for at least one more round before lunch.

So why don't we open the floor and starting with Ms Velshi.

**MEMBER VELSHI:** Thank you, Mr. President.

I'd like to start off by first complimenting staff on the regulatory oversight report. I found it not only very helpful as far as content, but even as far as flow of information. But even more importantly,

I want to congratulate the licensees, the regulator and other parties for an excellent year of performance, the best ever since the rating system started. So well done.

I do have some minor editing comments before I get into my first question, so let me just get those out of the way.

Page 51 of the CMD on accident severity rate. It is the first bullet under there where it says in 2014, it was .2 -- I'm sorry, .2 in 2015 and, as you see in Figure 12, it's really .5, so I think that was just a typo there to folks following that.

Mr. Frappier, are you the one holding the pen on this?

**MR. FRAPPIER:** I see where you see the inconsistency, and I'm going to ask Richard Cawthorn if he could explain whether it's an error or whether there's a reason for it.

**MEMBER VELSHI:** Well, you can -- sorry.

**MR. CAWTHORN:** Richard Cawthorn, for the record.

We'll go back and look at those two numbers and see if there's -- one needs to be corrected.

**MEMBER VELSHI:** Thank you.

The other one was page 124, and it's on Fitness for Service. This isn't a typo. The rest are just

really more editing.

So in your slide deck in the oral presentation, you then put a concluding remark in saying, you know, the CNSC is satisfied with the state of the major components. The annual report doesn't say that. It just says this is what the licensee has found, and I think, for completeness' sake, it would be good if a statement like that was included, so it's something for you to consider.

And the next one, in many areas -- and I -- it talks about CNSC planned inspections that found deficiencies and the licensee now has action plans to address those. But what it doesn't say is what was the safety significance of those deficiencies, and I think sometimes in the oral presentation you said they were minor, but the CMD doesn't say that.

So for instance, on page 97 when it's around -- I don't know. There's one on configuration management. There's stuff on records management. There's someone -- there are a few of them. So I'd suggest you go through the report and where there are deficiencies identified, you do qualifying saying what the safety significance of those was.

**THE PRESIDENT:** And if I can piggyback on that, and you know me by now, by when there will be reporting and fixed. On many of them, it's the question

that jumps at me, or OPG committed to revise several blah, blah, blah. By when? By when?

So it's throughout the whole -- the whole report it's like that.

So if you have a date, please at least give an estimate.

**MEMBER VELSHI:** And my last one, something that was in the slides -- and again, this is to make sure that when this report gets finalized and it's complete, is in the slides, you actually talk about what are the key challenges, what the regulatory focus is going to be in 2016. I think it would be good to include that in the report as well because it answers the "So what?" part of the question.

So my first question, then, is, is -- so this is really good performance, but how do we really know it's good performance when we compare ourselves to others?

And there were a couple of indicators where you do have some international comparisons. One was for reactor comparisons, one was for reactor trips and one was for forced loss rate. And in one, we were better than what the international scene is, but on the forced loss rate, it wasn't.

And what I heard in the presentation was -- so there are two parts to the question.

So on the forced loss rate, it was, well, it's a good indicator of how well our systems, processes, equipment is working within -- it's really not -- it doesn't give comfort when our performance is so much worse. So I'd like to hear some comments on that.

But the bigger question was, are there other indicators that would help us do some comparison?

I know the MVPs -- you talk about all start in here, the peer reviews. But there is no discussion on those. It says, well, there was some -- I forget what the term is -- but best practices identified and there's some recommendations.

I think if you flesh those out to show where the best practices have been identified in Canada, I think that would help to say, yeah, we're doing well, we need to continue doing so, but here are areas for improvement, and particularly when you said, and there are many of those areas, recommendations around regulatory area. I think it would be very helpful if you elaborate on those.

**MR. FRAPPIER:** Gerry Frappier, for the record.

I'll pass it to Richard Cawthorn with respect to the details on the rating where we were lower, if you like, or not as good as international. But I take

your point with respect to indicators that would -- that could be used, that could be added to provide comparison internationally to best practices. Not 100 percent sure that OSARTS can be used that way, but there's a whole series of peer reviews that are done. But we'll definitely look into that and see if we can improve the reporting with something that has -- to increase the number of international comparators, if you like.

But Richard, if you want to add to the -- and perhaps industry will want to add to that as well after.

**MR. CAWTHORN:** Yes. Richard Cawthorn, for the record.

I'll speak to the performance indicators and the requirements aspect, and then as far as the actual value for Canada and Canadian industries, I'll have to turn that to industry.

We -- in 2003, we began collecting performance indicators in a regulatory document called S99. And at that time, we had 15 performance indicators.

At that point, performance indicators were a very new phenomenon, and as management systems grew, they became more developed. There was international guidance put out on them.

We looked at what was available and we

worked with industry for a couple years to develop what we have in Regulatory Document 3.1.1, which replaced S99. And we moved from 15 performance indicators originally to 30 -- 32, I believe, now.

And of that set, seven are WANO indicators, but there's -- of those, we report four in the annual performance -- in the NPP report because trying to measure what is relevant for CANDU, what is under -- useful for communication of the industry performance, so those were the best ones that we had chosen for now.

That is constantly under review. We're always looking at continuous improvement. There's an ongoing working group that we have with industry on Regulatory Document 3.1.1, and we're looking forward to updating the indicators and revising it as we move forward through the Regulatory Documents improvement process.

Now, that's just the background.

As far as why Canada is different, I have to turn that over to industry to speak to.

**MR. CLEWETT:** Len Clewett, for the record.

I'll speak with regards to, you know, how do we know how we're doing. Certainly Bruce Power and the other operators value the oversight we have in the industry. Mentioned OSART review that was conducted last year.

We also, every two years, have a review from WANO, but -- and we also have other means of some independent oversight within our own company, and obviously Nuclear Safety Review Board that meets four times a year, reports up to our Board of Directors.

So all the feedback we get is really driven to gaps for excellence, and we track each oversight finding we have, whether from CNSC or from WANO and look to close those in a timely manner.

With regards to indicators, we have hundreds of indicators we track and utilize at site, whether it's from WANO or other sources, and monitor those on a frequent basis through different levels that gets reported up to our Board of Directors. So like we continually work with the industry to make sure we're using best practices and operating experience, and the drive is a continuous improvement to reach excellence in all areas.

**MEMBER VELSHI:** But my specific question, if you turn to slide 18, which is on forced loss rate, where Canada's performance is so much worse than the overall WANO indicator, can you shed some light as to what the contributing factors are?

And I know you've all spoken about increased reliability and investment in assets and so on, but why the difference?

**MR. CLEWETT:** Len Clewett for Bruce Power, for the record.

With regards to forced loss rate, we are targeting a couple of areas at Bruce. I'll speak to Bruce Power.

I mentioned last year we had our best ever for eight-unit site but we are continuing to drive that number down. One aspect is the lower backlogs. We have obtained our lowest backlogs ever currently but still working to drive those down.

The other area is with our capital investment. We recently completed an asset management, a very comprehensive asset management plan that takes us all the way out through the next 40 years. Through that plan it's really targeted on lowering the forced loss rate even further and we expect to be at a WANO average within the next one to two years at Bruce.

**MEMBER VELSHI:** Thank you.

OPG...?

**MR. MCGEE:** Good afternoon. Brian McGee for the record. I am the Senior Vice-President at Pickering Nuclear.

I'd like to start by introducing to my left, Steve Gregoris, Director of Operations and Maintenance at Darlington and to my right is Fraser Grant,

Director of Operations and Maintenance at Pickering.

Specifically on forced loss rate, forced loss rate it's important to put some context around the various measures. We do an enormous amount of benchmarking with the rest of the industry on a broad suite of performance measures and, in fact, that's increasing even as we speak.

When it comes to any one of those measures, it is important to factor in if it's different, you know, why is it different and how does technology play a role in the differences?

The bulk of the forced loss rate, and I will speak for Ontario Power Generation primarily, the bulk of the forced loss rate that we experience comes primarily from planned shutdowns, so not sudden force. Sudden force typically shows up in the reactor trip rate, especially at a plant like Pickering which by its design will typically end up with a reactor trip as part of its design basis; in the case of a turbine trip, for example.

But a major factor in forced loss rate within OPG is fuel handling capability. So in simple terms, if you lose fuel handling capability on many of the OPG units, you have something in the order of 12 to 24 hours before you begin to derate which accrues forced loss time. So that's an economic issue primarily. It's not --

it's not something from a business perspective that we are satisfied with but it's not directly related to any safety-related concern. So that's a major factor in the forced loss rate whereas other reactor designs typically don't experience that.

So no to diminish the importance that we place on forced loss rate as a major business driver and sudden forced outages are a concern to us but as I mentioned, in the bulk of our forced loss rate comes from non-sudden forced outage situations as well fuel handling derates.

**THE PRESIDENT:** Speaking of indicators, I recalled a long debate about this so-called -- I think it's maybe 32 or 36 SPIs that we have agreed on that staff will collect. They are not even mentioned anywhere. So you know, in your appendices which are a really good improvement, it will be useful at least to know what kind of SPI go for every safety and control area. And because, at the end of the day, I would like to see what is it that you are collecting in terms of some safety area and then they're not necessarily an international benchmark. They are more maybe a time series that your maintenance, volume, whatever, makes sense or gives a lot more information about some of the conclusions about the safety area.

So I would -- I think I heard you are

looking into this, and that may be a good area to look at.

**MR. FRAPPIER:** Gerry Frappier for the record.

So thanks for that suggestion. That's certainly one that we have available fairly easily, but there is a lot of them as you mentioned. But we will look at what we can do with that.

**THE PRESIDENT:** So the Commission --

**MEMBER VELSHI:** Sorry --

**THE PRESIDENT:** -- also, before I forget, I want to make sure that we do not lose our Health Canada, Office of the Fire Marshal people who with us. And so remember they are part of this overall picture. So if you have any kind of a burning question we should make -- keep this in mind.

**MR. LEBLANC:** Lynn will be verifying about their availability and so will Melanie. So we will know a bit later if they have any constraints. Thank you.

**MEMBER VELSHI:** So I just want to make sure we finish the discussion on this.

So given what you have said, and I heard Bruce Power say that in a couple of years' time they are hoping to get to sort of the WANO best numbers, am I hearing right from OPG that this is the reactor you have and as far as performance goes we really can't expect a

whole lot more improvement?

**MR. MCGEE:** Brian McGee for the record.

So let me start by saying that Pickering had its best forced loss rate in-site history last year by almost three percentage points. So we are constantly driving improvement in forced loss rate -- that some of our contributors in forced loss rate are economic decisions as opposed to safety decisions.

So we do have built into both the Darlington and the Pickering, business plans what we are targeting as the sensible economic forced loss rate. So that will be an industry best performance for Darlington. It will not be industry-best performance for Pickering.

**MEMBER VELSHI:** Thank you.

And Lepreau, any additional comments?

**MR. HARE:** Yes, Michael Hare for the record.

So last year, in 2015, was one of our forced outages. We had four of them last year, a higher rate of forced outages than we have experienced over a number of years.

Things that we are doing going forward about that, we have put together based on a cross-functional team and took a look at the causes of the forced outages. We have put together an equipment

reliability improvement program that's a very big initiative at the station for the completion of the use of AP-913 on equipment reliability. That was one of the big indicators that we had.

We used 2015 as the year of human performance and now we need to attack aggressively the equipment reliability improvement program that will help put new metal in the plant and drive our forced loss rate down.

As well as that, when we looked at the cross-functional team, we have now scheduled a planned maintenance outage of 21-day duration in 2017 that was not in our original business plan to look after equipment reliability issues and make sure that coming out of outage 2017 we have the best chance of success from a breaker to breaker run.

**THE PRESIDENT:** Thank you.

M. Tolgyesi..?

**MEMBRE TOLGYESI :** Merci, Monsieur le Président.

Just to go back for a second to forced loss rate, you are saying that is expressed in percentage of what, because it's not specified. It's total time, total operating time of 7,000 hours a year or total available time or whatever? It could be good if you

specify what is that; 2.2 percent of what?

Now, I will talk about -- a little bit about unplanned transient events on page 28. What you are saying there about the number of trips what is expected is five reactor trips per 7,000 operating hours. Now, when you look at unplanned reactor trips they were three but they don't include manually, manual trips. And I think it should be somewhere there, something like they use injury frequency. When you are talking total what's happened, it's a loss time injury, medical aid, et cetera, because these setbacks they are reducing power by automatic or by manual way, but it means that there is a problem or there is an issue, what you should correct.

The same way the manual -- manual trip, it means that the operator is reacting to something which is not operating properly. So I think that when you link with all those, it will be a kind of more precise image of what the rate of problems what we need. We could calculate that over 7,000 hours, but I think it will be more precise and it will be more representative.

**MR. FRAPPIER:** Gerry Frappier for the record, and maybe industry might want to comment on that as well.

One of the things that are important from our perspective is the fact that it's an unplanned

transient. That means that the system automatically responded automatically to shut down or went through step-back or setbacks because that has a lot of implications with respect to how the reactor was shut down, as opposed to a manual intervention where there is perhaps a more graceful shutting down of the reactor.

So I'm not sure it would be -- if you are looking to say that we should be adding -- we can always add numbers of course, but it would be a different slant on that number if we were to put in how many times the operators shut down the reactor. I mean that would be information but it would be, I think, viewed a little bit differently.

I'm not sure if industry wants to comment on that.

**MR. CAWTHORN:** Richard Cawthorn for the record.

We do collect manual shutdowns. For this data point, in order to compare internationally and benchmark, internationally they do not record manual in this data point. So they just look at automatic whereas safety systems are challenged and it causes automatic shutdown. That's what this table is about.

However, licensees do report to us both automatic and manual in their operational data, so we

collect that information.

**MEMBER TOLGYESI:** Just because if you go to the Appendix G, George, what you are talking about is power history graphs. When you go there you say it's a forced outage or planned outage but we don't know which one was this reactor trip; automatic or manual or whatnot, if it was -- this forced outage was due to what?

So I tried to correlate these graphs to the Table 4 on page 28 and it's not necessarily so easy because when you look, Darlington is one unplanned reactor trip for four reactors. But when you go to those four reactors, there is one, two, three, four, five -- five forced outages.

So how it correlates to the trips? And by the way, on Figure 11, page 206, Reactor Unit 3, you are talking about three outages but there are just two on the graph, on the pictures. So maybe one is missing.

**MR. CAWTHORN:** Yeah. Richard Cawthorn for the record.

What is on the graphs is really just a description of the major features of the graph. There are things that happen that -- in a very short time span that you don't see on the graph. So really that's what the graphs are really just to present an overall look at the operation and output from the stations and describe the

major features.

The licensees consider forced shutdowns as either automatic trip or if they have to take a decision to take it back down manually because of an unplanned situation. Both of those conditions for the licensees are handled as they are being -- it's unplanned so they are forced to take -- the reactor comes down. So they are grouped together and discussed in their performance operation or details under each plan.

When we want to compare the performance and the stability of Canadian power plants internationally in benchmarking, then we have to strip out the manual and go with what the international community is measuring, and just for an ability to compare. So at that point we look at just automatic.

So there is different sets of data and for different purposes. I hope that provides some clarification.

One of the graphs that you mentioned there is three features of shutdown -- oh, no, sorry, two features of shutdown and three described. I think that's because -- I'll have to look at the graph but I think it's because there is a continuation within one shutdown that it was started out as a plan of something else and we kept it down.

So I'll just have a look at that.  
Which -- could you point me to which graph it was?

**MEMBER TOLGYESI:** It's page 206, Figure 11, "Power history of Darlington Unit 3".

**MR. SANTINI:** Miguel Santini for the record.

Perhaps OPG could go more in detail about what -- which one is each one you are asking for.

But the one thing that I'd like to point out is in particular for Darlington because it was a vacuum building outage and all of the units had to be shutdown. That may cause some confusion to the table for the Darlington case. I will suggest that OPG goes one by one on the cases for your clarity.

**THE PRESIDENT:** I'm really not -- I'm really not interested. First of all, I don't know why we have this appendix to start with. It didn't give me any insight. Any serious shutdown you report on monthly basis or on an emergency.

So when you do graphs like this you have to tell me why you are showing it to me. What is the purpose here? For the operators to keep track of it, that's fine. I just don't see what the conclusion I can derive from this.

So we have got lots of other issues we

need to discuss, so I really would like not to get into the weeds right now. We may want to do it after lunch. But right now I would like to focus on some of the other issues.

Dr. McEwen...?

**MEMBER MCEWAN:** Well, thank you, Mr. President.

So if I go to Annex A of the supplemental CMD, and the last slide of recommendations from the presentation associated with that where you are asking for closure of a number of items, it seems to me as I look through these that if we close them there will remain no open item relating to the radio communications and the issues of potential risk of having two communication systems that don't close each other. So if we recommend closure of those items, how will that continue?

And a second question, if I look at Table A2, you're actually asking for closure of four items which you don't mention in your slide and which were really not covered in the presentation. So how do we address that, please?

**MS HEPPEL-MASYS:** I could perhaps make a comment on the first action that -- the first point you brought up on the radios.

So this was an update. Well, it's kind of

we are bringing an issue in front of the Commission. There was no action per se related to that topic before on that list. So there is no action that you will find in this list related to the interoperability of the radios.

So should we wish to have an update in the future, perhaps you wish to raise an action but we can discuss that further.

So that is correct. There is no action per se on the radio. This is separate.

