Canadian Nuclear Safety Commission

Commission canadienne de sûreté nucléaire

Public hearing

Audience publique

April 6th, 2016

Le 6 avril 2016

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

Salle des audiences publiques
14e étage
280, rue Slater
Ottawa (Ontario)

Commission Members present

Dr. Michael Binder
Mr. Dan Tolgyesi
Dr. Sandy McEwan
Ms Rumina Velshi

Commissaires présents

M. Michael Binder
M. Dan Tolgyesi
Dr Sandy McEwan
Mme Rumina Velshi

Secretary:

Mr. Marc Leblanc

Secrétaire:

M. Marc Leblanc

General Counsel:

Ms Lisa Thiele

Avocate générale :

Me Lisa Thiele

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Ottawa, Ontario

--- Upon commencing on Wednesday, April 6, 2016,
at 9:05 a.m. / L'audience débute le mercredi
6 avril 2016 à 9 h 05

CMD 16-M10

Opening Remarks

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

The public hearing is regarding the application by the Canadian Nuclear Laboratories, or CNL, to amend its Nuclear Research and Test Establishment Licence for the Chalk River Laboratories site and extend it for a period of 17 months. CNL has also requested the removal of licence condition 16.1 and there are also a few small amendments added to this.

There will be a Commission meeting starting this afternoon no earlier than two o'clock and resuming at 9:00 a.m. tomorrow.

During today's business, we have simultaneous interpretation.

Des appareils pour l’interprétation sont disponibles à la réception. La version française

est au poste 2 and the English version is on channel 1.

I understand that there may be some French spoken during the hearing. We have a representative from Quebec to talk about emergency management matters and they have informed us they would speak in French. You can ask your questions in English, that's why we have interpretation, except the Commission Members cannot use interpretation devices on the Panel. They have a functional understanding of French, some of them, and so we'll ask the Sécurité civile people to speak slowly so we can fully understand. Thank you.

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

L'audience est enregistrée et transcrite textuellement. Les transcriptions se font dans l'une ou l'autre des langues officielles, compte tenu de la langue utilisée par le participant à l'audience publique.

The transcripts will be available on the website of the Commission probably later next week.

To make the transcripts as meaningful as possible, we would ask everyone to identify

themselves before speaking.

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

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

Monsieur Binder, président et premier dirigeant de la CCSN, présidera cette audience publique.

Mr. President.

LE PRÉSIDENT : Merci, Marc.

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.

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

I would like, first, to start by introducing the Commissioners who are with us here today.

On my right is Monsieur Dan Tolgyesi. On my left are Dr. Sandy McEwan and Ms Rumina Velshi.

We heard from our Secretary, Marc Leblanc. We also have Ms Lisa Thiele, Senior General Counsel with us here today.

CMD 16-H1.B

Adoption of Agenda

THE PRESIDENT: I would like to start by calling for the adoption of the agenda, as described in Commission Member Document CMD 16-H1.B.

Do we have concurrence?

For the record, the agenda is adopted.

Marc.

MR. LEBLANC: The Notice of Public Hearing 2016-H.2 was published on November 24, 2015. A revised notice was issued on December 15, 2015, to include the request made by CNL for the removal of licence condition 16.1.

The submission from the Canadian Nuclear Laboratories and the recommendations from CNSC staff were filed on February 11, 2016. CNL filed a supplementary submission on February 22, as did staff yesterday, to include the Licence Conditions Handbook to the material.

The public was invited to participate by way of written submissions. March 7 was the

deadline set for filing by intervenors. The Commission received 17 submissions; one of them was refused because it was filed several days after the deadline. Participant funding was available to intervenors to prepare for and participate in this public hearing. A Funding Review Committee, independent of the Commission as it is made up of external members not related to the CNSC, rendered its decision and provided funding to three applicants. The decision is available on the CNSC website.

March 30, 2016 was the deadline for filing of supplementary information and presentations. I note that presentations were filed by CNL and CNSC staff.

We will begin with the presentations this morning by CNL and CNSC staff and then we will proceed with the interventions, and after all interventions there will be rounds of questions so that the Members can complete the information.

Mr. President.

