

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public hearing

Audience publique

May 15th, 2013

Le 15 mai 2013

Public Hearing Room
14th floor
280 Slater Street
Ottawa, Ontario

Salle d'audiences publiques
14^e étage
280, rue Slater
Ottawa (Ontario)

Commission Members present

Commissaires présents

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

M. Michael Binder
Mme Moyra McDill
M. Dan Tolgyesi
Mme Rumina Velshi
M. Ronald Barriault
M. André Harvey
Mme Sandy McEwan

Secretary:

Secrétaire:

Mr. Marc Leblanc

M. Marc Leblanc

Senior General Counsel:

Avocat général principal :

Mr. Jacques Lavoie

M. Jacques Lavoie

(ii)
TABLE OF CONTENTS

	PAGE
Opening remarks	1
13-H6.B	4
Adoption of Agenda	
- Royal Military College of Canada	5
- Saskatchewan Research Council	
- University of Alberta	
- Corporation de l'École Polytechnique de Montréal	
Application for the renewal of The non-power reactor operating Licences for the SLOWPOKE-2 Reactors	
13-H9 / 13-H10 / 13-H8 / 13-H7 / 13-H7.A	5
Oral presentation by CNSC staff on the four (4) applications for renewal of the non- power reactor operating licences for the SLOWPOKE-2 reactors	
13-H9.1 and 13-H9.1A	14
Oral presentation by Royal Military College	
13-H10.1/13-H10.1A	81
Oral presentation by the Saskatchewan Research Council	
13-H8.1 / 13-H8.1A	119
Oral presentation by the University of Alberta	
13-H7.1 / H7.1A	159
Exposé oral par la Corporation de l'École Polytechnique de Montréal	

Ottawa, Ontario

--- Upon commencing at 9:06 a.m./

L'audience débute à 9h06

OPENING REMARKS

M. LEBLANC: Bonjour, mesdames et messieurs. Bienvenue à ces audiences publiques de la Commission canadienne de sûreté nucléaire.

Mon nom est Marc Leblanc. Je suis le secrétaire de la Commission et je vais aborder quelques aspects touchant le déroulement des audiences.

The Canadian Nuclear Safety Commission is about to start a series of four public hearings on the applications by four licensees for the renewal of non-power reactor operating licences for SLOWPOKE-2 reactors.

The Commission meeting is scheduled to start at 2:30 today and resume tomorrow morning at 9:00 a.m.

During today's business, we have simultaneous translation. Des appareils de traduction sont disponibles à la réception. La version française est au poste 2 and the English version is on channel 1.

I would ask that you please keep the pace

of your speech relatively slow so that the translators have a chance to keep up.

Les audiences sont enregistrées et transcrites textuellement. Les détenteurs de permis sont invités à s'exprimer dans la langue de leur choix.

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

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

And to make the transcripts as meaningful as possible, we would ask everyone to identify themselves before speaking.

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

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

Mr. President.

THE CHAIRMAN: Merci, Marc. And good morning and welcome to the public hearing of the Canadian Nuclear Safety Commission.

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

et je souhaite la bienvenue aux gens ici présents, and welcome to all of you who are joining us via the webcast.

First, I'd like to welcome formally our new Commission Member, on my left, Dr. Sandy McEwan, who has been recently appointed to this tribunal, and I welcome you to the first hearing.

I also would like to introduce the other Members, and on my left Ms. Rumina Velshi, Dr. Ronald Barriault, monsieur André Harvey, and on my right is Dr. Moyra McDill and monsieur Dan Tolgyesi.

We have heard from our secretary Marc Leblanc. We also have with us here today monsieur Jacques Lavoie, senior general counsel to the Commission.

Marc.

MR. LEBLANC: Thank you.

Before adopting the agenda, please note that five presentations were filed on May 8th, as listed on the updated agenda.

I also wish to note that we will proceed with a combined presentation by CNSC staff, followed by separate presentations by the licensees and CNSC staff on each specific facility. The President will open the floor for questions from the Commission Members after each set of presentations.

Dr. McEwan will not participate in the

hearing pertaining to the University of Alberta. The Panel of the Commission will be constituted, composed of six Members for that particular facility.

De plus, Docteur McEwan et Madame Velshi ne participeront pas à l'audience au sujet de la Corporation de l'École Polytechnique de Montréal. Une formation sera aussi constituée, composée de cinq commissaires pour cette installation.

Mr. President.

THE CHAIRMAN: Okay, with this information, I'd like to call for the adoption of the agenda of the Commission Members, as outlined in Commission Member Document 13-H6.B.

Do I have concurrence?

So for the record, the agenda is adopted.

13-H6.B

Adoption of Agenda

THE CHAIRMAN: So I'd like to start the hearing by calling on the presentation from CNSC staff on four applications, as outlined in Commission Member Documents 13-H7, 13-H7.A, 13-H8, 13-H9 and 13-H10 and I understand that Mr. Elder, you will make the presentation. Please proceed.

- Royal Military College of Canada
- Saskatchewan Research Council
- University of Alberta
- Corporation de l'École

Polytechnique de Montréal

Application for the renewal of
The non-power reactor operating
Licences for the SLOWPOKE-2
reactors

13-H9 / 13-H10 / 13-H8 / 13-H7 / 13-H7.A

Oral presentation by
CNSC staff on the four (4)
applications for renewal of the non-
power reactor operating licences
for the SLOWPOKE-2 reactors

MR. ELDER: Merci.

Bonjour, monsieur le président et membres
de la Commission. Je suis Peter Elder, Directeur général
- Direction de la réglementation du cycle et des
installations nucléaires.

Avec moi aujourd'hui, monsieur Christian
Carrier, Directeur de la division des laboratoires
nucléaires et des réacteurs de recherche.

In addition, we have with us a team of CNSC staff and specialists who are involved in the re-licensing of the SLOWPOKE-2 reactors.

As has been mentioned, the presentation will deal with the applications for the SLOWPPPOKE-2 facilities there -- for a renewal of their operating licence. All licensees have asked for a 10-year renewal period.

The four facilities involved are the Royal Military College of Canada, the Saskatchewan Research Council, the University of Alberta et L'École Polytechnique de Montréal.

Monsieur Carrier will provide a short historical background on the SLOWPOKE-2 reactors as well as a generic overview of the performance on common issues between the four licensees and then we will pause.

Thank you.

MR. CARRIER: Good morning, Mr. President. I, as Mr. Peter -- Mr. Peter Elder alluded to, I will first begin by providing a historical overview of the SLOWPOKE reactors in Canada. The acronym "SLOWPOKE" stands for Safe Low Power Critical Experiment.

The design was intended to provide a neutron source for research and teaching institutions. The neutron flux produced by the reactor would be higher

than what was available at the time from small, commercial accelerators. At the same time, the simple design of the reactor would avoid complexity and the high operating cost of existing research reactors at the time.

AECL designed a reactor in the late '60s. By 1970, a 5-kilowatt thermal reactor prototype called the "SLOWPOKE-1" had been developed at the Chalk River laboratories. It achieved first criticality in May 1970 and operated until March 1971.

The same reactor was then transferred to the University of Toronto for a two-year satisfactory demonstration period and operation. The reactor was eventually replaced in 1976 by a new, upgraded commercial version which had an increased number of irradiation sites and a nominal operating power of 20 kilowatts thermal.

SLOWPOKES were operated at eight different locations in Canada over the years and one at the University of the West Indies in Jamaica. Four of these locations have now been decommissioned -- decommissioned, sorry, namely: the Tunney's Pasture location, AECL Commercial products in Kanata, NELCO Nordion, at the University of Toronto and, more recently, the reactor at the University of Dalhousie in Nova Scotia which finalized its decommissioning in the year 2011.

The reactor is installed below ground in a

concrete pool filled with water at atmospheric pressure. This figure on the screen illustrates a typical SLOWPOKE installation. The pool is approximately 6 metres deep and 2.5 metres in diameter, although sizes do vary from facility to facility.

The pool water serves both as coolant and shielding. The reactor core is located at the bottom of a sealed aluminum container vessel, approximately 60 centimetres in diameter. The fuel consists of fuel elements in a cylindrical core 23 centimetres high by 22 centimetres in diameter. Fuel elements are either made of uranium aluminum alloy or uranium oxide and zircaloy sheets. The total core inventory is of the order of 1 kilogram of uranium 235.

Annular top and bottom beryllium reflector surround the fuel assembly. The fuel charge is not changed and remains for the full life of the facility. To compensate for fuel burn-up over time, beryllium plates are added periodically to the top of the reactor.

The reactor power is automatically controlled by movement of a single control rod located at the centre of the core. The design is meant and is inherently safe. SLOWPOKES have been in operation for over 30 years in Canada and elsewhere and have demonstrated throughout these years a record of safe

operation.

The next slide will focus on safety features of the SLOWPOKE research reactor.

Now, the distinguishing safety feature of SLOWPOKE reactors -- of the SLOWPOKE reactor concept, sorry, are low power density, natural convection cooling and the overall negative temperature feedback. This last feature means that the reactor power tends to decrease as the reactor core heats up.

These features provide SLOWPOKE reactors with inherently safety characteristics. In case of a total withdrawal of the control rod from the core, the reactor has been shown to exhibit self-limiting and power transience to safe levels. This is without the need of any operator intervention.

In such an event, should the problem persist -- meaning that the rod will remain out of the core -- alternate shutdown would be ensured by manual insertion of cadmium capsule in irradiation sites.

"Natural convection cooling" means that no pumps are required to remove core heat during normal operation or during shutdown. Research reactors operating at powered less -- powers less than 100 kilowatts thermal are generally considered very low-risk facility. With the thermal power of 20 kilowatts, the SLOWPOKE reactor decay

heat is considered insufficient to lead to core damage or, for that matter, severe accident conditions.

The SLOWPOKE reactor, after an extended period of operation at full power would have a decay heat of less than 1200 watts at one second after shutdown. This is comparable and actually less than what would be expected from a hand-held hairdryer. That power would reduce by a factor of 2 in less than 2 minutes.

At the 2003 licence renewal hearings, some areas of improvements were identified for all SLOWPOKEs. Staff had identified at the time that there was a need to document quality assurance programs at those facilities, that licensees should develop documented systematic approaches to training and develop a systematic approach to management of those aging facilities.

Completely addressing these areas during the licence period required a significant level of -- significant level of effort, both on the part of the licensee and the CNSC. In the process, licensees exchanged information and used common approaches to implement improvements and CNSC staff, throughout that period, provided guidance and facilitated discussions to clarify regulatory expectations.

Progress was initially slow as we documented in our 2008 midterm report. CNSC staff

monitored progress in those areas. Compliance activities included detailed desktop reviews to confirm adequacy of programs. Also, staff conducted on-site verification activities to verify implementation of the programs and ensure compliance.

Today, CNSC staff considers that the above issues have been appropriately addressed and the status of this program is now acceptable.

All SLOWPOKE-2 licences will now expire on June 30th, 2013. The applications for renewal of the licences were received in 2012. Application followed a standard format as suggested in CNSC staff guidance.

CNSC staffed have reviewed the application and are satisfied that they are indeed complete. The applications show that the licensees continue to maintain comprehensive core programs in relation to safety and control areas.

The next two slides summarize CNSC staff assessment of licensees' performance into the standard safety and control areas. For the standard control areas shown in these tables, rating for all licensees are the same. As you can see from the tables, the licensees have achieved satisfactory ratings in all areas.

Improving trends have also been assigned to four safety and control areas with satisfactory rating.

No safety and control area has been assigned a downward trend over the recent years.

As a result of the effort made by licensees, improvements were observed with continuing improving trends in the following areas: management system, human performance management and fitness for service.

An improving trend was also observed in the area of security from general trends and inspection findings. Regarding environmental protection, the airborne emissions from the facilities are very small fractions of the regulatory limits. These have been estimated to less than 0.01 percent of the annual regulatory dose limit of 1 millisievert for members of the public. Also, the facility has no liquid effluent.

Impacts from the facilities on the public and the environment are insignificant.

I will now expand on areas where improvements were identified. In 2003, CNSC staff reported that it was a good foundation for acceptable QA programs for the SLOWPOKE licensees. However, formal programs were not in place. Since 2008, all licensees have developed documented QA programs. CNSC staff conducted desktop reviews and concluded on their acceptability.

CNSC staff performed on-site verifications to confirm adequacy of the implementation of those programs. Again, performance was found satisfactory during those inspections with a continuous improving trend. CNSC staff conclude that acceptable QA programs are in place and are implemented.

In 2003 again, weaknesses were identified in the area of training -- staff training. The licence requires that SLOWPOKE reactor operators be certified by the CNSC. To become certified, a candidate must demonstrate that he has successfully completed an appropriate training program. Licensees updated their training program to be fully consistent with what we call the "Systematic Approach to Training" or "SAT". The licensees submitted SAT-based initial and continuing training programs for reactors operators in 2008. The programs were amended following regulatory feedback and programs were approved and gradually implemented by licensees during the following period from 2009 to 2011.

After implementation, CNSC staff again conducted site verification activities to confirm appropriate implementation. CNSC staff conclude that acceptable training programs are now documented and in place and implemented.

Following a request from the Commission

made in 2003, CNSC staff requested information on the physical condition of the structure system and the components -- or SSCs -- important for the safe operation of the SLOWPOKE-2 reactors. CNSC staff also requested an assessment of the overall condition of the reactors, including a case on the ability to continue operating safely until the end of the licensing period.

A draft document on aging management for existing SLOWPOKE reactors was prepared by CNSC staff and was provided as guidance to SLOWPOKE licensees. This draft was based on knowledge of the facilities and IAEA specific guidance.

By 2012, all four licensees provided consistent information, which included: identification of the important SSCs, the current condition of those SSCs, an assessment of the consequences in the event of failure of those components and a schedule for routine and preventative monitoring and maintenance of the overall facility.

Staff reviewed the licensees' submission based on the IAEA guide "Aging Management for Research Reactors". Aspects considered in the assessment included selections of the SSCs, understanding the aging mechanism and effects and the consequences, obsolescence of components of the facility and means for prevention,

detection, and mitigation of aging effects.

CNSC staff concludes that the licensees provided an acceptable aging management approach for the facilities.

SLOWPOKES are fit for service and are maintained and inspected to ensure components and equipment remain effective overtime. Aging management guidance and compliance criteria are now imbedded in the License Conditions Handbook, which is attached to the license.

Now, I understand it is a period for questions or the RMC presentation.

THE CHAIRMAN: No, that's a good place to go from the general to the specific and what we're going to do is we're going to hear first from the Royal Military College of Canada and, then, staff will finish their view of RMC and then we'll open up for questions, and we'll do it that way.

Okay, so my understanding is the RMC presentation will be made by Ms. Nielsen as outlined in CMD 13-H9.1 and 13-H9.1A.

So Ms. Nielsen, the floor is yours.

13-H9.1 and 13-H9.1A

Oral presentation by

Royal Military College

MS. NIELSEN: Thank you, Mr. Chairman (off microphone). My name is Kathy Nielsen. I'm the Director of the SLOWPOKE-2 facility at the Royal Military College in Kingston, Ontario.

Today, I'm here to represent the Royal Military College in its application for its fifth consecutive non-power reactor operating licence.

With me, on my right, I have Dr. Ron Weir, Professor Emeritus at RMC, former Dean of Graduate Studies in Research, former Chair of the SLOWPOKE-2 Committee and Advisor now to the Dean of Graduate Studies in Research.

And at the back, I have with -- on my right also -- at the very back, I have Dr. Paul Chan, whom I call our new SLOWPOKE professor, and he's going to take over from me soon. And to his left, is Mr. Dave Ferguson, our Radiation Safety Officer.

Before I continue, I'd like to direct your attention to the two pictures of the deer on the slide. Those deer have been reconstructed by computer program from tomography data that we have taken at the SLOWPOKE facility. The nice thing about three dimensional imaging is you can do non-destructive testing and look inside the deer to see if anything is inside without actually having

to break it open.

I will begin the presentation by describing the facility and its purpose. Next, I will touch on our compliance with the 14 safety and control areas into which verification criteria in the new licence have been divided in the new licence.

Then, I will mention the facility's outreach to the community and other groups, and I will finish with conclusions that support the current and future viability of our facility.

RMCC sits on a very lovely peninsula to the east of downtown Kingston and to the west of Fort Henry and Canadian Forces Base Kingston. Our SLOWPOKE reactor went critical in the fall of 1985. It was the first Canadian reactor to have low enriched fuel. We have an open pool. We have a neutron beam tube, as I mentioned, for two-dimensional and three-dimensional imaging and we have a digital operating system.

I put this slide in just so you can get an idea of the size of the SLOWPOKE core and that is a SLOWPOKE core being lowered into a SLOWPOKE reactor container, probably the first core of either RMC or École Polytechnique.

For the Application summary, RMCC is an integral unit of DND. It's also a federal university that

can grant undergraduate and graduate degrees.

The purpose of having the SLOWPOKE at RMC is to provide an intense neutron source for teaching the Officer Cadets. Every Cadet, arts, science and engineering, is educated to some degree in nuclear matters. We also use the reactor for non-destructive testing or radioscopy of the CF-18 airplanes of Canada's Air Force and the double-headed arrow shows you a rudder set-up to have tomography done on it mainly to look for water.

The reactor and the nuclear professors associated with it are a resource for the department of National Defence. We produce small amounts of radioisotopes for Defence Research and Development Canada in Shirley's Bay in Ottawa, and we serve as an analytical laboratory for the Canadian Navy in their Nuclear Emergency Response Program.

We also serve as a national and international laboratory for radiological and nuclear incidents.

I will touch on our compliance, as I said, with the 14 safety and control areas.

So first comes the management system and I only have a partial organization chart here but I'll start and go up.

The Director of the SLOWPOKE facility reports to the Chair of a SLOWPOKE committee, and the Chair then reports to the Dean of Graduate Studies and Research, who then reports to the Principal, who then reports to the Commandant who of course is in charge at RMC.

We have broken the facility up -- or we have divided the facility up into two sections now to deal with DND's Work Force Adjustment program, which was a result of budget cuts by the federal government, and also because a lot of us are getting older and we need a succession plan.

So the facility has been broken up into Operations and Maintenance and into Applications, which is analysis.

Through DND's Work Force Adjustment, we have unfortunately lost one permanent technician but luckily she's gone to the Department of Civil Engineering and remains a reactor operator.

For human performance and management, we have initial training of employees, continuing training, observation or verification of performance by observing people do tasks. We have audits, internal and external, and we have feedback.

The day-to-day operating performance and

maintenance of the facility are responsibilities of the Director. Extensive records are kept which are audited by an internal QA/QC Officer, as well as by the CNSC.

And information from operating data is given to reactor operators either by e-mail or they can read the Incident Log which is kept in the control room and see what has been going on with the reactor for the last days, weeks and months.

Safety analysis, originally the LEU-fuelled reactor was analysed by Atomic Energy of Canada Limited in 1977 and then a simulation of LEU fuel was done again in 1997 by École Polytechnique. And I expect there will be another safety analysis of LEU fuel when Jamaica, which has a Canadian SLOWPOKE, gets their new LEU fuel in 2014.

Ourselves, we've had an external Fire Risk Assessment done recently. There were many recommendations to improve our facility and all those recommendations will be implemented.

The integrity of the fuel is tested on a regular basis by analyzing reactor water and area and contamination monitoring is done monthly by the Radiation Safety Officer and those results are posted inside the facility.

Whenever there is a change required in the facility, there has to be a risk assessment and a safety

assessment and this is shown in the Change Request Form which has to be read by several people and authorized.

We also then have to write out a detailed work plan which is also authorized. And then we have pre-work briefings to make sure that each person involved in the change knows what they are doing and we answer their questions if they have any concerns about safety.

Fitness for service is achieved by performing daily, weekly, monthly, semi-annual and annual checks and by recording them and archiving data to trend the health of systems, components and structures.

The facility has a long-term plan for managing aging and obsolescence. That long-term plan is called the Life Cycle Management and Maintenance Plan and we have ours populated to the year 2020.

Oh, sorry, I meant to say that the arrow showed you our recent seismic bracing that's put on the -- that was put on the building for a seismic event should we have one.

Radiation protection, we have a Radiation Safety Officer who is with us today and we also have a Radiation Safety Program. We have numerous kinds of radiation devices, as I have shown on the slide; radiation devices for area monitoring and personnel monitoring.

And I'd like to point out to you at the

bottom, for personnel monitoring we have a thermoluminescent dosimeter on the left which measures gammas.

And then inside that plastic sleeve at the bottom middle of the slide is a neutron dosimeter, also given to us by Health Canada, and those are worn daily by whoever works inside the facility.

We also have a personal alarming dosimeter which is ours, so to speak, and the Radiation Safety Officer has set the warning limit. It's an audible sound that comes up at 25 microsieverts per hour and people are told to leave the facility if the alarm goes off until the Radiation Safety Officer or the Director can find out what's going on.

We practice ALARA, which is "As Low As Reasonably Achievable", which means we only irradiate samples to the extent needed to get the information out that we want.

We also practise the time-honoured techniques of time, distance and appropriate shielding.

At the top of the slide there, alpha particles are shown to be stopped by a thin sheet of paper; beta particles usually by the dead skin layer of our hands or feet, if you like, and also by a thin sheet of aluminium.

Gamma particles, which we have in the facility, are more penetrating and require several metres of water or concrete or steel.

And then of course we have neutrons in the facility because of neutron radioscapy and neutrons are stopped by water but the shielding we use for our neutron radioscapy system is the boron-10 in the boron element. Sorry.

Conventional health and safety, RMC has a Unit General Safety Officer who sends out regular bulletins about safety, the weather, health and any other concerns she thinks the University should know about.

The Department of Chemistry and Chemical Engineering gives a safety course to all new people who enter the department and the SLOWPOKE is located in the Department of Chemistry and Chemical Engineering.

They also give training in WHMIS which is identification of chemical materials.

There has never been any time loss at SLOWPOKE as the result of an accident. And I think I forgot to say in radiation protection that in 27 years of operation, no person working at the facility has exceeded the public limit which is one millisievert per year.

Even though we're all declared news, none of us have even reached the public limit.

RMC realizes the importance of environmental protection and, therefore, while we are required and we do monitor our releases, we document the activity of our releases and we follow as best as we can CNSC regulations.

Two ways we try to protect the environment is by having high-efficiency particulate air filters to stop radioactive particulate material from ending up on the roof of the building or on the soccer field, so to speak.

And also we have to do a gas purge of the headspace once a week. We shut the reactor down for 48 hours to let things decay away before we do a gas headspace purge.

Emergency management and fire protection, we have an Emergency Management Plan detailed in the back of the site-specific reactor manual. Those emergency procedures are addressed to reactor operators, technicians, commissionaires, firefighters and the Military Police.

We also have a site-specific Fire Protection Plan. We have doors that automatically close upon activation of the building fire alarm. We have a smoke detector system.

By August of 2013, we will also have a

sprinkler system in the entire building, but we did not want water going over the electronics that regulate the reactor in the control room. And therefore, a special fire retardant system that will put a gas, a fluorinated ketone into the control room should we have a fire, should smother the oxygen and protect the electronic equipment without water we hope.

Waste management, the facility has a Waste Management Program. It is a delay and decay method which most universities or places that have radioactivity use.

When irradiated material is no longer useful to the facility, we turn it over to the Radiation Safety Officer and a form which you can see has to be signed with details about a sample so the Radiation Safety Officer has as much information as possible to dispose of the samples appropriately.

Each sample is uniquely identified with an alpha-numeric number and can be traced from beginning to end in the facility. And, as appropriate, every three to five years, the Radiation Safety Officer gets rid of our waste one way or another. The long-lived radioisotopes, of course, have to go to an authorized disposal site like Atomic Energy of Canada Limited.

Security, RMCC has a Security Control Centre which is manned 24 hours a day, 7 days a week. We

now seem to have extensive cameras on the ground -- on the grounds of RMC and inside the facility itself and directed towards the facility.

Any intrusion or radiation alarms are responded to immediately by Military Police from the Canadian Forces Base Kingston and the keys to the facility are very strictly limited and very strictly controlled.

For safeguards and non-proliferation, we are a safeguards lab because of the material we hold and what that means is that we have to report our inventory to the Safeguard Section of the Commission on a monthly basis.

We also have to do a physical inventory taken once a year and that has to hopefully agree with the last monthly report that we sent into the CNSC. So we're very aware of safeguards and non-proliferation.

Packaging and transport. The facility follows Transport Canada's transportation of dangerous goods, clear language regulations for Class 7 radioactive material.

We also follow CNSC's packaging and transport rules for radioactive material and we always have two people trained in transportation of dangerous goods so that we can both receive and send out radioactive material.

The CNSC requires a preliminary decommissioning plan for when we decommission our reactor and we have submitted a plan. It has been accepted by CNSC staff and our finances for decommissioning is guaranteed by the Deputy Minister of National Defence.

And I've shown a picture here of the open reactor container with the drive wheel for the control rod and the blue part or the shims that is a method, if you like, of refueling, in a sense.