**MEMBER MCEWAN:** It seems to me that would be an outcome from that type of that whole description.

**MS HEPPEL-MASYS:** No, that would be independent. It's a brand-new topic between OPG and Durham.

**THE PRESIDENT:** Well, okay. Well, maybe we can -- first of all, let me hear from Durham.

Durham, you hear that OPG is now trying to fix the interoperability. Are you satisfied with the plan?

Durham, are you still with us? Ah, in person.

**MS BULLOCH:** Good morning, Dr. Binder and, good morning, Commission.

Yes, we are here. We have a large contingent here representing Durham.

For the record, I am Superintendent Kim

Bulloch. I am here as a representative from Durham Regional Police and I am currently the Chair of our Next Gen Steering Committee.

With me today is Mr. Don Beaton and Ms Pauline Reed from the Region of Durham; Chief Gord Weir from Clarington Fire; Mr. Steve Orr, our next gen radio consultant and Inspector Steve Jones from Durham Regional Police.

We are currently very pleased with OPG's decision to add their fire and security onto our next gen interoperable radio system. We are confident that this decision is going to help strengthen our interoperable response model within the Region of Durham and look forward to working with Durham OPG in bringing their fire and security personnel into our next gen system.

**THE PRESIDENT:** So what is the time arising for making sure that everything is done?

**MS BULLOCH:** This information just came to us as of Tuesday. So we have not yet worked out the details on the timeline for the completion of the personnel into the next gen system. We have our first user group meeting next -- on Tuesday, coming up next week to work out those details.

**THE PRESIDENT:** Staff, you will keep monitoring and report if there is any glitches at least on

an annual basis?

**MS HEPPEL-MASYS:** Absolutely, and that's what we have indicated in our presentation.

**THE PRESIDENT:** Okay. Dr. McEwen, that's for your first part.

**MS HEPPEL-MASYS:** Yes. And the second part of your second question, I'll refer that to Mr. Gerry Frappier.

**MR. FRAPPIER:** Gerry Frappier for the record.

I am not 100 percent sure I know which action items you are referring to. So some of them we have asked for being -- to be closed because they are -- there was an action to do something and it is done in the annual report. And somewhere actions to provide an annual update, and we will continue to provide the annual update.

So if there is a particular action item you are concerned about, we could certainly address that.

**MEMBER MCEWAN:** So if I look at the action items, there are at least a couple of them where I don't believe we have had enough information to say clearly that it wasn't clearly identified in the presentation as coming forward, so H: 2015/10, for example, and again where this is the ongoing evaluation, so with the fire marshal.

So I think my concern is just a lack of --

these appear they have not really been discussed more broadly within the presentations.

**MS HEPPEL-MASYS:** Maybe I can help my colleagues here. So in the part that we presented to you are relating to the first, the top actions arising in Table A.1. A.2 lists a different kind, different sets of actions. That's where I am trying to help my colleague here. I am not here to talk about those but certainly -- so you will need to consolidate, I think, on your own.

**THE PRESIDENT:** We will have to also -- as the commissioners in our deliberations we will go through item by item and if we don't -- if we feel there is not enough material we will let you know.

So for -- let me pick on one. We haven't discussed this yet but we can for their review. I am looking about the NB Power seismic hazard, okay. So what I hear is that they have done all their things they said they will do and staff are really happy with what they have done but we have not seen it. So why would they close it?

So we have not seen what this study says. We have not seen what -- the follow-up action, and we have not seen the report that the consultant supposedly have done. I know there was a summary done on the Web, but we have not had any presentation on this. In fact, I thought that the whole plan was to have a presentation on it in the

next licence renewal of Point Lepreau. So what am I not understanding here?

**MR. FRAPPIER:** Gerry Frappier for the record.

Yes, we certainly expect that at the next licence renewal we will be talking about seismic at New Brunswick Point Lepreau. If you want something before that or if you want something -- you want to go through that process before you close any of the action items, for sure we can certainly do that.

**THE PRESIDENT:** The formal request of the Commission to deal with this, to do it and -- for example, I was looking to actually read the -- I think it's Amec who was the consultant. Where is the report? Why was it not published? Somebody? NB Power, maybe you can tell me. I think they have submitted it, they have done the work. Why is it not published?

**MR. HARE:** So Michael Hare for the record. I'll hand it to my Regulatory Safety Manager, Dean Taylor.

**MR. TAYLOR:** Dean Taylor for the record. The seismic hazard assessment performed by Amec Foster Wheeler has been formally documented, it has been submitted to CNSC, and we have used that hazard assessment in follow-up work related to safety. That work

would be we have preformed a seismic margin assessment and we have also performed a full seismic PSA in support of licence renewal.

**THE PRESIDENT:** Why was it not public? Why is it not posted on your website?

**MR. TAYLOR:** The action we took from the 2012 meeting was to post a summary on our website. That summary has been posted.

**THE PRESIDENT:** I understand the summary. What's the matter with actually posting the document itself? Is there something secret about that?

**MR. TAYLOR:** No, not at all.

**THE PRESIDENT:** So can somebody help me? Staff...?

**MR. FRAPPIER:** Gerry Frappier for the record.

So as noted, there is a summary that has been posted. There is a -- we are still -- the site-specific seismic hazard assessment has been reviewed and, as we noted in the report, we are comfortable with it.

We are also doing some more reviews with respect to the engineering implications of that with respect to the station. Those, we expect to be completed very shortly.

But as far as coming back to the

Commission, we can certainly do that. The action item with respect to undertaking the seismic hazard, we viewed as complete, but I take your point...

**THE PRESIDENT:** No, but look, I'm making another point here.

When we do some scientific studies as a result of our request, I don't understand why we are leery about -- this is a third party, a third party contractor who does work. Why is it not in the public domain and why is there -- you know, I will say it not only to the licensee but to our own staff. When you commission a study, why wouldn't you post it?

And, you know, this is a general comment. We had the same thing yesterday about the environmental study we have been doing. We should post a lot more of the kind of science-based studies that we are doing. So anyhow, this item is not closed in my mind.

**MS HEPPEL-MASYS:** Mr. President. Can I make a comment on the particular action item you brought up, Dr. McEwan?

So on H215-10, there is a request to close that action, but we are also asking to keep 2014-09 open. It says here 16, so maybe there is a number here. But we are definitely asking to keep an action open with Ontario.

I'm just noticing that there is perhaps an

error in the year, in the action number per se. One says 2016-9, while in Table A-1 it says 2014-...

Anyways, we are asking that one to remain open. So close this one in particular, but we are keeping the one with OFMEM open. So that's the reason.

**LE PRÉSIDENT** : Monsieur Harvey...?

**MEMBRE HARVEY** : Merci, Monsieur le Président.

I won't be long because it's just before -- it's just a very simple question for the staff.

I am coming back to the safety rating table, which, to my point of view, is very important, mostly for the public, which after a look at that table will consider they have read the report. It has been very interesting this morning your presentation and the rating methodology and I did appreciate that.

My question is just about the people doing that. Do we have a specific team to do that or do we have specific training among the employees in order to assure a certain uniformity and equity between the plants, between the facilities, but also among the SCAs?

**MR. FRAPPIER**: Gerry Frappier for the record.

So just to be clear and make sure I answer your question properly, there is information that goes into

the rating system. That information comes from things like inspections, desktop reviews, other compliance activities. Those are all done by specialists or by inspectors with their own sort of processes as to how they would go through and determine there is a finding or a non-compliance, all within a framework of how to undertake whatever activity it is, whether it be desktop or whether it be inspections.

One of the things that is expected is to determine the significance of that finding and so for that we do have some criteria that's laid out and we do have a review done by the respective Reactor Power Division Directors to concur or to create discussion around the safety significance. So we could talk about that process if you like, on those things.

Once that is done, then those go into our computer system, our database as a finding of whatever rating it is in a given safety control area. Then there is more of a computational exercise that's done and we wouldn't expect, you know, every employee to be a master of how that's done. It's not necessary.

We have a small team of people who ensure that the database is properly analyzed, if you like, as far as coming up to the ratings, and the weightings that are given to different things in the ratings is an algorithm that has been put together, as mentioned, it hasn't changed

much since 2010, and they then produce these charts.

So if you are wondering about how the findings turn into satisfactory or a group rating, that's one area of questioning. If you're wondering about how we get those findings in the first place, that's a much bigger area.

**MEMBER HARVEY:** No, the essence of my question was just if the people doing that, if you have specific training or a specific team. That was the essence of my question because all the -- I've got all the information here about the process.

**MR. FRAPPIER:** Gerry Frappier for the record.

So of course if it's that first part I was discussing about actually undertaking compliance activities, there's all kinds of training required. So if we are looking at inspections, we have inspectors who have been through inspector training. They are issued, you know, cards that demonstrate that they are an inspector. The specialists have their own set of specialties that they have to have before you are going to be deemed acceptable to go undertake fire inspection or something like that.

With respect to the second part, how the algorithm is put together, I will ask Mr. Richard Cawthorn, who heads the team that does that...

**THE PRESIDENT:** No, no. I think what we are really aiming at is how do you ensure consistency between, you know, various plants, let's say, that you will measure the same way so one inspector in Pickering gets the same kind of analysis that Darlington gets, et cetera? Those are the kinds of things. How do you assure that that is consistent?

**MR. CAWTHORN:** Yes, I will address that. Richard Cawthorn for the record.

Okay, so as I mentioned earlier, there is a collection for 2015 of about 800 findings, and each one of those are rated initially by the staff specialist or inspector who observes them. Part of their daily job is to look at regulatory issues and make a safety determination. And it's very simple as far as the category. They rate them as either high, medium, low or non-significant as far as safety significance.

That is put into a database and is reviewed by the Regulatory Program Officer Division staff. As for concurrence, problems are identified. And, you know, every time in our system we have subjective decision-making, we have levels of review of senior people and management.

So, as I said, the 800 findings are rated very simply high, medium or low. Then when it comes time

to start crunching the data, we ask the Director of each specialist division to nominate a senior specialist to analyze that data and provide the ratings on the specific areas within the SCA.

We have kickoff meetings each year with that analysis. Those specialists that are put forward meet together and review the criteria, the definitions, and so there is some training that goes on there.

They go off and, as you know, each safety and control area has a number of specific areas. Each one of those is rated according to the definitions in Appendix C of the annual report and reviewed by their director and then reviewed by the power reactor regulatory program directors before they are put into the database to be crunched.

After that point, the rollup of the results of the 69 specific areas into the ratings of the 14 areas is all mathematical. It's completely objective and it's...

**THE PRESIDENT:** It would be useful if you would take one SCA, a real SCA in the appendix and put some numerical -- you don't have to identify where you got it, so you can actually do all the math, it gets down to one SCA. That would be actually a useful additional explanatory thing here.

**MR. FRAPPIER:** Gerry Frappier for the record. So we will certainly do that.

I think the other thing though, just with respect to consistency outside the mathematical, there's a whole bunch of things we do to ensure consistency.

We certainly have training. We have peer reviews on the sort of specialist reviews. We have the same specialists going across to all the facilities, so obviously they are doing it similar to the other facilities.

With respect to inspectors, we have inspectors from one facility going to another facility to do the inspection again. If there is a big difference in how they rate things, that will become very apparent.

The site supervisors have a committee specifically geared towards ensuring there is consistency between locations.

And then back here in Ottawa we have the RPD directors that are looking for sort of any kinds of inconsistencies that might come up as well from site to site.

**THE PRESIDENT:** Okay, thank you.

I still would like to ask the Office of the Fire Marshal.

I notice all the good work you have been

doing, but I never see kind of a deadline. I would like to know when the Ontario government is going to adopt this plan and when are you going to launch the so-called public consultation.

**MR. SULEMAN:** Good afternoon, President Binder. It's Al Suleman, Interim Director of Emergency Management, OFMEM. Thank you for the question.

We have indicated that we are targeting a fall public consultation and certainly that is still the plan, subject of course to government approvals, and I think you appreciate the process that is undertaken for approvals up the line.

There has been a lot of background work that has been taking place and there is in fact a consultation strategy that is being put forward for approval. So we will be in a better position in the coming weeks to announce hopefully the strategy. I hope that answers the question.

**THE PRESIDENT:** You know we will not go away, we are going to keep on asking you that question for a long, long time, and please let us know when you need some help from us to talk to your government also. I understand some of the issues involved in the organization.

Which brings me to another colleague organization, that's Health Canada.

And again, I think Fukushima is now five years ago. I think that some issues that came through for Fukushima taught us some lessons that require us to update our emergency plan, the federal plan. So things like recovery, sheltering, all of those things are hot topics. So when is Health Canada going to deal with some of those outstanding issues?

--- Pause

**MR. NSENGIYUMVA:** Thank you, Mr. President.

I'm Dominique Nsengiyumva, I am Chief of the Nuclear Emergency Preparedness and Response Division from the Radiation Protection Bureau, and I am with my colleague Debora Quayle, Chief of the Radiation Health Assessment Division.

Thank you for the questions.

Health Canada has been working with our partners, particularly CNSC, Public Safety, the Province of Ontario and for the Intrepid (indiscernible) for the Province of New Brunswick. So taking into consideration the lessons learned, yes, from Fukushima, you know that the Federal Nuclear Emergency Plan was updated in 2012. And from that update there was a recommendation from the Deputy Ministers' Emergency Management Committee to actually test the new updated plan.

And a series of exercises that we have done, reaching to Exercise Unified Response, have concluded that the plan was sound and that the federal family working with our partners, provincial and municipal and actually NGOs, that we are ready to respond to a nuclear emergency.

But beyond that, in terms of updating the plans, the Federal Nuclear Emergency Plan is an annex to the Federal Emergency Response Plan led by Public Safety. So in terms of updating the Federal Nuclear Emergency Plan, we know that Public Safety is actually looking also at modernizing the plan in terms of the emergency functions that are in the Federal Emergency Plan and some organizations have been asking actually that this be updated. So we know that Public Safety is looking into that.

And following that update for the FERP, then we would be looking into updating the FNEP. But on an onward basis, we ask our different partners that are part of the FNEP, the 18 organizations that are part of the FNEP, if there is anything that would need to be updated so that we can have regular updates, minor updates regularly on an onward basis. But we are looking at once the FERP will be updated, then we follow up with updating also the FNEP.

And just to mention also that we have been

working with the Province of Ontario. Further to the question of when the PNEP is going to be updated and the approvals, so we have been working with the OFMEM and the CNSC and the Canadian Med Centre to actually model the system that CNSC has provided. And as we are speaking, we are actually drafting the report that we will provide to the province and that's going to inform actually the revised PNEP.

So we are working diligently to make sure that the lessons learned from Fukushima, lessons learned from EX UR, lessons learned from Intrepid -- actually, some lessons learned from EX UR were tested and included in Intrepid, of course with the window limitations of the (indiscernible) from the federal family, but we are actually diligently working on making sure that things are improved and we keep improving. So that's what I would say on this question.

Debora, anything to add?

**THE PRESIDENT:** Anything you want to add?

I didn't hear about recovery and sheltering, because I thought that was something that we were looking forward to updating.

**MS QUAYLE:** All right, you've caught me a little -- this is Debora Quayle for the record from Health Canada.

In terms of updating? The Protective Action Guidelines, absolutely, those are well underway. They were out for public consultation this summer for a period of two months. I believe we are still waiting for a few comments from people that asked for an extension. So those comments will all be in in September, after which we will review them.

We will put together an "as we heard" report, similar to what the Commission intends to do, and we will also implement the suggestions and recommendations in the revised Public Action Guidelines which will come out in -- do you remember the date? I'm sorry, you've caught me a little bit off guard here, but in early 2017 I believe is the timeframe that we are aiming for those.

**THE PRESIDENT:** Okay, thank you.

While we have them here, Ms Velshi?

**MR. NSENGIYUMVA:** Mr. President, if I may add. With respect to recovery, I think it has already been mentioned in the presentation that CNSC and Health Canada, we are working on a document that is going to be (indiscernible) so that at least that element of recovery also is being discussed between Health Canada and CNSC.

And we actually also asked our federal partners through the -- our radio-nuclear emergency -- the Radio-Nuclear Emergency Committee to also be involved and

they are going to be involved, but that was kind of an initial ask to them to start already thinking about their involvement and how they are going to contribute to this document. So we are working on it.

**THE PRESIDENT:** And I think the Office of the Fire Marshal will need that kind of input into the provincial plan.

**MR. NSENGIYUMVA:** That's right. That's right. And that's again, for the two committees that we have, led by Health Canada, so the FPT RNEMCC, Nuclear Emergency Management Committee, and further RNEMCC. So those are the two groups that get involved in those discussions and, yes, we will involve them. Yes. Thank you.

**THE PRESIDENT:** Ms Velshi...?

**MEMBER VELSHI:** A question for the Office of the Fire Marshal and Emergency Management.

What is your timeline for having the revised PNERP available?

**MR. SULEMAN:** Al Suleman for the record. The target is to have the revised PNERP approved by Cabinet in the summer of 2017.

**MEMBER VELSHI:** And I know you said the proposal for consultation on the planning basis, you're awaiting Cabinet approval for that, though you are hoping

to have that done in the fall.

Maybe a question more for staff. Is there a plan to bring the planning basis in front of the Commission and are we going to have a public discussion on it?

**MS HEPPELL-MASYS:** I'm kind of new in my position here, so I will let Luc answer.

**MR. SIGOUIN:** Luc Sigouin, CNSC Director of Emergency Management, for the record.

As we all know, the emergency planning involves several layers and several players. In this case, we are talking about the Provincial Emergency Plan, which is under the authority and responsibility of the province and specifically the Office of the Fire Marshal is the one that manages that, and certainly the CNSC has a keen interest in that plan.