THE PRESIDENT: Before we start, I would like to recognize some other representatives from governmental or municipal departments joining us via teleconference. So let’s see if we can test the technology here.

I'll start with Mr. Tom Kontra, Mr. Dave Nodwell and Ms Kathy Bleyer, who are coming to us from the Office of the Fire Marshal and Emergency Management. Can you hear us?

MR. KONTRA: We can hear you loud and clear. Can you hear us?

THE PRESIDENT: Yes, we can. Thank you.

We have Ms Ann Turney representing the Town of Deep River. Can you hear us? Ms Turney? Not yet.

We also have in attendance Ms Ela MacDonald, Coordinator for the Laurentian Hills, from Deep River Emergency Preparedness.

Aussi, on a, pour représenter la Sécurité civile du côté du Québec, M. Gaëtan Lessard, Dr. Brigitte Pinard et M. Louis Bétournay. Ils sont ici?

M. LESSARD : Bonjour.

LE PRÉSIDENT : Bienvenue.

We also have with us Mr. Jean-Frédéric Lafaille from Natural Resources Canada and Ms Shannon Quinn from Atomic Energy of Canada Limited.

So all of these colleagues are available for questions.

CMD 16-H2.1/16-H2.1A/16-H2.1B
Oral presentation by the
Canadian Nuclear Laboratories

THE PRESIDENT: Now, let me start the hearing by calling on the presentation from the Canadian Nuclear Laboratories, as outlined in Commission Member Documents 16-H2.1, 16-H2.1A and 16-H2.1B.

I understand that Mr. Mark Lesinski will make the presentation.

Mr. Lesinski, the floor is yours.

MR. LESINSKI: Thank you very much, Mr. President and Members of the Commission. Good morning, ladies and gentlemen.

For the record, my name is Mark Lesinski. I am President and CEO of the Canadian Nuclear Laboratories, or CNL.

I am pleased to be before the Commission for the first time as President and CEO of the newly formed Canadian Nuclear Laboratories, a Government-Owned Contractor-Operated, or GoCo paradigm.

Before proceeding further, I would like to say a few words on CNL's most recent appearance before the Commission on January 28 of this

year. This appearance was related to an event that involved the failure of a National Research Experimental, or NRX, fuel assembly caddy and to answer the Commission questions.

I want to state my personal commitment to safe operations and expeditious reporting. I have made it clear to the CNL workforce that it is my expectation that as an organization, we immediately engage CNL management and, as appropriate, the regulator in details related to such events. Early engagement and proactive disclosure with our regulator on events will provide the appropriate foundation for understanding our issues, agreement on reporting requirements and maintaining a strong working relationship with the CNSC. I am committed to ensuring this going forward.

Now, I would like to take a few moments to introduce the CNL representatives as well as share some information on the organization given the responsibility to operate Canada's largest nuclear laboratories infrastructure.

First, a little about myself. I have worked in the nuclear industry for 38 years in the United States and the United Kingdom. My working experience spans commercial and government nuclear facilities, from power reactor operations and major

retrofit projects to management of decontamination and decommissioning. My most recent industry role involved working within the GoCo framework. This experience prepared me for my current role and allows me to understand that the licence and its responsibilities lie clearly with myself and with CNL.

With over 35 years of nuclear industry experience, Bill Pilkington, CNL's Vice President of Operations and Chief Nuclear Officer, seated at my left, brings 25 years of senior operating experience to our team. This includes his leadership through the NRU repairs and Bill is well positioned to usher NRU through its final years of operations.

To my right is Kurt Kehler, Vice President of Decommissioning and Waste Management. Kurt is considered a world-class DWM expert and nuclear manager. Possessing over 35 years' experience, he has worked on engagements at seven U.S. and two European Union facilities. One of Kurt's engagements included the safe and successful closure of Rocky Flats.

Behind me in the second row on the right is Dave Cox. Dave has over 32 years of experience in the nuclear industry. His expertise spans areas related to nuclear fuel, fuel cycles and waste management. Dave was also instrumental in the

return to service of the NRU reactor. Today, he provides operations leadership in his role as Operations General Manager.