We have a public information program at the SLOWPOKE and, just last Saturday, we participated in the Third Annual Science Rendezvous event in Kingston in which Queens University also participates and museums participate.

We had a table with -- Dr. Chan was there, myself and some graduate students and some summer students with posters about SLOWPOKE, trying to assure people that radiation is good and not harmful and trying to acquaint them with things that they know about with respect to radiation like working in a concrete building and having a slighter -- getting slightly more radiation than living in a wooden house, flying in an airplane and getting a dose and the fact that some smoke detectors have americium-241 in them.

This year was an extremely successful

event. Hundreds of parents and children came. Actually, it was a lot of fun and it seems a big portion of the community came to this.

RMC's outreach and influence takes the form, for example, of having an Aboriginal leadership opportunity here for Aboriginal students to come for free to RMC to spend a year to find out something about the military and to have some academic learning. And the professor that teaches them physics always brings this group to SLOWPOKE. They have a tour and I talk to them about power reactors, our reactor and radioactivity in general.

The Director General of Environment and Nuclear Safety's Tactical Assistance Team comes to the SLOWPOKE to try out their radiation detection equipment.

CJIRU is the Canadian Joint Incident Response Unit at Canadian Forces Base Trenton and they're supposed to respond to radiation events, also chemical and biological, in Canada. And they like to come to SLOWPOKE just to have their students or their army officers learn about the SLOWPOKE and, again, to try out their radiation detection equipment.

Algonquin College in Pembroke has a Radiation Technician's course and they bring a bus load of students down once a year. The students also get a tour

of SLOWPOKE and get to see our radiation equipment.

Queen's University, once a year, brings their Art Conservation class over because of our radioscopy system. They have a tour of our radioscopy system. And their interest is that the major art museums in the world have all -- all had their famous paintings radiographed now for identification purposes and we can radiograph a painting of one of theirs if they wish and we have done so.

Two professors from our university go to Queen's every two years and teach an undergraduate course in Nuclear Engineering. As a result of graduate degrees, Master's -- several Master's and several PhDs, the knowledge about radiation and reactors sort of spreads from the SLOWPOKE like throwing stone in a pond -- like the ripples from throwing a stone in a pond.

The military officers who get a graduate degree generally return to military service. They become technical authority -- authorities on radiation in Halifax, Esquimalt and Nanoose. They also go to the Director General of Environment and Nuclear Safety and they go to the Chief of Maritimes Staff at National Defence Headquarters in Ottawa.

We also have civilians graduate from RMC's Nuclear Engineering Program. Those civilians go a lot of

places, including Bruce Power, for example, but they have jointed this Canadian Nuclear Safety Commission, Atomic Energy of Canada Limited, CSIS and the Department of National Defence.

And I have to say that one of your current Director Generals got her Master's degree using our SLOWPOKE and another Director you have got his Master's degree using the SLOWPOKE. So there are some people here who know a lot about the SLOWPOKE at RMC.

To conclude, I would like to say that our SLOWPOKE has an excellent general safety record and an excellent radiation record. We have been innovative in that we have taken advantage of our open pool to have a neutron bead tube installation to do imaging. I think we're only one of two places in Canada now that can do imaging using neutrons.

We have put three elevators in the pool for large sample radiation and we have changed the original analog system to a digital system to control the control rod response.

We've been proactive. I think we've replaced everything in the facility except for the aluminum container, the fuel and the control rod. We've replaced the pool and reactor water deionizer systems. We have a new cooling systems -- system with modern heat

pumps and a large flatbed heat exchanger. All our electrical and signal cabling has been replaced.

We have a new backup gas generator to feed our UPSs if the building power goes down and we have done hardware and software upgrades.

Before we make any changes to the facility, we have a working model shown at the left in the slide and we practice everything on the working model before we actually do it on the real reactor. And, of course, we get CNSC approval when appropriate.

I also contacted Atomic Energy of Canada Limited several months ago and I think only last week got a letter. I asked AECL what their plans were with respect to maintaining the SLOWPOKE reactor since we get our reactor engineer and our reactor technician from Atomic Energy of Canada Limited. And I have a letter saying that AECL will support SLOWPOKEs to the year 2019.

We have done succession planning, as we have Dr. Chan, our SLOWPOKE professor here, and other people coming up. And also, I'm in the process of training four young, new reactor operators, which I hope they'll be certified by the CNSC in the fall.

So that's our succession planning that's actually in progress or being done and we are implementing more aspects of the succession planning. And we try very

hard to be in compliance with our regulator, the Canadian Nuclear Safety Commission.

I just wanted to show you the graphical user interface for our digital control system. On the upper left is a mimic of our fuel and the bright green rectangle is the control rod. And when we start the reactor and stop the reactor, the control rod moves up and down. It's very satisfactory to see it move up and down.

The middle section, the light gray section, is where we can click with a computer mouse to start the reactor up and we can click to shut the reactor down and we have change the flux as needed.

On the right-hand side of the GUI is the status of the reactor and it just tells you what's going on: if there are any alarms and warnings that have gone off, what power supplies are available, what the water level is in the pool and also in the reactor container, which auxiliary equipment is working and other pieces of information.

This interface is available 24 hours a day, seven days a week and it is really a very fast way of showing you what's going on with the reactor.

And then, I have here -- I'm not sure how to make this work -- I have here a little deer movie if -- of the tomography of our system. I'm not sure how to get

to the bottom. I just have to get to the bottom and push down. Okay, just hit that.

So thank you very much. That's the presentation from the Royal Military College.

(SHORT PAUSE/COURTE PAUSE)

THE CHAIRMAN: So while we're watching, remind me again, how did you produce this?

MS. NIELSEN: Three-dimensional imagining with our thermal neutrons are captured on a camera slice by slice as the deer is rotated by a stepper motor through a fixed number of degrees and then a very complicated computer program puts the slices together. And if you put all the slices together, you get a three-dimensional image and then you can make a movie or if you only put half the slices together as in the initial slide, you can see inside. The original purpose was Queens brought this deer over -- it's an Egyptian deer -- and they wanted to see if the maker's initials were inside on the casting on the metal of the deer, but of course, they didn't want to slice the deer open or damage it in any way. So if you adjust it, the computer program just builds up the slices to halfway, you can see inside the deer and see what's in there. And there were no initials -- or no clue as to who made the deer or the ear or anything.

THE CHAIRMAN: Okay. Thank you.

So before we open the question, CNSC?

MR. CARRIER: I really liked the deer.

Okay. So in our overview presentation, CNSC staff have provided an overall assessment of SLOWPOKE licensee's performance with respect to generic safety in controlled areas. The following presentation will provide information on safety in controlled areas and licensing recommendations specific to the SLOWPOKE-2 facility at the Royal Military College in Kingston.

Radiation to workers at the SLOWPOKE facilities have historically, and remain today, very small, well below the regulatory limits. RMC has both categories of workers classified as nuclear energy workers and non-nuclear energy workers. The designation depends primarily on the level of involvement of staff on reactor operation and use.

In all cases, doses have remained well below the public dose limit of 1 millisievert. Variations and dose are due in shimming adjustments in the year 2010 and nuclear maintenance activities in the year 2011.

RMC has recently revised its public preliminary decommissioning plan, which includes an updated estimation of the commissioning costs and associated financial guarantees.

One main change in the cost estimate arose

from the experience gained in the decommissioning of the Dalhousie reactor in the year 2011, which reached after completion, an overall cost of approximately \$5 million. The financial guarantee has been reviewed and accepted by CNSC staff.

CNSC staff conclude that RMC has operated the facility safely during the licensing period, that core programs are in place and meet requirements, that RMC has made several improvements during the licensing period that will continue to enhance safety in the future.

CNSC staff have developed a license condition handbook which documents detailed verification criteria for conditions in the license. As is normal practice, the handbook will be finalized only after the Commission's decision to ensure consistency with the decision and its basis.

CNSC staff recommend that the Commission accept the recommendations outlined at the CNSC's CMD -- CNSC staff CMD, sorry -- and approves the renewal of the operating license for a period of 10 years and approves the delegation of authority to staff as outlined in the proposed license condition handbook.

This concludes our presentation. We are now available to answer any of your questions.

THE CHAIRMAN: Okay, let's start the

question period and we can deal with both the general comments of CNSC staff and the specific as relates to RMC. So Monsieur Tolgyesi, s'il vous plaît.

MEMBER TOLGYESI: Merci, monsieur le président.

This is to -- the question is to the Military College and eventually to the staff. You were talking about difficulties to have a long-term commitment from AECL for services. Now, have -- you said you received a letter which is a commitment to 2019 and you started succession planning but these difficulties, I think, are met with all SLOWPOKE operators.

What are the risks and potential consequences and operations in the fitness of SLOWPOKES?

MS. NIELSEN: They will only commit themselves to 2019?

MEMBER TOLGYESI: Yes.

MS. NIELSEN: The only things really that the AECL does for us are the shims to stop us from having to replace our fuel, for example. And I suppose if we had no maintainers then we would run until our fuel was exhausted, safely as we have in the last 27 years, and then we would decommission.

But there are other maintainers in other countries available if AECL decides to get out of the

business.

We also have been talking about certifying our own reactor maintainer and reactor engineer at the Royal Military College. So I guess we have two choices, we could either go externally to another country like the United States, who have the capability of doing this or we could train our own people and have them certified through the CNSC or you could decommission.

MEMBER TOLGYESI: To staff, is the services to SLOWPOKES -- to other SLOWPOKES, are limited to the same extent as the Military College, which means to replace the shims or its much wider services which they supply?

MR. ELDER: Peter Elder, for record.

There would be -- as Dr. Nielsen has mentioned, there are two services at AECL or two types of services. They have a certified technician and then they have the nuclear engineer. So they would be -- do anything associated with the core.

So it could be the adding of the extra beryllium plates or the shims or it could be involved in refuelling if anybody wanted to refuel the core. And the refuelling, you know, it's something you do every 20 to 25 years, depending on the use of the core. So it's not -- they're not things that they do on a day-to-day or even an

annual basis, it's every few years depending on the use.

We have -- we understand -- the Commission is aware and everybody that the government is looking at the future of AECL and there's a process about restructuring of AECL. And one of the questions that is certainly on our radar is the services that AECL is providing to the SLOWPOKES in other facilities.

So we're actually satisfied that they were able to commit, in short term and even to 2019, but we continue to explore this as the AECL restructuring goes forward and see if there are alternatives.

So one of the things that we've been doing on alternatives as it was pointed out, was there could be a chance of one of the other SLOWPOKES certifying their own technicians or engineers. So we went back very recently in going back in to look and make sure that we fully understand everything involved with AECL's training process for certification, that we have a complete set of the documentation to assist anybody else that wanted to go through this process. So we'd be able -- you know, they would not be in position where they would not have to start from scratch.

So we're monitoring it, it's not immediate concern from us in terms of -- that something would as -- that there'd be -- the reactors would any be unsafe after

2019 if the service wasn't available but it would limit the choices of operation to the operators.

MEMBER TOLGYESI: On page 55 of your presentation, you were saying -- of College, Military College, Royal College presentation, you were talking about challenges and 3.11.4, where you were talking about financial concerns for future disposal of A&B neutron source which is likely to be very expensive. Are these -- you were saying that removal and shipping will be expensive. Are these consequences or costs estimated or included in the financial guarantees?

MS. NIELSEN: Yes. And we have recently asked the Director General of Environment and Nuclear Safety if they would finance the disposal of our radioactive waste and the answer is, yes, they will.

MEMBER TOLGYESI: My last, in this round, or if it's -- on your presentation at page 60, you are talking about also challenges, 3.13, which is "Safeguards". And you are saying that some incompatibilities between the security requirements for CNSC and RMCC that makes difficult to set up a secure electronic communication.

What's about this -- what's the problem?

MS. NIELSEN: We don't know what the problem is, but I started, I think, five years ago going

to our computing department and asking them to set up an electronic -- secure electronic communication with the CNSC, and I believe the CNSC information technology division was contacted and somehow they couldn't agree.

Apparently, the CNSC security requirements are different from RMC's and they never seem to manage to get together.

But very recently -- I think in the last two weeks, Dave -- the CNSC had a webinar on safeguards and the CNSC has -- is setting up an electronic communication for safeguards for all the safeguards facilities. So they've taken the bit and they're setting it up.

And our radiation safety officer has again contacted our computing services department, told them about this webinar, given them someone's name, and sort of asking please don't block us again from being able to communicate electronically.

It has something to do with the Department of National Defence's security system and the CNSC security system. It's the handshake problem which I hope they can resolve.

At this time, we're sending up our monthly inventory by courier.

THE CHAIRMAN: Staff, this is embarrassing.

We're talking about the same government, right? I figured by now they figured how to do a handshake between departments.

MR. ELDER: We'll look -- Peter Elder.

We'll look further into it. You understand that on this system there's another handshake that has to happen between us and the International Atomic Energy Agency.

So it's aligning everything that has actually -- and then it's just not with one licensee; it's multiple licensees. So which is why we've said we're going to have to define the standard and have people meet it once we've sorted out something with the IAEA. But it's ---

THE CHAIRMAN: Well, as you know, we're trying to develop a handshake with our American friends. It's not going to be very good if we cannot do it amongst our own family.

MR. ELDER: Yeah, we understand that and we're looking into these issues, but the idea is to be able to transfer from one to the other and, you know, there's a -- it generally is we would like to go away from what's happening now, which is a paper system, and there have been programs on this one.

So this is not unique unfortunately on this

one in terms of everybody's internal systems have to be able to talk to each other, which is why we're having the webinars and things like that to be able to communicate what constraints we have to work with in making sure that we are able to communicate electronically with the International Atomic Energy Agency as well.

THE CHAIRMAN: Okay. Thank you.

Monsieur Tolgyesi, c'est fini?

MEMBRE TOLGYESI: Merci.

THE CHAIRMAN: Okay. Next, Ms. Velshi?

MEMBER VELSHI: Thank you, Mr. President.

I'd like to start off by complimenting the four licensees and CNSC staff. It's good to see satisfactory performance in all 14 safety and control areas and to see improvement trends in many of those areas.

My first question to staff is: How standard is the design of these four SLOWPOKES that would enable common safety analysis, or development of training programs, or aging management? Or does that happen or do they all work pretty much on their own?

MR. CARRIER: The safety analysis was actually originally produced by the designer. So AECL was responsible for the development of the safety analysis.

Specific safety analyses were produced over

the years for each facility and then were adapted as changes were implemented in the facility.

So Royal Military College in Kingston is a case in point here where changes were made to some of their regulating system and components and the facility and the regulating system itself, which now is computerized.

So facilities are different. The original safety reports were produced by AECL. So they cannot be the same but they're greatly inspired from one another, if I should say. So the commonalities between those reactors is tremendous.

Regarding the development of aging management programs, CNSC staff did provide guidance and those licensees did exchange notes. However, there's no common program. The programs are specific to facilities. The same holds true for training.

THE CHAIRMAN: Can I -- but I remember since the last time at one of our discussions, I thought that the four licensees were going to create a Consulting Advisory Committee and share information whenever possible.

Is that actively in place?

Because in reading the four submissions, there's a lot of commonality. Even the format and all

that submission looks like it's been coordinated, let me put it this way.

MR. CARRIER: Well, I think part of the question has to be answered by SLOWPOKE licensees here.

I have to say that we did provide guidance of licensees on how to make the application and basically encourage -- highly encourage licensees to follow the safety and control area framework. So -- and that -- you know, that clarifies the expectations on what's needed on the part of a regulator on an application, but also clarifies actually common evaluation -- systematic evaluation following the same pattern for all licensees.

So I would say it's not surprising that actually the submissions do look the same.

THE CHAIRMAN: But RMC there's no standing committee that you -- your people don't meet together on a -- to share information, as Ms. Velshi was inquiring about?

MS. NIELSEN: We do have a SLOWPOKE Users Group. We met last in June of 2011 when all four of us had to come up to the CNSC and talk about relicensing. After that meeting was over, the next morning, the four of us had a SLOWPOKE Users Group meeting.

We tried to have that meeting last night but all of us were coming in at different times and

different people had car breakdowns and things. So unfortunately last night we couldn't meet.

However, we do have regular communication by email many, many times a year, and if we have any questions or need help, we do communicate with one another.

I'm not sure that the problems we have are that similar, but we do keep in contact. We do communicate several times a year and whenever we are in Ottawa, we try and have a SLOWPOKE Users Group meeting.

And we had one after the 25th anniversary; for example, at RMC, we had a SLOWPOKE Users Group meeting.

THE CHAIRMAN: You mean CNSC is the incentive for meeting. Maybe we should call you in here a ---

MS. NIELSEN: Yes.

THE CHAIRMAN: --- little bit more often.

MS. NIELSEN: Yes. Yes.

(LAUGHTER/RIRES)

THE CHAIRMAN: Ms. Velshi?

MEMBER VELSHI: Thank you.

CMD 13-H9 on page 19, staff, you say that the uranium core is expected to last until 2020; so two questions around that.

Does that mean that's when you expect the end of life of the SLOWPOKE to be? And if it is 2020, why are we looking at a 10-year licence?

Or the second part is you mentioned the shimming with beryllium as sort of a form of refuelling. Would that extend the life or would one consider refuelling, which I think Mr. Elder also suggested was an option, and whether that had been done?

So three parts to this question: Is there -- what is the end of life? Is that likely to change, and if so, how? And if it is 2020, why a 10-year licence?

MS. NIELSEN: We have no plans to decommission at this time. We plan to refuel.

Dr. Weir has already started a huge amount of paperwork for the Department of National Defence to get funding for refuelling. You have to be five to seven -- submit your documentation five to seven years in advance in order to get that amount of money.

So our intention is to refuel. We are backed by the present Commandant and the Principal. We think -- we have two more shims left. You can only shim to a certain extent, past which it doesn't do any good anymore. So we think we have two shims left roughly, depending on how much radioscopy we do, and then we intend to refuel.

So Dr. Weir is in the process of trying to get financing and we are in the process of trying to learn as much as we can from Jamaica, who are in the process of trying to get -- well, supposedly getting their low enriched fuel in 2014.

So we're trying to cover all aspects, but RMC has no intention to decommission.

MEMBER VELSHI: Thank you.

Staff, anything to add?

MR. ELDER: Peter Elder, for the record.

The only thing I'll add is there have been refuelling and when you get to École Polytechnique, you can ask questions. They have refuelled. So it has been done before; it's not a unique operation.

MEMBER VELSHI: I know all four of the licensees have raised staffing as a common issue, whether it is because of demographics, budget cutbacks or whatever. Is there sort of a minimum complement of operators that are mandated by the CNSC?

In your presentation you mentioned that one of your existing staff has moved to another department, but they still remain a reactor operator.

So maybe you can elaborate -- staff can elaborate on what are the requirements to maintain qualification?

MR. CARRIER: Christian Carrier for the record.

The minimum staffing at the facility is actually one person. You need one operator really, and that operator has to be available to ensure -- even if the reactor is not in operating mode, even if they shut down, they still need to ensure the weekly maintenance to maintain chemistry inside the reactor container primarily, but there's a number of things that you need to verify for continued safety of the facility.

The operation of the reactor is not very demanding. The reactor can be operated remotely, attended, meaning that you don't even need to be in place while it is in operation. You can leave it up to 24 hours, basically by itself, operating. So the conditions allow for that.

MEMBER VELSHI: And in the second part where the person has moved to another department, do they still maintain their qualification as a reactor operator?

MR. CARRIER: They can maintain their certification as an operator for the facility if they carry on doing their continued training program, which involves, at least once or twice a year, to carry out the weekly maintenance and restarting and shutting -- and doing basically the shutdown of the reactor on a periodic

basis.

MEMBER VELSHI: Thank you.

My last short question in this round is, of the dose that is presented here, what fraction of it is from neutron versus gamma?

MS. NIELSEN: In fact, very little, because radioscopy is not done every day, for example, and you are barred from the vicinity of the facility when radioscopy is in progress by signs and by barriers. So the greatest dose would come from gamma, but it's not very large.

MEMBER VELSHI: Thank you.

THE CHAIRMAN: Dr. Barriault?

MEMBER BARRIAULT: Merci, Monsieur le président.

I guess my first question is to CNSC. On your slide 14, we're looking at the effective doses of RMC, and I notice that there is nothing for 2012. Is there a reason why we don't have any information at this time?

The reason why I am asking -- and I know the levels are low -- but we have a trend developing. We have maximum individual doses going up.

That is the slide, yes, correct.

MR. ERDEBIL: This is Ismail for the record.

The 2012 readings are yet to be received

from Health Canada.

MEMBER BARRIAULT: Any idea of a timeline as to when we will have that information? The only reason why I am looking at it is because it is going up, that's all.

MR. ERDEBIL: We expect to hear them during the upcoming months.

MEMBER BARRIAULT: So could we ask that they report back on that?

THE CHAIRMAN: Somebody from RMC?

MR. FERGUSON: Yes, it's David Ferguson, Radiation Safety Officer at the Royal Military College.

In fact, yes, we do have the records for 2012, and all dosimeters, everything that we got back, we did not have any readings above the minimum reportable level.

The reason for the sharp decrease in 2012 is that our activities within the facility have been cut back in the past year due to renovations within the facility.

As you saw in one of the slides that Kathy Nielsen showed, the seismic basin being added to the building, there are renovations.

The reason for the spike in 2011 was we were doing more open-source work that pertained to the

particular research projects that we were doing that particular year. We have not been using much open-source work within the past year.

So that would be the reason for the slight trending upward and then the sharp decrease in the past year is because we have not been doing -- we have been doing very little open-source work within the laboratory facilities in the past year.

MEMBER BARRIAULT: Thank you. Go Ahead.

THE CHAIRMAN: Can I just piggyback? Let me understand the process. As required, you send your dose data to the National Dose Registry at Health Canada? Is that why there is such a long delay?

And while you are sending all this, do you not know yourself what the cumulative numbers are?

MR. FERGUSON: Yes, our dosimeters are all sent in to Health Canada. They are sent in quarterly. So from the time that we send them in at the end of the three-month period until we get the report back is about a two-week period, probably closer to three weeks.

But yes, during the meantime, on a daily basis, as indicated on one of the slides that Kathy Nielsen showed, every staff working within the facility is wearing personal alarming dosimeters. As a person enters the facility, they log in. Dosimeter records are

maintained, and we do have daily records from the personal alarming dosimeters. So yes, we would know, before we get the formal reports back from Health Canada, if there was to be any spike, shall we say, during that time period.

THE CHAIRMAN: So two weeks service from Health Canada is very good. So we are now into May. You should have -- I assume you should have all the data available in the chart for quite a while?

MS. NIELSEN: Kathy Nielsen.

We had to have this information to the CNSC by August of 2012. At that time, I believe Dave had two reports back from the Health Canada Radiation Protection Bureau.

We did send in six months worth of data to the CNSC, but we could not, at the time that the document was needed, send in a year's worth because the year had not expired yet.

So we had to send things in quite early, and probably they didn't want to just put six month's data on the screen, I would think. But they have it.

THE CHAIRMAN: This is a small observation. I think you should be able to take data into the new year just to update -- you should be able to update a document that was sent to you six months in advance.

MR. ELDER: Peter Elder for the record.

Just note that two things they are saying is we note that they provide us an annual report in June, and that is when they compile the whole year. They also -- if there's anything unusual, they have to tell us as soon as they see anything unusual. You'll get some examples of that, I think, in the meeting.

We note that for these ones, if we looked at the back of the -- we will update the data.

The only thing I would like to say on the trend is even the high number there is 1 percent of the limit. So when we are looking at trends, you also have to look at the risk on this one, and do we understand what is going on, the activity? Most of the activity, as the radiation safety officer said, is not associated with the reactor, but what they are using the reactor for.

THE CHAIRMAN: Dr. Barriault?

MEMBER BARRIAULT: Yes, thank you.

The next question is to RMC. How much of the week, and the month, and the year, does your SLOWPOKE reactor operate? Does it operate every day?

MS. NEILSEN: Well, before the renovation started last February 2012, we were operating, yes, approximately six hours a day, five days a week, sometimes over-night with radioscopy, but since the extensive renovations have started, I would say we are down to about

a quarter of normal -- easily a quarter of normal operations. We don't operate the reactor if the renovation/construction workers are anywhere near the facility, so to speak. That is an agreement we made with them and with the CNSC.

So this last year has been very unusual. We have not as much activity, but we are trying to at least keep things going so that we don't stop entirely, but normally, roughly six hours a day, five days a week.

MEMBER BARRIAULT: Five days a week, okay.

I guess it brings me to my next question; it has got three functions, if I understand correctly, education, research and third-party work, as metallurgic testing for the Air Force or the Navy or whatever?

I would imagine this third-party work generates revenue for the reactor. Does that make a big part of your budget or is it self-sufficient? Because you were mentioning earlier that you were concerned about the cost of refuelling.

MS. NIELSEN: The neutron radiography facility was financed by the Air Force to the tune of a few million dollars and, consequently, when we do non-destructive testing for the Air Force, they are not charged.

MEMBER BARRIAULT: Okay.