We have not yet discussed -- staff have not yet discussed with the Fire Marshal what the next steps would be in regards to presenting the results to the Commission. Certainly, they have committed to doing a public consultation. So that public information will be available and so we expect that that could open the avenue if there is interest from the Commission Members to obtain more information on that.

But at this point, we haven't discussed

beyond the public consultation and the technical work on the planning basis. We have not discussed how the Commission might be involved.

**THE PRESIDENT:** But let me state the obvious. If OPG will continue to follow their intention of extending Pickering, that will require a public hearing, probably in Pickering. It will be nice to have a provincial plan in place just so everybody understands the kind of urgency that's required to do this. So this is for OPG, for staff and for the Office of the Fire Marshal.

On that note, I'm proposing lunch and I would suggest that we get back here at 2:10. So we will see you at 2:10 and we will continue this discussion. Thank you.

--- Upon recessing at 1:13 p.m. /

Suspension à 13 h 13

--- Upon resuming at 2:12 p.m. /

Reprise à 14 h 12

**THE PRESIDENT:** Okay. We are back and we are continuing with our question session and I think it's Ms Velshi.

**MEMBER VELSHI:** Thank you, Dr. Binder.

A question for Bruce B. On page 43 of the

CMD -- give me a minute while I find it -- and this is on safety system test performance and missed tests. So why would you miss tests? And actually, I guess it's for both Bruce B and Point Lepreau, where you have had three and seven. Give reasons why these tests would be missed.

**MR. SAUNDERS:** Frank Saunders. Could you give me the paragraph number? We have a paging difference here.

**MEMBER VELSHI:** Sorry, it's Table 5 on page 43, Safety System Test Performance for 2015.

**MR. SAUNDERS:** Yes. Unfortunately, our page numbers are different. Do you have a paragraph reference?

**MEMBER VELSHI:** I have Table 5.

**MR. SAUNDERS:** Just Table 5?

**MEMBER VELSHI:** Yes.

**MR. SAUNDERS:** There you go.

--- Pause

**MR. LEBLANC:** In 2.1.6, third page.

**MR. MANLEY:** If I may just note, I think that many of us are using a version which was on the CNSC website -- this is Robin Manley for the record here -- whereas you, I think, are using the CMD numbered version.

**MEMBER VELSHI:** So would it help if we gave you the section number and then -- okay. Thank you.

**MR. SAUNDERS:** Yes. So Frank Saunders for the record.

Yes, there are, you know, thousands of safety system tests, so some of them do get missed generally for legitimate reasons. For example, you can't test it because another circuit is out of service for maintenance and so it can't be tested. So when we talk about a safety system test being missed, we are usually meaning it was done the next day rather than the day it was supposed to be done on.

So in general it's that. Occasionally, there is a scheduling error and when you do the test, you realize you actually were a day late doing it. So those all get reported as missed tests.

But regardless, those tests all fall into the calculation of the availability of the system. So there is no change, a system availability is calculated as it always would be. If the test failed, then the availability would suffer as a consequence.

So that's how it happens and you see it's a relatively small number that it occurs in, but it does occur from time to time.

**MEMBER VELSHI:** Thank you.

And Point Lepreau, is that the same reason for you or are there other reasons?

**MR. HARE:** No, it's essentially the same reason for us. Michael Hare for Point Lepreau.

We also -- what we did was we used our corrective action program, put together a focused team to make sure that we weren't missing any details. That was the issue. We haven't missed a test in the last 11 months.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** So just to get a feel, so the number seven, is that a worrisome number or does it fluctuate from year to year?

**MR. HARE:** Our goal is to have zero missed tests, so seven was a number we decided we needed to put a cross-functional team on to make sure we got to the root of why we actually missed. But when we say missed, we missed the predefined time limit. So the test was completed, it was just completed outside of the window. To Frank's point, it could have been the next day.

So we got the cross-functional team together, made sure we understood what the issues were to solve the issue so that we do not repeat the issue. But seven was a number we weren't happy with. One would be a number we are not happy with either.

**THE PRESIDENT:** Thank you.

Monsieur Tolgyesi...?

**MEMBRE TOLGYESI :** Merci.

On page 71 of the CMD, section 2.2.4, Public communication, subsection Public information and disclosure programs, there are three bullets, and bullet one -- I'll let you find that. Do you have it?

**MR. MCGEE:** Brian McGee for the record. Repurposing Pickering?

**MEMBER TOLGYESI:** Yes. Did you do that? What's the public reaction? Do you have any comments to add?

**MR. MCGEE:** Thank you, Commissioner. Brian McGee for the record.

So the Repurposing Pickering Program is an ongoing program. We have covered off a number of consultations with the community at a variety of levels, including the next generation in the high school system.

The intent of the program is to provide input to Ontario Power Generation's thinking about how the site could be utilized in the future after current type of power reactor operations are completed. So it's an ongoing program, it's not complete yet, but there will ultimately be a final report that will be used to inform our decision-making going forward.

**MEMBER TOLGYESI:** Do you have -- I will talk like the President now. Do you have any timeframe for that? Sorry.

**MR. MCGEE:** Brian McGee for the record.

We do have a timeframe we're working to. I don't have it right with me right now. I believe that the intent is that over the next two years we will complete the repurposing study. But again, depending on how the study goes and what information comes out of it, it may result in supplementary work.

**THE PRESIDENT:** Thank you.

Dr. McEwan...?

**MEMBER MCEWAN:** (Off microphone)

...explaining where we are because I only have pages. So for each of the reactors there remains a significant deficiency or deficient maintenance backlogs. So I'm currently looking at I think Bruce A, which is on page 85, section 3.1.1.6, but it will be for each of the sections. They all compare with the industry average and the corrective maintenance backlog.

As I look through these, they all seem very high, and the industry average particularly for the maintenance backlog deficiencies seems very high. So are they very high, what are the implications for plant safety and operating, and would there be any international WANO standards that would let us have some understanding of where these reactors are in the broad spectrum of operations?

**MR. CLEWETT:** Len Clewett for the record at Bruce Power. I will speak to our maintenance backlogs.

There are two backlogs that are typically tracked by WANO.

One, the corrective critical, which is of the highest importance as I mentioned, currently at Bruce A we are at 10 and at Bruce B we are at 13, and that falls within industry top quartile when you look at somewhere between less than five per unit and these are four-unit stations.

For the deficient critical, we have been working that down significantly over the past couple of years. You see the numbers on the table of 123 for Bruce A. Typically, the industry top quartile for deficiencies would be around 100 per unit. So we are trending there and we do expect to be there actually at the end of this calendar year at Bruce Power, both stations.

**THE PRESIDENT:** So I would like to hear from staff. I think it's running across all the power plants on this particular deficient maintenance backlog. Why is that not something that does not worry you, keep you awake at night?

**MR. FRAPPIER:** Gerry Frappier for the record.

I will ask Ram Kameswaran to answer that.

He's responsible for our maintenance evaluations.

**MR. LIU:** So it's Yong Chang Liu,  
Technical Specialist, System Engineering Division.

You know, the definition of "deficient maintenance" means the equipment itself has not failed but has some degradation and the safety function is still maintained. So usually for example even a drip or a leakage in a valve is treated as deficient, but the safety function is still there. So this number is normally much larger than the corrective maintenance backlog and this is the case for the whole industry, not only for CANDU.

And the number, as the industry points out, and particularly for example for Bruce, this number has significantly decreased in the past couple of years. And in the past those numbers have reached to hundreds, the whole deficient even reached to a thousand per unit.

Now, it's come to -- for the critical, it's already significantly reduced to around 100 and we don't think it's a significant safety issue. And we see the positive trending right now and this is the indicator included in the INPO and also the WANO standard indicator, and the equipment reliability index of the industry mentioned repeatedly has included this as a sub-indicator. So we see the positive trending and that's why we don't think it's a significant issue so far.

**MEMBER MCEWAN:** So certainly, I think for future reports it would be very helpful to have that trending and maybe to include the WANO expectations, just to give some baseline.

**THE PRESIDENT:** Not only that, the industry average, I think they are all above industry average. I don't know what the industry average is. Is that the industry average of CANDU or Canada? And if it's Canada, then I'm really not accepting your explanation.

**MR. LIU:** So Yong Chang Liu.

This is an industry average for CANDU and let me explain why. Because CANDU -- I know CANDU established their own corporate guidance on the equipment reliability index and when we included those performance indicators in the REGDOC-3.1.1 we recognized the CANDU design has some unit features which are different than most of the light water reactor. So we customized those INPO performance indicators according to the CANDU design.

So now -- another way is, as a regulator, we don't have those data from the INPO, which are usually not open to us and we only have those data through REGDOC-3.1.1 according to regulatory requirements. So for us it's difficult to get an industry average from the data we have received so far.

**THE PRESIDENT:** So let me ask you it

differently. At what number of this will you say stop, this is unacceptable? Is there such a number?

**MR. LIU:** If I say because I want to -- Yong Chang Liu for the record.

You know, those numbers, it's not like safety limits on the deterministic safety analysis. So this kind of gives you an indication, particularly we are looking at a trending.

So if I say at this stage if the number for the critical components is more than for example 3 to 400, it will be a concern for us, but if it's less than 200, I don't think it's a concern because there are thousands of critical components in the whole plant -- per unit. So if there's any degradation, we have the maintenance program in place to adjust this in a timely manner. So this is an ongoing process. We don't think it's a concern. So that's a number I can provide to you.

**THE PRESIDENT:** Industry, do you have a number where you will say this is unacceptable?

**MR. CLEWETT:** Len Clewett for the record.

We don't have a specific number, but I just add that there are multiple ways we look at component health and system health and one of those is through a system health process that we have, which is an industry standard process, it gets evaluated when WANO comes to our

site every two years. They look at backlogs, they look at aggregate deficiencies within a system. We do the same thing because, you know, our mission is to be safe and reliable. So we don't have a specific number. I say our main outlook is to reduce that number to less than 100 and that helps us be safer and more predictable.

**THE PRESIDENT:** So both Bruce A and Bruce B are significantly above the average, and I didn't do the math, something is really weird about the average itself, it means that everybody else is way, way below for you to be so high above. Anyhow, all I'm saying is if you look at the next table, Table 12, you are 180 against 117.

**MR. CLEWETT:** Correct. That is noted.  
Len Clewett for the record.

These are, you know, from the end of last year, 123 versus the 100 we want to be at per unit and 180 versus 100. Those numbers have been reversed through 2016. I don't have those numbers with me but Bruce A fully expects to be below 100 at year end and Bruce B is probably about six months behind that trending down to get to that desirable target of 100. And even when we get to that number, we will still be working to drive that lower.

**THE PRESIDENT:** Thank you.

Monsieur Harvey...?

**MEMBRE HARVEY :** Merci, Monsieur le

Président.

On Slide 57 of your presentation, this morning's presentation of the staff, Neutron Overpower Protection, we understand that there is a new methodology for OPG and Bruce to set those three points, that there is no change now to the current trip set points and the methodology will be used to establish future trip set points as reactors age.

So how will that be managed and what will be the trigger to use the methodology and how are you going to monitor?

**MR. FRAPPIER:** Gerry Frappier for the record and I will ask Vali Tavasoli to come up, but while he's on his way up.

So this, just to make sure we understand, the NOP methodology is an analysis that industry goes through that allows them to determine what is the appropriate set point or trip point in the reactor so that if a power surge started coming, that trip point would go over.

They do this on a continuous basis, if you like. I say continuous in the sense year-by-year they have to be sure that the trip set points are adequate and that's something that industry does as part of their ongoing operations.

From our perspective, what we are interested in is making sure there is a methodology that we can be confident in so that when industry has a certain set of trip set points we are confident that they are not too high, that they do provide the protection that is intended.

Industry needs to report to us if they are going to be changing those trip set points. So as long as the trip set points are considered adequate by ourselves and they are not being changed by industry, we don't need to have very much discussion on that.

The reason we've had so much discussion in the past few years is because they were changing the methodology quite substantially and so now with this new methodology we are going to continue for a little bit more monitoring how they implement that methodology because there it's a lot more complicated than the last ones.

Perhaps Mr. Tavasoli would like to add to that.

**MR. TAVASOLI:** For the record, this is Vali Tavasoli, Director of Reactor, Physics and Fuel Division.

I think Mr. Frappier said -- his answer was all that was needed. I don't have anything to add at this point unless you have a technical question.

**MEMBER HARVEY:** I would like to go to OPG

or Bruce just to ask, do you have any expectation when you think you will have to modify those set points?

**MR. MCGEE:** Brian McGee for the record. I will ask Carlos Lorencez to answer that question on our behalf.

**MR. LORENCEZ:** For the record, Carlos Lorencez, Director Nuclear Safety for OPG.

We have margin, we have had margin. The new methodology will allow us to increase that margin. We have demonstrated with the new methodology that we have approximately 5 to 10 percent of margin, margin that we don't intend to use until the moment that it's needed.

On another approach, we have also introduced the new fuel, the 37M fuel bundle that also gave us about 6 percent margin. So we have plenty of margin.

I don't expect to use the NOP methodology for the next few years. So it will be three or four years from now.

**THE PRESIDENT:** Thank you.

Ms Velshi...?

**MEMBER VELSHI:** I have some questions around radiation protection.

The first one again may be an editing thing. Section 3.1.1.7 on worker dose control. For us, it's page 88 and so it's towards the end of the first

paragraph, the second last sentence -- I think it's the second last sentence where it says:

"No worker at Bruce A and B received a radiation dose resulting from an unplanned exposure or tritium uptake in 2015."

I think you meant nothing exceeding the action level or regulatory limit, because I think further down you do talk about two unplanned exposures.

**MS PURVIS:** Caroline Purvis, the Director of the Radiation Protection Division.

That's exactly correct, it is a typographical error.

**MEMBER VELSHI:** And there is a similar one in section 3.3.1.7 for Pickering and I don't know if that same thing exists for Lepreau. But yes, you might want to correct that.

So then if you go to 3.3.1.7 for Pickering, again under Worker dose control, the second paragraph, the last sentence where it talks about the one worker who received an unplanned external whole body exposure greater than 0.10 mSv.

**UNIDENTIFIED SPEAKER:** Again, what page are you on?

**MEMBER VELSHI:** Page 118. Page 118,

section 3.3.1.7 Worker dose control, second paragraph, last sentence. So when there is a sentence like that, it's sort of up in the air, so it's more than 0.10 but you don't tell us what it is, and perhaps even a bit more detail around the particular incident that may have resulted in there, but certainly what the dose should be I think would be very helpful, what the dose was.

**MS PURVIS:** Caroline Purvis for the record. Thank you very much.

Just to clarify, this is reported under the new SPI process, so the performance indicator process, and in this case the individual received a total dose of 0.36 mSv, which was greater than the SPI and therefore reported, but certainly a very low dose overall.

**MEMBER VELSHI:** Thank you.

The third one was from Appendix E around internal dose -- sorry -- Appendix E, yes. You don't really need to get to there. I just wanted to say there is a great variability from station to station on what the contribution is from internal dose to the total collective dose. So Bruce A and Bruce B are particularly low at 5 and 6 percent, and Darlington, Pickering and Lepreau are closer to 15 to 20 percent.

So I will ask the staff first and then maybe the licensees can comment on that.

Is there a reason why Bruce Power's contribution is so much lower from internal dose and are there lessons for others or is it that the nature of the work or the levels of tritium or whatever are just so different?

**MS PURVIS:** Thank you for the question. Certainly, we did try to describe, at least at a high level, the types of activities that are undertaken, and of course the potential for internal dose increases as a function of the outage work and opening systems.

When you look at Bruce Power of course, they've done a lot of outage work, and percentage-wise it's relatively low. They have a number of ALARA initiatives, where they're driving doses down, in that regard. If we look at Point Lepreau, for example, their outage work was quite low in 2015, and so overall the percentage-wise is larger. But perhaps the licensee can describe in further detail what measures they're taking to drive doses down and where they can learn from others through OPEX and sharing.

**MEMBER VELSHI:** So before I turn to the licensees, generally does outage work result in higher internal dose contribution, or does that also vary depending on what kind of work is being done during an outage?

**MR. GRANT:** For the record, Fraser Grant,

Director of Operations and Maintenance, from Pickering Nuclear.

So in terms of Pickering, so when we compare ourselves to the industry, we do see a difference. We see a difference in terms of outage dates that we have. Just based on our outage program, we tend to spend more time in outage. Outage does lend itself to broader internal dose uptakes just because of the nature of the work.

The design of Pickering is different than that of Bruce A or Bruce B in terms of just there is more equipment contained with inside the containment area, so it does involve more entries -- pardon me -- more entries and more work inside containment.

Leaving that to one side, though, it is still our intent to drive doses, internal and external, as low as is reasonably achievable. We do have a program behind that. We aggressively go after our different teams to make sure they understand every -- you know, the focus is every milligram counts, so every worker on site understands every day how much dose they expect to give -- or get, what plans we expect them to take, what actions we expect them to take, to make sure that it's minimized at all times.

Also, in regard to dose, we do have a

program in place looking at, for us specifically, dryer maintenance to make sure that we optimize the availability of dryers, and the use and the efficiency of dryers, to drive tritiums as low as is reasonably achievable as well.

**MEMBER VELSHI:** Thank you.

Darlington, anything else you want to add that makes your station unique?

**MR. GREGORIS:** Steve Gregoris, Director, Operations and Maintenance, at Darlington, for the record.

I would offer as -- the specific question was: does internal dose change, and is it job-specific?, and that is exactly true.