In the centre is Kevin Daniels, Vice President of Health Safety Security Environment and Quality. Kevin has over 40 years of nuclear experience and naval operations, with 18 years focused on providing leadership for HSSE & Q at several U.S. Department of Energy environmental cleanup sites.

And to Mr. Daniel's left is Shaun Cotnam, Senior Director Performance Improvement, Oversight, and Chief Regulatory Officer. He is a long-term employee at the Chalk River Site. Shaun's 24 years of experience spans various organizational functions. Shaun has most recently provided regulatory leadership throughout the organization's transition to a GoCo.

Today, our presentation will focus on two key areas:

- first, a brief update on CNL and CNL's vision since share transfer;

- second, to address specific points related to CNL's requested licence amendments.

On Friday, June 26, Canadian National Energy Alliance, or CNEA, was announced as the preferred bidder. CNEA is a consortium that

represents some of the world's most experienced nuclear engineering and management firms. It includes CH2M, Fluor, EnergySolutions and SNC-Lavalin. CNEA is committed to the continued protection to health, safety, security and the environment. I assure you that in carrying out our missions Canadian Nuclear Laboratories places the top priority on meeting all of its nuclear safety and regulatory obligations.

Together, the members of this consortium provide experience in the areas of site management, operations, decommissioning and waste management. This experience will come to bear in addressing the Government of Canada's three key mission areas for Canadian Nuclear Laboratories:

- first, reducing the liabilities held by AECL;

- second, updating nuclear science and technology expertise to support federal and commercial missions; and

- third, rebuilding the laboratories' facilities and supporting infrastructure.

I assure you that in carrying out these missions CNL will remain well-positioned to meet all of its nuclear safety and regulatory obligations.

CNEA will assist the Government of Canada in bringing our private sector rigour and

efficiency to Canadian Nuclear Laboratories, while enhancing the strong CNL brand, reducing risks and containing costs for taxpayers.

The announcement of CNEA as the preferred bidder set into motion the final steps in the restructuring process. This slide illustrates the roles and responsibilities of the parties to the GoCo as it currently exists.

Natural Resources Canada continues to set policy for the Government.

AECL, as a Crown corporation, ensures that the Government's objectives for the Nuclear Laboratories are met. As the main customer of CNL, AECL oversees the contract and CNL's performance. AECL retains ownership of the sites, facilities, assets, intellectual property and decommissioning liabilities.

As of September 13, 2016, share transfer occurred and the GoCo procurement process was completed. CNEA has appointed CNL's Board of Directors and senior leadership team which is seconded into CNL, with CNL as its primary allegiance and focus. Accordingly, CNL has notified CNSC staff of management system appointments and will continue to provide such information as required.

CNL is the operator and licensee. It

will continue to be in full control of day-to-day operations and accountable for its performance. CNL has the capabilities, responsibilities and authority required to make all operational decisions at the Laboratories, with safety as its primary focus.

As the licensee, CNL maintains its important relationship with the CNSC and is fully accountable for meeting regulatory obligations. CNL is the enduring entity and the employer of the workforce. It is responsible for maintaining core capabilities and expertise over time as well as positioned to carry on through potential future changes in ownership. Our goal is to create a stronger, resilient and enduring national laboratory with a revitalized talent pool, facilities and infrastructure.

Let me be clear. There will be no change to our activities with respect to section 4 of our licence. Any change in support activities will be managed in a controlled way and focus on making improvements to our performance.

Through our Vision 2026, we plan to revitalize Canadian Nuclear Laboratories. Since share transfer, CNL has focused early planning on near-term activities related to transitioning into the organization, and longer-term planning for the next

five- and ten-year periods is underway.

There's a great history at Chalk River and we intend to improve on that world-class stature. It is our vision that CNL will develop world-class science capabilities in four mission areas: energy, health, environment, and safety and security. These align with the Federal Research Priorities as well as CNL's current and future commercial markets.

Achieving CNL's vision for S&T requires transformation in four areas:

- first, understanding current and future potential mission focus areas;

- second, seeking out the best talent to carry out targeted R&D;

- third, refurbishing and building new facilities; and

- fourth, developing the commercial acumen to grow profitability.