MS. NIELSEN: Similarly, other things that we do for the Department of National Defence, it depends, we do get a stipend from the Director General of Environment and Nuclear Safety, but it's not really a lot of money. So I think the way DND finances the SLOWPOKE is, for example, we're hoping to get a new camera for a CD device for radioscopy of the order of \$80,000. And if we make a case for it, they will pay for it, but they don't actually pay for individual experiments that we do for them. So refuelling is really not their problem, so to speak.

MEMBER BARRIAULT: Thank you.

Thank you, Mr. Chairman.

THE CHAIRMAN: Thank you.

Dr. McDill?

MEMBER McDILL: Thank you. Just a few questions.

With respect to Aboriginal concerns, have you had any -- I mean, I can read that there have been letters sent out and contacts made, but have there been any specific Aboriginal concerns in the area -- First Nations?

MS. NIELSEN: In the area, no. The CNSC did send out a communication to Tyendinaga -- I believe -- Reserve and they received no response.

As far as I know, we have never heard of anything in the negative feedback or positive feedback or any feedback at all from them.

MEMBER McDILL: To staff, is it not the Proponent's role to also contact the First Nations and community?

MR. ISLAM: For the record, Wasif Islam.

Yes, you're right, Dr. McDill, CNSC staff have engaged the interested stakeholders. We did communicate, both in writing as well as following up with telephone conversations. We've shared with them our CMDs as well as other relevant information pertaining to this hearing. There has been no concerns or questions that were raised.

MR. ELDER: Peter Elder.

Just to add to that one, actually the duty to consult or any duty to consult, if it exists, is actually on the government, not on the Applicant.

Obviously, for more complex situations, we expect the Applicant to do -- include that in their public information engagement. But in this type of -- where the threshold of any duty to consult is quite low, staff generally do it themselves.

MEMBER McDILL: It was the specific issue, not the duty to consult is the Proponent's involvement.

Second question is is there any issue with respect to fire protection, which comes from Kingston? In terms of -- I realize security is something we can't talk about, but in issue -- is there any issue that is -- has come to light with respect to the various fire drills you had over the last few years?

MS. NIELSEN: No. We -- our fire system in the building has been -- this is the second time it will be upgraded. And it seems to go off and everyone goes out -- leaves the building and the fire department responds, I think, within five minutes.

We haven't -- we have had some smoke, not, I don't think, a real fire in another module. I think it's all under control.

There are rules for if there's a fire where you meet and make sure you've got everybody you should have out of the building, et cetera. I don't believe we've had -- everything as far as I can see is working well.

MEMBER McDILL: And staff, perhaps I could ask you to comment since you checked on that.

MR. CARRIER: I could expand a bit on the subject.

As you saw from the presentation, RMC went through a significant renovation project and we did look

into it. So our fire protection specialist did look into the provisions in place to ensure continued protection during that critical period.

So looking at the material that would basically -- the temporary material being put in place, putting fire retardants, ensuring that we're using material that was not combustible as much as possible. So we did look into it.

MEMBER MCDILL: Thank you.

And final question, coming back to something Ms. Velshi was raising and I think others, is there a role perhaps for a hold point somewhere around 2019-2020?

MR. ELDER: Peter Elder, for the record.

Is the -- you would have difficulty defining a specific time for when the core because the core -- how long the core will last will depend on how much often you use it. And there's really no safety concern if the core runs, you know, the fuel is used, the reactor doesn't operate. So there's no particular safety concern.

They would have to continue to doing their basic weekly checks on the pool and this one. So they're -- you know, I guess going back in and saying they would be -- there would be incentive for them to come to us for

reaction to reduce some requirements. The current requirements would remain the same whether that core has enough fuel to produce neutrons or not.

All the main -- the maintenance cycle and that would be the same and it really would depend on how much they use the core.

MEMBER McDILL: What about the connection to potential withdrawal of service by AECL?

MR. ELDER: I guess when looking at it in terms of AECL, our initial concern -- and we ask the licensees to look into this one is that there was -- our concern is that there may be a potential for that withdrawal service sooner rather than later.

So I think we should be coming back to the Commission before 2019, on what are the -- what does the future look like in terms of servicing these reactors.

And it's one of the issues that actually we've put on the table around AECL restructuring with AECL and the government to say we would like a thorough review of all the services that AECL is providing and some understanding of whether these will continue to be offered on a commercial basis or not.

So I don't think -- again, there is not immediate or any safety issue raised by the lack of a maintainer, it actually is an operation issue.

MEMBER McDILL: Thank you, Mr. Chair.

THE CHAIRMAN: But just to follow-up, maybe not a whole point, but you are planning to provide annual reports? And in those annual reports you will update on any upcoming issues, such as AECL or such as fuelling requirements or refuelling requirements?

MR. ELDER: Peter.

Yes, that would serve as a mechanism to give updates on what's happening on these ones. So what we're looking at in terms of annual reports is after these renewals and looking at the renewal of McMaster next year is then gradually doing annual reports on all these facilities as going forward.

THE CHAIRMAN: Okay, thank you.

Next, Dr. McEwan. No question?

Next, Monsieur Harvey.

MEMBER HARVEY: Merci, monsieur le président.

My first question is about aging. You mentioned as well the Military College and the staff that there exists program taking care of aging. But what are the main concern when you're talking of aging? It could be everywhere, but probably we got some part of equipment or structure and what are they and are those concerns the same for all the licensees? And always done the

monitoring as well by the staff and by the licensee?

Can start by the staff, yeah.

MR. CARRIER: We can start with staff. So Christian Carrier, for the record.

Okay. First, SLOWPOKE facilities are not very complicated; there's a very limited number of safety-related components. So the first screening of components was identified by the licensees, which comprised the control rod mechanism, the control system, capsule transfer system, pool water -- pool and reactor deionizer and headspace purging system and radiation detector, and of course, the core itself.

Most of these components are readily available or can be monitored directly or indirectly. So during the weekly maintenance, licensees do measure radiation fields, they do take samples of pool water. They do assist as to whether the condition is stable over time.

We're talking about safety-related system, but we're not talking about catastrophic failure of any of those systems. Failure of any of those systems will not lead to core damage per se.

All those facilities are very similar in nature. Some facilities have their own particularities. For instance, the HEU-core tends to be more porous. They

do tend to -- they're older, first, and they do release because of the porous nature of -- the fuel sheets is made of aluminium.

They do tend to release more material and we do tend to look a bit more into it, because they're older and because they are more permeable. The LEU-core tends to release very little material inside of the pool water. But those are parameters that are monitored.

There's also condition -- the licence condition handbook in cases where the numbers don't jive with what is normally expected that it would report to us immediately. That never happened over the years.

So I'm not sure I answered your question, but when we talk about safety system -- safety-related components, we should not over dramatize this thing. There is no trip system in the SLOWPOKE reactor. So there is no special safety system in the SLOWPOKE reactor.

MEMBER HARVEY: Okay, I think that answers my question.

But are you doing some special inspections about that or are you just receiving the information provided by the licensee?

MR. CARRIER: Well, the licensee do monitor on a regular basis and during inspections, we do visual inspections.

The area of improvements that have been identified throughout our review was the opportunity to look inside of the reactor vessel. The licensees are not authorized to open that vessel. Only the reactor technician, the reactor engineer are allowed to do this thing. So the opening of the container does not happen very often. So we already pointed out the opportunity that we understand that AECL is doing visual inspections but we're not really aware of what's happening.

So I understand RMC was considering having REFINS and we were interested in attending this thing and having direct communication to look for opportunities of doing the maximum of what you could do during this opportunity of looking inside of the vessel.

So there's work into this thing. Throughout our review, we'd look at those areas where continuing improvement in the program -- there's opportunities to look into it, let's say.

MEMBER HARVEY: Thank you.

You want to add something?

MS. NIELSEN: I can tell you that the last time AECL was down was December of 2011, and the reactor container was opened and they do do a visual inspection, and I'm always amazed at how beautiful it looks inside. It looks as though it's absolutely brand new. It's just

amazing.

The exterior of the container has a little bit of corrosion but we can fix that. We don't need AECL to do that.

But I'm always amazed at how clean and brand new the interior of the container looks like, and that was December of 2011, after 27 and some odd years.

MEMBER HARVEY: Thank you.

MR. CARRIER: If I may just add on this one, there was also an opportunity of getting more information during the decommissioning of the Dalhousie reactor. I have the same comments from CNSC staff attending that decommissioning. It looks pretty nickel inside.

THE CHAIRMAN: Can I ask, since we're talking about inspection, what is the role of CALA? This is the Canadian Association of Laboratory Accreditation.

Do they actually have any knowledge of nuclear or nuclear material or aging or things of that nature? What do they look at when they accredited your laboratory? RMC?

MS. NIELSEN: Yes. CALA is an external environmental laboratory certification that one can get, for example, so that one is able to give evidence in court, which is why we have CALA come and audit us.

They don't seem to have their -- the people they send, the inspectors do not have knowledge really of nuclear matters, unless -- I think Dave, weren't you an inspector once? No? Jeff Zimmermer from Saskatoon came once and he knew a lot about reactors, but in general no, their inspectors don't.

But what they check is management, paperwork, how experiments are done, if there's a procedure, whether you're successful. So they do check the environmental monitoring that we do for the Navy on each coast, but they don't really know a lot about reactors.

But it allows us to go to court and present our evidence from experiment -- with experimental data.

THE CHAIRMAN: Do they submit a report and is it available to staff?

MS. NIELSEN: They submit a report to their governing body and then usually just as when the CNSC does a Type-II compliance inspection, the lab has to reply to the requirements and actions, and then they become certified and you get a certificate.

I do not know if -- how widely these reports are available. I don't really see why it couldn't be available to the CNSC, but I don't know for sure.

THE CHAIRMAN: Staff, have you seen them?

MR. ELDER: Peter Elder, for the record.

We haven't seen those types of reports. Again, they're looking at not is the lab being operated safely; is they're looking at -- would be looking at is there processes control to make sure there's not cross-contamination between samples, are there appropriate records, quality assurance, quality control around the measurements that they're taking.

So it's a similar process actually that we're trying to go through for our CNSC laboratory. It's not a safety related function, it's actually when the result comes out, is it an accurate result from a laboratory perspective, you know, you're given a measurement, how do you understand is that an accurate measurement within the bounds of the equipment?

THE CHAIRMAN: But it seems to me that it would be a very useful report for your management system assessment.

MR. ELDER: It would be in terms of looking at elements of the management system if they are integrated into this one.

So we'll look into whether we can see those reports. I'll tell you from personal experience with other licensees, a management system that is too focused on quality control doesn't necessarily cover off safety

aspects; worker safety, public safety aspects.

So they are actually -- the management system requirements are slightly focused, a different focus, which is why the industry has gone to a more integrated management system for complex facilities.

THE CHAIRMAN: Monsieur Harvey?

MEMBER HARVEY: On Slide 8 in your presentation, you mentioned that new seismic bracings were installed. What -- who decided that they were needed and do you have a report that initiated that or that has been initiated by the staff?

MS. NIELSEN: No, the Department of National Defence has a seven-year program to modernize the -- bring the buildings at the Royal Military College, which -- the Sawyer Science and Engineering buildings modules were built in the seventies and so the code they used at that time, the building code, the electrical code, the HVAC codes have now been changed. So they want to modernize all the buildings, replace -- in particular the HVAC system.

As a result of that, the people who were hired, J.L. Richards are the architects and engineers, had to do a seismic study. And also because the HVAC system for the entire Sawyer Science and Engineering building is being replaced, a sixth-floor penthouse has been built on

the module that contains the reactor.

And to support that extra floor, if you like, where all the HVAC equipment is going to be, it was determined that additional seismic bracing was needed for the building.

MEMBER HARVEY: Okay. Thank you.

Last question is about the rating. My question is addressed to staff.

As we have a similar rating, as well the rate and the trend, so it's the same thing for all the four facilities. And we don't have any "fully satisfactory", even after 35 years. I agree that it's not quite frequent that we see that, but occasionally on the B reactors, we do see some "fully satisfactory".

What is the reason why it is impossible to see that on such equipment?

MR. ELDER: Peter Elder, for the record.

I guess we've had this discussion on other facilities, but it's really the advantages, I'm going to say, the power reactors have is they rate often. And they have lots of information, lots of data points to do those ratings. And when you have a lot of data points, you can then start to differentiate between what's satisfactory and what's fully satisfactory.

These ratings that we've got now and that

we're talking about, this is the first time we have systematically applied them to all the SLOWPOKES. And when you only have one set of data points, it's very hard to then make a difference between satisfactory to fully satisfactory.

So yes, if we had been systematically rating these on -- for over 35 years, you would have enough data to be able to differentiate.

But the last license renewal, 10 years ago, we were not using the same rating scheme; in fact, even for the reactors it's only about five years old. So we don't have, at this point, sufficient data to start to differentiate satisfactory to fully satisfactory on smaller facilities.

It's just -- whereas on the reactors, be more complex -- their disadvantage is more complexity but, essentially, we look more often -- it's a much more intensive compliance program, you get a lot of data points. With a lot of data you can then start to differentiate between your -- you know, above the bar and how far above your satisfactory bar you are.

MEMBER HARVEY: But seeing that we have the idea that things are exactly the same everywhere so and that we wouldn't have to read all that stuff because it's the same thing. After reading one, it's the same thing

everywhere.

So is that the case -- do exist some significant differences between the four?

MR. ELDER: Peter Elder, for the record again.

There aren't significant differences between the facilities. They've a common design. In fact, you know, while they -- again, like anything, there's some differences, you know.

In fact, one of the biggest differences between the reactors is RMC has a open pool, the other ones all have a concrete cover over their pool. It doesn't affect any of the safety operation but it does affect things like seismic. There's a chance in RMC that something that can fall in that really doesn't exist at the other facilities. That is about the biggest difference you'd see.

In terms of the programs, one of the things that -- why we were, you know, there has been an evolution, continuous improvement over the number of years and, essentially, CNSC staff encourage the same improvements at all the facilities at the same time.

So there was a big movement not only for these licensees across the industry 10 years ago to start going to more systematic approaches to training, to have a

better quality assurance management system. These are general trends to the industry.

For the SLOWPOKEs, you approached them as a group and said: "This is where we are going in the industry where the regulation is going" and you tend to get everybody to move at the same time.

So there really -- in terms of what the facilities are used for, there aren't differences in the safety -- the basic safety of the case is exactly the same for all the facilities and they're not complex facilities.

You generally get a very uniform picture of the facilities.

MEMBER HARVEY: Merci.

Merci, monsieur le président.

THE CHAIRMAN: Any other questions?

Monsieur Tolgeysi?

MEMBER TOLGEYSI: It's to staff.

On page 44, the RMC is talking about possible request to reclassify a laboratory from basic to intermediate level and it will probably happen after completion of renovations which are expected at the end of third quarter of 2013.

How it will impact the renewed licence?

MR. CARRIER: Well, this is one of these particular situations where those laboratories are being

covered in a sense by two types of licences.

RMC has a radioisotope licence that is covered by our group in the NSR and is also covered by, you know, the facility licence.

These laboratory -- it is not abnormal for those facilities under consolidated licences to generate and create new labs. There's a process to do this thing, there's an application for approval of labs. It is being reviewed by CNSC staff. And so there's an authorization process in proceeding in this fashion.

Creating a new lab is not that peculiar and it is something that is happening in those consolidated licences on a regular basis. So it is not an abnormal event. This is part -- this is something that the current framework deals with on a regular basis.

So it is not an abnormal event and there's nothing very peculiar about it.

THE CHAIRMAN: I got a couple of quick questions.

First of all, we live in Ottawa, we know that the federal government has been cutting severely. I know DND got hit.

Are you -- how -- what's the impact on your operations?

MS. NIELSEN: Well, we lost one excellent

technician under the Workforce Adjustment Program.

Luckily, we've kept her as a reactor operator as I mentioned, because she's just moved over to Civil Engineering so she's still an employee of DND and she's available to help us out in the lab with her corporate knowledge.

We have replaced some of the analytical work -- not the operations and maintenance which has to do with safety, for example -- but we have replaced some of the analytical work with contract workers.

But as far as operations and maintenance of the reactor itself goes, we have Dr. Chan who will take over from me, we have other DND members who are going to take over operations and maintenance. We do have a plan in place.

The cuts from DND to the Royal Military College have been very, very harsh. The whole college is suffering but the Commandant is fully behind supporting SLOWPOKE as is the Principal. Dr. Weir seems to magically be able to get some money to repair things that need repairing.

Actually, we've replaced so many things and done so many things, I think we're in excellent shape and I think we have a plan in place but it is rough right now.

THE CHAIRMAN: So I don't hear any safety

concern, though?

MS. NIELSEN: No, there are no safety concerns because the operations and maintenance, we have solid DND personnel there and, as I say, Dr. Chan is -- right now, I'm training him to be a reactor operator and he'll be brought up on everything, all the daily monitoring.

And he's a DND employee, permanent employee, I don't think there's a problem with safety at all. There is a problem with getting the work done but that's application as opposed to operations and maintenance.

THE CHAIRMAN: In looking at your impressive organization chart, it's a typical government chart, what I see -- I'm trying to ascertain: Who is actually the licensee holder? Is it the Director?

MS. NIELSEN: No, it's the Commandant.

And I tried to tell you that we go right up straight, in a straight line, to the Commandant. It is the Commandant.

THE CHAIRMAN: But he's the name on the licence?

MS. NIELSEN: There isn't a name on the licence curiously enough. It says the "Royal Military College of Canada".

Actually, it drives me nuts. There's no name. It says ---

THE CHAIRMAN: I'm with you. I don't like institutions being responsible, normally individuals. Isn't that ---

MR. ELDER: Peter Elder, for the record.

We don't -- there is a requirement that they tell us -- sorry, that the name is done to a corporate entity, the licence, a corporate entity but there is a separate requirement in the regulations that they must tell us who is responsible and who is allowed to make commitments for the facility.

THE CHAIRMAN: So who is it? It's the Commandant in ---

MR. ELDER: So it's -- in this case is the Commandant.

And in the past, when we have had issues with the facility, we actually once went up to the Commandant level.

THE CHAIRMAN: Okay, which brings me to -- I hear that the DM, the Deputy Minister of Natural Defence, is the guarantor for the decommissioning financials.

Does he know -- is there a number associated with this guarantee and is he aware on the

amount?

MR. ELDER: Peter Elder.

Yes, there is a number and it's not, you know, when we go through process is -- what comes first is the number and then someone has to verify that they are aware of the liability and that they are managing -- that they are aware of that liability.

THE CHAIRMAN: So what is the number now?

MR. ELDER: So the number is 6.2 million.

THE CHAIRMAN: Six point two (6.2) million?

MR. ELDER: Or 6.3, yeah. Yeah.

THE CHAIRMAN: So that's even larger than the Dalhousie project.

MS. NIELSEN: Well, we have a beam tube to get rid of.

THE CHAIRMAN: Ah!

MR. ELDER: So -- and we'll have some further discussion.

There are variations and this is more on some of the variations of facility that affect the decommissioning. So how large -- not the reactor facility but the rooms around it and they actually can have a significant -- and the equipment they have to dispose of can have a significant impact on the decommissioning.

MR. WEIR: President Binder, could I just

add something?

Ron Weir, RMC. We are a military institution, very different probably from every other facility that comes to you, whether it's a power reactor or a research reactor.

The Brigadier General, as the Commandant, is the boss. Legally, he is the boss and everything that happens within that facility is his responsibility. It's a top down organization and when he says to me: "Look after aging components", I don't have a choice, it has to be done and that's the way we operate.

It's the same for fire drills. It's all written out and this is what you will do. It is the military. Just so you know.

THE CHAIRMAN: Never doubt it. I just wanted to know who pays.

(LAUGHTER/RIRES)

THE CHAIRMAN: Just one -- maybe one kind of a last line of inquiry.

The LCH is sort of a relatively new, right, concept, what do you think about the LCH that is now -- I think it's the first time you see the LCH and all the requirements.

Any views about that transition from the licence condition to the LCH?

MS. NIELSEN: Well, we -- the facilities have had the opportunity to go through, I think, three draft -- three drafts of the Licence Condition Handbook. It's a little overwhelming.

The original idea, I believe, of SLOWPOKES was it could be run by one or two not highly technical people and they could manage everything. I guess with the change in times and the change with bureaucracy, more and more administration has been added.

I guess the best thing I can -- the most polite thing I can say is the Licence Condition Handbook is somewhat overwhelming, but we will certainly do our best to comply with it.

THE CHAIRMAN: You are being diplomatic.

So my last -- very last question: In that LCH, on page 76, there's a whole list of all the documents version control and what struck me was that the SLOWPOKE nuclear reactor operation and routine maintenance is still run by that document that was written in February 1984/85.

You know, every time I see those kind of documents I always ask my normal question: Does it require any update? Is it still current?

Who wants to answer? RMC?

MS. NIELSEN: We have an additional document now called the -- well, it's called the SIRCIS

Users' Manual. It's the name for our digital control system. It's the SLOWPOKE reactor integrated instrumentation and control system.

So we have a very updated users' manual which compliments the 1983 manual and it was updated in June of 2012.

But I think for -- I shouldn't really speak for the other reactors but I think, basically for the other reactors, not much has changed and so the original one in 1983 is probably still valid.

But because we have a digital control system and because we've changed so much of our equipment, we do have to have a complimentary users' manual in addition to the one in 1983.

THE CHAIRMAN: Staff?

MR. CARRIER: Christian Carrier, for the record.

The 1984 version document is an AECL document. So this is an AECL proprietary -- not proprietary, but it's an AECL produced document. It is a good basis, as Ms. Nielsen has alluded to. Those facilities don't tend to change very much over time.

So the content of this document is good and is still valid, but every SLOWPOKE licensees have also complimented some aspects of the continued maintenance of

the facility through their operating manual or, as in the case of RMC for CIRCUS where they have a new brand new system in place, that was not in place at the time of creating those facilities so specific maintenance activities had to be produced.

So it is common to all licensees that, actually, the daily, weekly and all activities are conducted in the scope are complimented in additional documentation.

THE CHAIRMAN: It's just that it is in the LCH as a requirement and I also want to make sure that, if CNSC makes it a requirement, we have a view that it's still relevant.

MR. CARRIER: It is totally relevant.

THE CHAIRMAN: Okay.

Anybody else? Last question?

So thank you. Thank you for RMC.

Maybe we'll take a 10-minute pause and then we will proceed with the RMC -- with the SRC, sorry, too many acronyms.

--- Upon recessing at 10:55 a.m./

L'audience est suspendue à 10h55

--- Upon resuming at 11:09 a.m./

L'audience est reprise à 11h09

THE CHAIRMAN: Okay, I'd like to move on to the presentation from Saskatchewan Research Council as outlined in CMD 13-H10.1 and 10.1A. And I'll turn the floor to Mr. Muldoon with his presentation.

13-H10.1/13-H10.1A

**Oral presentation by the
Saskatchewan Research Council**

MR. MULDOON: Good morning. My name is Joe Muldoon, for the record, Vice President of the Environment Division at Saskatchewan Research Council, and it's the Environment Division within which the SLOWPOKE reactor is located in terms of responsibilities.

To my right is Mr. Dave Chorney, the Facility Administrator for the SLOWPOKE.

The SRC SLOWPOKE-2 facility is part of SRC's environmental analytical laboratories located in the Resources Research Centre building in the Innovation Place Research Park in Saskatoon, Canada.

The facility occupies four rooms in the south end of the Resource Research Centre building. The four rooms are: the reactor room, two laboratories and a storage room for radioactive materials.

I'm now going to turn the bulk of the presentation over to Mr. Dave Chorney.

MR. CHORNEY: Thank you, Joe. Dave Chorney, for the record.

So this is a shot of our reactor room. In the foreground is the reactor pool. The pool covers can be rolled back and forth as necessary via a hydraulic trolley system.

And in the background, from right to left, is the pool water deionizer system, the service box which controls the pneumatic sample transfer and headspace purge systems and the reactor water deionizer. Behind the reactor water deionizer is the pool cooling system control.

So a brief history of our reactor. The SRC SLOWPOKE was commissioned in 1981, in March. To date, it has been operated for 85,000 flux hours, producing approximately 170,000 kilowatts of thermal power.

Its primary use has been as a neutron source for instrumental neutron activation analysis and delayed neutron counting. We have irradiated over 200,000 samples to date.

And in recent years, it has seen increased use as a teaching tool in cooperation with the University of Saskatchewan.

Now, this slide is a little complicated. Hopefully, you can all read it but management of the SLOWPOKE is incorporated into the management structure of the Saskatchewan Research Council. The SRC is a provincially-owned research organization with seven main divisions. The SLOWPOKE facility is operated by the Environmental Analytical Laboratories Business Unit within the Environment Division.

Levels of management control for the reactor are the Saskatchewan Research Council Board of Directors, then Dr. Laurier Schramm, the President and CEO of SRC, Mr. Muldoon, Vice President of Environment, myself, the Facility Administrator, the certified reactor operators and the authorized users.

So minimal staffing turnover in the key management positions have provided continuity and stability to the management of the facility. Most of the current personnel have been involved in the management and/or operation of the facility for the entire licence period.