What I would offer specific to Darlington, work specifically on the fuel handling equipment, power track maintenance, and the different fuel-handling maintenance we're doing in preparation for refurbishment, accumulates a lot of internal dose, and that's seen in the numbers here, as well as some of the bigger projects that are supporting refurbishment, such as the shield tank overpressure protection work, again another internal dose contributor, large project work and large internal dose that we plan for, and that you're seeing.

**MEMBER VELSHI:** Thank you.

And Lepreau? And I'll leave Bruce for last, because you can maybe share some best practices here.

**MR. HARE:** Michael Hare, for the record.

Any committed dose is very important to us, so we pay particular attention to it. Within our Navigating for Excellence both for -- for the year 2017, our safety excellence is internal collective radiation exposure, with a target of 12 percent. We continue to drop that target over years.

What we're trying to do is understand from our work activities the behaviours that will be required to continue to drive down our internal collective dose. We have seen a decrease over the last two years. Our target will continue to decrease as part of our Safety Excellence Plan. That's what we talk about every day at the station. That's what we monitor.

And to your original question about: does internal tritium uptake get larger during an outage?, it does depend on the work. But most of the opening of systems, whether it's the heat transport system or the moderator system, occurs during an outage, and therefore we see the extra dose being taken during the outage. But we have a special focus on making sure that we keep those doses as low as reasonably achievable.

**MEMBER VELSHI:** Thank you.

And Bruce, a couple of things. One is if you can tell us if you're doing anything different from

what the other stations may be doing around keeping your internal doses low; and also what you talked about at the outset, about this radiation tool that has resulted in I think it was 300 gram or so reduction, maybe a bit more detail on that.

**MR. CLEWETT:** Okay. Len Clewett, for the record.

My first point was going to be we've made some large capital investments in reactor inspection tooling. One's called the wet scrap, and that eliminates the need for ice plugs and saves a lot of operator dose.

So I think there are three or four things that we've done. One is the investment in the tooling to eliminate dose, which is external and internal dose. The second is high-impact teams with our evolved dryers, which help lower the tritium; and then also our fuel handling index at both stations has improved tremendously, and that's another high potential area for internal dose. And then the last thing I'll mention is that at Bruce B we've gotten a big reduction off of vault leakage from the heat transport system with replacing closure plugs with soft seat plugs.

So those four things over the years -- because our numbers were very similar three to four years ago to the other NPPs, and I think those four things are

what's driven us to a lower ratio of internal dose.

**MEMBER VELSHI:** Thank you.

And the radiation safety tooling, are those four initiatives part of that, or is that something different?

**MR. CLEWETT:** That would be part of that. In fact, I know Darlington has just purchased one of those tools too. So that can be shared amongst other utilities, depending on their inspection programs.

**MEMBER VELSHI:** Thank you very much.

**THE PRESIDENT:** Monsieur Tolgyesi.

**MEMBER TOLGYESI:** Merci.

This is CMD 16-M30.A, page 4, the last paragraph of 2.1, and this is regarding RASCAL-based predictive software. You are saying there that, "The RASCAL-based predictive software which is used widely in the industry and by many US plants is also being considered for use in the CNSC Emergency Operations Centre."

When you say it's "widely used in the industry," I suppose it's not Canadian necessarily?

**MR. FRAPPIER:** Gerry Frappier, for the record.

That's correct. RASCAL is a software tool that's used in the United States, and is used, I believe, elsewhere as well, but I don't have all the countries lined

up. But it's considered one of the main tools for emergency dose calculations.

**MEMBER TOLGYESI:** Because you are saying that Kinetrics was contracted by OPG to improve their modelling software.

How it compares to your needs? Will it answer your needs as an industry this RASCAL-based predictive software, or you see that you have to continue your contract research to develop something new which will be more specific to Canadian power plants?

**MR. MCGEE:** Thank you, Commission. Brian McGee, for the record.

I'll ask Robin Manley to answer that question.

**MR. MANLEY:** Hello. Robin Manley, for the record.

The RASCAL code is something that Ontario Power Generation and Bruce Power have been working on collectively to bring new development into Canadian use here, replacing our existing Emergency Response Plan code.

Carlos Lorencez can provide additional details if you like, but, in essence, the idea is to update our existing emergency response dose protection software to take account of, among other things, multi-unit capability. It's taking account of the best industry practices south of

the border because it's a code that's used extensively by the USNRC.

**MEMBER TOLGYESI:** So Kinetrics are working to upgrade the RASCAL or is something totally different?

**MR. MANLEY:** Perhaps Carlos Lorencez can provide more details on that.

**MR. LORENCEZ:** Carlos Lorencez, Director, Nuclear Safety, for the record.

RASCAL will be the main engine, but we are going to supply with a number of information scenarios, from severe accidents and multi-units --multi-unit accidents, in such a way that RASCAL will produce, with some graphic user interface, the possible results with projections for venting in the case of a severe accident.

So, yes, Kinetrics is the vendor of choice. Bruce Power and OPG are working together with Kinetrics. The new copyright code will be ready by the summer of 2017.

**THE PRESIDENT:** Thank you.

Dr. McEwan.

**MEMBER MCEWAN:** So a couple of questions.

In Appendix D, the last paragraph of D-2, so it's the bottom paragraph on 190, you talk about CNSC funding a study called "Characterization of Alpha Radiation Hazards." Were to establish toxicity of tritium was

starting in 2011. That's five years ago. Are there any data? Are there any publications out of this research? Are there any updates that we should be aware of?

**MR. FRAPPIER:** Gerry Frappier, for the record.

I don't think I'm quite tracking where you're at. You said you're in table D-2?

**MEMBER MCEWAN:** Appendix D-2, page 190.

**MR. FRAPPIER:** Ah, okay. That's why. I've got the wrong page.

And what paragraph are you referring to?

**MEMBER MCEWAN:** The first paragraph under "Radiation Protection," so it's the bottom paragraph of page 190.

**MR. FRAPPIER:** I'd ask -- if Alan is around there, I think this is probably mostly your area.

**MR. DU SAUTOY:** I can say a project has been commissioned by CNSC, in collaboration with IRSN in France, to look at this. The main part of the study was completed last year, and the reports are available. I think they're available on the web, but there are some follow-up studies that go on for the next four years, I think. Quite a few of them are engaged with lifetime studies of rats who are exposed to tritium and we have to wait for all the rats to die before the study is complete.

So that's why it takes quite a long time.

The reports are available. I haven't actually checked today whether they're on the web, but they should be on the web. Certainly they're available if you want them.

**THE PRESIDENT:** Is that the study Dr. Thompson was doing with the French IRSN?

**MR. DU SAUTOY:** That's correct, yes.

**THE PRESIDENT:** You know this whole section about CNSC research and development activity, please let me allow my rant again. There's all kind of studies that are being mentioned here, and I'm not sure which one was actually posted and/or published. Those are the things that I would expect a lot of those studies to be of interest, and should end up somewhere in the public.

**MR. FRAPPIER:** Gerry Frappier, for the record.

So I'll just add a couple of things. One is, you know, we're not trying to repeat our annual research report that comes out, which has a lot more details as to what are all the different research that is going on. But all of the research results end up somehow or other posted on the web, so that's the gist of it.

**THE PRESIDENT:** You should indicate in the text which one is published, where it is posted, put where

is the reference --

**MR. FRAPPIER:** Okay.

**THE PRESIDENT:** -- always, particularly on studies that you do.

**MR. FRAPPIER:** Yeah, we can certainly make it clear in here which ones are there, and how they're there.

**MEMBER MCEWAN:** And particularly, I would like, if you could send the Secretariat, the tritium -- what is published, I'd be interested in reading that.

**MR. DU SAUTOY:** Yeah, we can certainly do that.

**MEMBER MCEWAN:** Thank you.

So a second question is a slightly more philosophical question on something that's missing.

If I look at the NRC reports, and if I look at the WANO criteria, there are sections on chemistry and chemistry failure that seem to me to be quite important for the operation of nuclear power plants. We don't include that. Why not?

**MR. CAWTHORN:** Richard Cawthorn, for the record.

We do collect two chemistry performance indicators. They are customized with COG and our specialists for the CANDU reactors. We don't have -- we're

not aware of another international benchmark we can compare that with.

**THE PRESIDENT:** I think you've got some help in the back there.

**MR. KAMESWARAN:** This is Ram Kameswaran, from Systems Engineering Division. I'm a chemistry specialist.

I can go what Richard Cawthorn said. We do track and trend the chemistry performance indicators. One is the chemistry indicator and the other one is the chemistry compliance indicator. One is for assessing the asset management aspects, like corrosion of steam generators and, like, releases and all that, and the other one is -- the compliance index is towards the safety-related parameters, like gadolinium or also the moderator cover gas, deuterium, which are more involved with the safety of the plant.

So we do trend, and also we inspect the facilities for their chemistry compliance. We do have inspection guides. Also, we do the event reviews related to chemistry. All of them are reported under the 3.1.1 REGDOC. So we do have -- all the licensees have a very effective chemistry control program, very elaborate, very robust programs, and we are definitely doing our regulatory oversight activities related to chemistry.

**MR. FRAPPIER:** Gerry Frappier, if I could add to that.

And it is reported. It's one of the specific areas under safety control area fitness for service. So for each plant we would have a very small section on chemistry control, which would be our view as it's reported into the annual report. But as Ram was saying, it's backed up by a lot more intense work that's been done over the years -- or over the year.

**THE PRESIDENT:** But why is the USNRC, according to Dr. McEwan, thinks it's important to post failures -- or chemistry failures, indicators?

Maybe you can...

**MEMBER MCEWAN:** I'm pretty sure that the bar graph was chemistry. I'd be happy to send them to you.

**MR. KAMESWARAN:** I can add a few things. Like a few years back we had the black deposit -- so-called black deposits issue at the Pickering, the fuel bundle deposits. The chemistry is one of the contributing factors, and we were involved with the resolution of that issue. So a lot of chemistry optimization was done, undertaken by OPG Pickering, and we were involved in the discussions and I have published papers in the NPC Conference, and those papers are available.

So we do take it very seriously. I mean we don't publish it as a report on our website, but there have been several papers in the international chemistry conferences on the chemistry issues. Also the sulphate issue at the NB power was also reported in those conferences and we do have papers.

**THE PRESIDENT:** And so could you take a look at what the U.S. does with chemistry and see if it's something that we may want to consider to post?

**MR. FRAPPIER:** Gerry Frappier, for the record.

We'll certainly do that, and perhaps even industry knows. I'm not -- a chemistry failure, I think is not --

**MEMBER MCEWAN:** I think that's what it said.

**MR. FRAPPIER:** Okay.

**MEMBER MCEWAN:** I intelligently printed it --

**MR. FRAPPIER:** Yeah.

**MEMBER MCEWAN:** -- and left it on my desk at work.

**MR. FRAPPIER:** Okay. It may be one of these terminology things, and we use it, chemistry control specifications, and they use chemistry failure. I don't

know.

**THE PRESIDENT:** Okay. Thank you.  
Monsieur Harvey.

**MEMBER HARVEY:** Merci, monsieur le  
président.

When answering my question, Bruce mentioned that they knew fuel was adding to that security margin. I would like to ask OPG if there is any project or could it be possible to use the same fuel in Darlington or Pickering and have some benefits of that?

**MR. LORENCEZ:** Carlos Lorencez, OPG.

The issue with the new fuel was only directed to the 37M -- to the 37 fuel bundle, because in that case the central pin we made a small modification. We made them just slightly thinner to increase the flow area around it. So that gave us about a 6 percent margin for our trip set points. The intention is not to do it for Pickering. For Pickering we don't have the same type of problems, it's only -- Bruce Power uses 37M, and OPG uses 37M as well.

**THE PRESIDENT:** Back to Ms Velshi.

**MEMBER VELSHI:** Thank you.

So while we see improvement in almost all areas, the one area of great concern is that of security. I don't know that this is complacency, but it certainly is

disturbing that we've actually seen for some facilities going from "Fully Satisfactory" to "Satisfactory." So as I read the report, with the exception of Bruce A and Bruce B, I think all other facilities have shown what appear to be fairly significant deficiencies in this particular SCA.

So on page 61, section 2.2.12, staff, you have highlighted concerns in all areas: preventive maintenance, security practices, training, drills and exercises, and so on. And I don't know whether we can have a discussion here or whether we need to have an in camera discussion, but I'd certainly like to hear not necessarily also what the deficiencies are, but why are we running into these problems? Is this complacency? What's being done and what are the regulatory expectations about getting out of where we are today?

**MR. FRAPPIER:** Gerry Frappier, for the -- excuse me, Gerry Frappier, for the record.

I'll ask Mike Beaudette to give some additional things, but just to be clear these are not deficiencies in the sense of not meeting criteria, right? So "Satisfactory" is a very, very good rating. It means they're fully meeting all the expectations of the CNSC, they're fully compliant with their licence and regulatory requirements. "Fully Satisfactory" means they've gone beyond that, so...

**MEMBER VELSHI:** I hear you, but I look at language as unable to demonstrate, non-compliances, facing challenges. To me those sound like --

**MR. FRAPPIER:** Work to be done.

**MEMBER VELSHI:** -- less than satisfactory, frankly.

**MR. FRAPPIER:** So Mr. Beaudette will give you some more details on that.

**MR. BEAUDETTE:** Michael Beaudette, for the record, Director of Nuclear Security.

I'm going to ask Yves Poirier, my senior security advisor for high-security sites to join in there in a second, but first I do want to reiterate what Mr. Frappier has pointed out. To achieve "Fully Satisfactory" is actually quite difficult. You have to go above and beyond the requirements for security.

I do want to point out that over the last couple of years you'll see that some achieved the "Fully Satisfactory" the year before and it came back down again. This doesn't show that they are unsatisfactory. It's that, you know, in some cases they've shown considerable initiative to bring in new equipment, and we are credited for that the prior year, and maybe that equipment did not measure up to the full expectation and it has taken a while to get that equipment back online and functioning the way

it was originally advertised. That's just one example.

I don't want to go into too many details, but we could do that in camera if you wanted specifics. But just to say that it's an aggregate score. It's not just based on one or two items, it's the aggregate score, and it is actually very, very difficult to achieve. So for those that do achieve it, you know, kudos to them. But, you know, the "Fully Satisfactory" -- sorry, the "Satisfactory" is -- you know, as Mr. Frappier has pointed out, is, you know, what we're aiming for, for the most part.

Yves?

**MR. POIRIER:** Nothing specific to add; only that, like Mr. Beaudette had said -- and it's Yves Poirier, for the record -- it's a cumulative thing, very minor things, and when you add up a score, it starts to have an impact on the overall rating for the industry.

All this being said, the satisfactory rating continues to move forward.

In the security program at the facilities, they've been going up dramatically since I've been at CNSC since 2008. You continue and continue to evolve and become better at what you're doing, and they've -- and I have to say all of the industry as a whole has reached that level as they keep raising the bar and keep meeting the bar. So

we're satisfied with that.

At some point, you have to take a breather and maintain your program and keep it at that level, so as far as going above and beyond, there are certain facilities and certain areas where they do -- they do go above and beyond in certain specific areas. And as the rating works out, you need two or three specific areas to bring you above that fully satisfactory area.

So there are specific areas in all of the programs at all of the facilities where they're doing very, very well and above the average but, unfortunately, when you accumulate some of these things, they don't give you the score you're looking for.

**THE PRESIDENT:** So I'm trying to get a feel, so what is the trend? You know, if you look at Darlington, Pickering, all the satisfactory, are the trend over time down, up, neutral? Because you don't kind of have a time feel here.

**MR. BEAUDETTE:** Michael Beaudette, for the record.

I would be confident saying that the trend is actually up, even though if you look at it, it says satisfactory, satisfactory.

As Yves pointed out, we've learned a lot over the last 10, 12 years. The Nuclear Security Division

hasn't really existed much longer than that.

Obviously, it was the wake of 9/11 that really drove home the significance of security.

So industry and the CNSC have come a very long way. We've learned a lot from those 10, 12 years, or 14 years. The IPASS mission that was conducted last year, I think, is a good indicator of that, that we had a very, very favourable report.

But we've been through four consecutive -- sorry, four complete cycles of the performance testing program, and the maturity of the security systems, the security programs of all the sites have actually come a long, long way.

Something that is unique to Canada, if I can add, is that, in our programs, every licensee is invited out to watch the force on force exercises that are conducted at these sites, so, as a result, the bar gets raised because everybody learns from everybody else's good and bad experiences, whatever they may be. And as a result, there is a cumulative effect of those exercises.

It isn't just one licensee benefits from their own exercises. They will see three or four in a year and, as a result, they're constantly improving.

We make the -- we raise the bar as we go along. We make more complex scenarios, we make it harder

as we learn as well.

So even though they're staying satisfactory, the reality of it is, we've learned and, you know, the bar's been raised and they continue to meet it.

**MEMBER VELSHI:** So OPG, are you -- like are you really disappointed that you moved from fully satisfactory to satisfactory?

I mean, what I hear from the regulator is it's really hard to remain fully satisfactory, and satisfactory is very good.

**MR. MCGEE:** Brian McGee, for the record.

I have with me today Scott Burns, our Vice-President, Security and Emergency Services, and I'll let him answer that.

But you know, Commissioner Velshi, you know, we want to be fully satisfactory in every measure, so naturally, anything that's not fully -- I'm disappointed that we're not fully satisfactory in the other ones as well, to answer your question directly.

You know, the second thing I would say to you is the focus that OPG places on safety includes security. It's a safety function, from our point of view, and so we do place high value on that. It's our overarching focus as an organization.

And with that, I'll turn it over to Scott

Burns.