CNL will adopt a private sector business operating model designed to ensure that we meet and are able to adapt to changing Canadian federal, commercial and public priorities. The organizational structure will enable S&T professionals to be assigned to projects across multiple technologies and mission areas, encouraging them to develop their breadth of knowledge and capabilities

while making CNL more agile and adaptable. This provides government, industry and academia access to CNL's S&T expertise, facilities, products, services and technologies in line with their priorities and their needs.

Since June 26, the new leadership team has made it a priority to listen to the organization during this critical Transition-In period. This has been managed through our "Listening Campaign." To date, the leadership team has engaged directly with over 2,000 employees through face-to-face team meetings. In these meetings, leaders actively listen and learn from the experience of the workforce.

I will also add that the listening campaign has not been limited to our employees. While it may be the priority to engage with our host communities, share our vision for the laboratories and listen to their thoughts on CNL activities, it is also very important to listen and to be receptive to all perspectives, including divergent views.

Listening has helped us pinpoint opportunities for improvement in the areas of process and past practice. Our focus is and will remain in finding and acting on opportunities for improvement. CNL will continue to employ listening campaign into the future.

Change will be gradual in the near term, but we will continue to look for wins and implement change where appropriate. Established activities continue and are underway. This includes decommissioning activities, waste management and the completion of projects such as Building 350, our new science and technology complex.

Larger-scale projects, such as the near-surface disposal facility, have been initiated and are subject to a full environmental assessment process, employ public review and participation and final condition approval.

Work in support of the announced October, 2016 exit for Moly-99 production is ongoing.

A pivotal element of these preparations is respectfully managing our people affected by this decision. We continue to support this part of CNL's workforce through a retain, retrain and redeploy approach.

As stated earlier, we plan to revitalize the Canadian Nuclear Laboratories site and facilities. A project initiated in the spring of 2014 is nearing completion. Building 350 will offer CNL employees and our partners a state-of-the-art, collaborative and interdisciplinary facility to conduct cutting edge nuclear research and development.

Our component life programs will find a new home here. The building will be ready for occupancy this summer.

Building 350 is an important step in the site revitalization process. Roughly 50 per cent of our buildings will be replaced or substantially refurbished in the years ahead. We are working towards energy-efficient, low maintenance buildings across a reduced footprint. This is important for the future of CNL.

Underpinning all that we do is the laboratories' infrastructure. Work is well underway in the renewal of Chalk River site. Like progress on the new research facilities, projects related to sewage treatment facilities, potable water supply and installation of a natural gas pipeline are also well underway.

Plans include the design and building of a new electricity substation on the south side of Chalk River site's built-up area. This improvement will allow for the installation of new electrical services and improve reliability.

Today CNL is busy. We're busy expanding our relationships with existing high potential customers, we're busy developing existing capabilities by removing the barriers to commercial success, more busy with exploring public and private

partnerships that will help grow the local economy.

In keeping with CNL's mission to offer science and technology services and wider products to users of the laboratories on commercial terms, we are actively growing our business development portfolio. The most important external focused activity is nuclear product and service, sales and account management which includes managing current customer existing relationships and developing new ones.

We truly believe that this is an exciting time for CNL. Our vision is to grow the S&T capabilities, accelerate decommissioning, expand the skilled workforce, develop new clients and revitalize the facilities.

And we will be back before you in the fall of 2017 as we will be using the interim period to prepare for a more in-depth licensing discussion as part of licensing renewal.

In closing, I want to reiterate my commitment to the Commission that throughout the coming changes in improvements, our commitment to safety will not waver.

I will now ask Bill Pilkington, Vice-President of Operations and CNL's Chief Nuclear Officer to provide additional details on the licensing amendment.

Thank you. Bill...?

MR. PILKINGTON: Thank you, Mark.

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

For the record, my name is Bill Pilkington and I am CNL's Vice-President Operations and Chief Nuclear Officer.

Today I will provide Commission Members with details related to our licence amendment request. The current operating licence for the Chalk River laboratories site issued by the Canadian Nuclear Safety Commission is valid until October 31st, 2016.

In consideration of important operational and organizational factors, Canadian Nuclear Laboratories decided in early 2015 to apply to the CNSC for an amendment to the expiry date of the current licence to March 31st, 2018. That is an extension of 17 months.