This long-term stability has enabled staff to become very familiar with the requirements for operation of the facility and to develop and improve policies and procedures related to operations.

Other aspects of facility management,

including quality and safety, are supported by internal divisions and business units.

In 2008, CNSC requested that a quality assurance program for the SLOWPOKE be developed. The environmental analytical lab had a QA program that addressed some of the requirements for the SLOWPOKE QA program, so the EAL QA program was amended to include all requirements of SLOWPOKE QA program and was accepted by CNSC.

Safety is an overriding priority of SRC. The safety management of the facilities integrated into safety services. The OH&S management system provides a framework on which both conventional and radiation safety are based.

Staffing of the facility consists of certified operators and authorized users. There are currently three certified operators on staff with over 80 years combined experience.

An SAT-based training program for new operators was developed during the current licensing period. This program has been reviewed and accepted by the CNSC staff. And to date, we have trained one operator candidate under this program.

Authorized users are typically selected from the staff of the environmental analytical labs and we

typically have six to eight users on staff. We do some teaching opportunities in conjunction with the University of Saskatchewan, and depending on a project, the university student may be sometimes granted temporary authorized user status in order to conduct their project.

The reactor has been operating trouble-free since 1981. Over our current licensing period from 2003 to 2013 we've averaged about 7,000 irradiations a year. We're operating for about 2,700 flux hours per year. So on average, we're operating three days a week, five hours a day.

At this rate of usage, we don't burn up the fuel excessively quickly so re-shims are generally every six to eight years. And we re-shimmed twice during this last licensing period in 2003 and 2009. So at the present usage rate, we estimate the fuel will last for at least another 15 to 20 years.

So for aging management over the history of the reactor, a weekly maintenance schedule is being followed since commissioning to verify the health of the reactor and auxiliary systems. Additional checks and inspections were added over the years. And in 2007, a systematic procedure was established to ensure monitoring and maintenance is performed as scheduled.

And then a formal aging management program

was developed in 2012 to consolidate all aspects of aging management under one overarching document. And by following these programs, repairs and replacements are made before problems become serious.

The radiation protection at the facility is provided by SRC safety services. Using the ALARA principle, the SRC radiation program is designed to minimize doses to workers, visitors and the general public.

Throughout the history of the facility, there's never been a significant dose to personnel and no action levels for doses or contamination have ever been exceeded or even approached. So because of this, we've never classified any of our facility staff as nuclear energy workers.

Conventional safety is provided by SRC safety services and supported further by lab and facility-specific safety procedures. The OH&S Committee and laboratory personnel each conduct regular inspections and generate action items based on their findings. Potential hazards are identified and corrected before an incident can occur. As a result, there's been no significant safety issues and no safety incidents throughout the history of the facility.

In 2011, CNSC requested that a fire

protection program for the facility be implemented. Using elements of the SRC OH&S program and emergency response plans, a fire protection program specific to the facility was developed and accepted by CNSC.

The environmental protection program has been in place since 2001 to monitor and control releases to the environment. There are no liquid releases from the facility. Gaseous releases are primarily argon-41, produced from the irradiation of air in the capsule transfer lines, and xenon-133, a fission gas produced during operation of the reactor. The total release quantity of these isotopes is several orders of magnitude below regulatory limits for release to the atmosphere and dose considerations.

We have no solid releases from the reactor itself. And irradiated samples are really our only solid waste. So irradiated samples that do not decay to background levels are shipped to approved disposal facilities.

The SRC is committed to the security of the facility. Security is maintained and improved through reviews of updates of the security program. CNSC security inspections frequently result in improvements to security. The SRC has been fully compliant with action items resulting from these inspections. And we've never had a

breach of security at the facility.

So I will now turn the presentation back to Joe for its conclusion.

MR. MULDOON: Joe Muldoon, for the record.

With respect to the decommissioning plan and financial guarantee, the initial versions of the preliminary decommissioning program and financial guarantee were submitted to CNSC in 2003.

SRC has worked with CNSC to update these documents throughout the current licensing period. The current versions were approved in 2012.

SRC was also requested to develop a public information program. And activities to date include the production of an informational video, identifying the target audience and gaging the level of interest of the audience and then responding appropriately.

In conclusion, SRC has demonstrated the ability to operate the SLOWPOKE in a safe manner for over 30 years. We've had an exemplary record in safety environmental protection. We've met all the regulatory requirements and we're committed to meet all aspects of new requirements.

And in conclusion, we believe that this provides the justification for renewal of the operating license.

Thank you.

THE CHAIRMAN: Thank you.

Staff, would you like to continue with your presentation, please.

MR. CARRIER: For the record, my name is Christian Carrier.

So as in RMC, the following presentation will provide information on NCA's and licensing recommendations specific to the SLOWPOKE-2 facility for the Saskatchewan Research Council.

Radiation protection: So SRC has a radiation protection program in place to manage, control, and minimize doses to workers and to control the use of radioactive substances produced by the reactor.

As you can see from this figure, over the last five years there were no radiation exposures exceeding the regulatory limit of 1 millisievert. No incident have resulted in reportable doses in excess of action levels.

Now, following the RMC presentations, the number zeros there are accurate, so there are actually zero numbers for the year 2008, 2009, 2010, 2012 or the number zeros for the first three quarters. So those are actual numbers.

SRC also revises preliminary

decommissioning plan, including updated estimation of the decommissioning cost and associated financial guarantees. The proposed financial guarantee was accepted by CNSC staff.

CNSC staff conclude that the Saskatchewan Research Council has operated the facility safely during the licensing period. Core programs are in place and do meet requirements.

SRC has made several improvements during the licensing period that will continue to enhance safety in the future. CNSC staff have developed a license condition handbook which documents detail verification criteria for conditions in the licence. As a normal practice, the handbook will be finalized after the Commission's decision to ensure consistency with the decision and its basis.

CNSC staff recommend that the Commission accept the recommendations outlined in the CNSC staff CMD and approves the renewal of the operating licence for a 10-year period and, that the Commissioner approve the delegation of authority to staff as outlined in the proposed licence condition handbook.

This concludes our presentation. We are now available to answer any of your questions.

THE CHAIRMAN: Thank you.

I'd like to start with Dr. McDill.

MEMBER McDILL: Thank you.

First question, how much is the financial guarantee and what's the instrument?

MR. CARRIER: Okay, the financial guarantee in today's dollars was estimated to \$5.76 million. At the time of the commissioning ---

MEMBER McDILL: Is that five ---

MR. CARRIER: Five ---

MEMBER McDILL: Yeah, five ---

MR. CARRIER: Pardon, what was the question?

MEMBER McDILL: Five?

MR. CARRIER: Point 76.

MEMBER McDILL: Thank you.

MR. CARRIER: Right.

MR. ELDER: This clarification -- you asked the question, the form, so for SRC the form is actually a letter from the Minister and they -- they do have a trust fund that they are building up with the actual -- the actual official guarantee is a letter from the Minister responsible for SRC.

MEMBER McDILL: So this number is just a little above the Dalhousie decommissioning?

MR. ELDER: Yes, and it would -- we've

looked -- there are variations again -- you know, the little variations about the size of the lab in that one, but it is based on the estimation from AECL based on their Dalhousie experience.

(SHORT PAUSE/COURTE PAUSE)

MEMBER McDILL: Sorry, I thought you were looking at a paper waiting to give me something.

MR. ELDER: No, no, I was just -- just going to back in and say I'm looking forward to the next round of questions on this one, but that's okay, yeah.

MEMBER McDILL: Two more questions; with respect to the public information program, how is that developing, how far along are you?

MR. MULDOON: Joe Muldoon, for the record.

As I mentioned, we have developed a video, that video is available and has been -- has been used. We have the public groups that come through the lab. Of course, they're not allowed in -- into the direct access to the facility, to the SLOWPOKE, but as part of the broader lab facilities, and part of that tour, we -- we talk about the SLOWPOKE and how it operates.

And, in terms of when we go out to trade shows or any kinds of -- of opportunities that we have to talk about the SLOWPOKE, we do so.

MEMBER McDILL: Staff?

MR. ISLAM: For the record, Wasif Islam.

Now, CNSC staff will continue to work with the licensees to ensure that they develop the programs that indeed meet the requirements of GD 99.3.

As well, the licensee is required to submit regularly a report to the CNSC about its public information program that is also part of the licence performance reporting requirements for nuclear research facilities. This reporting is required annually and at the mid-term point of the licence.

MEMBER MCDILL: Thank you.

So hypothetically speaking, if -- since my last question was on First Nations, if a First Nation community near SRC wanted to find out information about what's going on there, is it something that they can easily do?

MR. ISLAM: Absolutely, yes.

Sorry, Wasif Islam, for the record.

Absolutely, yes.

MR. ELDER: And -- just -- Peter Elder, for the record.

I'd just like to add one point on the public information program. We have been making sure that the requirements are graded to the complexity and risk of the facility and which is clear in the regulatory document

itself. So to make sure that we're not adding an additional unnecessary burden on this one, but there is publicly available information that at least leads you to a contact if you want to find more.

MEMBER MCDILL: Thank you, Mr. Chair.

THE CHAIRMAN: Okay.

Monsieur Tolgyesi?

MEMBER TOLGYESI: Merci, monsieur le président.

I'm going to the document H10.1 on page 6. You are talking about annual SLOWPOKE revenues and expenses, and you are mentioning there for last 10 years the decommissioning costs.

What are those decommissioning costs?

MR. MULDOON: Joe Muldoon, for the record.

The decommissioning costs are the -- the dollars that we -- the actual amount of money that we contribute to the financial guarantee on an annual basis.

MEMBER TOLGYESI: So you are building up a fund eventually which will reduce the contribution of Minister?

MR. MULDOON: The intent is that we would have the -- the amount of dollars required to decommission. Right now, we're projecting decommissioning, I believe it's 2025, and so the dollars

that we contribute, we want to ensure that based on that date, that we would have sufficient dollars to decommission the facility actually in hand.

MEMBER TOLGYESI: And what's the value of cost recovery, what you are paying to the Commission?

MR. MULDOON: Last year, the licence fees were -- I don't have the exact number, but they were 335,000 last year.

Now, they will be coming down -- I believe the estimate that I received just this past week for 2013-14, that will be reduced based on the -- having gone through the licensing system that the licence fees had -- I guess had gone up substantially over the last years or two, but they will come down a little bit over next year as well.

But this past year, 12-13 was 335 -- I thought it was 275 -- 335, I'll take...

MEMBER TOLGYESI: And on page 7, you are saying that if -- how you call this. You have two options, one is obtain an exemption from cost recovery fees; another one is -- the option is that and if not, decommissioning the reactor. If exemption is granted, you will continue to operate at least for 10 years and if not, SLOWPOKE will be decommissioned in the near term. What's near term, next year, five years from now?

MR. MULDOON: Joe Muldoon, for the record.

We were -- I'm happy to state that we were -- had made a presentation to Commission and received documentation Friday of last week that we have received the exemption -- the licence fee exemption from Canadian Nuclear Safety Commission.

THE CHAIRMAN: I expected it to start with that.

MR. MULDOON: I didn't want to -- I didn't want to come in and -- I wasn't sure in terms of releasing that information and -- and the time when to release it, Mr. President.

MEMBER TOLGYESI: So now you -- you continue. What's the life, potential life of the facility? Is some refuelling considered or shimming all the -- or whatever -- what's that?

MR. MULDOON: Joe Muldoon, for the record.

We have approximately, given current use, 15 to 20 years left of -- with the current fuel. We expect that -- we continue to -- we will continue to operate the facility is our plan. We continue to work with the University of Saskatchewan and the Sylvia Fedoruk Canadian Centre for Nuclear Excellence in providing the lab for research and education.

And so it would be our intent to -- now,

given the fee exemption, that we'll be able to continue to operate.

MEMBER TOLGYESI: And my last question is to staff. On your licence conditions handbook or licence condition 81, you are talking to -- as soon as licensee becomes aware that action level has been reached, the licensee should not defy the Commission within seven days. It's not a shorter time, it's do not depend on the severity of this condition and who should be advised. It's -- send a general letter to the Commission or its official who should be advised?

MR. CARRIER: Christian Carrier, for the record.

Currently, there's only one action level in the license condition handbook and it reports on dosimetry to staff, the action level is at .5 millisievert. We know it's a low value, however, given the history of those facilities, we felt that an action level at .5 would at least give us an indication. A national level is not basically dramatic, however, is something is of regulatory interest. The reporting normally is done through the PO or his line management, that's the current process.

THE CHAIRMAN: Thank you.

Dr. Barriault?

MEMBER BARRIAULT: Merci, monsieur le

président.

On Slide 19 of the CNSC presentation, I noticed that the effective dose levels are zero except for 2011 -- and I think that's commendable if they are zero -- but given the fact that we've had problems with dosimetry over the last year or so, I'm wondering, has this been rechecked to make sure that indeed they were zero?

And I don't know who to address this to, to SRC or to CNSC, but it's remarkable because this is different than some of the other SLOWPOKES. University of Alberta, for example, levels are higher; RMC levels are higher.

MR. ERDEBIL: Hello. Okay, for the record, this is Ismail, Ismail Erdebil.

The numbers that are not detectable less than one -- 0.1 millisieverts, we have been receiving those or they have been receiving those numbers throughout the years and consistently.

And also the conditions, operating conditions of the facility, it hasn't changed much. It has been the same throughout the years. And if there're variations that -- those due to measurements or measuring devices, that they would be considerably low.

MEMBER BARRIAULT: So -- I'm sorry, you're going to say something?

MR. ELDER: Peter Elder.

Just -- we should have just clarified; the numbers we are getting are consistent with the operation modes of the facility.

MEMBER BARRIAULT: Okay.

MR. ELDER: Okay? And that's where we've, you know -- and SRC would have to say what dosimetry service they're looking at but whenever we've seen problems, we make sure that that service has gone back and checked the records. But the mode of operation -- the doses are consistent with the operation mode.

MEMBER BARRIAULT: Operation levels.

Does SRC want to comment on this at all?

MR. MULDOON: SRC, Joe Muldoon for the record.

We are -- safety is absolutely number one priority for us and we constantly check our equipment. The lab itself follows CALA so we have a very good QA/QC program in place. And the numbers are accurate.

MEMBER BARRIAULT: Okay. Thank you.

Thank you, Mr. Chairman.

THE CHAIRMAN: Thank you.

Dr. McEwan?

MEMBER MCEWAN: Thank you, Mr. President.

In your submission you comment that staff

turnover, particularly of authorized users, is a problem. Is that an issue that impacts on safety and operations? Is it an impact on future operations and how do you remediate it?

MR. CHORNEY: Dave Chorney, for the record.

The job of authorized users at the lab, it's not a full-time job for them to be analyzing samples. So, you know, an authorized user may operate or run samples once a week, twice a week. So we've had -- you know -- a fair turnover in our chemical technologist position, which are the people who do our routine analysis for samples that are not related to the SLOWPOKE.

And it's a fairly simple matter to train somebody to be an authorized user because when somebody starts work at the Council they get general safety orientation, they get radiation safety training. So -- and then we have a training program set up to become an authorized user and an exam that they have to pass.

So no, even with the frequent turnover of staff at the technologist level, we've never had trouble maintaining the good complement of the properly trained authorized users to run the samples.

THE CHAIRMAN: Just to piggyback on that question, if in your chart on Table 2, on page 12 -- I'm trying to understand, when you say "number of employees"

are those -- you have number 15, are those permanent employees and are they dedicated to the SLOWPOKE?

MR. CHORNEY: Those would be the -- sorry, Dave Chorney, for the record.

Those would be the total number and the average number of trained authorized users that we've had on staff at any given time throughout the license period.

And no, they're not full-time dedicated to reactor operations, they would have other duties in environmental analytical labs, generally in the radiochemistry department. So they're doing routine water analysis, for instance, for most of their procedures.

And then for the analytical procedures that require the use of a SLOWPOKE that would be when they would be involved in reactor operations.

THE CHAIRMAN: It's just that it's such a -- almost like a full-scale, bigger than RMC operation, if I understood at the level here. So is it because of your industrial application or -- this is a much larger operation, looks to me.

MR. MULDOON: Joe Muldoon, for the record.

The reason that we have more trained than not is, as Dave said, there are times when we have turnover, we want to make sure that we don't have a shortage, different shifts as well. Because we only

operate the reactor approximately three days a week, we tend to want to be able to have more than just a few.

We can't have fully dedicated staff that only work on the reactor, and if we did, if there were some level of turnover from a succession perspective, we would want to make sure that we have others available as well.

So -- and as well, in terms of cross-training, people wanting -- staff wanting to do different jobs, we also are always able and willing and wanting to provide training opportunities to staff, and that would include the being able to work in the SLOWPOKE and be able to meet the needs of the company.

THE CHAIRMAN: So those 15, again, somebody should -- I'd like somebody to clarify who determine when an employee is NEW or not. I notice in RMC they're all NEW, in SRC, they're not NEW. So who decides that? Staff?

MR. ELDER: Peter Elder, for the record.

The licensee actually decides that, with the caveat is if you're not NEW, the limit is 1 millisievert per year; if you are NEW, you have to have more complex radiation protection programs process and then your limit can go up to 50 millisieverts per year.

THE CHAIRMAN: But RMC I didn't think ---

MR. ELDER: So RMC, where they consistently don't go anywhere near the 1 millisievert had said there's no justification from ALARA principle of saying these ones are nuclear energy workers. Our -- I mean, for SRC. RMC, you have to look at what the employees do outside of the SLOWPOKE as well that really determines whether they are appropriately NEWS or not.

THE CHAIRMAN: RMC wanted to comment on this?

MS. NIELSEN: Kathy Nielsen, for the record.

We -- a few years ago, the Department of National Defence and the CNSC, I understand, had several meetings and it was agreed that the Canadian Nuclear Safety Commission would regulate the SLOWPOKE reactor. All other matters of radiation are regulated by the Department of National Defence.

In spite of the fact that the Department of National Defence said that the SLOWPOKE, for reasons of public transparency, should be regulated by the national regulator, we still have to listen to the Department of National Defence.

We were told eight years ago because we were getting or had our radiology system that all of us had to become NEWS. So we try and please you as much as

we can and we try and please the Department of National Defence, or at least comply with their instructions. We were instructed to make all facility workers NEWS.

And I think with the radioscapy system, especially the principal radiographer, although he has not exceeded the public limit yet, it's probably a good idea.

THE CHAIRMAN: Okay, thank you.

Monsieur Harvey?

MEMBER HARVEY: Merci, monsieur le président.

Just one question: With respect to the Fire Emergency Preparedness and Response, on page 26 of the staff document, we see that the FPP has been established to comply with the requirements of -- there is a "4) Regulations, Codes and Act" there.

And looking at the others, in Alberta, it's 3; in Ontario, it's 3; in Quebec, it's 2.

So what makes such a difference?

I suppose that the provincial regulation has to do with that but I'm surprised to see in Quebec that they're not submitted to National Building Code.

Why the difference?

(SHORT PAUSE/COURTE PAUSE)

MEMBER HARVEY: Because Université de Montréal is not submitted to General Nuclear Safety

Regulations and National Building Code.

So it surprises me.

MR. ELDER: Peter Elder.

Well, give us a few minutes and we'll get back to you because, generally, they should be the same unless there are provincial rules that come on top of it.

So there may have been an oversight in the CMD. So we'll check.

MEMBER HARVEY: With the provincial, that would just add to the other.

MR. ELDER: That's right.

There is -- it should be a common set which would be the Fire Code and Building Code and that our -- our regulations and then provincials should be the additional ones.

THE CHAIRMAN: I see somebody raising their hand, maybe they have the answer?

MS. CHILIAN: Donc, l'approche qui est à Polytechnique, c'est qu'on a plusieurs codes de bâtiment: le Code de bâtiment fédéral et le Code de bâtiment provincial.

Et on est sensé de respecter les deux et parmi les deux, on respecte le plus stricte. Donc, c'est cela l'approche qui a est utilisée à l'École Polytechnique de Montréal.

Cornelia Chilian pour le dossier, je m'excuse.

MEMBRE HARVEY: Merci.

Anyways, I would like to have a proper answer from the staff and maybe that could be corrected if it's not correct.

THE CHAIRMAN: Maybe by the time we'll get into École Polytechnique, on va avoir la réponse.

MEMBRE HARVEY: Peut-être. Let's hope so.

(LAUGHTER/RIRES)

MEMBRE HARVEY: Merci, monsieur le président.

THE CHAIRMAN: Okay, let's move on to Ms. Velshi.

MEMBER VELSHI: Thank you, Mr. President.

Some quick questions. The first one, again, on effective doses.

On that slide that has a lot of zeros and something on 2011, does that dose include AECL workers as well, the engineers and the technician?

MR. CHORNEY: Dave Chorney, for the record.

There would not have been any AECL personnel onsite at the reactor, except for when we had the REFIMS done in 2003 and 2009, and they provide their own dosimetry badges when they come to our facility.

So, no, the data that we presented would only be for SRC employees.

MEMBER VELSHI: So that it's a little misleading then because these aren't facility doses, these are just doses to your staff, not for conducting operations. Because 2009, they did come and reshim and we still show zero dose.

I think perhaps the staff CMD needs to make that clear then that this is just SRC employee doses and not for the facility.

Do you want to comment on that?

MR. CARRIER: It's a valid comment.

I have to admit that we reported the doses that were provided by SRC on this one and maybe we should qualify that the problem we may be having is how to segregate AECL's dose for that specific activity and report specifically on this one.

There's no requirement to ask a nuclear maintainer to segregate that portion of information through a special dosimetry service or through, you know, using portable electronic dosimeter to do this thing.

So there's no requirement in place to ensure we can provide an accurate value in that context. It's a valid comment.

THE CHAIRMAN: But wait a second, wait a

second.

How does the AECL dose get registered on the Health Canada NDR?

When they register, don't they have to identify the source?

MR. ELDER: Peter Elder for the record.

We may get some clarification on that this afternoon. My understanding is they have to -- it's the person -- personal dose. They have to have an understanding -- AECL would have an understanding of what the person was doing, but they would not break a monthly dose into -- for the dose registry into various tasks. So it's ---

THE CHAIRMAN: No, but at least the location.

If it's RMC, it would still be viewed as AECL employee from Chalk River, for example?

MR. ELDER: No, but he's only there for a couple of days. So he will be working in potentially various radio -- exposure from the various sources over a month.

So it's the sum of -- you would have procedures coming in to make sure that he was tracking -- like, he had -- alarming dosimeters can give him immediate feedback on this, but the overall dose for the annual

basis doesn't divide up: I got it one day here versus one day there.

The same thing you would do on a radiographer that can be working in five different locations. It gives him -- it's the -- and it's the total that he gets for that month or quarter.

THE CHAIRMAN: Well, it's a -- but he takes the equipment with him. So the radiographer is always tied into a piece of equipment.

I just find it strange.

MR. ELDER: But we -- well, I guess what we're always concerned with is the dose the person is getting.

THE CHAIRMAN: M'hm.

MR. ELDER: Not necessarily where he gets it.

But we're going to have some further discussion -- maybe it's a question we'll raise for this afternoon.

THE CHAIRMAN: So just out of curiosity, so if we send an AECL employee to Romania, it always gets registered as AECL regardless of the location?

MR. ELDER: I will have to check into that situation because we've had situations where you want -- you want to avoid double counting.

THE CHAIRMAN: Right.

MR. ELDER: So that you've got your own personal dosimeter from your organization and then have another visitor dosimeter from the other one.

So -- give you the detailed answers on this one ---

THE CHAIRMAN: But as you know, the reason it's important because you do all the epidemiological studies on the basis of source and employees.

So it seems to me there has got to be some accuracy here, but I don't know, I appreciate the answer.

MR. ELDER: Yeah.

MR. ERDEBIL: This is Ismail, for the record, it's Ismail Erdebil.

We looked into the RMC dose numbers and there are two peaks, and we inquired with the RMCC about the -- whether they are coming from the RMCC or AECL employees and the doses that AECL employees are receiving was -- during the shimming and refuelling operations were really low.

THE CHAIRMAN: But they're registered under RMC or AECL?

MR. ERDEBIL: Electronic dosimeters, yes.

MEMBER VELSHI: I think RMC wants to comment on it.

MS. NIELSEN: AECL comes down with their own thermoluminescent dosimeter and their own neutron dosimeter and they have a health physicist dedicated -- I think she's called the SLOWPOKE Health Physicist. She sends a letter with them to our Radiation Safety Officer as well as their badges. So she knows their dose before they come down.

Our Radiation Safety Officer also issues -- we have visitor thermoluminescent dosimeters and visitor neutron dosimeters, which Dave gives out as well, which would be for a three-month period.

I don't know what doses the maintainer and engineer -- it's really the maintainer -- got when he was at our facility in November and December, because you can't -- that's a private matter. The Radiation Safety Officer communicates only with the person whose dose it is.

So I did not ask Sonia what doses they received because I don't think she can tell me without permission of the reactor technician.

But in addition to what they wear from AECL, who has to worry about their total over the year -- like they have to worry if they go to Bruce or Pickering or elsewhere and they receive doses.