**MR. BURNS:** Hi. Scott Burns, for the record, Vice-President, Security and Emergency Services, at Ontario Power Generation.

Mr. President and Members of the Commission, as Mr. McGee mentioned, safety is our overriding priority in everything we do. In spite of the rating, we have a world class security program that we're particularly proud about. We have highly-trained personnel, quality equipment, and we have robust protocols and procedures in place that drive our performance.

As mentioned in many of the other discussions, we strive for continuous self-improvement through critical assessments. We maintain a strong relationship with CNSC staff in order to ensure we're performing at a high level.

We recognize there's always room for improvement. We're not necessarily seeing this as a deficiency, but we're seeing this as feedback to our program. And it's really consistent with our own observations and our own critical assessment about our program. We do have some areas for improvement around training drills and exercises, and that is part of our plan and focus going forward.

And obviously, we'd like to strive to get

to fully satisfactory again, but there's some work to do that we recognize and -- but at the end of the day, we feel very confident in our team and our ability to keep our plant safe and keep our community safe.

**MR. FRAPPIER:** Gerry Frappier, for the record.

I'd just like to add a little bit there.

The paragraphs are correct, though, so, like you say, when you read deficiencies in maintenance program, unable to demonstrate which led, as you know, to earlier this year -- so not in this report, but in the next report -- an administrative monetary penalty being put against OPG in the security area.

So while they're satisfactory, it's not easy to stay fully satisfactory and we're going to continue monitoring. And so this is the sort of items that get picked up. They get rated, as we were talking about earlier, as to the level of significance and the number of them. And in some cases, it means that a rating will go down.

But at the same time, it does not mean that there's a catastrophic failure on the security program or anything.

**THE PRESIDENT:** Thank you.

M. Tolgyesi.

**MEMBER TOLGYESI:** Merci, monsieur le président.

I will ask -- I have a question about self-assessments. Self-assessments are widely used on various subjects like, say, safety culture or other ones. I understand that they are responding to the management of various needs and performances and ways to improve or fields to improve. Probably they could also sometimes increase public perception.

I understand that the staff is analyzing all these self-assessments.

So my question is that, based on subjects what you want to analyze, is there a uniform grade or criteria -- criterias for all nuclear power plants to complete the self-assessment so in some aspects they could be compared -- they could compare performances from individual power plants?

**MR. FRAPPIER:** Gerry Frappier, for the record.

I might ask either Andre Bouchard or Pierre Lahaie to come and help here.

Do you mean like self-assessment in safety culture or just self-assessments in general?

**MEMBER TOLGYESI:** Self-assessment in safety culture, for instance.

You know, what -- sometimes the self-assessments could help also in the public perception because you do -- you perform -- you expose your performance. So my question is, could it be used also to compare performance of this plant to other one on a specific field?

--- Pause

**THE PRESIDENT:** Go ahead. Can you --

**MR. FRAPPIER:** Gerry Frappier, for the record, and then I'll pass it to Pierre, just to be clear.

So certainly we agree that self-assessments and auditing functions and all the rest are both important from a management system perspective and ensuring that you are as good as you can be, or at least knowing where you're at, in any case, and so we encourage that and we have that as requirements.

But if you want to know about specific ones, then we'd have to look at the specific areas. As for how we compare them or the potential for them to be compared -- used as a comparative analysis between different facilities, I'll leave M. Lahaie, perhaps, to talk about where the management system sees that.

**MR. LAHAIE:** Pierre Lahaie, for the record.

In terms of self-assessment processes,

there are clear criteria in the regulatory requirements for management systems, which is the CSA 286 standard. And above and beyond that, there are also some guidelines in the commentary document to the CSA standard.

Licensees have self-assessment processes that they exercise on a regular basis to provide information to management on how they're performing in various areas, and this is done routinely and it's part of the management review process that licensees have.

They look at the outcomes of their various self-assessments in all of the program areas, they look at results of internal audits, they look at results of identification and resolution of problems which all gets rolled up into, ultimately, a management -- top management review of the licensee performance.

I can't speak to comparisons of the processes from one licensee to the other. However, I can say that in terms of the results that come out of the self-assessments, licensees tend to get similar information they can make good use of, so they do identify problems, they resolve them.

It's an extremely important tool in terms of performance improvement because it gives the licensee -- the licensee uses this tool to self-identify issues they need to correct, which is what we expect licensees to do.

And I think M. Bouchard would like to add something regarding safety culture self-assessments.

**MR. BOUCHARD:** On the basis of self-assessment for safety culture, Andre Bouchard, for the record.

The CNSC is about to publish for public consultation a Regulatory Document on safety culture self-assessment. The practice has been for licensee to do these assessments on a three to five-year period.

From a CNSC analysis standpoint, those self-assessments are built on five strong characteristics that must be present in a healthy safety culture organization. These characteristics whether they're the IAEA or the CNSC, are imposed, are the expression or the common framework on which we could determine whether an organization has a healthy safety culture.

Staff, CNSC, when they review these analysis, look at that but, more importantly, from a licensee standpoint, as it was discussed earlier a bit, these could be communication tools to engage either the community or even workers in getting a discussion going on the fact that they've been heard through these assessments and then the actions are actually taken to address these concerns that were raised through these self-assessments.

So this is basically the approach that the

Regulatory Document that is coming for public consultation in September would actually be formalizing.

**THE PRESIDENT:** Thank you.

M. Harvey?

**MEMBER HARVEY:** Merci.

In the -- in your presentation this morning, when you touched the point that the whole site PSA, I had the impression that the -- Canada was alone in developing it, despite the fact that you worked with specialists from other countries. I think -- my impression was that the other country, there was no rush to go to such a tool.

So maybe I'm wrong, but if it's so, what are the reason for that and could you elaborate, maybe change my mind?

**MR. FRAPPIER:** Gerry Frappier, for the record. And I'll ask Yolande Akl to help a little bit.

But I think you're not too, too far off. I would say it a little bit differently.

There's lots of countries that are quite interested in supporting and development of whole site PSA, both methodologies and safety goals. We've had excellent participation from other regulators in the working group. But I would say they're all very happy to let us go first, is how I would describe it.

So now, some of it is for reasons that a lot of other countries don't have big multi-unit stations, so it's not that big a deal, or maybe they have two units instead of one. But certainly Korea, China, India all very, very interested in -- the United States, in where this is going. We have not had difficulty having participation, and maybe Yolande would like to add a little bit to that.

**MS AKL:** Yolande Akl, for the record, Director of the Probabilistic Safety Assessment and Reliability Division.

Yes, I concur with what Mr. Frappier said. What I want to add is that Canada is leading this project of multi-unit PSA, and we were able to gather a lot of interest through the working group on risk with Nuclear Energy Agency, so we have many countries working together. And we are leading the task.

And we are also working with IAEA also leading a document that will be written soon with IAEA, and we will get eminent professional --PSA professionals and -- from other countries to work with us, and the document will be mainly on setting some guidance on multi-unit PSA safety goals for whole site PSA and also on the different interactions between multi-units and aggregation of results and so on.

So the document with the IAEA will start soon, in October, the writing, and we are hoping to complete the document by next September to help us with the review of the Pickering multi-unit site PSA.

**MEMBER HARVEY:** Mr. Frappier, you mentioned this morning that only a few countries were using PSA, so what that means? A few is what?

**MR. FRAPPIER:** Gerry Frappier, for the record.

Just to be a little bit more precise, so I was saying very few other countries require a PSA for all their nuclear power plants. So there's lots of countries that use PSA, for instance, like the United States, as an option that industry could use if they want to for whatever argument they may be making.

As to how many countries are like ourselves and require a PSA at -- a Level 1, Level 2 PSA at each nuclear power plant, I don't have the details with me, but Yolande might have it off the top of her head if she's still there.

**MS AKL:** Yolande Akl, for the record.

So most of the countries -- USNRC, for example, they require a PSA if the licensee is going to use it for an argument to make a change in the design or some specific change using the PSA.

So in this case, they ask for a full scope PSA following very rigorous requirements.

Other countries like France, they use it as an indicator, so it is not a requirement, but is an indicator of the risk of -- in -- just to measure risk as a reference.

**THE PRESIDENT:** Just to add, we issued just a new Regulatory Document very recently and, in fact, in September there's a transition time for everybody to go from the old requirement to the new requirement. And I understand that you will bring us up to speed some time in September on the transition.

And in the Regulatory Document, remind me if I'm right here, we're now making a requirement to come up with a whole site safety -- probability safety analysis.

The idea that the industry did not make it a requirement post-Fukushima where you saw that you can have multi-unit accident at the same time and not being able to address it, I don't think it's acceptable.

So are we going to hear more about this on an ongoing basis? Am I right?

**MR. FRAPPIER:** I imagine you're going to hear a lot about it over the ongoing basis, but very specifically, we're looking to be coming and briefing you a little bit further on in the fall and then certainly at

the -- as we get ready for Pickering relicensing and we have the results of the Pickering pilot study and that in August of next year.

**THE PRESIDENT:** Thank you.

Ms Velshi.

**MEMBER VELSHI:** First a quick question for Bruce Power.

Section 3.1.1.2 under work organization and job design, and page 82 for us, under fitness for duty, the staff report says that there were several occasions where minimum shift complement was not met.

So tell me what "several" is, and what's the reason behind -- I know we -- this seems something we discuss each year, and is it just bad weather or are there other reasons that result in this?

**MR. CLEWETT:** Len Clewett, for the record.

The two prominent reasons are either weather or a sick call when we try to reach out for replacement and we can't achieve one, so we are working towards -- each crew does now have seven authorized nuclear operators versus the minimum requirement of six, and we are driving our training programs and requirement to actually get that up to eight, which will provide some additional margin.

**MEMBER VELSHI:** So in 2015, how many times

did you exceed -- or did you not meet the minimum shift requirements?

**MR. CLEWETT:** I just might have that information here. Let me look it up.

--- Pause

**MEMBER VELSHI:** You can give that number when you get that.

So my question for staff is on Section 2.1.4, page 35-36, on concerns raised by an intervenor in Commission hearings. And actually, maybe I'll start with the licensees first and then staff.

The Phase 2 report is expected some time in the summer of 2016, so I just wondered, has that been issued?

**MR. MCGEE:** Brian McGee, for the record. I'll ask Robin Manley to answer that question.

**MR. MANLEY:** Hello. Robin Manley, for the record.

So I understand you're asking about the industry response to an intervention raised by Dr. Sunil Nijhawan.

**MEMBER VELSHI:** That's the one.

**MR. MANLEY:** Industry works through COG to prepare a draft report addressing the main batch of Dr.

Nijhawan's concerns. A draft of that report was provided to Dr. Nijhawan for -- to give him an opportunity to comment on it.

He chose not to. He'd prefer -- he advised us he'd prefer to wait for the entire final report.

We also provided our draft report to CNSC staff. CNSC staff, I understand, have been reviewing it. We have not yet heard back from them.

We have undertaken to have a third party review of this report done. We've received comments from our third party reviewer.

I believe CNSC staff are also having a separate independent third party reviewer. I'll let them comment on that.

And so we have taken account of the third party reviewer for industry and updated our report. We've also addressed the remaining batch of Dr. Nijhawan's comments. And the report basically is in a -- essentially nearly final form.

We want to update it one more time after we see CNSC staff's comment to see if there's any concerns from CNSC that we would like to address, and then we'll finalize it and issue it and provide it to Dr. Nijhawan, and perhaps he will choose to comment at that time.

**MEMBER VELSHI:** Thank you.

So staff, if you can talk about your review and this other work you're doing and how that complements what the industry is doing.

**MR. FRAPPIER:** Gerry Frappier, for the record.

So as you will recall, the past couple of hearings we've had intervenors coming with some very technical arguments, and also with some perhaps very dramatic conclusions, if you follow their technical arguments. So that's, of course, something we want to ensure that we understand and put appropriate weight to it, depending on how valid it is or not valid it is and then be able to be clear to the Commission and to the public as to -- because many intervenors come back over and over again, so at some point, we have to decide how to manage that.

In this particular case as OPG just mentioned, and actually Bruce originally made the comment at their hearing that they would sit down with the intervenor, really get a good understanding and do some technical analysis that we believe had already been done and industry would say it has already been done but let's take a look at it again.

All that came into a COG project that has come up looking at the items that the intervenor brought

forward. We have a copy of the first phase of that report and we have done a technical review of that from our perspective. Again, we have decided as industry has just for greater certainty on everybody's behalf to get a third-party independent specialist, a university professor to come and take a look at how we did our interview and -- our interview -- our review and whether that is satisfactory from a technical perspective or not.

We are also in the process of getting some external review from some regulatory experts from outside the country as to how the international regulating community views when you have a very technical intervention what is it that a regulator should do, have we done what we should -- what we would normally think we should do as staff giving it appropriate weight, giving it appropriate analysis assessments or whatever.

So those we expect to have done later on in the fall and we'll look forward to an opportunity to come back to the Commission with a whole package of where we are. We took an action to do that at the -- previously.

So right now we have reviewed the -- both what the intervenor has put forward, what industry has done as review. We do not believe there is anything that requires any kind of immediate attention by the regulator. Some of them do indicate there are some areas where more

investigation is required. For the most part, industry was already undertaking that and we are going to continue following with that.

And then some of them are just not -- we do not believe worth pursuing at all.

**THE PRESIDENT:** Dr. Tolgyesi...? Dr. McEwan...?

**MEMBER MCEWAN:** Thank you, Mr. President. So at page 116, section 3.3.1.5 "Physical design", the last paragraph "Cables", there is a comment here, "Electrical power inspection identifying an area for improvements..."

Can we have a little more detail on that? What type of risk was it? What was the problem with the insulation and inspection?

**MR. FRAPPIER:** Okay. I will ask Ram Kamesaran to provide some details as to our view on this and perhaps then OPG would want to add to that.

**MR. KAMESWARAN:** Yeah, Ram Kameswaran. I have Désiré Ndomba who is an electrical specialist and he will provide some more details here.

**MR. NDOMBA:** Yeah. My name is Désiré Ndomba, Office Systems Engineering Division.

The issue is here we performed an inspection last time we were at the site and we found out

that during the inspection, the last time she was not able to perform an adequate inspection.

So based on the design requirements and the design menu and design requirement document, they couldn't demonstrate that. That's why we raised the issue and we asked them to perform that. That's the issue because according to the requirement they need to perform some monitoring and testing and the testing was not done for that. That's why we raised an action notice and it was for them to perform this issue.

**MEMBER MCEWAN:** OPG...?

**MR. MCGEE:** Brain McGee for the record.

I'll ask Steve Woods, our Chief Nuclear Engineer, to make a few comments.

**MR. WOODS:** For the record, Steve Woods, Senior Vice-President, Nuclear Engineering, OPG.

The specific issue in terms of the findings related to the frequency at which cables were inspected, we did not have clarity in our documentation regarding that inspection frequency and as a result of the finding we have updated our programs to be more specific around our inspection frequency for cables.

**MEMBER MCEWAN:** So implications of that uncertainty if it continued; risks?

**MR. WOODS:** For the record Steve Woods.

As I stated before, we do have a standard in place and instructions specific to our cable inspection program. But as a result of the discussions with CNSC staff, we have improved the clarity regarding the inspection intervals for the cables that we are doing. So we have made that change as a result of the input we got from staff.

**MR. FRAPPIER:** Gerry Frappier for the record.

Just to add, so this is a very good example of an ongoing program and we are looking for continuous improvement. Industry is doing testing. We are looking to make sure that this is as clear as possible as to what the testing is and not just -- and also what the results are.

And by -- we believe that by making sure that all of these perhaps smaller issues are dealt with, we are sure that the bigger program, we'll just make sure that the cables work when we need them to work is going to be -- we can be sure of it and provide confidence to the Commission that the cables are in good shape.

**THE PRESIDENT:** M. Harvey...? Ms Velshi...?

**MEMBER VELSHI:** In section 2.2.4, pages 72 to 74 under "Public outreach and Aboriginal consultation

activities" a whole lot of activities have been listed. I wondered if staff would comment on any issues or challenges. As I said, it's just a longer list of activities. But that would be helpful.

And then many times their statements are given that decisions, licensing decisions were sent in. An offer was made to come and talk to them and I just wondered if anyone ever took you up on that offer.

**MS NOBLE:** Hi, Kim Noble for the record.

I'm team leader for Aboriginal consultation in the participant funding program. So we have had regular meetings with a number of the First Nation and Metis communities about a variety of topics. So you're right that we sent the report specifically after the hearings and tried to follow up.

We have also met with a number of the communities to talk about our independent environmental monitoring program.

We have a meeting set with the Metis Nation of Ontario next month to talk about a number of topics, not specifically -- well this one would be specifically to the Bruce Power, but a number of topics.

Saugeen, we have been in regular communication setting up meetings for the Bruce follow-up, the environmental follow-up program. So that's been

underway.

I have -- so specifically, mainly the independent environmental monitoring program. We haven't had much request -- we haven't had any request specific to any of the issues directly discussed at the hearings. We have had the offers out.

Basically, we have heard back in particular areas. The communities want to keep working with the licensees and work those issues out and they know that we are on standby and available to talk about anything if they want us to discuss it with them. So we just keep following up, touching base and when I think we have a good relationship with most of the communities and that they know they can pick up the phone and call us, "Okay, we're ready to talk".

So like I said, we've got a number of meetings set. They set the agenda. We talk it through but we also have discussions in between just touching base, "How are things going?" You know because it's not just standalone. There is other projects going on that we are already in communication with them for.