Amendment applications have been submitted in accordance with section 24.2 of the *Nuclear Safety and Control Act* and pursuant to section 6 of the *General Nuclear Safety and Control Regulations.*

The schedule followed and the supporting documentation provided to CNSC staff have been in accordance with the protocol established

between CNSC Staff and CNL management dated June of 2015.

In addition to extending the expiry date, two additional changes are requested. One, to remove the licence condition 16.1 requiring an extended outage of at least one-month duration for NRU maintenance and inspection each calendar year; and, two, to obtain Commission approval of the plan for the operation of NRU beyond October, 2016, thereby confirming acceptance that licence condition 16.3 has been met.

Licence condition 16.1 applies to CNL's current NRU maintenance outage and inspection activities. Under the current operating licence, CNL conducts annual 30-day outages during which we complete NRU maintenance activities and vessel inspections. Based on operating experience since October of 2011, we have determined that annual month-long outages are no longer the optimum approach for maintaining the reactor and the ongoing inspection program.

Due to efficiencies gained in our ability to complete inspection activities in a shorter timeframe, CNL has proposed a new strategy to manage outages through a new quarterly outage calendar. This approach provides four opportunities each year to

conduct longer or major inspections and maintenance permitting more tasks to be executed within a single year.

The new outage schedule will also include a series of short outages to improve fitness for service through activities including preventative maintenance work and implementation of facility upgrades through the integrated implementation plan or IIP.

Licence condition 16.3 pertains to the operation of NRU beyond October 31st, 2016. Operational practices and work scope at Chalk River labs during the additional 17-month period of operation are expected to be largely similar to current practices, with the exception that Molybdenum-99 or Moly-99 will not routinely be produced beyond the current expiry date of October 31st, 2016, which I will discuss on a later slide.

Staffing and experience levels will be maintained to support ongoing safe operation of the NRU reactor. CNL recognizes that there is a risk of staff attrition from the NRU organization in response to the government's decision to cease operations in March of 2018. CNL is actively managing this risk in order to ensure the workforce is in place to safely and reliably generate maximum value from NRU until

March of 2018 while respectfully managing the people affected by this decision.

Retention strategies that include career planning with retraining and redeployment opportunities for affected staff are being developed for implementation through the remaining operating period and into the post-operating phase.

During the operating period, from the present through March of 2018, CNL has a team planning the detailed activities needed to transition the NRU from an operating state to a safe shutdown state suitable for storage with surveillance consistent with licence condition 4.3.

I will now provide you a brief summary of the plan for the end of operation of the NRU reactor. Identifying the activities that are relevant to the remaining operating period, that is Phase 1; the transition to safe shutdown state, Phase 2; and the transition to storage with surveillance as Phase 3.

After October 31st, 2016, routine production of Moly-99 will cease and CNL will enter a phase of standby to support Moly-99 production for the duration of the proposed 17-month site licence.

OECD supply and demand projections for Moly-99 indicate that global supply is expected to

meet current demand during the standby period without production from NRU.

Given the availability of some excess capacity, the likelihood of a request for Moly-99 production is expected to be low.

The following nuclear facilities at CRL will operate throughout the proposed licence period and will be available for standby medical isotope production if the need should arise. This includes the NRU reactor, the moly-99 production facility, the nuclear fuel fabrication facilities, the waste management areas, and the waste treatment centre.

Existing programs and procedures currently in place at these facilities will continue to be used, although some will be used less frequently due to the fact that moly-99 will only be produced on an as-requested basis. Experienced staff and continuing training will ensure availability throughout the standby period.

From October 31st, 2016 to March 31st of 2018, NRU's daily operation will continue to produce radioisotopes other than moly-99 and conduct experiments as currently authorized by the operating licence. Production of cobalt-60 has been increased during the remaining life of the reactor by loading

additional production rods. As well opportunities are being pursued for increasing other isotope production.

Activities will be governed by the facility authorization applicable to the NRU reactor operations until safe shutdown is confirmed as having been achieved. A reduced set of operating limits and conditions will apply under the facility authorization for safe shutdown state.