In addition to that, we have these personal

alarming dosimeters at the facility that everybody wears if they come in the facility.

So I can tell you for the five days that AECL was down in December, these personal alarming dosimeters are only Gamma dosimeters, not neutron dosimeters.

So I can tell you the total for the three people, the reactor engineer, the reactor technician and the trainee reactor technician, that the three of them together in five days got 56 microsieveverts, which is nothing.

However, we did not measure -- we did not have a day-to-day measure of their neutron dose, but that information should be available from the health physicist at Chalk River.

THE CHAIRMAN: Thank you.

MEMBER VELSHI: Yeah. I'd like a follow-up on that because I know for power plants we actually report dose for the facility as well. It's not just the staff. That's what allows comparison amongst facilities.

My second question, CMD 13-H10 on page 10, there is -- and this is a question to SRC. There's discussion on an inspection carried out by CNSC staff and some recommendations coming out of that.

With respect to improving verification,

self-checking and conduct of self-assessment, can you comment on what you're doing with those recommendations and what the status of any follow-up action is, please?

MR. CHORNEY: Dave Chorney, for the record.

If I remember correctly, I think the section you're referring to is part of the quality control, is it? Yeah. Well, we've taken those recommendations and we do regular reviews of our overall Quality Assurance Program and we've developed -- like we already had a checklist for non-SLOWPOKE parts of the lab operations and we've developed a similar checklist specifically for the SLOWPOKE operations now.

So we'll ---

MEMBER VELSHI: I'm not sure that we're talking about the same one because this talks about an inspection done in 2012 and that there was some recommendations to that effect.

MR. CHORNEY: Oh the -- oh sorry, I misunderstood. Yes ---

THE CHAIRMAN: If you look at page 10 -- everybody looks at page 10, the last two sentences, it's very precisely crafted that "findings from inspection will be addressed by the licensee prior to licence renewal".

MR. ELDER: So just while SRC is finding this, they did submit to us a corrective action plan that

we have accepted.

MEMBER VELSHI: Thank you.

Thank you, Mr. President.

THE CHAIRMAN: Any other question?

Questions?

A couple of quick ones for you also: Did you also get a letter from AECL about them providing service until 2019?

MR. CHORNEY: Dave Chorney, for the record. No, we have not received that letter.

THE CHAIRMAN: Did you ask for such a letter?

MR. CHORNEY: Well, the whole issue of AECL providing nuclear maintenance, of course, is a common issue for all the SLOWPOKES and I've greatly appreciated RMCC's efforts in leading the charge, so to speak, to get AECL to commit. But, generally, when AECL does come up with something like that, they will CC it to all of us.

Since we haven't seen anything like that so far, I can make an inquiry to them to ensure that what they've told RMCC will apply to SRC and the other SLOWPOKES as well.

THE CHAIRMAN: My next question is: You are still -- I think the last -- if memory serves, the last HEU or who else is -- two, okay -- any consideration

to moving into LEU?

I thought at one time there were even funds available for the transition from our friends of the U.S. and Canada trying to move everybody into LEU.

So just as a general question, have you considered doing this?

MR. MULDOON: Joe Muldoon, for the record.

We've been given some contact personnel from federal government -- from Canadian federal government. We did receive correspondence from the U.S. and we will be contacting -- making contacts with the federal department to determine what is available in terms of funding and based on those discussions determine exactly what approach we will take.

So, yes, we're certainly interested and we're going to be inquiring further into it.

THE CHAIRMAN: Will that mean that if you're going to go through this process, you'll extend the life well beyond 2025?

MR. MULDOON: Yes, and that certainly would be -- would also weigh heavily in terms of what decision we would make with respect to moving forward.

THE CHAIRMAN: Okay.

Go ahead, please.

MEMBER MCEWAN: So my understanding is that

the U.S. will eventually cease shipments of HEU by the time your next refuelling cycle comes around.

MR. MULDOON: That's correct. So part of the consideration when we -- we just got this letter just within the last several weeks.

When we have the discussions with the contacts in federal government, that certainly will also be part of the discussions, looking at the implications of waiting, delaying past when U.S. -- they're indicating at this point when they would receive the fuel and whether or not -- what the implications are for decommissioning, as an example, down the road versus switching to the LEU, and just how tight are those deadlines that are being put in place as well.

So that certainly is -- will be part of our discussion and part of the rationale that we'll use in terms of moving forward.

MR. MARLEAU: Guy Marleau, for the record.

We're not changing the fuel continuously in SLOWPOKE. The fuel has been there since '81. So there's no shipment of enriched uranium to Canada to fuel the core.

MR. ELDER: Peter Elder, for the record.

Just to add another clarification, we would -- a common expectation is anybody who wanted to refuel

going forward -- and I think this has been the case for a number of years -- they would do what École Polytechnique did which is change from HEU to LEU.

What we believe and what we've been trying to make sure that the contacts are in place is that under some U.S. government threat reduction initiatives, there may be a window of opportunity for repatriation of the current HEU cores, that maybe that's where there may be a limited time offer so that the ultimate disposal costs may possibly be lower in the next five years than they will be in the future, so you may want to speed up that decision to refuel and to convert to a LEU core.

But no one is considering replacing a LEU core with another LEU core -- HEU, sorry -- HEU.

THE CHAIRMAN: I think we'll continue this discussion and we'll get to UFA, I suppose.

My last question is -- I don't like loose ends. So on page 12 of staff, there is -- on the second paragraph, this is about training, about the SAT program.

The inspection resulted in issuing two action notices pertaining to training records and training change management process. Well that's good.

So what happened? Is it fixed?

MR. ERDEBIL: We have received corrective action plans from SRC and one of the corrective action

plans is about the -- keeping the records of one of the employee secret has been completed and we accepted its completion.

And the second one is the annual review of the training and this is an open action and we told in writing to SRC to provide us with a report, I believe by the end of the year.

THE CHAIRMAN: CNSC, want to add anything?

MR. MULDOON: Joe Muldoon, for the record.

I just wanted to comment that, yes, we have worked with CNSC to rectify the training.

Because it's the last question, I also wanted to -- I also, on a separate piece, wanted to thank the Commission for the opportunity to present information on the SLOWPOKE relative to the fee exemption.

THE CHAIRMAN: Okay, thank you.

Any other -- I see staff want to have the final word. Go ahead.

MS. FRANÇOISE: Corinne Françoise, for the record, I'm the Director for the Training Program Evaluation Division.

As Ismail mentioned, we have one action notice that's currently open and it has to do with the training change management process and, according to the documentation we have received and interaction with the

licensee, that should be closed by the end of this fiscal year or early 2014.

THE CHAIRMAN: Okay, thank you.

Anything else? All right. Thank you.

We'll move on to -- let me see, let me get my bearings here.

Okay, we're going to move on to the presentation from University of Alberta, as outlined in CMD 13-H8.1 and 13-H8.1A.

And I understand that Dr. Fedorak will make the presentation. Please proceed.

13-H8.1 / 13-H8.1A

**Oral presentation by the
University of Alberta**

MR. DUKE: Thank you, Mr. President.

For the record, John Duke, director of the University of Alberta SLOWPOKE facility.

With me, on my left, is Dr. Fedorak, the Associate Vice-president of Research. I will actually be making the presentation. He's here obviously representing upper management of the University of Alberta as SLOWPOKE falls under his portfolio.

The first slide. Obviously, we're here to

look at the renewal of our operating licence. We go to the next slide. This is a brief order of the outline of the presentation and I'm just -- the introduction, discuss a little bit about our SLOWPOKE facility. Obviously, this will be a little bit repetitive from what you've heard earlier today.

We'll then move on to the specific safety and control areas and how they're used and have been -- our ability to be successful in those in regards to regulatory compliance.

We've got a section on improvements that have occurred during this licensing period, future plans for the facility and then, finally, conclusions and our request.

Okay, as -- obviously, we're here, as I say, to renew our 10-year operating licence. So we'll flip over that. As you've heard, the SLOWPOKE is a small pool-type reactor. What hasn't been mentioned actually, of all research reactors in the world, it is the highest neutron flux per level of any reactor -- any research reactor which makes it ideal for neutron activation analysis and isotope production of small quantities of radioactivity.

Again, as we've heard, it was designed by Atomic Energy of Canada Ltd., the same designers of the

CANDU reactors, as a neutron source for use in universities, hospitals, research centres, for activation analysis, elemental determinations, isotope reduction and also for teaching. And that's largely how it is used at the University of Alberta as well.

Our reactor was commissioned in late April 1977. So it's been operating for just about 36 years. To give you a sense of the size of the core, we're looking at about .85 kilograms of enriched -- and ours is highly enriched -- uranium. Put that in a lump, it's about the size of your fist, so quite a small amount.

And again, as we heard, the SLOWPOKE reactor -- what it's referred to -- is inherently safe. It cannot go out of control. It's designed as such that it would automatically shut itself down if, for example, the control rod was to get pulled out and jammed out or the like. And just due to the heating of the water, the fuel, that actually limits -- self-limits the reactor.

And again, this was mentioned by CNSC staff that has resulted in the reactor being licensed to be operated unattended or remotely attended overnight. And for isotope reduction for industrial tracing, we actually do exercise that several times a year.

This slide is just a summary of the operating histories of SLOWPOKES in Canada to emphasize

really the exemplary safety record of SLOWPOKEs. You see there the total number of operating years is slightly over 210 years.

If you also include the Jamaican SLOWPOKE, you're up to 240 years of, I think, CNSC staff might -- they maybe have some more details but would probably agree incident-free. And certainly, on the basis of IEA incidents, the SLOWPOKE has been essentially incident-free.

So this is just there to demonstrate the reliability and the safety of the SLOWPOKE design.

Just a few photographs to put you in perspective. This is a view over the north campus of the University of Alberta in Edmonton, looking northwest. North Saskatchewan River there meandering. And the large portion of this view is the university and the actual building which houses our SLOWPOKE is in this region. We'll go a little bit closer in a second.

This is the Dentistry/Pharmacy building and you'll see or maybe get an indication, there are actually two courtyards -- a west and an east courtyard -- and our SLOWPOKE is located in an excavated vault underneath this west courtyard.

President Binder, you might recognize that building. And here's a street view of the

Dentistry/Pharmacy building which houses our SLOWPOKE facility.

Here's the schematic of SLOWPOKE, again similar to what you've seen earlier. The reactor container or the reactor vessel, where the critical assembly in, is hung in the bottom of a sort of almost six-metre pool filled with water, a sealed unit. And then there's a secondary biological shield to this concrete shield, that as we saw with SRC, can be hydraulically removed or covering the pool 99 percent of the time.

In fact, greater than that, the concrete is actually in place.

Our only access to the reactor are via these irradiation tubes. As has been mentioned previously, this reactor container and vessel is sealed and only nuclear maintainers, AECL Nuclear Engineers and Technicians are permitted to go inside that container.

Some of the ancillary equipment. We have two types of water. If you like, there's the pool water outside the reactor vessel, and that is city water, which is then purified. So we have a pool water deionizer, it cleans out the impurities. And then, within the reactor, there's the reactor vessel and the reactor water which, again, as was mentioned earlier, due to some leakage of fission products that does build-up some level of

radioactivity. And that is cleaned by running the water through a single mixed bed ion exchange column.

And it's the ability or the practice of keeping both the pool and the reactor water so clean, it is one of the reasons that you've heard that inside the reactor vessel, it looks so pristine. Obviously, minimizing those impurities reduces the possibility of corrosion, et cetera.

Finally, there's the -- this is our reactor console, one of the older versions. Very reliable, it doesn't look spanking new like the SIRA system, but it is, as I say, it's been very, very reliable.

And then, this system just controls airflow for sample radiations and, once a week, there is a purging of the headspace gas, which that is used for.

To give you again sort of just a schematic, here's a picture of the reactor and facility showing the concrete in place. Because of the concrete being in place, we have high-school tours, we have undergraduate -- graduate tours at the facility as part of teaching. We also have hazmat training for the Edmonton fire protection officers. They come and learn and demonstrate principles of radioactivity, et cetera. So we have these drawings which are used to explain a lot of the principles. So you can see the older console, et cetera.

This is a collage -- again, just to give you a perspective -- looking into the reactor pool on the left as the reactor was being commissioned and the pool filled. You can just see the phalange here of -- where the reactor vessel is attached to this container, which just acts essentially as a spacer so one incorporates in this instance the principle of increased distance for shielding from radiation.

The bottom picture, obviously this is an un-irradiated core. This gentleman is checking the number and the positioning of the fuel pins before the reactor was actually commissioned, in part also because of the IEA regulations, et cetera.

And again it's scale. This is the reactor vessel; you can see this is the core. And this is about the size of a garbage can in scale. And a segment has been removed to actually show the beryllium annulus. Sorry, this mouse isn't particularly great. But the annulus, the irradiation tubes, the control rod, that's the only moving part, other than your samples, in and out of the reactor.

So to ensure the licensee's compliance with the *Nuclear Safety Control Act*, the CNSC has developed a series of the safety and control areas. These are the 14 ones which are applied to SLOWPOKES.

And in this drawing, you've already seen it, this is the -- taken from the CNSC CMD on the University of Alberta SLOWPOKE but, as we've heard, it is applicable to all of the SLOWPOKES, divided into the management and facility and equipment.

You can see that the risk consideration for SLOWPOKES is very low. In all areas we're meeting requirements, and hence are satisfactory. And, as has been explained earlier, there are certain areas that have been trending and improving.

Now, I decided, as you had received both our CMD and our licence renewal application, not to go through every individual SCA, but given the mandate of the CNSC to look at and protect workers, the public and the environment, I would focus on those aspects.

So in this drawing you've again seen some of these graphs. I've just pulled all of the dose records for the four facilities. Figure 1 is the University of Alberta, on the top right, University -- Royal Military College of Canada, and in the lower two we have both SRC and École Polytechnique.

As has been indicated, University of Alberta and RMC have their workers classified as NEWS, and the lower two, Saskatchewan and École Polytechnique, have theirs classified as just the general public level,

general workers.

In regards -- if I might, if it's not presumptuous, a comment I might make on SRCs, I think if they might confirm that a majority of their irradiations are done -- a large number are by delayed neutron content, and that is a fully automatic process. Samples are loaded in a carousel and are blown into the reactor without any handling. And as a consequence, that may explain one of the reasons why you have much, much lower values than facilities that actually handle a lot more material or do a lot more radioisotope production.

So, as was mentioned, we do have our data and it's due for 2012, and in part that's because of the different reporting periods the different facilities have. So our annual report -- compliance report is due at the end of December every year, so we had time to actually get that information in.

To maybe pre-empt a question, why is this 2011 a little bit higher than other years. There's -- we think there's actually two components to that; one is our dosimeters go in through a faculty, and that particular quarter they were remiss in actually submitting them. They came and changed our badges but they actually didn't submit them initially so they went in at the next period, and it's uncertain whether they corrected the background

of those properly.

Secondly, at that period of time we had done actually quite a bit of isotope production for industry, that particular period, so that may also result in a higher than the general values you're seeing.

However, again I would emphasize, as I think CNSC staff will mention, that this .48 milliseiverts per annum is much lower than the 1 millisievert for the general public and obviously significantly lower than the 50 millisieverts for the NEWS of which we are.

All of the university personnel that handle radioactive materials as of 2004 were classified as NEW's. That was a university wide decision, it was not just SLOWPOKE. But as we also have a consolidated licence we fall under those regulations or those decisions. So that's why the SLOWPOKE was -- workers were designated as NEW's.

Again, SLOWPOKE does not, under normal operating conditions, release water, a radioactive liquid effluent, because of the sealed nature of the container.

Again, we do produce some radioactive gases, argon-41 and xenon-133, as was mentioned, and we have provided data on that. And again, as we mentioned, the limits of those are considered to be a very, very small component to the general public, less than .1 of a

percent.

So on the basis of that then we're saying that both for the workers and the public and the environment that operation of the SLOWPOKE really has very, very minimal impact from a safety perspective. So that's our conclusion that the operation of our SLOWPOKE poses a very low risk to the public, workers, or the environment, which is obviously one of the mandates of the CNSC.

What I've summarized here are, since our last licence renewal and specifically from our mid-term hearing a little earlier, what we have actually put in place at both -- some of it at our own initiation but largely because of increased regulatory requirements, PDP and financial guarantee back in 2005, we jumped almost to the end there that was revised.

And 2011 we had a meeting with you -- August 11th, 2011 -- and that was just about having been reviewed in light of the Dalhousie decommissioning, and that was subsequently accepted by CNSC.

Our base training program in 2009, a QA program, the report on aging management and also the put in place of a monitoring system, security plan, and then finally the January of 2012, at the request of the CNSC, we developed, submitted and had accepted a fire protection

plan.

So we certainly believe that with these additional programs that again that we're in a very strong position with regards to operating the facility safely.

Future plans for the facility; we have some specific plans to look at replacing some of the aging equipment. As we said, the reactor only has one moving part but some of the ancillary equipment, our reactor radiation monitoring system is now 35-plus years old.

With the recent commissioning or in the process of commissioning of the cyclotron on the Campus of the University of Alberta, we've been in contact with the company that has installed their radiation monitoring system. We've been getting some information from them. And we'll be talking with CNSC about replacing our older system with a new system.

Similarly, the pool water deionizer, SRC and RMCC have replaced their pool water deionizer and we're looking at a similar system to replace that.

In regards to our reactor water deionizer system, it is only a single column, and except for replacing the resin once every number of years, it has -- it's a very straightforward system. So we don't really have too many plans to look at that.

The building which houses our SLOWPOKE, the

dentistry/pharmacy building, the university has plans to redevelop it, and that -- the plans were to do that within this current licensing period. We have made CNSC staff aware of this, we have presented some preliminary plans to them. But the agreement really was that we would post this licensing hearing and the renewal of licences then look into that in some detail. But we're -- we've opened up the avenue to discuss the scope of the redevelopment, the regulatory process, submission to oversights, et cetera.

So as a consequence of this, the University of Alberta contends that it has demonstrated that it's qualified to carry out the activities it's requesting, both through its CMD, its licence renewal application, annual compliance reports and -- and results of inspections and that we have made provisions and will continue to -- to protect the environment, workers, the public, et cetera.

So we respectfully would request that the CNSC Commission would renew the University of Alberta operating licence for a further 10-year period.

Thank you.

THE CHAIRMAN: Thank you.

Staff?

MR. CARRIER: Again, the following

presentation -- oh. I'll wait for the slides to be available.

Okay, the following presentation will provide information on safety control areas in licensing recommendations specific to the SLOWPOKE-2 facility for the University of Alberta.

The University of Alberta has a radiation program in place to manage control and minimize doses to workers and to control the use of radioactive substances produced by the reactor.

As you can see from this figure, over the last five years, there were no radiation exposures exceeding the regulatory limit of 1 millisievert per year for members of the public. No incidents have resulted in reportable doses in excess of action levels. Variations in doses are due to variability in reactor operation.

The University of Alberta has revised its preliminary decommissioning plan, including updated estimation cost for decommissioning and associated financial guarantee. The financial guarantee was accepted by CNSC staff.

CNSC staff conclude that the University of Alberta has operated the facility safely during the licensing period. Core programs are in place and do meet requirements.

The University of Alberta has made several improvements during the licensing period that will continue to enhance safety. CNSC staff have developed a license condition handbook which documents detailed verification criteria for conditions in the licence.

As is normal practice, the handbook will be finalized after Commission's decision to ensure consistency with the decision and its basis.

CNSC staff recommend that the Commission accept the recommendations outlined in the CNSC staff CMD, and approves the renewal of the operating license for a period of 10 years, and approves the delegation of authority to staff as outlined in the proposed license condition handbook.

This concludes our presentation. We are available to answer any of your questions.

THE CHAIRMAN: Thank you.

I'd like to start the question period with Ms. Velshi.

MEMBER VELSHI: Thank you, Mr. President.

My first question is to the University of Alberta. We've heard from the two previous licensees as well about the amount of radioactive waste that's generated and I liked how in your presentation you were trying to put things in perspective and, you know, a hand

full of this or whatever.

So tell me a little bit about radioactive waste and -- so you allow it to decay. How much of it is then left to be disposed as radioactive waste, if you can give a sense of volume of that, please?

MR. DUKE: Okay. The University, as heard, it has a fairly extensive radiation protection and waste disposal program.

One of the fortes of the SLOWPOKE is actually shorter radiations which naturally generally will only induce shorter lived isotopes.

So again, as some of the other facilities have talked about, that sort of store and decay is -- is used in large part.

Our -- we keep records of chemical radiological -- we don't have any biological but those two sort of wastes that are -- the University waste management program, both the radiation and chemical program, and they generally are -- they're collected as a combination but they're segregated.

The total amount that we typically would dispose or have them come and collect materials, once every two years. Those records are available for CNSC inspection.

Typically the amount of material is a bag

or two of rubber gloves, chem wipes, et cetera. In fact, no level of radioactivity on -- on them but though -- because they've been left to decay.

So the total amount is probably less than -- not even 10 kilograms in a 2-year period. And that -- most of that would be material, which after it's then monitored by radiation safety, is generally disposed of as general waste.

MEMBER VELSHI: So I was actually asking about stuff that even after the decay period is still radioactive and then has to be disposed as radioactive material. How much of that is generated?

MR. DUKE: Okay. Typically those are longer -- obviously longer radiations and those might be rock samples. And typically we would irradiate a rock or mineral maybe 100 to 250 milligrams, maybe 500 milligrams.

So the total amount of that material is, again in a year, might be 100-200 grams. And that would be -- largely we still keep that stored at the facility.

We've got a lot of lead shielding and those are identified and stored and after several years you're really only looking at trace levels of cobalt-16, maybe some cesium-134, a little bit of europium-152 but you're down at sub-Becquerel per gram levels.

MEMBER VELSHI: Thank you.

My second question, also for you, is you make reference, particularly in the CMD, on ever-increasing regulatory requirements and those being rather onerous.

And -- so I'd like you to expand on that because you -- your slides really didn't cover that and whether in your opinion you feel that they're just too onerous and don't justify the benefit from that.

And perhaps also give us a sense of how much extra effort is involved in complying with that because you've said you need additional head count in order to comply with -- with this.

So three parts to the question; one, is elaborate on -- on how onerous it is because it -- and the amount of staffing required, and whether it's justified, that's the second part, in your opinion, or whether they could be simplified.

And the third part is what President Binder asked one of the earlier licensees, moving to a licensing condition handbook, do you see that just increasing the burden or actually bringing in greater clarity to regulatory requirements?

MR. DUKE: Okay. I don't know whether I should start in reverse and go forward.

Onerous; the SLOWPOKES were designed -- the

original philosophy was to be operated by part-time operators.

And historically we had many operators from a wide variety of disciplines at campus and the vast majority of them part-time operators, and we've heard some of the other facilities still have those.

The requirements to -- to keep that certification have not changed the minimum number of maintenances, operations to the reactor, but the requirements to become certified are far, far more rigorous than they used to be.

Now, as a consequence of that, fewer people are willing to do that on a part-time basis and it's -- really one can only expect that of full-time staff at the facility, to go through and become a licensed operator, for example.

So that then leaves us in a situation of generally always having this challenge of ensuring that we have sufficient licensed operators. That -- so it -- the amount of regulatory work has increased, probably exponentially, since the enactment of the *Nuclear Safety Control Act*.

Do -- I think your next questions was do I think that they're beneficial? Yes, I do. I think there's -- they've clarified a lot of things. Now, I

think that generally the safety of the SLOWPOKE is not always considered in the application of some of the regulations. That there's -- trying to be diplomatic. We need Cathy to answer this one.

It's getting to the point where it is becoming an expensive tool now to have with all the regulatory requirements as well, and I think that is calling into question, maybe at some facilities, the future of them and which disheartens me given the value and the importance of the SLOWPOKE facilities.

Certainly as the reactors age, that is a very important component which never used to be part of the regulations or the focus in looking at the aging management of the reactors.

In regards to the license condition handbook I think what all that -- I won't say all it does. One of the beauties of it, it pulls together a lot of the information that, obviously, previously our licences were only like a 10/12-page.

So it has expanded significantly on that. It has gone through all the details. I mean, it's literally a one go-to document which will stipulate all the expectations of the licensee and, in that sense, it -- I think that is a positive move forward.

But when you first look at it, it is a bit

imposing and does tend to make one sort of repel a bit, thinking: Oh my goodness!

Because the purpose of these reactors has been largely to do research and teaching, some service work has become a necessity. But utilizing the reactor is the primary goal of having the reactor but, obviously, doing that in a safe manner is paramount and that's obviously where the CNSC regulators come in.

MEMBER VELSHI: So this is an opportunity for you to express your concerns and frustrations, if there are any, on the regulatory requirements and I know that the CNSC goes through -- in my opinion -- through great lengths to make sure that they get stakeholder feedback and engagement before regulatory requirements are presented to the Commission and get enshrined.

So is there more that could be done to make things simpler and more tailor-made to your requirements?

Or is that just too open-ended a question?

MR. DUKE: Well, I think we should get all of the Directors to respond to this one.