If you want more specific --

**MEMBER VELSHI:** Yeah, so not much as specific as, are there any issues brewing? It's like at the Bruce licensing hearing, there were a number of

concerns and angst expressed there and I just wondered if us as Commission members if there was anything that we need to be aware of. But I think what you have said is things seem to be coming along just fine.

**MS NOBLE:** Kim Noble for the record.

I won't -- I don't want to speak on behalf of the First Nations and the Metis communities but I do want to point out their not participating in this meeting is not a lack of interest in any of the sites. Like I said, they like to be working out things with the licensees.

I know with the Metis Nation of Ontario there is an agreement now. They are working on an agreement for a monitoring program, Bruce site-wide, and that's an agreement between OPG and Bruce and the MNO. So those concerns about having monitoring specific to the values of the MNO, that's going to start and they keep us on standby and we have offered for the MNO to also apply to our participant funding program to assist with that.

So they are aware that we are there -- we are here for that sort of thing as well and they will keep us apprised as these -- that program progresses and gets underway.

So again, when they want us there we will be there. I think -- I'll say with confidence they know we

are here and the other issues we are working through. So until they are ready to bring that to your attention that's -- I believe that's their preference of how they want to deal with those concerns.

THE PRESIDENT: Are you still talking to the Saugeen about DGR?

MS NOBLE: Kim Noble for the record.

Specifically, we are still working out -- the latest is that we are waiting for the DGR project. The Minister of Environment will be coming out with the decision of how OPG will move forward and then there will be consultation once that decision has been made.

But we are being kept apprised as well. OPG has been keeping us informed of the consultation that they are conducted with the Saugeen and Ojibwa Nation.

THE PRESIDENT: Thank you.

Mr. Tolgyesi..? Dr. McEwan...?

You mean you are leaving it all to me now?

So I have got a couple of quickies here. First of all, you know, this report was written before a Quebec licence was issued. So there is a lot of stuff in there that assume that there will be some discussion during the licensing but it's already done. So I don't know if you are going to update or it not.

On page 126 I am interested in why is

Pickering not applying to DFO for fish? When is that coming? Why is it taking so long to do?

**MR. MCGEE:** Brian McGee for the record.  
Just catching up to you.

**THE PRESIDENT:** Okay. So I probably got to give you -- so I got to find myself.

**MR. MCGEE:** So while you are making that reference, we have written a letter indicating our intent of applying for a fisheries permit and so we are going -- we are stepping through the protocol now with the intent that we will get a permit to take.

**THE PRESIDENT:** And again, the reason, I don't know how fast DFO will react to that. That's why you want to be there before any hearing about Pickering.

**MR. MCGEE:** President Binder, I appreciate that feedback and we are stepping through the process. I will offer Robin Manley a chance to make any additional comments.

**MR. MANLEY:** Thank you. Robin Manley for the record.

Yes, President Binder. We have speaking with the Department of Fisheries and Oceans and with CNSC staff. We have had a meeting with both regulators and we have regular monthly phone calls with them to update them on our plans and the approximate timing. We are working

through some sort of essentially scheduling issues with the Toronto Region Conservation Authority, the TRCA, with which we are working in terms of the necessary offsets that would be involved.

And so essentially our timing at the moment is we intend to submit our application for the permit about January of 2017 and our goal is to, you know, ideally have the application accepted and the permit issued by about the middle of 2017. So the intent is to have it in place prior to the Pickering hearing. We are working as expeditiously as we can, I assure you. It's a very high priority for us to get this issue resolved.

**THE PRESIDENT:** Okay, thank you.

On page 58 of -- let me try to find this.

--- Pause

**THE PRESIDENT:** This is section 2.1.10. I hear that there is Ministry of Transportation of Ontario have updated their evacuation plan for Pickering and Darlington. I just want to know if this is now focussed or put into the emergency plan for evacuation for those sites.

And has that now been distributed? Has that been updating all the evacuation plans for all the households near Pickering particularly?

Staff, you want to say something about that?

**MR. FRAPPIER:** Gerry Frappier for the record.

So we've been following this area closely. We all know that certainly for Pickering relicensing emergency management and then the preparation of the province will certainly be a key focus.

Perhaps I will ask Luc Sigouin or our director to comment on the specifics here.

**MR. SIGOUIN:** Luc Sigouin for the record.

The work that was done by the Minister of Transportation involved updating population and demographics information and road information. Our understanding from discussions with Durham Region is that updated information has been included in their recently updated plans and our expectation is that the update and revision of the provincial nuclear plan will take this into account.

I'm not sure if our colleagues from OFMEM are still on the line or not to offer additional comments. I'll leave it at that.

**THE PRESIDENT:** Okay. On page 91 3.1.1.12 -- this is on security -- there is a little sentence, "Bruce Power is also moving towards digital fingerprinting".

That's a general question for all the

facilities. I actually was surprised that this is not in place already. So somebody is -- are all the facilities moving towards digital fingerprinting as added security? Is that a requirement?

Maybe I will start with our own security people.

**MR. BEAUDETTE:** Michael Beaudette, Director Nuclear Security, for the record.

I am going to ask Yves Poirier to speak to this issue.

**MR. POIRIER:** Yves Poirier for the record.

The fingerprinting process has always been in place in order to do background checks. The change is that the RCMP is now going to be accepting only digital fingerprints. So it's going to take some time for industry to catch up to that. And they were given some time to have an implementation of plan and place by -- within the next several months.

Bruce Power has decided to go ahead and do it ahead of time. There is a long process to go through to get digital fingerprinting equipment. You have to be certified by the RCMP. So it's a good step forward for Bruce Power to move ahead on that.

**THE PRESIDENT:** Is it only Bruce Power or is OPG doing the same thing?

**MR. BURNS:** Scott Burns for the record.

We are in the process of working through a plan to move to the same model of digital fingerprinting, yes. We don't have it in place at this time.

**MR. GAUTHIER:** And for the record, Rick Gauthier.

We also have been working with the CNSC staff and having meetings on implementation plans for fingerprinting.

**THE PRESIDENT:** So is that going to be a regulatory requirement? Is that government, RCMP; what's the story on that?

**MR. GAUTHIER:** Rick Gauthier for the record again.

This didn't apply to federal employees and so there has been some discussion about the applicability of the federal requirement to the licensees. That is the reason for the ongoing workshops we have been having and discussions with the CNSC staff.

**THE PRESIDENT:** Okay. My last question here is on page 154 which is 3.5.1.11. This is on waste management. I think the last sentence, "CNSC staff issued an enforcement action requiring NB Power to review as of this waste management program". I'm trying to understand what was the nature of the program.

Staff...?

**MR. POULET:** Ben Poulet for the record.

Just to make it clear, this is hazardous waste and not radioactive wastes; a bogus question. The question had to do with the processes and procedures in place. I'll let, with your permission, let NB Power provide further details.

**MR. GAUTHIER:** For the record Rick Gauthier.

So this was a Type 1 inspection on our site that had found some procedural deficiencies. Those deficiencies have been corrected in the procedure. We also had a follow-up visit from the inspection team from the CNSC. All the action notices have been closed and they are waiting for the outcome of the root cause analysis to close out the final extent of condition. And at that time we are confident that that will be closed off.

**THE PRESIDENT:** So this is still -- this is still a work in progress?

**MR. GAUTHIER:** Yes, sir, but we are confident that before Day 1 hearing that this will resolve. The root cause analysis is pending to be completed by the end of August and that is a detail that they are waiting for to close off the last notice.

**THE PRESIDENT:** Okay. Thank you. Any

further thought? All right. So this now concludes --

**MR. SAUNDERS:** Sorry, Frank Saunders for the record.

We owe Commissioner Velshi an answer to a question she posed to us earlier which we didn't get back to her on yet. So I apologize for the delay but you confused us a little when you said minimum complement because they are a pretty rare violation. In fact, as far as we know, we haven't had any minimum complement violations last year.

The paragraph is referring to that we sometimes violate hours of work restrictions in order to maintain minimum complement. So very seldom minimum complement, yeah. Those are virtually all due to hours of work or largely due to weather and certainly the ones that are kind of long extended hours are. The other part is related to outage work usually.

We do have a bit of a problem with the reporting process here and Mr. Lafrenière and I were discussing it the other day, and I owe him a report.

The way the system is set up currently, we double report a lot of things. And the report on certified staff goes through whether the certified staff is actually in a certified job or not at the time. And so there are some things about the way we are reporting that we need to

sort because it's double-counting.

But by and large, we do suffer some hours of work violations. It's a little bit of where we live and the weather that we get in the wintertime. We are well prepared for it. We have rest areas and all the pieces that go with that to make sure people get a chance to rest. So even though we hold the crew over, so even though they may be there for a long time there are people sleeping. A lot of the people are working and so forth.

So we have a pretty good system in place to deal with it because we know it's going to happen to us every winter and we just have to deal with that.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Okay. Any last thoughts here?

So thank you. Thank you all for your presentations and patience. We will take a 10-minute break and continue with the agenda.

Thank you.

--- Upon recessing at 3:47 p.m. /

Suspension à 15 h 47

--- Upon resuming at 3:57 p.m. /

Reprise à 15 h 57

**MR. LEBLANC:** We will be resuming. Please take your seats.

**CMD 16-M31**

**Oral presentation by CNSC staff**

**THE PRESIDENT:** The next item on the agenda is an information item to provide us with an update by NB Power on 2015 Intrepid Exercise held at the Point Lepreau Nuclear Generating Station, as outlined in CMD 16-M31.

I understand that Mr. Hickman will make the presentation. The floor is yours.

**MR. HICKMAN:** Thank you, Mr. President, Commission Members.

For the record, my name is Charles Hickman. I am the Director of Environment and Emergency Planning for New Brunswick Power properly.

The presentation today will be just an overview of what we did during our Intrepid Exercise last year.

It was held in November and it was a two-day exercise which involved a simulated event at the Point Lepreau Nuclear Generating Station. It was designed to challenge over 30 organizations and it involved over

1,500 people both within Canada locally, federally and in the United States, and by far was the largest emergency exercise that has been conducted in the Province of New Brunswick.

We will start with a short video which was prepared using material during the exercise and prior to the exercise. This video is going to be posted on our website following this Commission meeting for information for the public so they can see this as well.

After the video is played, I will continue with a few more slides just to give some highlights to other aspects of the exercise.

--- Video presentation / Présentation vidéo

*Emergencies can happen anywhere and at any time. They vary in type, in size and, most importantly, they vary in the overall impact they can have on people and the environment.*

*Now more than ever, Canadians are aware of the importance of being prepared and planning ahead for these events whenever possible.*

*For some emergencies like floods and forest fires that are more predictable, government organizations have plans in place to better prepare for and respond to these events.*

*These plans reassure Canadians that their government is prepared to deal with the more common emergencies that could threaten public safety.*

*But what about emergencies that are less common?*

*How do we prepare for unpredictable or even highly improbable events like a nuclear emergency?*

*Even though the likelihood of a nuclear emergency occurring in Canada is extremely remote, planning and preparation for just such an emergency is conducted in much the same manner as for a flood or forest fire.*

*In those provinces with nuclear power plants, each level of government has its own well-developed and detailed plans and the capability to protect the residents during a nuclear emergency.*

*For the utilities operating the nuclear power plant, the Canadian Nuclear Safety Commission requires these emergency plans as part of the plant's licence to operate.*

*New Brunswick Power has always maintained the safety of the Point Lepreau Generating Station by ensuring the latest safety systems and equipment are in place and by updating emergency response plans and procedures on a regular basis.*

*In order to clearly demonstrate a response*

*capability, plans need to be rigorously tested, especially when an emergency engages many organizations.*

*At NB Power, regular drills and exercises are conducted with the province to test key elements of their plans. These drills are designed to examine select areas of response that are unique to a nuclear emergency, like the activation of monitoring and decontamination centres and evacuation of the public in affected areas.*

*However, in order to fully test the robustness of these plans and measure New Brunswick's ability to respond to a nuclear emergency, something more complex and integrated was needed.*

*A large, full-scale realistic exercise was the best way to thoroughly test and challenge the strength of response plans in their entirety, one that would engage organizations at every level from the operator through each level of government.*

*Exercise Intrepid 2015 was a two-day NB Power-sponsored exercise held in November 2015 and involved a simulated incident at the Point Lepreau Generating Station.*

*The goals of this exercise were to test and demonstrate the ability of all participating organizations to work together effectively in responding to a nuclear emergency in order to identify areas where their*

*plans and procedures could be improved.*

*The last layer of defence is emergency preparedness. So our interest is to see that the operator, that New Brunswick Power can interface with all of their partners, the stakeholders, to ensure that there is going to be a seamless and very effective response to protect the public during a nuclear emergency.*

*In total, 30 organizations and over 1,500 people from every level of government participated in the exercise.*

*Developing a realistic exercise of this size and scope was a complex and detailed process that took more than 12 months of hard work and dedicated planning.*

*To achieve this, an Exercise Design Team was assembled which included representatives from the key organizations with a role in nuclear emergency response.*

*An outside group was brought in to manage and coordinate the exercise as well as to set up a virtual site for much of the simulation.*

*To ensure a common understanding of goals and objectives, this design team participated in monthly meetings, major planning conferences, specialized workshops and preparatory exercises throughout each stage of exercise development. The Exercise Design Team was responsible for creating an environment that was as realistic as possible*

and one that would engage all of the organizations that would be involved in a response to a nuclear emergency.

There are many, many organizations involved in such an exercise, it's not simply the province. We are supported by federal departments. We are supported at the local level by first responders. Municipalities have a stake in this as well. So our function is really coordination of all the diverse elements that come into play in effecting an orderly and effective response.

One of the challenges organizations often face is a limited exercise window to carry out the response functions.

To overcome this artificiality, Exercise Intrepid 2015 was conducted over two extended days, which made it possible for many participants to test specific elements of the response to a nuclear emergency.

The scenario began on day one with a situation at the Point Lepreau Generating Station that was complicated by a loss of power and a severe weather event.

Notifications to external agencies were made in accordance with the station's onsite response procedures.

For the duration of the first day the problem was contained at the plant, which allowed NB Power to fully test their onsite plans. This included the

opportunity to deploy and operate their emergency mitigation equipment.

Medical personnel were also tested at the plant in their handling and treatment of the contaminated casualty that required transport to Saint-John Regional Hospital.

Meanwhile, regional, provincial and federal organizations took precautionary measures to keep the public safe in the event that the situation worsened.

The province was able to test their emergency notification system and alerted residents living within 20 kilometres of the plant of the developing situation.

As part of the protective actions, the province, with the support of NB Power, also set up a monitoring and decontamination centre in the event that an evacuation were to be ordered.

Many organizations were also on standby to coordinate and set up reception centres and animal shelters that would receive evacuees and their pets.

At the end of the first day, NB Power was dealing with an emergency onsite, and the province was ready and positioned to quickly respond if the situation deteriorated.

On day two of the exercise, organizations

arrived at their emergency operations centres to learn that the situation at the plant did in fact worsen through the night.

The province and the CNSC were informed that there would be a release of radioactive material to the environment within 12 hours.

The local residents within the 20-kilometre zone will be evacuated as well as the local school.

You will not be allowed into the area. We have traffic control points that are set up coming west out of Saint-John, east out of St. Stephen. Highway 1 is shut down at Pennfield and Prince of Wales. So people will not be getting any further east or west from those points.

After analyzing the simulated events and assessing the possible impact on the public, the New Brunswick Minister of Public Safety declared a state of emergency and an evacuation of all residents living within 20 kilometres of the station was ordered.

Residents were notified of the order and followed the instructions that were provided by the wardens.

More than 100 residents living in the affected area volunteered to participate in the exercise as an evacuee.

*Two reception centres were set up.*

*Emergency social services were offered to arriving evacuees, allowing the Canadian Red Cross to fully test the operations of each reception centre, including the provision of food, lodging and medical assistance.*

*At the same time, the disaster animal response team mobilized their personnel and equipment to accommodate displaced pets arriving with their evacuated owners at the reception centre.*

*As would be expected during a real nuclear emergency, area hospitals would likely receive a high volume of "worried well" concerned about their health and radiological contamination. During Exercise Intrepid, the Saint-John Regional Hospital was well equipped to manage the influx of people by setting up their decontamination tent in the ambulance bay. This allowed medical staff to quickly screen people for contamination and provide reassurance to members of the public that there were no health risks present.*

*Meanwhile, the federal government was enacting the response plans and ensuring technical support was provided to the province in a coordinated and timely manner.*

*Throughout the entire exercise, the Federal Nuclear Emergency Plan Technical Assessment Group*

was providing valuable data to the Provincial Emergency Operations Centre for the purpose of decision-making to protect the safety of the public.

By the end of day two, organizations were tasked with managing the response to an ongoing release that continued right to the end of the exercise.

Exercise Intrepid 2015 also tested communications with the public.

A simulated media website was used to provide news articles, radio news stories and two daily news video broadcasts about the event.

This website made the exercise more realistic for the players by providing a news environment that simulated real-world news coverage.

Since many Canadians look to social media as sources of credible information, sharing public messaging through simulated social media was also tested during the exercise.

A very robust simulation cell was established at the Exercise Control Cell in Ottawa, which was responsible for ensuring that public affairs personnel were challenged with questions and concerns presented from the media and general public.

The exercise website also provided a secure area where press releases and emergency bulletins

*could be posted and shared with other organizations with a role in public messaging, allowing them an additional mechanism to ensure their public messages were coordinated.*

*Both NB Power and the province were proactive in the management of public awareness and conducted several press conferences throughout the exercise to provide valuable and current information to the members of the media and public.*

*Exercise Intrepid 2015 created a unique platform that gave participating organizations the opportunity to fully test their plans, work with other organizations that would be involved in a collective response effort, and practise communications in a realistic and interactive environment.*

*Intrepid is unique. It gives an opportunity for all the different players to come together and to really say how do the interfaces work. We assume certain things from each of our partners, let's really test those, see if those interfaces are working, see if the information is flowing smoothly.*

*So how did we do? Is Canada and in particular the Province of New Brunswick prepared to respond to a nuclear emergency at the Point Lepreau Generating Station?*

*Throughout Exercise Intrepid, emergency*

operation centres at the regional, provincial and federal levels were challenged at a level not normally experienced through regular drills and exercises. Overall, participating organizations met all of their response objectives and were able to identify some areas that can be improved upon, all in an effort to optimize capability and ensure the continued preparedness of New Brunswick for this extremely unlikely event.

*Exercise Intrepid 2015 clearly demonstrated the ability of NB Power, the Province of New Brunswick and the various levels of government to coordinate the response to a nuclear emergency in an efficient and effective manner.*

*New Brunswick is prepared.*

*Now, it's up to you as a Canadian to make sure that you are prepared too.*

*If you live near a nuclear power plant, stay informed, have a plan and know what to do in the unlikely event that an emergency could happen where you live.*

*If you reside near the Point Lepreau Generating Station, read the information packages that are sent to your home or visit these websites for more information.*

*Emergencies can happen anywhere and at any*

*time. They vary in type, in size and, most importantly, they vary in the overall impact they can have on people and the environment.*

**MR. HICKMAN:** I'm assuming you don't want to listen to that a second time, so we'll move on.

So I'm just going to cover a couple of items here in addition to the video.

As I mentioned, the video will be posted on our public website for anybody to look at as we go forward.

So I'm going to talk a little bit about the preparation, the actual exercise itself and just finish up with some discussion around some of the best practices and the opportunities and what we will do with that information.

I really would like to emphasize that the preparation for an exercise such as Intrepid or Huron or Unified Response is as valuable, if not more valuable, than the actual exercise itself. It allows you to validate in a non-exercise environment and to develop relationships that you would not otherwise have an opportunity to develop during an exercise. And this is from the very top of the house right down to the working level.

In preparing for Intrepid, we had working

groups between CNSC, provincial departments, other federal departments to understand sharing of data, to understand the scenario, to understand the command-and-control aspects. We had a joint oversight committee that involved our deputy ministers in the province. So we had a very high level of interface and interaction getting ready for the exercise.

It also allows you to do pre-drills and tabletop exercises. For example, we exercised some of the monitoring and decontamination equipment to its full extent in a rehearsal drill. During the actual Intrepid exercise, we deployed it but we didn't actually use the facilities themselves. In rehearsal, in the preparation, we actually set up the entire facility and ran that facility.

The overall objective, as mentioned in the video, is to validate preparedness to respond to an event.

And it's not just NB Power, it's not just the province, it's not just the CNSC. We had over 30 organizations who were -- who are players and would be players in a significant event of this nature and this allows us to test all the interfaces between all the players.

This includes both people we work with on a regular basis -- so for example we recently received a good practice from WANO for our interfaces with our local

provincial fire departments. They were involved in the design and the exercise. But we also had the opportunity to work with our State of Maine partners, both FEMA and the local State of Maine because we incorporated an international aspect to this exercise again that you don't normally see.

The design process allows us to identify a series of objectives that every organization might have and to design the actual exercise so that you can meet those objectives.

To meet those objectives, we set it up as a two-day exercise.

Day one focused on the onsite activities and with a real intention to exercise the improvements in the equipment that we had put in place since Fukushima. So we had new equipment, new procedures, new people, new processes. We wanted to exercise all of those.

Day two was focused entirely on the offsite, driven by onsite decisions, but it included the actual evacuation of a certain portion of the community within the 20-kilometre zone. And again, that is an activity that is often role-played but not usually conducted. We actually evacuated almost 190 people, schools and residents from the area as part of this exercise.

We also provided the opportunity for external experts to attend, to observe. This was both from within Canada. We had international people who attended to both learn and give us some feedback on the exercise as well.

The last couple of slides here, just to focus on some of the best practices and the opportunities.

We heard earlier today and it's in all these exercises, technology is continually changing, improving, evolving. We used technology during the exercise, both as part of existing plans and procedures, but we also test-drove some other technologies, some other tools. But one of the best practices was basically the sharing of information and the use of technology.

And we have approximately four, almost five levels of communication between New Brunswick Power, the province, federal partners and all different players. So we have phones, we have computers, we have cell phones, we have satellite phones, we have a ham radio system. They were all exercised as part of this exercise. That received a number of good comments from the evaluation team.

The coordination and alignment related to social media. A huge part of this exercise was the social media and public communication component. As indicated during the video, we set up a completely secure website

that allowed us to have the equivalent to Facebook, Twitter, Internet, basically the media. We had in excess of 600 injects during the exercise where basically somebody from the exercise team would send an email or put a tweet up that says, "There's an issue at the Point Lepreau and here's what I think."

It involved as an exercise all the communications folks from the entire province. I know CNSC communication staff were involved, Health Canada communication staff were involved, Public Safety were all involved just in the social media aspect of this exercise.

A huge exercise. We really proved that we could handle it, that it was well set up. We identified some opportunities, but again, it was really a great part of the exercise that received a lot of positive feedback.

We are very fortunate at Point Lepreau. We are a small community. We have a dedicated group of wardens who are basically trained and employed by the province to help manage our interface with the community. They have a role during day-to-day activities, they know the community, they interface with the people in the community. They do the demographic surveys, they distribute the KI pills. They are a huge, valuable resource that provide a very local, very tangible asset on the ground to help manage an event of this nature. And we

had them as a key player during this exercise. Like I say, they exist, they are there 24/7. We are very lucky in that respect. That's not the sort of resource you can put in place for every facility, but it certainly works well for us.

One of the next highlights was the fact that during this two days we had a lot of first responders, a lot of offsite people coming to site to respond, whether it be ambulance, whether it be fire, whether it be the RCMP or whoever else. There was QRS given for the process by which we essentially would stop those folks at the checkpoints and brief them before they went into basically the emergency zone. So we have an offsite centre, we have a series of roadblocks set up, and after the declaration of an emergency and the site is essentially locked down, nobody goes to site without getting that initial briefing. It was seen as being very successful. It went very well indeed. Essentially no first responders were allowed onsite without that briefing.

That involves a lot of interfaces between the site. So the site needs to know what's going on, who's trying to get onto the site. Security is involved, the RCMP, other people manning the roadblocks. It involves radiation protection. Many different moving parts, but it went very well.

The last best practice here is all around communications within and between the response organizations.

As I said, we had over 30 organizations playing and playing actively, not just sitting on the sides watching. So we were sharing information back and forth in real time, essentially between all 30 organizations.

We use some software that helps some of the initial notifications, the province uses some software. It's actually federally supported software that allows us interfaces into Maine, into the other provinces, and it all worked extremely well. Health Canada has software they use for sharing plume modelling and so on, EMAP. It worked very well as well.

We also test drove the use of WebEOC, which is a piece of software that we had onsite but is not yet part of our plans, to see if it was going to indeed help even on top of what we were doing. Overall, it was extremely successful. The software, the technology went very well indeed.

It also worked very well with the public. With the public, there was an opportunity here as well. As I say, the social media aspect was a huge success.

We ran a whole series of mock interviews and press releases. The video showed both our Presidents,

two Ministers at different times, Deputy Ministers participating in those interviews, in those press events. So very good involvement at a senior level to do their public communication.

But we also identified that there is a need to ensure that when you have that many people involved, particularly in social media, understanding nuclear terminology is a challenge, so getting nuclear terminology correct and that training around that is important.

So some opportunities, just high-level opportunities. and these are at the top of the house if you like where we have the interfaces between the departments.

The station for years has used IAEA methodology to define the evacuation zones, so there is a very strong technical basis to our emergency plans. That works extremely well. The province is familiar with how we have done that and how they are defined.

But the province uses essentially a much more tactical view of life in terms of, okay, where are my roads, where do people live, where do I need to get people to move to? So the provincial tactical process is based on a different set of zones, and the two sets of zones don't match exactly. On the ground tactical tends to overshadow the technical basis. It's conservative, it's always safer,

it's on the safer side of the decision-making.

We identified there's an opportunity here to align some of the terminology between ourselves and the province so that in a bad day there's no misunderstanding about terminology and which zones we are talking about. It was identified as an opportunity and we are already working on this.

We exercised the reception centres and full marks to the Red Cross organization. They set up, fully staffed a full reception centre at the University of New Brunswick, and we provided radiation protection staff at that facility. In doing so -- this is not something we have ever exercised before, we did no trial runs, so we identified some opportunities.

We identified that understanding exactly what the role of the NB Power radiation protection staff was relative to the Red Cross staff needed to be sorted out, explained and clarified. The underlying issue is -- or point is that if you are going to a reception centre, you have already been deemed to be non-contaminated, you are clean. If you weren't clean, you wouldn't be going to the reception centre.

So the requirement for additional monitoring was unclear during the exercise. We have clarified it since. We continue to work with the Red

Cross. This was an excellent part of the exercise, an area that we had never exercised before.

Again, in terms of roles and responsibilities, we have a Technical Advisory Group that works very closely with the provincial Emergency Measures Organization. It includes the Chief Medical Officer of Health and a number of other technical staff, your staff are involved and accessible, health staff as well. However, there was some discussion during the exercise as to exactly what the authority of that group is. Particularly if you have people sitting in or changing out from one day to the next, understanding what the role of that group is is important. So we have defined some terms of reference and clarified the roles and responsibilities. That's work that has already been completed.

So going forward, we have always had and continue to have an extremely good working relationship with the provincial Emergency Measures Organization and they represent the entire province. So the Department of Health sits on that committee, Environment does, and we will continue to work with those committees, that relationship, to work through all the high-level joint findings and opportunities for improvement. So that committee has already met. We have basically triaged the findings out of the exercise and are working those down.

That will be a long-term activity and as we address certain items, they will get addressed through tabletop exercises and eventually in another full-scale exercise.

Each organization, CNSC included, will develop their own set of internal focused opportunities to improve. Every organization did their own internal evaluation. We have done the same. All the NB Power activities have been entered into our corrective action program, they will be triaged, we will work those down again as we get ready for future exercises and drills and training.

We will look for other opportunities to exercise parts of the plan, the plan being the province-wide plan, that we haven't really exercised in the past. So things like recovery was mentioned earlier today. Recovery might be part of a future exercise.

We have an ingestion pathway. So if there's contamination released from the station, what does that do to people who have berries? They have farm animals, they have grains, whatever it might be. So how do we control the ingestion food path going forward?

These are areas that we are looking forward to exercising in the future either as tabletop or as a larger exercise and we welcome Health Canada's activities in protective actions. They will help us as we

define and incorporate those recommendations at a provincial level.

So in summary, Intrepid was huge, the planning for Intrepid was massive and gave us huge benefits, and full thanks to CNSC staff who participated faithfully in that whole exercise. Also, kudos to Health Canada who played a very significant role in this exercise. The province played, a huge number of provincial departments, individuals on the ground, the RCMP, local fire departments, everybody who was involved.

As is intended, it identified some opportunities, it identified some strengths, and we are happy to take both of those. We welcome the opportunities and we will continue to build on the strengths, continue to improve.

And from our point of view, we believe we demonstrated that with the province, with our partners, we have a multifaceted and very robust emergency plan in place and I'm very happy to talk to anybody about that. The experts who attended from elsewhere I think were equally impressed and provided some useful feedback. But I think we jointly, CNSC as well, can stand proud as to what happened during the Intrepid exercise.

I would be happy to take any questions.

**THE PRESIDENT:** Thank you.

Okay, questions?

Mr. Tolgyesi...?

**MEMBER TOLGYESI:** In Slide 10, you are talking about the line planning zones and you are saying that site emergency zones reflect practical emergency response tactics whereas onsite terminology is based on the IAEA definition. So how were you coping with this difference? Was it causing any problems, challenges?

**MR. HICKMAN:** Charles Hickman for the record.

It hasn't to date caused any issues because we work very closely with our provincial counterparts and they understand different terminology. The opportunity that was identified is that we are using different terminology and that inherently causes a potential miscommunication in the middle of an event. We will maintain and will always have an understanding of the technical basis following IAEA-type methodologies, but at the end of the day the offsite decisions are provincial EMO decisions, so we will align and ensure that the information we provide to the province to support their decision-making reflects their zones because they are the ones who have to make the tactical decisions on the ground about evacuation, protective actions as appropriate. So we will align with the provincial terminology to ensure that there is no

miscommunication at a critical time.

**THE PRESIDENT:** It's the first time I heard. Is there such a misalignment anywhere else, like in Ontario? Because IAEA is a theoretical zone. I mean those are provincial-driven, particularly offsite. So I'm surprised that there would even be a conflict.

Staff...?

**MR. HICKMAN:** If I could just add, there isn't a conflict, it's just different ways of approaching the same charge.

**THE PRESIDENT:** (Off microphone) ...will be a conflict.

**MR. HICKMAN:** So that's been potentially recognized, but I don't think there is a disconnect at the moment. It's just a recognition that there is a potential risk there, so let's address it before it becomes an issue.

**MR. SIGOUIN:** Luc Sigouin for the record. In the case of Ontario, the licensees' plans make reference to the exact names of the zones that are used by the province or defined by the province.

I think what Mr. Hickman has raised is not a concern to staff. It's one of the outcomes that we expect from an exercise, is to identify opportunities for improvement that have not caused a problem yet but we identify that maybe they could in the future, and we are

satisfied with the approach that New Brunswick Power takes for this. We know that they work very closely with New Brunswick EMO and that this continuous improvement opportunity when it's implemented will just make that relationship and that communication channel even stronger.

**THE PRESIDENT:** Questions...?

Ms Velshi...?

**MEMBER VELSHI:** No.

**THE PRESIDENT:** Monsieur Harvey...?

**MEMBER HARVEY:** Thank you.

I have a question, yes. You have some opportunities to clarify roles and responsibilities, but there is no -- it's vague and there is no agenda for that. So do you have some agenda and some delay in order to -- well, to solve those --

**MR. HICKMAN:** Yes, we do.

**MEMBER HARVEY:** -- problem areas?

**MR. HICKMAN:** So Charles Hickman for the record.

So one of the sets of roles and responsibilities was with regard to the technical advisory committee that works very closely with EMO and basically advises the Director of EMO. They have a procedure, they have documents in terms of accountabilities within their work within the Technical Advisory Group work space.

What we have done since Intrepid, it's already complete, is we have developed terms of reference that clarify very clearly who has accountability for what. And you need to understand and probably do understand that within the provincial jurisdiction and processes, emergency processes, the Minister of Public Safety has certain accountabilities for declaring an emergency, state of emergency and so on. However, the Chief Medical Officer of Health sits on our Technical Advisory Committee, and indeed, federal Health Canada and Environment Canada and so on feed into that same committee. So the Chief Medical Officer of Health also has basically legislated accountabilities.

So the question was how do we ensure that both sets of accountabilities basically work smoothly in an emergency?

So the Chief Medical Officer of Health can decide that a certain protective action should be taken from a pure medical point of view. That information now flows very clearly to the Director of EMO who has the authority from the Minister, because as always the multiple factors come into actually a tactical decision on the ground.

If it's the middle of a snowstorm at 2 o'clock in the morning, you may make a conservative

decision to evacuate or shelter in place earlier than the Chief Medical Officer of Health would recommend. So with clarification as to who makes the final call on the tactical decisions on the ground. So we have already developed and finalized the terms of reference that address those kinds of roles and responsibilities.

With regards to the reception centre, we have already met with the Red Cross. We have had some very good meetings with the Red Cross. It was a great learning exercise for both ourselves and the province and the Red Cross, and it clarified that at the reception -- as I mentioned, when they receive people at the reception centre, they are clean, they are not contaminated, they have already been checked before they get to the reception centre.

So the clarification in the roles and responsibilities in that area was that we will set up and will have available a radiation monitoring facility and people who are trained and qualified to operate that facility, but when a member of the public, an evacuee arrives there, they don't have to go through that monitoring location because they are already deemed to clean. If a member of the public is concerned and wants assurance monitoring -- or reassurance monitoring, it is available for them to address that individual concern. So

a clarification that you don't have to go and put every single evacuee through that monitor. So that's already been done. It has already been incorporated into the Red Cross procedures for setting up a reception centre for a Lepreau-based emergency. So that work is happening.

**THE PRESIDENT:** So just so I understand, right now, who is the authority to declare an emergency?

**MR. HICKMAN:** The Director of Emergency Management -- of EMO.

**THE PRESIDENT:** It does not need a Minister approval for this?

**MR. HICKMAN:** No. He will take a recommendation to the Minister, the Minister of Public Safety provincially has to sign that recommendation --

**THE PRESIDENT:** He has to sign?

**MR. HICKMAN:** There is a signed one --

**THE PRESIDENT:** That's a prescription for disaster. Politically, anytime you get the political kind of thing to make a decision, I mean we have learned this in tsunamis, in Fukushima, everywhere. I think in Ontario the emergency office can declare an emergency by themselves. Nobody is going to wait for somebody to wake up in the middle of the night to give you an authority.

**MR. HICKMAN:** So I'm not going to speak for the province. My comments here are purely from what I

see dealing with the province on a daily basis, on a weekly basis, on emergency issues. We are very fortunate we are in New Brunswick, that it's a small province and you would never -- I think it's safe to say you would never get to a stage of any event where the province and the Minister were not fully engaged in all the discussions around an event of this nature.