Certainly, one of the approaches that the CNSC staff have done is certainly a graded approach and we really do appreciate that but when the *Nuclear Safety Control Act* was, you know, brought about or enacted, we did vigorously try and not have the SLOWPOKE reactors put

in the same class or group as the power reactors.

And unsuccessfully and, unfortunately, then the regulatory requirements for the power reactors, being SLOWPOKE in the same group, were and now have to be on the basis of the regulations apply to SLOWPOKE.

So, as I said, they have used -- I think to the best of their ability, this graded approach but it has meant a significant increase in regulatory requirements compared with the situation under the AECSB.

The other experience I've had -- and this is, again, not a criticism of CNSC staff -- is that they have the regulations and they must interpret them.

They don't necessarily always have the latitude to interpret them in a liberal manner or it's written in black and white. So they've had to follow them as they see and interpret them and then we're told that that's the interpretation so we have to then address that and act.

As I say, I would be very happy to have any of the other SLOWPOKE Directors give any comments on that.

THE CHAIRMAN: I'd just like to jump into this one.

We have quite a bit of latitude in at least recommending changes to regulation and I just heard a pretty good reason for all of you to get together. And if

you all feel the same way -- and by the way, I was impressed with your list of -- that was a good shot here not only the federal regulation but a lot of Alberta Government regulation listed here on page 21.

And if there was all the regulatory issue of concern and if you weigh -- if you have some room to improvement, we're always look for a recommendation from the licensees about how to do things better, keeping in mind, we are talking about nuclear and we are talking about a public which is really -- has a built-in fear of nuclear and any little accident can cause you major grief that will make any of these regulatory burden seem relatively simple.

MR. DUKE: Yeah and, obviously, the -- one of the reasons that we even give high school physic tours is because there is a lot of misinformation out there and it is very important to educate -- and I don't mean that in a derogatory term or negative term -- about the positive, peaceful uses and safe uses of radioactivity. Everything, as you mentioned, from smoke detectors to elemental analysis to medical research, et cetera.

The -- I know when we have talked previously about the idea of the SLOWPOKE users getting together -- and a model of that is typically the CANDU Operators Group -- the CANDUs have budgets which are

hugely in excess of any of the SLOWPOKE facilities or even their institutes, many of them, and as Ms. Nielson has mentioned earlier, we do try and get together at opportunities of either meetings where -- of -- in the field. As she said, we met last June at a -- following a pre-licence kickoff meeting with CNSC staff and we do keep in very good contact generally via e-mail as well.

It's -- I think it might be worthwhile for us to then focus a little bit more on how we might tighten some of these things up or look at ways that we can streamline things so that we can spend more time using our reactors than just sort of preparing reports.

THE CHAIRMAN: MS. Velshi?

MEMBER VELSHI: Thank you.

MR. WEIR: Dr. Binder, could I ask?

What does it take to have the SLOWPOKES not considered as a power reactor?

Do you have to go to Parliament? Does that mean a change in the Act?

THE CHAIRMAN: Staff?

MR. ELDER: Peter Elder for the record.

So the classification depends on how you look at it right now but everything is covered by the Class 1 regulations and, when they were brought in, they were divided in two parts which was a Class 1A, which is a

reactor -- it doesn't matter about size -- and Class 1B which is a big facility that's not a reactor.

So that -- changing those regulations -- the CNSC -- actually, the Commission can go through the normal process of changing a regulation and make that change themselves. So you don't have to go to Parliament to make that change.

There are some other mechanisms about how we deal with them that are actually completely within the Commission's control. So the type of licence, how the licensing is done, that's fully at the discretion of the Commission.

THE CHAIRMAN: Does that answer your question?

So the point here is that if you collectively come up with a process or advice as to what needs to be done, we'll take a look at it and consider it seriously.

MR. WEIR: Ron Weir.

I think that would help. Much of the admin problems and burden are coming because we're considered a power reactor and we need to jump through the hoops and we don't question that given the regulations.

But if we were not considered as a power reactor, it would make life a lot easier and less

expensive in staffing and the amount of time that's spent.

But, thank you, you've answered the question.

MR. ELDER: My only comment on this one is that we've -- you know, without -- we've been trying to look at these ones and the reason why the LCH is actually so complex is that we've been trying to make sure that we're very precise, that -- what the requirements are so that we can grade the requirements.

And that means you have to do a lot of detail and some areas where a power reactor one can just refer to a CSA standard, we actually say: No, you only have to do these five things.

It actually makes it look bigger but there is a lot of grading thought that went into the document and we are, obviously, willing to continue that dialogue about what is actually necessary and what can be relaxed on those ones or what's an appropriate level.

THE CHAIRMAN: Okay. Thank you.

Mr. Harvey?

MEMBER HARVEY: Merci, monsieur le président.

Just one question on page 12 of the staff document under "Personnel Training":

"Following an inspection, one action

notice has been given pertaining to the use of a document that was not authorized for use by the University of Alberta. The licensee has agreed not to use this document until authorized for use."

What was the problem?

What was the nature of the document and the nature of the problem?

Was it just because it wasn't authorized or there was a problem with the content of the document?

MR. ISLAM: Wasif Islam for the record.

I, myself, was personally there at the inspection.

It had to do mainly because that document was not authorized.

Now, following just any inspections, this was communicated to the licensees, licensees have provided a cap. And in the corrective action plan, they have noted that this document will not be used until it has formally been authorized.

MEMBER HARVEY: And what is the status now?

MR. ISLAM: The status is -- I will pass, possibly to Dr. John Duke.

MR. DUKE: Yeah. John Duke, for the

record.

This relates to our training program. We had our SAP-based training program approved and then there's a second component which is actually a training manual. And, initially, it may be -- and I'd have to double check some of the correspondence in the earlier stages -- my understanding was that that was our internal document.

But from the inspection, it was concluded that this should be written up and submitted also as an Addendum to our SAP training program.

So that has been revised and it is -- it has actually been reviewed internally. With preparing for this meeting, we haven't actually submitted it to the CNSC yet but it certainly is in a position or point that we should be able to do that subsequent to the meeting.

MEMBER HARVEY: That does not create a problem for training?

MR. DUKE: Not at the moment, no.

MEMBER HARVEY: Okay. Thank you.

THE CHAIRMAN: Did you want to add something?

MS. FRANCOISE: I certainly can.

Corrine Francoise again, for the record.
I'm the Director for the Training Program Evaluation ---

THE CHAIRMAN: Please use your mic. Can't hear you.

MS. FRANCOISE: It's Corrine Francoise. I'm the Director for the Training Program Evaluation Division.

Yes, indeed, the training manual that we're referring to had not been approved. So our expectation right now is that this document be approved before further training is conducted.

And I believe the last date that we received in terms of its completion was mid-March 2013 and as mentioned earlier, we have not received that document yet.

And in terms of safety significance, we -- again, we have established that their training program is SAT-based and we don't see this as being a significant issue. Thank you.

THE CHAIRMAN: Monsieur Harvey? C'est fini?

MEMBER HARVEY: Just to check back with the staff.

Where the answer is that that does not create problem, is it your -- are you -- you accept that or it could if not submitted in coming weeks or month?

MR. ELDER: Peter Elder, for the record.

I think what our view would be: it does not create immediate problem in terms of if you don't have anyone to train right away then you can wait and complete the document later.

Again, you know, because these are certified positions and how it's done, we want to make sure that there's a good paper trail about those qualifications and that's why we're being -- we may be picky but say: Is this the approved document? You know, has it approved it? Is it aligned with all your other processes to make sure that you're keeping track of the records and it's aligned with the University's overall system?

So it's never going back in and saying: You need to train the person today. You can always defer training by a bit without any impact but you do want it in place before you actually do train the people.

MEMBER HARVEY: Okay.

THE CHAIRMAN: Thank you. Dr. Barriault?

MEMBER BARRIAULT: Thank you, Mr. Chair.

All my questions have been answered. Thank you.

THE CHAIRMAN: Thank you.

Dr. McDill?

MEMBER McDILL: Thank you.

Just a clarification. On page 20 of the

University of Alberta's submission, they say they received a rating of "B -- meets requirements".

We don't have 'B's anymore; do we? Bottom of page 20. I accept the "meets requirements", it was the grade that was the ---

MR. ELDER: Just -- Peter Elder, for the record.

We, no, we are not using that terminology anymore but we have in the past so maybe there's some ---

MEMBER McDILL: In the past.

MR. ELDER: --- carryover.

MR. DUKE: Sorry, yeah.

If you actually look at that, you'll see that is related to our consolidated license and that is the Calgary office that did the inspection. So it's not the -- it's not to do with our non-power reactor license, this was to do with the University -- sorry, the production license. It's a different license and the report that we got was the CNSC staff's report from Calgary.

So part of our license application did ask: Were there other licenses that the University had?

So as this involves our isotope production and packaging and transport, I felt it was important to show that, yes, we are in compliance in that area.

So that's why I included it and that's why it's a "B" because that's what they use.

MEMBER McDILL: My question is principally to staff because I don't think you would have said "B" if it had been something else.

MR. JAMMAL: It's Ramzi Jammal, for the record. As Chief Regulatory Operations Officer, I guess I will have to take that question.

The -- what you see is, a lot of times, on the individual inspections and the "B", you are correct, Dr. McDill, was the old system where we put in place the grading. And as it comes up to the "satisfactory" and "fully satisfactory", there is whole bunch of underlying findings that our inspectors put in place.

In Calgary office that did the inspection, the old methodology was grading based on "B". Now, it has been converted over to the system that you see before you -- satisfactory or unsatisfactory.

But the license is inspected by the Calgary office as a stand-alone facility and our inspectors are trained to do so.

MEMBER McDILL: Thank you.

And the question now to the University. On page 21, which of those 11 other regulations would you propose to not respond to?

MR. DUKE: Actually, I never suggested any of those ones, actually. That was, I think, President Binder made mention of an impressive list.

I guess the -- you know, we were just talking about the training program and then the training manual that we have and the additional effort that's had to go into that.

So I would go back more to some of the meeting of the CNSC requirements. That's where the amount of time -- I don't have to do much to do with -- or the University looks after occupational health and safety and, you know, they inspect our laboratory and see that we are meeting those sort of requirements.

So I don't actually generally have to deal on an individual basis with any of those 11 groups. It's just the CNSC that we deal with directly.

So that's where, if there was a way to reduce that workload, that would be beneficial.

But, again, I would reiterate what I've said earlier about the Licence Condition Handbook, I think it's advantageous in the sense that it summarizes all the requirements, all the expectations in one single document as opposed to trying to go to individual regulatory documents here and there.

MEMBER McDILL: Thank you, Mr. Chair.

Thank you.

THE CHAIRMAN: Just to repeat myself, I strongly recommend that as you gain more experience with the LCH, if there's anything in it that is "redundant", you know, "never used", please let us know.

Monsieur Tolgyesi?

MEMBER TOLGYESI: Merci, monsieur le président.

Two very short questions. It's to staff. I'm going to License Conditions Handbook, is on page -- what's the page -- 18 and the Human Performance Management:

"License condition is the licensee shall ensure the persons appointed to the position of reactor engineer or technician or reactor operator hold certification in accordance with the requirements of NSCA."

Is the certification a prerequisite to be appointed as a reactor engineer or technician?

Or the certification could be completed after being appointed?

MR. ELDER: Peter Elder, for the record.

It's a prerequisite. So they must be certified before they are appointed to the positions.

MEMBER TOLGYESI: Okay.

And the second one is also Licence Conditions Handbook, page -- what is that -- 33 and it's in every licence conditions handbook or licence -- is regarding 4.3, reporting -- event reporting.

You are saying that the licensee should report to the Commission on planned situations or events at the facility. However, there is no timeframe limit -- or time limit or timeframe through such reporting. Is it depending on severity or unwillingness of unavailability to somebody to report or what conditions are; what's the frame?

MR. ELDER: There is -- I believe you have to read it in context. I just saw the table, it's a table on event -- the timing of preliminary reports on page 88 and 89 and that's where you get the difference in significance.

It's laying back to the license condition and this is an area that we are working on a regulatory document that would apply to these facilities on that one to try and clarify and consolidate these rules.

It is a place where there are various reporting rules across a number of our regulations and we are trying to work and make sure that we can make them consolidate and consistent.

MEMBER TOLGYESI: Maybe it will be just good in this 4.3 to specify somewhere that reference to page 80. You said 88 and 89, which it's true, they are there.

MR. ELDER: Yes it is. I think it's been clear. It is in the client's verification criteria. It doesn't make -- it makes reference to Appendix E ---

MEMBER TOLGYESI: E.

MR. ELDER: --- but it should also give the page number of Appendix E on -- and explicitly on the timelines. You're right.

THE CHAIRMAN: Okay. Thank you.

Any other?

So let me get into a couple of questions. First of all, let's -- so what's your plan on the HEU?

MR. DUKE: At our August meeting, 2011, you also asked that question and we explained the university reported that it had been contacted by the Assistant Director of U.S. DOE on their global threat reduction initiative, asking the president of the university the plans for our SLOWPOKE facility.

The university responded soon thereafter stating that, you know, we were aware of the program. We certainly understood and agreed with it and that the university was willing to participate, assuming that

external funds were available.

Since that time, there -- except for a couple of very minor emails soon after that, there was no contact from either the U.S. DOE, Foreign Affairs, NRCan until just about a week ago as SRC was reporting. And I think I may have a colleague from École Polytechnique to verify this.

The -- we got a contact from a manager at DOE in regards to the refuelling program and reminding us of the deadlines or telling us of the deadlines. And I think this was initiated because of a contact at a meeting in St. Petersburg.

MS. CHILIAN: So we meet with the Dean from DOE at IA meeting in St. Petersburg two weeks ago.

MR. DUKE: So I assume that in conversations then, the DOE were reminded that yes, the U of A and SRC still have HEU cores and so the email -- I got response from -- email from them and they mentioned that this was a voluntary program. I haven't had a chance yet to respond and I also contacted Mr. Elder and updated the words from CNSC staff and he provided information of the Foreign Affairs contact and staff and also the NRCan.

And that was just over a week ago so we plan to speak to them and I really don't believe -- I've never been given any indication that there is external

funding for the HEU to LEU transformation for Canadian SLOWPOKES so that would limit us.

I say it mentions that this is a voluntary program but I don't know what the implications we need to discern -- determine what are the implications if one does not return the HEU within that period, if it does mean a huge increase in disposal costs.

And depending on that information, the university, I'm sure, at that point, will take all that information together and make a decision on how to proceed.

THE CHAIRMAN: Staff, it seems to me that this is an area where you can provide some assistance in navigating between DFAIT and DOE is not a trivial issue.

MR. ELDER: Peter Elder, for the record.

We have been -- we went back in. We have been doing some meetings or trying to arrange meetings with the parties involved inside the federal government. We've been feeding the names of the contacts and we're finding out that contacts had not been made so we fed -- we're feeding the contacts both ways now.

So we're letting universities know who is responsible inside the government, as well as telling the government officials who they should be contacting.

We did actually try to, last year, arrange

a meeting on this one and it was, I believe, cancelled by Foreign Affairs. So we'll retry to step up the interest on this one.

THE CHAIRMAN: Because I was under the impression at least that there were funds -- funds available for this? So ---

MR. ELDER: And that's not the message that we just recently -- I mean we've heard twice now from Natural Resources Canada is that they do not have funding available but...

THE CHAIRMAN: Not from Natural Resources from DFAIT.

MR. ELDER: Yeah.

THE CHAIRMAN: Anyway, we'll follow-up on this.

But speaking of funds, University of Alberta also got hit in your provincial budget. So I'm asking the same question, so what is the austerity measures and are they impacting your operations?

MR. FEDORAK: It's Richard Fedorak, for the record.

The Province of Alberta, like many places in the world, have gone through a series of financial reassessments and there has been budget cuts across some of the provincial domains and universities have not been

exempt from those budget cuts.

THE CHAIRMAN: So there is no kind of safety impact on the operations?

MR. FEDORAK: No, not at all.

THE CHAIRMAN: So my last question is on the decommissioning file, did you set up a specific date for decommissioning or is it still 10 years at a time? And I noticed that you've agreed at 5.75 million is the number and how is that being managed? Is it in escrow, is it a general...

MR. FEDORAK: It's Richard Fedorak, for the record. Thank you for that question.

We are aware of the decommissioning costs. We are planning out to June 2nd, 2040. There are -- as Dr. Duke mentioned, we did have a review of this recently. We do have an escrow account that has been there and is growing interest continuously.

We did begin, as of 2011, with an ongoing contribution -- contributing account that will have contributions put into it every year. Those two amounts, the escrow and the yearly contributions, will combine. Currently planned for 2040, \$10 million.

THE CHAIRMAN: Okay. Thank you.

Any other questions?

Thank you for the University of Alberta.

And what are we going to do? Are we going to break for lunch?

Okay we will take 45 minutes for lunch, reconvene at 1:45.

Thank you.

--- Upon recessing at 1:03 p.m./

L'audience est suspendue à 13h03

--- Upon resuming at 12:14 p.m./

L'audience est reprise à 12h14

LE PRÉSIDENT: Alors, bon après-midi.

J'aimerais maintenant donner la parole à la Coopération de l'École Polytechnique de Montréal pour les présentations tel que indiqué au document CMD 13-H7.1 et 7.1a.

Et si j'ai bien compris, c'est le Dr. Chilian qui va faire la présentation. Alors, vous avez la parole.

13-H7.1 / H7.1A

Exposé oral par la

Corporation de l'École

Polytechnique de Montréal

DR. CHILIAN: Bonjour.

Donc, mon nom est Cornelia Chilian. Je suis la responsable du réacteur SLOWPOKE de l'École Polytechnique de Montréal.

Aujourd'hui, je suis accompagnée par le représentant du titulaire du permis, monsieur Guy Marleau qui est aussi le Directeur du Programme de formation en Génie nucléaire à Polytechnique.

Et aussi, à côté de moi, à ma droite, c'est l'ancien Directeur et responsable du réacteur SLOWPOKE de l'École Polytechnique, M. Greg Kennedy.

Donc, j'attends que ma présentation embarque.

Donc, dans -- avec cette présentation et avec la demande qu'on a soumis, nous demandons le renouvellement du permis du réacteur de faible puissance SLOWPOKE-2 de la Corporation de l'École Polytechnique de Montréal.

Et on précise dans cette demande qu'il n'y a pas de changement de haut niveau pour la prochaine période d'autorisation.

Je vais faire une courte présentation de l'envergure des activités de l'École Polytechnique. École Polytechnique c'est une école de -- d'ingénierie. C'est

la plus grande école d'ingénierie au Québec et elle fait partie de -- du plus grand campus d'enseignement francophone de l'Amérique du Nord. C'est pas difficile, en effet, si on est au Québec.

Vous voyez que École Polytechnique compte 1,000 employés. Juste pour vous donner l'aperçu de la goutte qui est le -- que le personnel de laboratoire représente dans cette famille qui est l'École Polytechnique. Donc, parmi les 1,000 employés, le Laboratoire SLOWPOKE compte trois employés.

Le Laboratoire SLOWPOKE, il est situé au pavillon principal, l'ancien bâtiment de l'École Polytechnique. Présentement, Polytechnique a deux autres pavillons, en face et côté droit. Donc, nous, nous sommes là depuis 1976.

Qu'est-ce qu'on fait avec ce réacteur à Polytechnique?

On fait de la recherche scientifique surtout l'analyse par activation électronique et, aussi, on fait une -- on produit une faible quantité de traceurs radioactifs qui sont utilisés, en effet, à l'interne de l'École Polytechnique.

Aussi, on offre un service d'analyse par activation neutronique à l'industrie et aux universités. Notre laboratoire est utilisé par des chercheurs de sept

universités québécoises.

Le réacteur est utilisé pour faire, en moyenne, 10,000 irradiations par année. En 2011/,12 on a plus de 300 étudiants au niveau de baccalauréat ou au cycle supérieur qui ont utilisé nos installations.

Je vous donne rapidement l'aperçu de la structure administrative du laboratoire. On voit que c'est une structure directe qui descend de conseil -- du Conseil d'administration de l'École Polytechnique.

Le deuxième niveau c'est le titulaire du permis qui est le Directeur général de l'École Polytechnique et, tranquillement, ça descend directement vers le responsable du réacteur SLOWPOKE et, ensuite, aux opérateurs du réacteur.

En ce qui concerne le Programme d'assurance de la qualité -- le personnel de la Commission déjà l'a mentionné -- on a réussi à implémenter un Programme d'assurance de la qualité et, tranquillement, nous nous sommes améliorés pour qu'on arrive, en 2013, à la révision numéro cinq de notre Manuel d'assurance de la qualité qui gouverne notre Programme d'assurance de la qualité.

En ce qui concerne le -- la gestion de -- de rendement humain, on a deux opérateurs du réacteur: un opérateur en mode automatique et le deuxième certifié en mode automatique et manuel.

Nous sommes en train de former un nouveau -- un nouveau opérateur en mode automatique et aussi, comme tous les autres SLOWPOKE, on a un Ingénieur nucléaire, un Technicien nucléaire, un utilisateur autorisé qui est, en effet, notre opérateur en formation et un technicien autorisé -- donc, un employé de Poly -- qui soutient techniquement les activités du Laboratoire SLOWPOKE.

En 2009, on a mis en place un programme de formation développé selon une approche systémique en formation et ce programme-là, en 2010, est rendu aussi à la révision 5.

Le personnel de la Commission a inspecté -- a inspecté ce programme et étant donné que le programme est approuvé, présentement on l'utilise pour la formation d'un troisième opérateur du réacteur pour l'opération en mode automatique.

On doit souligner qu'en 37 ans d'exploitation du réacteur on n'a eu aucun point saillant. Toutes nos procédures d'exploitation ou de maintenance de ce réacteur sont dans le Manuel d'Exploitation, révision 8, daté de juin 2009.

Et aussi, depuis le renouvellement du combustible, en 1997, le réacteur n'a pas subi de modifications ou changements susceptibles d'avoir une

incidence sur l'analyse de la sûreté de cette installation.

L'analyse de sûreté que je viens de mentionner est -- se trouve dans le Rapport de Sûreté de mars '98. Certaines mises-à-jour de cette analyse de sûreté -- mais des mises-à-jour qui sont -- qui affectent pas la sûreté du réacteur -- sont -- se trouvent dans l'avant-projet de déclassement, document qui a été soumis à la Commission en Décembre 2011.

Aussi, à la suite de l'accident nucléaire survenu au Japon en 2011, au Fukushima, la Commission a demandé à Polytechnique de revoir son analyse de sûreté en ce qui concerne les facteurs externes.

On a fait cette analyse et on a soumis le rapport à la Commission et on a indiqué qu'il n'y a aucune modification supplémentaire par rapport à la -- par rapport à la sûreté.

Juste pour vous donner une -- un aperçu de notre laboratoire qui est un laboratoire très petit, moins de 200 mètres carrés, on voit la salle du réacteur, le laboratoire où on prépare nos analyses et on a aussi un entrepôt.

Tout le matériel radioactif ou tout le matériel radioactif du laboratoire excepté très faible quantité dont des échantillons qui sont en train d'être

analysés, tout notre matériel se trouve présentement dans la salle du réacteur.

Pourquoi? Parce que c'est sécuritaire et parce qu'on a un système de surveillance, de sécurité, à plusieurs niveaux pour tout -- pour l'ensemble de l'installation et encore plus pour la salle de réacteur.

Et aussi, si tout le matériel radioactif se trouve dans le même endroit, c'est plus facile à gérer.

Pour parler un peu du réacteur -- déjà, mes collègues l'ont fait -- on a une puissance maximale de 20 kilowatts. On a un -- il a une sûreté inhérente qui est garantie par son excédent de réactivité limitée à 4mk et son coefficient de température négatif.

Le combustible original de ce réacteur qui était uranium hautement enrichi a été remplacé en '97 par le combustible actuel; donc, 5.6 kilogrammes d'uranium enrichi à presque 20 pourcent en uranium-235. On utilise ce -- ce réacteur comme cinq jours par semaine et, en moyenne, trois heures par jour.

La puissance utilisée quelque -- tel que qu'on a -- on a -- on l'a rapporté à la Commission pour le 31 Décembre 2012 était de 107,338 10^6 à la $10^{11}/\text{cm}^2/\text{s-heure}$ pour -- pour la période qui était -- donc, à la fin de 30 -- à la fin de l'année 2012.

Donc, juste pour vous donner un aperçu, une

semaine typique de 300 kilowatts heure d'utilisation mène à une concentration de Xenon-133 de 5.5 kilobecquerels par litre dans l'eau le lundi suivant. Donc, ce qui n'est pas beaucoup.

Encore une fois, pour mettre en évidence l'aptitude au service de ce réacteur, je donne les activités de radionucléides détectés dans l'eau du réacteur SLOWPOKE et on voit que la plus grande activité, c'est pour le xenon-133. Le maximum qu'on a eu dans la période -- l'ancienne période de permis, de l'ancien permis, c'était de 16 kilobecquerels par litre.

Un autre exemple, c'est les produits de fission dans l'air du réacteur et si on regarde encore le xenon-133, 24 kilobecquerels par litre.