There are in legislation requirements for declaring a state of emergency, and that is a requirement, and there are requirements in the legislation for the actual evacuation order. We have never had -- either in exercises and in talking with the provincial EMO, there has never been an issue with being able to access the appropriate authority to get those requirements signed and issued in a timely fashion.

**THE PRESIDENT:** You never had an accident, right. That's the whole idea. I mean again, correct me, how does it work in Ontario again? Remind me. I thought it was pre-agreed to. We know in Fukushima they couldn't get an answer about venting for example because Ministers were not available.

**MR. HICKMAN:** So if I -- I don't wish to be combative but we have had emergencies in New Brunswick. We have had ice storms, we have had train derailments, we have had situations where we have had to have the province

declare either local states of emergency or have evacuation orders issued. We have done that several times over the past few years.

**THE PRESIDENT:** They are not the same as nuclear.

**MR. HICKMAN:** I understand.

**THE PRESIDENT:** A storm, you know it's coming, you have advance warning, you know it's coming ahead. Remind me how this is done in Ontario.

**MR. FRAPPIER:** So Gerry Frappier for the record.

I will get Luc Sigouin to provide details, but first, I think we should be clarifying here that with respect to operating the plant, the plant manager has the authorities and the shift superintendent has the authorities to do what they see they need to be doing under the accident as far as managing and controlling the accident within the plant.

What I think we are talking about here is outside the plant as far as exercising emergency response personnel. But, Luc, perhaps you could explain a bit more how Ontario works.

**MR. SIGOUIN:** Luc Sigouin for the record.

So as Mr. Frappier pointed out, onsite decision-making is very clear and that was captured in the

updated REGDOC-2.10.1 on emergency preparedness and response for the NPP operators. So they must, and they comply with this, they have a person onsite at all times who will make decisions without delay. They don't need to go offsite. They don't need anyone else's approval.

When it comes to offsite decision-making for protective action, we have heard often from OFMEM, and we know this to be a fact, that OFMEM and the provincial EOC have the authority to make protective action decisions so that there is no delay in protecting residents, whether it be for sheltering or evacuation and so forth.

However, I don't believe that they have the authority to declare a state of emergency, that legal definition of a state of emergency and what comes with it. However, not having that authority to declare a state of emergency does not prevent them from taking urgent and timely decisions on protective actions. That authority is there.

**THE PRESIDENT:** Okay. But that's what I meant. Okay. I will retract if I meant declare emergency. But your emergency director can declare evacuation or sheltering or something like that?

**MR. HICKMAN:** The provincial EMO Director has authority to do essentially anything that he feels is appropriate to protect the public. That's his number one

mandate and he takes it very seriously. I think Luc described it very well in terms of that's essentially the same situation for New Brunswick. There are legislative requirements, but at a practical level, at a tactical level, the Director of EMO makes the decisions.

**THE PRESIDENT:** Thank you.

**MR. GAUTHIER:** So for the record, Rick Gauthier.

So our Incident Command which happens onsite, our shift supervisor if it's on a weekend or a night shift, does have the authority to declare an evacuation of the 20-kilometre zone.

**THE PRESIDENT:** Thank you.

Ms Velshi...?

**MEMBER VELSHI:** Thank you.

Thank you for the presentation and the video as well. It was very good.

I expect one of the benefits of having an exercise like this is building public confidence in the capability of the different agencies. Were you able to measure that in any way?

**MR. HICKMAN:** Charles Hickman for the record.

We didn't set that as one of the objectives, to measure that public confidence. I would say

that as part of both the exercise design, preparation and follow-up, our dealings with the public, particularly through our local wardens, when we go door to door asking for representatives, just members of the public to see if they would volunteer to participate as active participants, we have no pushback. The local population is very supportive. Kathleen can speak to many of the experiences we have with the public. So I think intuitively to your comment, it has to improve the level of confidence. We haven't measured it and it's an interesting question.

**MEMBER VELSHI:** Okay, thank you.

**THE PRESIDENT:** Anything else?

**MEMBER VELSHI:** So when is your next such large-scale exercise and can you share a sense of how much does this cost?

**MR. HICKMAN:** I don't think my Vice President of Finance is present, so I probably can say something.

An exercise of this nature for New Brunswick, I would say direct contract costs, so literally cheques that we cut for other people would be well over \$1 million and that doesn't even touch on the time and resources we actually put into the exercise. So this is -- you know, if I included everything, several millions of dollars.

According to the regulatory documents, we basically run an exercise of this nature approximately every three years. As I said on my last slide, we are looking at slightly different kinds of exercises because obviously, as you are well aware, we run drills and practices essentially every day of the week, 365 days of the year for all intents and purposes.

So finding an exercise and defining the scope of an exercise is a lot of work to make sure it's going to be adequately -- provide an adequate opportunity to improve and to identify opportunities to improve, but equally you don't want to just do the same thing you did last week as part of your regular training and exercising. So it is a fairly delicate balance.

**THE PRESIDENT:** Okay, a very quick last question.

So you know the Ontario exercise caused a long list of action items. Are there any CNSC-type action items you need to monitor to show some improvement, I don't know, in the provincial plan, you know, in recovery and all this stuff? Very quickly because we are going to lose some Members here.

**MR. POULET:** Ben Poulet for the record, Director of the Gentilly-2 in Point Lepreau Regulatory Program Division.

Mr. Luc Sigouin will answer the offsite and provincial parts of the exercise.

The CNSC staff from the site office conducted a Type II inspection of the oversight and assessment of this major exercise and the inspection concluded that NB Power met all regulatory requirements. We had four minor recommendations on things we saw that could be improved, but that's limited to onsite that we saw because we were onsite.

So I will pass it over to Mr. Luc Sigouin to complete the offsite response.

**MR. SIGOUIN:** Luc Sigouin for the record.

So I think we heard from Mr. Hickman about what NB power and the province were doing as to offsite.

Part of your question, Mr. President, was about CNSC staff and any actions. So, as you know, we played full scope of the exercise for the duration of the exercise and it was another opportunity for the CNSC staff and the EOC to demonstrate -- to confirm that we have the capability to work with licensees, provincial stakeholders and federal stakeholders.

We did not undertake the same level of after action review that we did for Exercise Unified Response because we knew that many, if not most, of the findings from Exercise Unified Response had not yet been

implemented at the time of the exercise. And as expected, in the informal after action report and hot washes, similar issues were raised. However, this was very useful in confirming that the action plan that we had from EX UR from May 2014 would address these findings as well and that we were on the right track.

**THE PRESIDENT:** So, as you know, for the next licence renewal, things like assumption on large release, all the things that we were talking about, the PSA updates and all those things will be on the table for discussion I'm sure.

**MR. FRAPPIER:** Gerry Frappier for the record.

Yes, we certainly expect for the Point Lepreau relicensing, emergency preparedness and all the things around it and all the rest of the assessments will be part of what the Commission is going to be interested in. I think that a major exercise like this is a really big point of interest that we can get a lot of data from and a lot of confidence from that will shine through hopefully in the Point Lepreau relicensing process.

**THE PRESIDENT:** Okay, thank you.

You have the last word.

**MR. HICKMAN:** Just one small -- and I hate to correct my Manager of Reg Affairs. Obviously, the

command post has the -- it is built right into our procedures that we make a recommendation about protective actions in the early parts of an event. So we make a recommendation to the province, to EMO, in terms of whether or not they should be considering evacuation or protective actions. Our shift incident commander does not have the authority to direct the public in terms of protective actions. I just wanted to clarify that for the record.

**MR. GAUTHIER:** Thank you for the correction, Charlie.

**MR. FRAPPIER:** But perhaps just to round that off, the first part I would say as far as controlling everything that is happening inside the plant and with respect to venting or anything of that nature, they have the authority right there, that shift superintendent -- or shift supervisor.

**THE PRESIDENT:** I am sure we are going to discuss this further in some future hearing.

Thank you.

We've got to move on with the final item of the day, I think.

--- Off microphone / Sans microphone

**THE PRESIDENT:** Oh, two more.

So the next item is an information item to provide us with an update on the nitric acid spill at

Cameco's Port Hope Conversion Facility on April 1, 2016, as outlined in CMD 16-45.

**CMD 16-M45**

**Written submission from CNSC staff**

**THE PRESIDENT:** We have a representative from Cameco.

Mr. Mooney, can you hear us? Mr. Mooney? No?

**MR. MOONEY:** Yes, I'm on. Hello.

**THE PRESIDENT:** Okay, yeah, we can hear you now. Thank you.

**MR. MOONEY:** Okay. Thank you.

**THE PRESIDENT:** And I understand that the CNSC, Ms Murthy, will make an opening remark.

Over to you.

**MS MURTHY:** Good afternoon. For the record, my name is Kavita Murthy, and I am the Director of the Nuclear Processing Facilities Division.

On April 6, 2016, CNSC staff provided a verbal date on a spill of nitric acid that occurred on April 1<sup>st</sup> at the UO<sub>2</sub> plant at the Port Hope Conversion Facility in Port Hope, Ontario. At that time the Commission requested that staff provide a further update

after staff had reviewed Cameco's root cause analysis and assessed the proposed corrective actions.

CMD 16-M45 provides additional information regarding the event and the corrective actions. I wish to add only the following information.

As indicated in CMD 16-M45, on August 4<sup>th</sup>, 2016, CNSC Inspector Benjamin Prieur carried out a follow-up inspection of the facility that focused on the implementation of the corrective actions by Cameco. Ben Prieur is on inspection at the Port Hope Conversion Facility this week and that is why he is not here with me today. Mr. Prieur verified that Cameco has addressed the immediate corrective actions and is on track to complete all of the other corrective actions by October 2016.

It is further noted that through its incident briefing reports, Cameco has shared information related to the event with all Cameco sites, including the mines and mills as OPEX.

CNSC staff is satisfied that Cameco's current design and change control processes adequately address -- adequately ensure that such an event cannot occur again. CNSC staff is also satisfied with Cameco's response to this matter. CNSC staff will continue to track the progress of Cameco's corrective actions related to this incident through future oversight activities.

Thank you.

**THE PRESIDENT:** Thank you.

Okay, Monsieur Harvey.

--- Off microphone / Sans microphone

**THE PRESIDENT:** Oh, sorry.

Mr. Mooney, you want to add anything to this?

**MR. MOONEY:** It's Liam Mooney, for the record.

It's late in the day there, I know, for you folks and I don't intend to drone on, but I did want to emphasize that there was a systematic, thorough and timely response by the Port Hope workers involved in response to the loss of primary containment, and they responded in a timely manner in accordance with our procedures and their training. They implemented the protective measures and effectively protected workers in the environment.

That's all I had in relation to the event, other than what's contained in the CNSC CMD.

**THE PRESIDENT:** Thank you.

Monsieur Harvey.

Ms Velshi.

**MEMBER VELSHI:** Forgive me if it's already in here, but my notes here say that monel was used instead of stainless steel.

Have there been incidents like that in the past, maybe not in this particular application, but elsewhere? How easy is it to use one material instead of another? I suspect not that difficult.

**MS MURTHY:** Kavita Murthy, for the record.

Monel does look very much like steel, and so that is why this problem occurred in this instance. Cameco did do a thorough investigation of all the material that it has used and confirmed that it had not been used in any other place.

Right now, as I understand it, Cameco's process for dealing with any changes to its plant involves preparing a comprehensive work instruction and a package where all the verification of the material is done. This incident resulted from using monel several years ago, and the processes right now will prevent that from happening.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Mr. Tolgyesi.

**MEMBER TOLGYESI:** Just one thing, you didn't know that monel cannot be -- it's a danger to use it because it could have serious consequences, and you didn't have indications. Normally in procedures there is a note or it's a part of procedures that it should be marked or indicated the difference, and it should be brought back to and it should be marked again, the remaining parts should

be marked what material is that.

**MS MURTHY:** Maybe I can ask Cameco to respond to that.

**MR. MOONEY:** Sure. It's Liam Mooney, for the record.

We know that monel should not be used in this particular application. It was supposed to be stainless steel. As Commissioner Velshi remarked earlier, they do look very much alike. We do have controls, as Ms Murthy pointed out, that have been put in place to guard against this going forward. The installation and the fabrication of the pipefitting in question took place some time in 2012-2013. Since then we have controls that are designed, as was referenced by CNSC staff, to control the materials that are specified more tightly, and also to provide the materials to the operator or the worker who is performing a maintenance task in that regard.

**THE PRESIDENT:** Thank you.

Anything else?

Just a comment, that, you know, again, whenever you talk about kind of engineering like this, a photo, like, of where the secondary containment and how they fit to each other, you know, would have been nice. Otherwise, I cannot situate where in the plant it is. But it's not in here. So that would be very useful always. So

thank you for that.

Okay, I'll move onto the next item, which is the Event Initial Report regarding the loss of a radiography exposure device, as outlined in CMD 16-M47.

**CMD 16-M47**

**Written submission from CNSC staff**

**THE PRESIDENT:** I understand that -- as outlined in CMD -- I just said that. Getting late, I guess.

Mr. Rabski, I guess you're going to talk to that.

**MR. RABSKI:** Yes, Mr. President.

Henry Rabski, for the record, Director of the Operations Inspection Division.

I'm here today to report an initial report regarding the loss of an exposure device that occurred on August the 3<sup>rd</sup>. This occurred out in Edmonton, in the Edmonton area, and it's particularly between Wainwright, Alberta and Hardisty, Alberta.

An exposure device was lost, reported on the 3<sup>rd</sup>. Subsequently, the licensee reported on August 4<sup>th</sup>, approximately noon hour, that the device had been recovered. It was recovered approximately 55 kilometres

from the last known place where it was in the possession of the licensee. Despite some surficial damage to the device, surface radiations readings on the device indicated that the source remained in the shielded position and it was safe enough to transport back to the facility for further testing.

The CNSC requires in these cases that a 21-day event report be sent to the regulatory, and we're awaiting receipt of the details regarding this event.

If you have any questions, I'm here to answer.

--- Off microphone / Sans microphone

**THE PRESIDENT:** Go ahead, ask.

**MEMBER TOLGYESI:** I suppose you will have a kind of root cause analysis, and you will come back to present what's happened.

**MR. RABSKI:** Henry Rabski, for the record.

We are expecting that the licensee will do a full investigation as to what the causes were, yes. This is a typical event process that we engage staff and licensees in, and we feel that we'll be able to deal with that directly as a follow-up and remediation actions and we don't intend to come back to the Commission to report.

**THE PRESIDENT:** Go ahead.

**MEMBER VELSHI:** A quick question. If a

member of the public had found this and picked it up, given that you said it was intact there, I just want to confirm that there was no public risk. Is there a phone number or somewhere they should just call up to say, hey, they found this?

**MR. RABSKI:** Henry Rabski, for the record.

There would have been information on the device that would have directed anyone who to contact, and also the indications that it is a radioactive device on the package.

**MEMBER VELSHI:** And just to confirm, that there was no risk to any member of the public if they had stumbled on it?

**MR. RABSKI:** Henry Rabski, for the record.

No, there would be no risk because the device itself is a regulated package and it's safe to handle.

**MEMBER HARVEY:** Was the device found along the road, because of the photo it seems that it was in the field?

**MR. RABSKI:** Henry Rabski, for the record.

Speaking initially with the contacts from the licensee, it was found approximately seven to eight metres from the roadside. So the camera -- or the device bounced off -- technically probably bounced off the back of

the truck and rolled. You can see in the photograph that was provided that there was an indentation, so it looked like a nice smooth rolled out and landed when -- in the field. It was subsequently recovered by one of the operators from the company.

**THE PRESIDENT:** Thank you for the photos by the way. It makes it very clear.

What would happen if you didn't find it? I mean you're lucky to find it -- or they're lucky to find it. So what happens if you don't find it, what do you do then? If it got lost, this is a level 2, serious stuff.

**MR. RABSKI:** Henry Rabski, for the record.

Yes, it was a serious event because, as you point out, it was a category 2 source. It was reported to the IAEA, but in addition it was immediately reported to the local police. It was also reported through our networking system that involves recyclers, and notification would have subsequently been made out to the public. The CNSC put it on the bulletin on our website, along with a photograph of a similar device so that people could be on the lookout.

So the recovery would have intensified and we would have had expectations that the licensee would have done everything under their power to identify this and throw more resources at it.

Yes, they were very fortunate that it was quickly found, but they had narrowed it down to their transportation route that they clearly identified for this particular job, and were successful.

**THE PRESIDENT:** Remind me again what's this device used for?

**MR. RABSKI:** This device is used to take images on metal pipelines looking for defects, and it's called an exposure device. A source is retracted from the device with a reactive film, like an x-ray. It'll take an x-ray picture when the source is exposed on an x-ray film, and that is used to identify defects, particularly in welding and in the fabrication of piping.

**MEMBER HARVEY:** Was it the same type of device that we -- when we had that incident where there was somebody in the pipe and he was injured by -- I don't --

**MR. RABSKI:** Yes.

**MEMBER HARVEY:** -- I don't remember the type of device.

**MR. RABSKI:** The device that was involved in this incident was the one that was actually brought before the Commission and we did a little exercise. This particular model I would consider one of the workhorses of the radiography industry. It's very typical of what most radiography companies would use to provide this service.

**THE PRESIDENT:** Anything else?

Okay, thank you. Thank you very much.

Believe it or not, this is the end. Five o'clock, as we planned, right?

Okay, thank you. Thank you everybody for participating and showing a lot of patience.

Thank you.

--- Whereupon the meeting concluded at 5:03 p.m. /

La réunion s'est terminée à 17 h 03