En ce qui concerne la radioprotection, École Polytechnique, c'est une grande institution. Elle a un permis consolidé. Nous, on a notre propre permis, donc, l'École Polytechnique a un programme corporatif de radioprotection qui couvre les activités de Laboratoire SLOWPOKE et en ce qui concerne les activités particulières au Laboratoire SLOWPOKE, on a notre propre programme ALARA qui est détaillé dans les procédures du manuel d'exploitation.

Comme on a dit déjà, les doses sont très faibles, les doses externes sont très faibles. Surtout,

toujours les doses sont associées avec l'utilisation du réacteur. Donc, c'est à cause de ça qu'on a les variations de doses du Laboratoire SLOWPOKE à l'autre. Ça dépend de l'utilisation et du nombre d'opérations -- au nombre d'heures d'opération qu'on a à faire avec ce réacteur.

Et les doses sont toujours en bas de 1 millisievert par année. Le seuil d'intervention à Polytechnique est établi à 0.5 millisieverts.

Dans cette petite image, on donne la dose calculée -- la dose que quelqu'un qui habite une résidence, la plus proche résidence de notre installation, quelle dose il va avoir par année. Et on voit qu'elle est très, très faible. Elle est de 0.000011 millisieverts par année.

En ce qui concerne la santé et sécurité classique, Polytechnique a sa politique concernant la gestion de la santé et sécurité et cette politique couvre aussi notre installation.

On peut mentionner que, depuis '76, quand on a mis en fonction le réacteur, le personnel de laboratoire n'a subi aucune blessure ou accident impliquant des substances dangereuses, nucléaires ou chimiques. Depuis 2002, à Polytechnique Montréal, on a eu aucune blessure impliquant des substances nucléaires et

aucune personne qui a travaillé dans notre laboratoire n'a eu un arrêt de travail.

Pour la protection de l'environnement, encore une fois, la corporation de Polytechnique a sa politique en matière de protection, de gestion et de promotion de l'environnement. Les procédures du Manuel d'Exploitation assurent la protection de l'environnement.

En '97, les rejets dans l'atmosphère de produits de fission gazeux ont été réduits d'un facteur de 433 par le changement du combustible hautement enrichi à l'autre faiblement enrichi. Mais c'est sûr que c'est pas le changement de combustible, là, qui a produit cette réduction, mais c'est la forme de -- le fait, comme ça a été mentionné, que la gaine en aluminium est poreuse.

Depuis '98, les émissions hebdomadaires typiques sont de 240 megabecquerel d'argon-41 et 2.4 -- megabecquerel, je m'excuse -- xenon-133.

En 2001, les rejets à l'égout d'eau contenant des produits de fission ont été réduits à zéro par un changement de procédure.

Pour la gestion des urgences, la protection contre l'incendie, on suit la politique opérationnelle en matière de gestion des mesures d'urgence et de gestion de crise. On a un programme de protection incendie assujetti aux codes du bâtiment et de prévention incendie de la

Province de Québec.

Le programme de protection d'incendie de Polytechnique Montréal couvre les installations du Laboratoire SLOWPOKE. On a des procédures qui sont dédiées -- procédures d'intervention en situation d'urgence qui sont dédiées à nos installations.

Et aussi, en 2012, Polytechnique a exécuté des travaux complets de mise en conformité des séparations coupe-feu des installations du Laboratoire SLOWPOKE pour mentionner toute l'installation au complet, le périmètre de l'installation. On a changé aussi toutes les portes en les remplaçant avec des portes métalliques.

Pour la gestion de déchets, on a une politique en matière de développement durable qui a été adoptée par le conseil d'administration de -- dans la date du 27 janvier 2011. Et aussi, on suit les procédures du Manuel d'Exploitation qui encadrent la gestion des déchets radioactifs.

Je vous donne l'inventaire du baril de déchets radioactifs le 31 décembre 2012. J'ai pas spécifié la date, mais c'est cet -- c'est l'inventaire qu'on avait le 31 décembre 2012.

Donc, tout ce qu'on crée -- qu'on va créer comme échantillon radioactif, on a une -- on a des procédures de gestion de déchets radioactifs et on le met

dans un baril de déchets radioactifs. Donc, -- et une fois que ce baril est plein, on va l'éliminer à travers une compagnie qui est certifiée pour l'élimination de déchets radioactifs.

La sécurité à Polytechnique, c'est -- la sécurité est assurée par le Service de la sûreté institutionnelle. Et dans les derniers quatre ans, en effet, le Service de la sûreté institutionnelle a changé complètement le système de surveillance de sûreté de Polytechnique. Elle se dotait d'un système performant. Donc, la surveillance est assurée par patrouille, contrôle d'accès et visualisation assurée 24 heures sur 24, sept jours sur sept, par les agents de sûreté de Polytechnique de Montréal.

Notre système, la sécurité, notre système de sécurité a été inspecté le 4 décembre 2012 et la Commission s'est dit -- les personnes de la Commission se disent satisfaits des mesures de sécurité mis en place par Polytechnique.

Pour la garantie financière, on a une histoire des échanges avec le personnel de la Commission. Et la dernière -- leur réponse à notre lettre soumise en mars -- le 5 mars 2013 -- on l'a reçue juste hier à 14h39; donc, la veille de cette audience.

Donc, on n'a pas encore eu le temps de

répondre formellement aux commentaires du personnel de la Commission. Et il y a plusieurs détails. Étant donné qu'on a soumis notre présentation avant hier, 14h39, on n'a pas eu la chance d'inclure des diapos pour répondre à leurs commentaires.

Donc, je vais dire rapidement que la garantie financière est basée sur l'Avant-projet de déclassement pour le Laboratoire SLOWPOKE de Polytechnique Montréal et le personnel de la Commission se dit satisfait de cet Avant-projet de déclassement.

On l'a bâti en respectant les recommandations du guide G-206, « Les garanties financières pour le déclassement des activités autorisées ». On l'a calculé avec l'hypothèse que le déclassement sera exécuté entièrement par des contracteurs externes -- donc, pas par Poly -- et on l'a calculé avec l'hypothèse que le dossier d'exploitation du réacteur sera conservé selon les programmes réglementaires en place parce que maintenant, toutes nos installations ont un nouveau programme de gestion, donc, avec le programme d'assurance de la qualité.

Et, voilà où toute cette information est disponible pour la Commission et pour nous aussi.

Et donc avec ce calcul là, Polytechnique estime que le coût total de déclassement de son réacteur

s'élève à 2 050 000\$. Et on a fait cet exercice en utilisant les ressources de Polytechnique et son expertise en projets de génie en utilisant une approche qui est différente de l'approche qui a été utilisée à Dalhousie qui, en effet, c'est un projet boîte noire clefs en main qui a été exécuté par Énergie Atomique.

Pour la garantie financière, on a une garantie financière. Notre garantie financière de 2005. Elle est toujours valide et on a proposé au personnel de la Commission de la modifier pour avoir une partie ferme et une déclaration de responsabilités de Polytechnique pour donc une partie faible.

La garantie financière sera soutenue par deux outils comme dans le passé, par un accord en matière de sécurité financière, d'accès au fonds de fiducie et de constitution d'une fiducie, et par une lettre de garantie.

En ce qui concerne le programme d'information publique, il n'y a pas un programme d'information publique qui est dédié à l'installation SLOWPOKE, mais on a un programme d'information publique corporative.

Les installations SLOWPOKE sont présentes sur le site de l'École Polytechnique. Aussi, notre installation, notre laboratoire est sur le circuit de portes ouvertes de polytechnique, un événement qui se

déroule chaque année.

Et aussi, à travers nos activités de recherche et d'enseignement, nos publications scientifiques, on a une reconnaissance internationale.

Dernièrement, le laboratoire était présent dans une publication, le Métro de Montréal, qui est accessible à l'ensemble de la population de l'île de Montréal.

Polytechnique, en conclusion, a mis en place les politiques, les mesures et les procédures nécessaires à l'exploitation sûre et sécuritaire du réacteur, conformément aux exigences prévues par la *Loi sur la sûreté et la réglementation nucléaire*, le Règlement sur les installations nucléaires de catégorie I et les autres règlements qui s'appliquent, notamment dans les domaines de sûreté et de réglementation.

Polytechnique de Montréal s'engage à continuer de répondre aux exigences prévues, notamment dans les domaines de la sûreté et de la réglementation détaillés dans la présente demande de renouvellement.

Merci.

LE PRÉSIDENT: Merci beaucoup.

Alors, nous procéderons maintenant à la présentation du personnel de la CCSN, spécifiquement sur la Poly. Alors, allons-y.

M. CARRIER: Bonjour, monsieur le président. Pour le verbatim, mon nom est Christian Carrier.

La prochaine présentation fournit de l'information sur les domaines de sûreté et de réglementation qui n'ont pas été abordés dans notre présentation générique.

Elle fournit aussi les recommandations spécifiques en ce qui a trait à l'installation du SLOWPOKE-2 de l'École Polytechnique.

L'École Polytechnique a en place un programme de radioprotection en ce qui a trait à l'utilisation du réacteur, ainsi qu'en la manipulation des matières radioactives.

Au cours des dernières années, aucune dose de rayonnement n'a dépassé 1 millisievert pour les travailleurs au sein de l'installation. De plus, aucun employé n'a dépassé les seuils d'intervention.

L'École Polytechnique a révisé son plan de déclassement préliminaire ainsi que l'estimation des coûts de déclassement pour l'installation.

Le personnel de la CCSN est en désaccord avec la valeur révisée des coûts de déclassement et, de ce fait, de la valeur de la garantie financière proposée par l'École Polytechnique.

La valeur de la garantie financière proposée est nettement inférieure à celle proposée par les autres titulaires de permis SLOWPOKE près d'un facteur 2.

Le personnel de la CCSN a questionné plusieurs hypothèses et le manque de détails fournis dans l'estimation de ces coûts.

Néanmoins, nous reconnaissons l'existence de différences importantes dans l'approche utilisée par l'École Polytechnique dans ces estimations et dans l'instrument de garantie financière.

Dans ce contexte, le personnel de la CCSN a suggéré à l'École Polytechnique que plus de discussions étaient nécessaires afin de définir les paramètres acceptables pour une telle forme de soumission.

L'objectif à court terme est d'assurer la définition d'une garantie financière acceptable avant le 30 novembre 2013. Une condition à cet effet a été ajoutée au Manuel des conditions de permis.

En cas de contentieux, le personnel de la CCSN informera la Commission de la situation et recommandera des mesures appropriées.

Le personnel de la Commission conclut que le titulaire de permis a opéré son installation de façon sécuritaire, que les programmes de base sont en place et rencontrent les exigences, et que l'École Polytechnique a

implanté plusieurs améliorations durant la période de validité du permis qui continueront à améliorer la sûreté dans l'avenir.

Le personnel de la CCSN a développé un Manuel des conditions de permis qui documente les critères de vérification pour chaque condition de permis. Tel qu'à l'habitude, le Manuel des conditions de permis sera finalisé après la décision de la Commission sur le renouvellement pour assurer la cohérence avec la décision de la Commission.

Le personnel de la CCSN recommande que la Commission octroie un permis d'exploitation d'une durée de 10 ans à l'École Polytechnique pour l'exploitation de son réacteur SLOWPOKE-2.

De plus, que la Commission accepte la délégation de pouvoir au personnel de la CCSN tel qu'indiqué dans le Manuel des conditions de permis.

L'École Polytechnique devra soumettre une nouvelle proposition de garantie financière acceptable avant le 30 novembre 2013 pour fins d'acceptation. En cas de désaccord encore, le personnel de la CCSN présentera la situation à la Commission avec les recommandations appropriées.

Ceci conclut notre présentation. Nous sommes disponibles pour répondre à vos questions.

LE PRÉSIDENT: Merci beaucoup.

Alors, j'aimerais commencer la période de questions avec Monsieur Harvey.

MEMBRE HARVEY: Merci, monsieur le président.

J'allais revenir sur la garantie financière mais je pense qu'on a eu des explications et qu'on peut attendre un peu plus tard pour creuser l'affaire un peu plus.

Ma première question est très générale. C'est est-ce que la fermeture de Gentilly-2 peut avoir un impact sur le volume de travail de vos installations?

Dre CHILIAN: Cornelia Chilian de l'École Polytechnique.

En effet, l'impact de la fermeture de la centrale de Gentilly est plutôt moral, mais l'installation SLOWPOKE de Polytechnique est autonome, a ses propres activités de recherche qui ne sont pas nécessairement pour soutenir la recherche en génie nucléaire et de développement de nouveaux réacteurs.

On soutient tous les domaines à travers l'analyse par activation neutronique, bien sûr. Donc, on travaille avec des experts en biomédical, de développement des nouveaux matériaux avec les spécialistes en génie chimique.

Donc, nos activités sont beaucoup plus étendues que le domaine strict de l'énergétique nucléaire.

MEMBRE HARVEY: Mais Gentilly-2 contribuait pas directement à vos recherches, soit par un support monétaire ou pas du tout?

M. MARLEAU: Si l'on -- Guy Marleau. pour le verbatim. Je suis professeur, directeur de l'Institut de génie nucléaire.

Hydro-Québec subventionnait globalement l'Institut de génie nucléaire à l'aide d'une chaire en génie nucléaire. Cette chaire-là est disparue et il y avait aussi des accords de collaboration entre certains professeurs de l'IGN et Hydro-Québec pour du développement et du travail que l'on faisait pour eux.

Ceci n'a pas d'impact sur des activités du SLOWPOKE. Ça l'a cependant un impact sur les activités d'un certain nombre de professeurs de l'Institut; c'est juste.

MEMBRE HARVEY: Et je présume des étudiants éventuels. Vous avez mentionné un nombre d'étudiants qui utilisaient les facilités. Est-ce que quand vous me parlez de moral que ça peut influencer le désir des Québécois d'aller le champ nucléaire?

M. MARLEAU: Les étudiants qui ont utilisé la facilité, la majorité d'entre eux étaient des étudiants

qui suivaient des cours du premier cycle et donc, pour eux, y aura pas d'impact de la fermeture de Gentilly-2.

Ce sont surtout les étudiants qui suivent le cours de génie nucléaire, le laboratoire de génie nucléaire au cycle supérieur, qui pourraient être affectés par cette réduction-là. Cependant, c'est l'équivalent d'à peu près huit étudiants sur 300.

Donc, pour le réacteur SLOWPOKE, je ne crois pas que ça ait des impacts.

MEMBRE HARVEY: Merci.

Je voudrais revenir -- je ne sais pas si le personnel a eu le temps de regarder, à propos de la protection incendie sur la -- parce que vous avez mentionné que vous respectiez le plus important des codes.

Mais ce qui m'inquiétait un peu c'était au niveau -- parce qu'il y avait le "General Nuclear Safety Regulation" et le Code national du bâtiment. Ça fait que c'était ces deux aspects-là qui paraissaient pas dans votre -- dans le document du personnel à votre égard.

M. CARRIER: Christian Carrier, pour le verbatim.

Nous allons devoir nous excuser. Ici, ça été une omission. Les mêmes exigences ont été appliquées à chacun des titulaires de permis. Les CMD ont évolué en parallèle et puis y a eu un processus de traduction et

puis celle-là, on l'a manquée. On s'excuse.

MEMBRE HARVEY: O.k., pas de problème; du moment que c'est pareil.

Une dernière question c'est: Vous avez mentionné que vos déchets -- une fois que les déchets radioactifs étaient mis en baril, qu'ils étaient confiés à une firme certifiée de gestion de déchets radioactifs.

C'est certifié. Ces firmes-là sont certifiées par la Commission?

Et est-ce qu'y en a plusieurs ou y en a simplement quelques unes au Québec ou au Canada?

Dre CHILIAN: Donc, Cornelia Chilian, pour le verbatim.

On a déjà éliminé, en 2009, comme 10 litres de capsules qui contenaient des roches radioactives. On l'a fait à travers la compagnie Energy Solutions, l'ancien Monserco.

Donc, on travaille d'habitude avec Monserco. C'est la seule compagnie avec laquelle on travaille.

MEMBRE HARVEY: Mais est-ce qu'y a un suivi?

Une fois que le baril est confié à cette entreprise-là, est-ce que vous savez où ils vont le déposer? Est-ce que la Commission a un suivi ou

c'est laissé à la compagnie de service?

M. CARRIER: Ces permis-là sont sujets à l'émission d'un permis qui est émis par la Commission contre -- la Commission canadienne de sûreté de ---

MEMBRE HARVEY: Mais y a pas nécessairement de suivi pour les opérations courantes là?

M. CARRIER: Dans les opérations courantes, ils sont sujets à des inspections de conformité.

MEMBRE HARVEY: Des vérifications. Un expert.

M. HOWARD: Don Howard, Directeur des déchets et du déclassement.

Energy Solutions ont un permis de la Commission. On fait des inspections de conformité sur ce permis-là et puis, dans le programme de Energy Solutions, là ils vont indiquer où ils vont déplacer leurs déchets qu'ils ramassent des universités ou d'autre endroits.

Comme ça, tout est réglé sur le permis.

MEMBRE HARVEY: Je posais simplement la question parce que, étant donné que c'est pas très fréquent pour les SLOWPOKE d'avoir des déchets, ben, je voulais savoir si -- même dans cette éventualité-là si c'était suivi -- très bien suivi. Merci.

LE PRÉSIDENT: O.k.

Monsieur Tolgyesi?

MEMBRE TOLGYESI: Merci, monsieur le président.

La première c'est la différence entre le permis d'exploitation et le manuel. Normalement, on trouve le texte est pareil. On retrouve dans le texte du manuel le texte d'une licence.

Quand vous regardez, y en a deux points. C'est le point 1.3 et 1.4 où le texte diffère comme tel, pas nécessairement dans le sens mais dans la formulation.

Si vous regardez 1.3, "Permis d'explosif" - - pas d'explosif, "Permis d'exploitation", page 2, et vous avez après -- dans le manuel, vous avez à la page 13 et 14, le texte est pas identique. Tu sais, le texte encadré là.

M. CARRIER: Christian Carrier, pour le verbatim.

Pourriez-vous donner une condition en particulier?

MEMBRE TOLGYESI: Oui.

M. CARRIER: Je prépare déjà mes réponses puis je m'y attendais pas.

MEMBRE TOLGYESI: Le point 1.3 dans le permis d'exploitation, page 2, on dit que:

"Le titulaire du permis doit maintenir un plan de déclassement préliminaire

pour l'installation, un avant-projet de déclassement, examiner et réviser les plans au moment que la Commission peut exiger de toute façon au plus tard 10 ans après."

Et quand vous regardez dans l'autre, le texte n'est pas identique à la page 13 du manuel.

C'est peut-être juste la sémantique.

M. ELDER: Oui. Peter Elder.

Le document légal est le permis. Donc, après la Commission a émis le permis ---

MEMBRE TOLGYESI: O.k.

M. ELDER: --- le personnel de CCSN fait -- va faire une révision du manuel.

MEMBRE TOLGYESI: Une révision, o.k.

M. ELDER: Pour confirmer que toutes les conditions sont les mêmes.

MEMBRE TOLGYESI: O.k.

So y en a deux points, le 1.3 et 1.4, qui sont différents.

En ce qui concerne à la page -- là, je parle à l'École Polytechnique -- à la page 78 de votre présentation, document H7.1, on dit que:

"L'accès au laboratoire ..."

deuxième paragraphe:

"... et l'accès à la salle du réacteur sont toujours contrôlés, comme décrit dans les documents. Les mesures sont placées pour prévenir le vol, la perte ou l'utilisation illégale des substances nucléaires et des équipements du laboratoire."

Page 78 de présentation de l'École Polytechnique 7.1, deuxième paragraphe. Là, on décrit les mesures de sécurité.

Ma question est la suivante: depuis un certain temps, nous sommes témoins des incidents impliquant les étudiants ou les chercheurs dans les centres de recherche ou dans les universités qui se proposent de mener les activités visant carrément le public. O.k.?

Alors, quelles sont les mesures utilisées pour Poly pour prévenir ces risques potentiels?

Dre CHILIAN: Premièrement, je -- Cornelia Chilian, pour le verbatim -- je veux m'assurer si j'ai bien compris la question.

Donc, l'inquiétude c'est que Polytechnique ne contrôle pas des actes qui peuvent générer un sentiment de peur dans le public. Donc, comment on contrôle l'accès des personnes qui sont mal intentionnées à nos

installations.

Si c'est ça la question, je vais essayer de

MEMBRE TOLGYESI: Comment vous prévenez carrément le vol, par exemple, parce que -- est-ce qu'y en a -- qu'est-ce qui peut être volé là qui éventuellement peut exposer le public?

Je sais pas, on vole l'uranium par exemple.

Dre CHILIAN: Donc, le matériel radioactif du laboratoire peut être utilisé. Vous avez vu les activités de la composition de notre baril. C'est pas beaucoup mais pour le public ça peut faire peur.

Donc, quelqu'un qui vole du matériel radioactif de notre laboratoire peut l'utiliser, en effet, pour faire surtout peur à quelqu'un.

Présentement, tout le matériel radioactif est dans la salle du réacteur; donc, tous nos déchets. Donc, quand on parle du matériel radioactif, on parle des déchets radioactifs qui se trouvent dans le baril. Vous avez vu la composition. On parle du cœur du réacteur qui est au fond de la piscine et on a plusieurs barrières avant de pouvoir avoir accès au combustible qui se trouve dans le réacteur.

On parle des sources de calibration qui sont très faibles. On a un inventaire, en effet, des

sources de calibration. Et un autre matériel radioactif qui se trouve dans la salle du réacteur sont nos anciennes plaques de beryllium qu'on ajoute en top du réacteur quand on fait l'ajout de plaques de beryllium.

Donc, c'est ça tout notre matériel radioactif. Et oui, il peut être volé par quelqu'un qui est mal intentionné.

Afin de prévenir ça, premièrement, personne n'a pas accès dans la salle du réacteur sans la présence d'un opérateur du réacteur. Même le personnel de la sûreté institutionnelle n'ont pas accès à la salle du réacteur.

Donc, l'accès à la salle du réacteur est limitée juste pour les opérateurs accrédités par la Commission et c'est juste eux qui ont l'accès à cet espace-là.

Deuxièmement, on a plusieurs mesures de sécurité en place; donc, comme une cascade de mesures de sécurité. La Commission les a inspectées et, l'année passée et y en a deux ans, le service de sûreté institutionnelle a ajouté des systèmes de surveillance ou des alarmes qui sont décrits dans notre document de sécurité qui est secret et qu'on a envoyé à la Commission.

Juste pour vous donne un exemple, on est le seul laboratoire de polytechnique qui a une caméra de

surveillance de haute définition dans le laboratoire parce que, généralement, on ne surveille pas nos employés quand ils travaillent.

Mais dans le cas de SLOWPOKE, on a ajouté cet élément-là même si c'est comme une intrusion dans notre vie privée à moi et à mon opérateur, mais c'est une mesure de sécurité que Polytechnique a ajouté aux autres mesures de sécurité qu'ils ont mis en place.

LE PRÉSIDENT: On a les gens de sécurité ici qui pourraient ajouter des mots sur les inspections.

Est-ce que nous sommes tout-à-fait d'accord avec le processus?

M. DUGUAY: Bon après-midi. Mon nom est Raphaël Duguay, je suis conseiller en sécurité avec la Division de la sécurité nucléaire.

Donc, à l'École Polytechnique, le réacteur SLOWPOKE a été inspecté au mois de décembre 2012 par le personnel de la CCSN. L'inspection a -- il y a eu des -- c'était une bonne inspection.

Le titulaire de permis a rencontré les exigences de la CCSN à ce niveau-là. Et puis tous les suivis qui ont été faits ont été rencontrés par le titulaire de permis.

Donc, nous sommes satisfaits avec les mesures de sécurité en place.

LE PRÉSIDENT: Merci.

Monsieur Tolgyesi?

MEMBRE TOLGYESI: Je reviens avec quelque chose très court en ce qui concerne les garanties financières.

C'est juste de la sémantique. J'aime pas ça quand vous dites il y a une partie ferme de 1.2 million, une partie faible de 768 000. Partie faible, ça veut dire quoi « faible »?

Ça veut dire qu'on a peu de chance qu'on va l'avoir si on a besoin?

M. KENNEDY: Greg Kennedy, École Polytechnique.

En 2005, le personnel de la Commission a accepté la proposition de garantie financière de Polytechnique en deux parties: partie ferme et la partie faible.

Et la partie faible, c'était l'engagement formel de Polytechnique. Vu la stabilité financière de Polytechnique, le personnel de Commission a accepté l'engagement formel de Polytechnique de compléter les fonds nécessaires pour le déclassement.

La partie ferme de la garantie financière était l'argent déposé en banque et la lettre de crédit, qui est indépendant de Polytechnique. Et ça, la partie

ferme couvrait les parties les plus importantes du déclassement, comme l'enlèvement et disposition du combustible du réacteur et du réflecteur en béryllium.

Et pour terminer le déclassement, le personnel de la Commission a accepté la garantie moins ferme.

MEMBRE TOLGYESI: Et on a parlé de différence entre l'évaluation qui est 2.4 -- 2.05 millions pour Polytechnique et l'évaluation de la Commission.

C'est quoi la valeur de la Commission qu'elle considère?

M. CARRIER: Christian Carrier, pour le verbatim.

Ce n'était pas une évaluation qui a été effectuée par la Commission. La Commission a plutôt procédé par une comparaison directe avec les estimés qui étaient fournis par d'autres titulaires de permis SLOWPOKE.

Donc, les valeurs variaient de cinq point quelques millions de dollars à six point quelques millions de dollars dépendamment des titulaires de permis.

La comparaison de l'École Polytechnique en 2017 -- et là on parle pas d'argent actuel, on parle d'argent incrémental accumulé jusqu'en 2017 -- de 2 millions de dollars.

Comme je l'ai mentionné dans ma présentation, nous reconnaissons qu'il y a une différence fondamentale dans l'approche utilisée par l'École Polytechnique.

Les trois autres titulaires de permis SLOWPOKE ont utilisé des projets plutôt clefs en main ou ils sous-contractaient une tierce partie pour effectuer le travail. L'École Polytechnique semble plutôt vouloir créer de multiples contrats avec une gestion de projets centralisés par un groupe indépendant.

Donc, il y a une certaine ouverture. Il est normal qu'il y ait des différences dans les estimés. Il est possible d'avoir des optimisations. Par contre, notre commentaire, c'est qu'il y avait un manque de détail qui ne permettait pas de faire une évaluation indépendante de notre part, où j'irais jusqu'à dire par une tierce partie indépendante de la Commission non plus. Donc, il y a une question de manque de détails.

Il y a aussi une question associée à -- dans toute évaluation financière, le niveau de détails permet d'établir un niveau de confiance et plus le niveau de détail est bas, plus une pénalité est prise, normalement.

L'évaluation effectuée par l'École Polytechnique est catégorisée comme Catégorie C selon le

document G-206 et, normalement, on ajoute un coût incrémental de 25 à 30 pourcent sur ces valeurs là. Ce qui n'est pas le cas.

Évidemment, c'est un point -- on ne dit pas qu'on est tout-à-fait en désaccord avec l'École Polytechnique, mais c'est des points de discussion qui doivent être élaborés.

L'objectif final, c'est de s'assurer que le public canadien ne demeure pas, finalement, avec la charge financière du déclassement. L'École Polytechnique a une proposition qui, en soi, peut être valable qui crédite et qui a déjà été critiquée par le passé. Nous reconnaissons que les institutions publiques ont une stabilité à long terme potentiellement plus importante qu'une compagnie privée qui peut disparaître à peu près n'importe quand.

Donc, il y a cette reconnaissance-là mais comment articuler, finalement, les attentes et les critères d'acceptation et comment -- quelle valeur on peut mettre, finalement, à une institution publique comme celle-là, c'est une situation qui a fait l'objet de discussion au cours des dernières années; pas uniquement pour les installations de réacteur, mais pour les permis de radio-isotopes.

Donc, je crois qu'on est à un point où il faut -- il y a lieu de prendre un temps de discussion avec

l'École Polytechnique pour mieux définir une marche vers l'avant dans ce dossier-là.

LE PRÉSIDENT: Des commentaires?

M. MARLEAU: Guy Marleau, pour le verbatim.

J'aimerais aussi vous donner notre position. Si la Commission canadienne de sûreté nucléaire a comme mandat de protéger le public, nous sommes une université, une institution d'enseignement qui est aussi subventionnée par le gouvernement et, donc, nous avons la responsabilité de bien gérer les fonds qui nous sont donnés.

Nous avons -- et c'est la raison d'ailleurs pour laquelle nous avons proposé un plan de -- et une garantie de déclassement qui, à notre avis, pourrait satisfaire les demandes du G-206 tout en ne donnant pas un 'burden', un poids trop élevé à mettre de l'argent de côté alors qu'il peut être utilisé à bon escient par Polytechnique pour la formation.

Donc, -- et c'était notre position, maximiser le rendement sur l'argent de façon à s'assurer que le public soit bien servi -- donc, les canadiens -- parce que l'argent est disponible mais aussi s'assurer que le public soit bien servi au Québec parce que l'argent n'est pas dépensé de façon inconsidérée.

LE PRÉSIDENT: Monsieur Tolgyesi?

Pour finir cette partie de discussion, il faut trouver une manière de régler ce problème.

C'est une prévision de long terme, alors, il faut trouver une manière que tout le monde sont satisfaits que l'argent -- les fonds seront là quand c'est nécessaire.

Alors, il faut trouver une manière de négocier une entente ici.

M. MARLEAU: Guy Marleau, pour le verbatim.

Nous sommes prêts à réviser notre proposition et à réévaluer en fonction des commentaires que nous avons reçus hier sur les suggestions et modifications qui nous sont proposées par la Commission canadienne de sûreté nucléaire.

Nous ne pouvons pas vous assurer que nous allons augmenter notre garantie à 5 millions comme l'ont fait nos confrères, mais nous sommes prêts à négocier et à réévaluer s'il le faut nos propositions de façon à en arriver à une entente le plus rapidement possible.

LE PRÉSIDENT: Merci.

Monsieur Tolgyesi.

MEMBRE TOLGYESI: C'est une bonne nouvelle.

Je vais poser ma dernière dans cette étape-là. À la page 30 de votre présentation, H7.1, dans le dernier paragraphe, on parle d'assurance-qualité et il y

en avait les inspections, dernier paragraphe, quatrième ligne d'en bas, page 30.

On dit qu'il y avait:

« ... l'inspection interne effectuée par le responsable d'assurance-qualité entre septembre 2010 et janvier 2011. Plusieurs non-conformités ont été identifiées. »

Ça, ça veut dire c'est à peu près -- pas loin de un an et demi.

« La plupart ont été corrigées dans la nouvelle version du manuel de février 2013. »

Ça veut dire qu'il y en a une série qui sont pas corrigées. Ça, ça veut dire que c'est depuis un an et demi, ça dure.

DR. CHILIAN: Cornelia Chilian, pour le verbatim.

On a corrigé toutes les non-conformités qui ont sorti de l'inspection interne effectuée par Polytechnique et aussi on a corrigé toutes les non-conformités qui étaient liées à l'inspection de -- en ce qui concerne le Programme d'assurance de la qualité par le personnel de la Commission parce qu'ils sont arrivés d'une certaine -- à peu près ensembles et certaines non-

conformités étaient semblables.

Donc, les deux parties ont trouvé des choses à corriger communes.

Donc, toutes ces non-conformités ont été corrigées dans le -- avec le -- dans le nouveau manuel d'assurance de la qualité, qui a été révisé en février 2013.

Donc, ces non-conformités sont fermées.

LE PRÉSIDENT: Merci.

Dr. Barriault?

MEMBRE BARRIAULT: Merci, monsieur le président.

Ça me fait de la peine de revenir aux garanties financières puis estimation de déclassement. Ce que je comprends pas, c'est où est la différence, où est la divergence entre la CCSN puis l'École Polytechnique?

C'est quoi qui est le problème?

Est-ce qu'on est d'accord sur le prix de ça ou on n'est pas d'accord sur la méthode de financer le prix de ça?

M. ELDER: Peter Elder.

Les deux.

MEMBRE BARRIAULT: Oui, les deux?

M. ELDER: Oui.

C'est -- nous sommes d'accord avec le plan

MEMBRE BARRIAULT: Oui.

M. ELDER: --- pour déclassement mais après le plan de déclassement, il y a estimation du coût.

Et il y a quelques points dans l'estimation de coûts qui a une -- c'est pas -- les chiffres de l'École Polytechnique n'est pas -- ne sont pas très clairs, quand ils arrivent à les chiffres.

C'est pas dans tous les chiffres mais certains chiffres importants.

MEMBRE BARRIAULT: O.k.

M. ELDER: Mais dans le -- si on fait une comparaison entre l'estimation de l'École Polytechnique et l'estimation de l'Université de Alberta, peut-être c'est le coût pour les gestions de projets.

Dans un cas, c'est l'Université de Alberta donne un chiffre de l'Énergie Atomique de Canada Limitée. C'est le prix pour tous les projets. C'est vraiment possible de faire la gestion de projets différemment.

MEMBRE BARRIAULT: Oui.

M. ELDER: Absolument.

Mais pourquoi est-ce que c'est -- est-ce que c'est seulement la gestion de projets et est-ce que toutes les situations -- et est-ce que -- c'est nécessaire pour le personnel de la CCSN de comprendre tous les

chiffres et est-ce que c'est l'incertitude dans les chiffres?

MEMBRE BARRIAULT: O.k.

Alors si on met une date ultérieure, dans le futur, quand pensez-vous qu'on va régler ça ce problème-là?

Parce qu'il faut le savoir. Au point de licenciement, c'est pas quelque chose qui va continuer à l'infinité.

M. ELDER: Non.

Il y a un fait important. Le personnel de la CCSN a demandé à tous les titulaires de permis de refaire l'estimation ---

MEMBRE BARRIAULT: La 'calculation'.

M. ELDER: Refaire en 2011 ou 2012 à cause de le déclassement de Dalhousie.

MEMBRE BARRIAULT: Oui.

M. ELDER: C'est seulement une -- c'est une discussion maintenant juste aujourd'hui de un an.

Nous pensons qu'il est possible de régler le problème en six mois.

MEMBRE BARRIAULT: O.k. O.k.

C'est ça. C'est tout. Merci.

LE PRÉSIDENT: Merci.

Dr. McDill?

MEMBRE McDILL: Peut-être une question, monsieur le président, mais pour les quatre et le personnel de la CCSN.

Je crois qu'il y a peut-être un problème avec les programmes d'information publique pour les quatre. Je crois que le programme -- les programmes sont incomplets.

So, École Polytechnique, votre commentaire?

M. MARLEAU: Nous sommes un peu d'accord avec vous que notre programme devrait être amélioré.

Nous allons -- nous avons décidé au cours des derniers mois d'être un peu plus proactifs en ayant lu, justement, le rapport que la CCSN nous a envoyé de façon à avertir et informer les gens dans la région immédiate du réacteur des -- du potentiel de danger qui pourrait être associé aux réacteurs SLOWPOKE.

Ce n'est pas une chose qui se fait rapidement. Nous avons l'intention de -- nous avons, à l'École Polytechnique, un service de relations publique et nous avons l'intention de le mettre -- de l'utiliser justement pour faire ce type d'information publique.

On a toujours été, à l'École Polytechnique, très ouverts à la communication. La preuve étant que Mme Chilian a donné une entrevue à un journal qui a été publiée et qui a été distribuée dans tous les métros de

Montréal il y a deux semaines.

Et ce, c'est pas nouveau, et ça a pas été fait exclusivement pour la Commission, c'est arrivé de cette façon-là.

Donc, on a toujours été ouverts. On est pas nécessairement très proactifs et ce qu'on veut tenter de faire c'est devenir un peu plus proactifs dans notre information à la communauté.

MEMBRE McDILL: Merci.

CCSN?

M. CARRIER: Christian Carrier, pour le verbatim.

La Commission canadienne de sûreté nucléaire a publié l'an passé le document R99.3 qui décrit les attentes RDGD -- excusez-moi, 99.3, qui décrit les attentes du personnel de la CCSN en ce qui a trait à l'élaboration de programmes d'information publique.

C'est un document qui est très générique qui s'applique à une très grande variété d'installations et d'utilisateurs de matières radioactives au Canada.

L'application directe de ce document-là est difficile. Il y a un sujet interprétation et une gradation, utilisation graduée, finalement, de ce document-là à chacun des titulaires de permis.

Et nous avons travaillé avec notre groupe

de communication publique au sein de la CCSN de façon à mieux articuler les attentes sur ces titulaires de permis là. Donc, nous avons déjà abordé les discussions avec les titulaires de permis en vue d'améliorer et de mieux cadrer ces programmes d'information publique là.

Mais avant de procéder trop loin, nous avons aussi reconnu la nécessité de définir d'abord et avant tout ce que le personnel de la CCSN voulait avoir. Donc, je crois qu'il y a un petit travail de notre côté. Les titulaires de permis améliorent de façon continue leurs programmes d'information publique, mais le personnel de la CCSN aussi doit définir ses attentes avant de -- et les articuler de façon à ce que les titulaires de permis aient un chemin clair pour savoir quand ils ont établi -- de façon à reconnaître quand le succès a été établi.

MEMBRE McDILL: En anglais, pour les autres.

LE PRÉSIDENT: O.k., alors -- oui, oui, oui, je comprends.

MEMBER McDILL: Would each of the other -- Alberta?

MR. DUKE: John Duke, for the record.

As Mr. Carrier has pointed out, the RD99.3, -- I think it was the last year -- it was 2012 and we were doing our licence applications for submission in the fall.

The PIP -- yeah, the Public Information Programs, I think most of us -- and I can't speak for the other facilities but this seemed to be to us a new requirement. I hadn't sort of seen it before in great detail.

We, at the University of Alberta, through our licensing process, we also had articles in our university newspapers for staff and students. We also -- the university has external affairs, community relations. They work closely with the residential communities surrounding the university. Those groups have members which are part of a committee that meet.

We arranged for a tour of our facility for those members and it wasn't hugely attended but we did get some people attending.

The Vice-President Research website also had a webpage talking about the renewal of the licence, a link to the article and also a link to the CNSC website for public intervention. So we've done a certain amount there.

But in regards to, like, continuous, the university has an emergency management reporting system for both telephone for staff, email for staff and student. And just recently, before coming here, I spoke to the external relations and they say that the communities are

built into that.

So we do have to work with CNSC and find out exactly what would be considered a satisfactory requirement. But we have a mechanism in place for that, we just then have to tie the SLOWPOKE facility into that and how to respond -- if there was an emergency situation, how that would filter into it.

So it's once we were made aware of that through doing the licence application, we have I think been working on a process to accommodate and to meet that requirement.

THE CHAIRMAN: Mr. Jammal, you wanted to add something to this?

MR. JAMMAL: Oui, je voudrais ajouter quelque chose sur ce que Monsieur Carrier a déjà mentionné qu'on a déjà établi les attentes.

Alors, on va communiquer à nos détenteurs de permis c'est quoi les attentes de la Commission parce que on a évalué ce qu'on a besoin à mettre sur place d'une façon graduée comme Monsieur Carrier a déjà mentionné

Alors, on a travaillé avec notre personnel de la Commission. On a déjà établi les attentes et, au fur et à mesure qu'ils vont élaborer leurs programmes, on va les surveiller d'une façon réglementaire.

Alors, je vais le répéter en anglais.

So the -- we established the requirements or the expectations of the CNSC, not just -- we just heard this morning about the Class 1 reactor application of regulatory requirements. Well, we have graduated our requirement. Our communication staff -- as a matter of fact, we established all of the requirements for all facilities to include hospitals or Class 2 nuclear facilities, and we are in the process of communicating our expectations to our licensees.

So it's a progress -- a program in progress in place in order to assist the licensees and be clear with respect to our expectations.

But you are correct, there are deficiencies, we've highlighted the deficiencies and we are gradually putting in place in a graduated fashion the requirements associated with the risk of the facility.

MEMBER MCDILL: Merci. Thank you.

RMC, did you want to add anything?

MS. NIELSEN: We have a public information program. I don't believe it's been accepted yet by the CNSC staff.

But we have participated in this Science Rendezvous for three years now where literally hundreds of people from the community come and bring their children. It's really a great venue for talking about the SLOWPOKE

and radiation in general.

We do have school tours. RMC has a publicity officer and she publicizes things about the SLOWPOKE. I think, two or three years ago, we had a video taken of the SLOWPOKE and it was in the Canadian Armed Forces newspaper The Maple Leaf interviewing people who work at the facility.

When we had our 25th anniversary in June of 2010, we invited the public to the lectures. We had a day of the public was welcome to come to tour the facility and then come to the lectures that were given. And some members of the public, in fact, did come; not a great many as we would have wished but some people did come.

Often through work, mothers and fathers ask me if their children could come and have a tour of the facility and I always say 'yes'.

We have the -- is it a provincial day when -- what's it called? "Take your child to work Day", grade 9? We have children come through for that day. Of course, the reactor's not turned on.

We have invited The Whig-Standard and, in fact, even newspapers in Ottawa to cover events. They didn't respond too well -- well, The Whig did.

And also, as I told you before, we've been undergoing renovations since February 2012 and if any of

the workers -- and we have hundreds of them -- if any of the workers say to me: "Oh, I hear you have a reactor here", I always say "Would you like to see it?".

And so every -- and I tell them after I give them the tour -- maybe a 15-minute tour -- if any of their coworkers would like to come and have a tour, I'd be very welcome to give it to them.

We hope to expand our program a bit more but we certainly do our best to let the community in Kingston know that there is a small reactor here and how small it is compared to a power reactor.

MEMBER McDILL: Oui?

MR. MULDOON: Joe Muldoon, for the record.

We also are developing a program in cooperation, obviously, with the Canadian Nuclear Safety Commission.

We do -- we have the video that -- it's out there. It's on You Tube and elsewhere and we do us it. We have annual reports that go out. Presentations are very common to include the SLOWPOKE as part of our very unique for our facility or it's the only reactor in the province.

So there's -- very often when we talk about nuclear innovation and so on in Saskatchewan, and where we're going -- and, of course, uranium -- being the

exporter of uranium, major exporter of uranium, it is -- it gets played fairly regularly.

We have a very good relationship with -- as was mentioned, with the University of Saskatchewan.

The Sylvia Fedoruk Centre for Nuclear Innovation has just been formed in the last couple of years and the SLOWPOKE is part of the -- is part of that announcement and so on.

I think another point that I would make is we do lots of -- the Saskatchewan Research Council does lots of work with First Nations and Aboriginal peoples in the province as well. So they -- we very regularly talk about the various pieces that we have. We deal with wind energy, bioenergy and, obviously, in the nuclear energy as well in terms of right from exploration all the way through to servicing the mining industry out there and across the pieces. So it is something that is mentioned very regularly.

But I do think that the -- the interactions are very -- are different in different areas of the country as well and do ebb and flow depending on what's going on in the news and we're always -- this is handled by our communications group, along with staff from the lab and we certainly don't try and hide it and we very much talk about it very openly.

MEMBER McDILL: École Polytechnique, oui, s'il vous plaît.

DRE. CHILIAN: Cornelia Chilian, pour le verbatim.

Donc, j'écoutais mes collègues. On est d'accord d'avoir toute -- de respecter le règlement en ce qui concerne le Programme d'information publique.

Le seul -- la seule inquiétude que, moi, personnellement, j'ai c'est de créer un programme d'information publique spécial pour SLOWPOKE qui est géré par un document -- par un manuel, donc, des procédures, de la documentation à maintenir, de travail à faire quand il est pas nécessaire et quand les mesures d'information publique peuvent être implémentée dans le Programme d'information publique que notre institution a déjà.

Donc, il y en a des programmes qui sont en place pour la gestion des déchets, pour la protection incendie et c'est sûr que ces programmes-là peuvent manquer des éléments qui sont spécifiques à une installation nucléaire.

L'École Polytechnique est prête à faire les changements, à ajouter les éléments qui manquent dans leurs programmes -- donc, au pluriel -- corporatifs.

Donc, on est pour, on veut respecter le règlement, toutefois, on veut pas ajouter du travail

inutile, un poids sur le personnel de l'installation et de créer plus de documentation à gérer, plus de travail, travail qui nous éloigne de nos réacteurs et, donc, le réacteur est moins sécuritaire parce que nous on passe le travail à gérer des documents.

C'est juste ça que je voulais dire.

MEMBER McDILL: Merci.

Alberta -- University of Alberta?

THE CHAIRMAN: Alberta already spoken on the ---

MEMBER McDILL: No, the -- the new.

THE CHAIRMAN: Okay.

DR. FEDORAK: Yeah, it's Richard Fedorak, for the record.

I just wanted to speak from a university standpoint around the communication discussion that's been going on.

Communicating out information about a nuclear reactor in the centre of a university, in a centre of a city can be sensitive and requires careful consideration.

It may be that universities may not be able to comply with all of the requirements around a communication policy that comes out from the CNSC, given the risk/benefit ratio that a university needs to consider

in having those types of communication policies.

So careful consideration needs to be given to the organizations which are receiving these rules and regulations.

THE CHAIRMAN: You wanted to jump to this, Mr. Jammal?

MR. JAMMAL: Je vais donner la réponse dans les deux langues ou bien les traducteurs vont le faire.

Okay, let me start in English first. I find this a very interesting discussion.

On a déjà publié le règlement ou bien c'est pas le règlement mais le document qui concerne le Programme d'information publique ça fait un an et puis nous avons eu une période de consultation et puis le commentaire qu'on a reçu ça peut indiquer les difficultés qui sont en train d'être présentées ici.

Mais la Commission est toujours équitable. On est toujours ouverts à vous donner la clarté. Alors, la clarté, comme j'ai déjà dit, qu'on a déjà établi les attentes, on va communiquer les attentes à vous-autres, les détenteurs de permis, pour que ça soit d'une façon graduée.

On est tout à fait d'accord avec vous, le programme c'est votre programme à vous, de nous présenter le programme. Notre personnel de communication va évaluer

s'il y a des écarts au niveau du Programme d'information publique et, à ce moment, on va avoir la discussion.

Mais il y a des points saillants qu'on doit mettre sur place et, déjà, les attentes ont déjà été établies. Alors, je veux pas qu'on commence à créer des perceptions avant qu'on va avoir la discussion. La discussion si les attentes ce sont tout à fait équitables, équilibrées au niveau des SLOWPOKES.

Si ça sera un fardeau pour vous-autres, on va avoir la discussion.

THE CHAIRMAN: Okay.

Dr. McDill?

MEMBER McDILL: Non, merci.

THE CHAIRMAN: Okay, you don't but I will.

Okay, there's a couple of things that needs to be said here.

First of all, CNSC has two mandates: one is to make sure that nuclear operations are safe. The second one, which we are now trying to reinforce because it's been neglected for many, many years, is the dissemination of information to the public.

And I've got to tell you, you are an instrument of dissemination of information to the public. I don't buy the idea that you have a nuclear power plant in the middle of the University of Alberta, therefore, you

should hide it or keep it away.

In fact, one bitter lesson that we've learned is that if you try to keep under wraps something, and some of our very smart kids -- particularly in university -- find out that you should have disclosed it and you didn't, you're going to get into real trouble.

So we are very much for proactive disclosure.

Et particulièrement au Québec, par exemple, les discussions autour de Gentilly-2, c'était incroyable le type d'information qui était discuté, le 'misinformation', c'est vraiment -- on a -- on a une responsabilité pour expliquer qu'est-ce qu'il y a -- qu'est-ce que c'est le nucléaire et qu'est-ce que c'est la sécurité et les bénéfices qu'on pourrait obtenir des activités nucléaires.

So I am for being very proactive and we have a very large population that really does not understand nuclear and it's our collective responsibilities to explain it. I'm not talking about promoting, I'm talking about explaining the science, the physics, et cetera.

So this is really my little outburst here. We will continue to discuss and evolve.

There's some regulatory document that Mr.

Jammal spoke about. It's now being circulated amongst everybody for finalizing what is the reporting requirement, and you're welcome to comment on them. I think there already has been some serious consultation process but we always will welcome other comments on this.

So we need to move on. So unless, colleagues, you have -- anybody has any other burning question?

MEMBER TOLGYESI: Est-ce que vous avez communiqué avec les Premières Nations parce qu'il y a Akwesasne, Kanesatake, Kahnawake qui sont pas loin, qui peuvent avoir certaines prétentions territoriales?

M. ISLAM: Wasif Islam, CCSN.

Oui, on a communiqué avec les -- les membres intéressés.

On a identifié, en fait, les parties qui ont été intéressées. On a suivi ça par téléphone après on a aussi envoyé les lettres suivies -- on a fait -- on a poursuivi aussi avec -- après avoir envoyé ces lettres-là si ils avaient des questions ou des concerns quelconques à propos des -- de ces quatre permis et de ces quatre titulaires de permis.

MEMBER TOLGYESI: Et vous avez pas eu de réponse quelconque? Y voulaient pas participer, et cetera?

M. ISLAM: Wasif Islam, de la CCSN.

Non, y avait pas des questions majeures ni des -- ni des concernes qui ont été exprimés.

MEMBER TOLGYESI: Merci.

THE CHAIRMAN: Okay, le mot final? Final words?

Anybody wants to raise -- say something?

M. MARLEAU: Thank you.

THE CHAIRMAN: Alors?

M. MARLEAU: Je suis d'accord avec vous qu'il faut communiquer si on veut que les gens comprennent l'utilité du nucléaire et qu'ils n'y voient pas seulement des dangers.

LE PRÉSIDENT: Merci beaucoup.

Alors, merci beaucoup, tout le monde.
Thank you very much for your patience and we will take a 10-minute break.

MR. LEBLANC: This closes the hearing and we're going to proceed with a meeting at 3:15. So thank you very much. Au revoir.

--- Upon recessing at 3:07 p.m./

L'audience est suspendue à 15h07