After the reactor is shut down the removal of fuel will be carried out in a well organized and safe manner, with measures to ensure the reactivity management program is adhered to during defueling activities.

It is expected that removal of all reactor components containing fissile or fissionable material from the core, with supplementary administrative controls, will meet the requirements for entry into the defined safe shutdown state. During and after Phase 2, the NRU rod bays will remain operational.

Once safe shutdown state is achieved transfer of spent driver fuel from the rod bays to the waste management area will commence. It is expected that all components will be removed from the rod bays by the end of 2020. Following removal of fuels and heavy water from the reactor further low-hazard work

will be progressed during the transition to storage with surveillance. This work will be executed to reduce risks of stored energy, sources of radiation or contamination, and will reduce the potential for leakage from water systems.

Control of these activities will be through operating procedures and work packages with supporting procedures with engineering change control applying to maintaining the configuration basis. Maintenance of building structures and equipment necessary to support the storage-with-surveillance period will continue.

During Phase 3 a storage-with-surveillance plan will be prepared and submitted to CNSC Staff for approval. Consistent with Licence Condition 4.3, during the storage-with-surveillance phase CNL will continue planning, monitoring and assessment activities. The need for an environmental assessment will be determined and a detailed decommissioning plan will be developed.

During the 2014 regulatory period CNL received a satisfactory rating in 13 of its 14 safety and control areas, also known as SCAs. CNL received a below-expectations rating for its fitness-for-service SCA.

We did realize important progress in this area in 2014, including the completion of activities under CNL's Integrated Implementation Plan. The Integrated Implementation Plan organization established a senior management oversight committee that provides approval for all significant changes and monitors progress of all high-priority action items to support their timely execution.

To date 42 of those 45 actions are complete. Of the three remaining high-priority improvement actions, two are due by the end of the current licensing period, October 31st of 2016, and full completion of the final action is planned for April 30th of 2017.

Highlights of some of the most significant achievements in the IIP Global Issue Groups include implementation of the system health monitoring program and field work that has resulted in a reduction in corrective maintenance; application of the equipment reliability program to 46 NRU systems; availability of trained, qualified staff necessary to operate, maintain, and support NRU; updates to the NRU's safety case; and completion of all 22 post-Fukushima actions.

The Integrated Implementation Plan for the NRU reactor is progressing accordingly and changes

to the scope of work have been made consistent with the impact of the Government of Canada decision to shut down the NRU reactor by March 31st of 2018. CNSC Staff have been provided a methodology and the results of reprioritization of the IIP to accommodate the shortened timescale.

There will be continued implementation of programs to ensure fitness for service, such as aging management, system health monitoring and equipment reliability, and inspection programs with a continue focus on the NRU vessel health.

Enhancements to the NRU Emergency Operating Procedures will continue and the NRU's severe accident management program has been implemented and will be maintained through the remaining operational life of the reactor.

Over the next 17 months a number of structures are slated for decommissioning. For example at the top left corner of the slide is a photo of an office wing in our Building 456, where we're currently removing asbestos before further decommissioning.

The next photo to the right is our rendering of the near-surface disposal facility. This facility is envisaged to be operational by 2021. We have communicated with Commission Staff and just

submitted the project description for the near-surface disposal facility on April 1st.

The two photos on the lower portion of the slide represent work under way in CRL's new hydrogen laboratory and important surface sciences work in our hot cell facilities.

This is an exciting time for CNL. The opportunity is here and our vision is to grow the nuclear and S&T capabilities and continue to support the Canadian and international nuclear industry.

Today we've provided Commission members with details related to our licence amendment request. This includes addressing outstanding licence conditions related to NRU's extended outages and the plan for the end of NRU operations.

Mr. President and members of the Commission, we've assumed responsibility for and operated the Chalk River site during the current licensing period with due regard for the safety and security of the public, the workforce, and the environment, we've complied with our licence conditions and regulatory responsibilities, and we are taking action in areas that require attention.

CNL continues to operate the Chalk River Laboratories safely and further affirms that, with the exception of Licence Conditions 16.1 and 16.3

requests, the licensing basis as per CNSC document INFO-0795 remains consistent with the application provided to the Commission in support of their decision to renew the licence in 2011 for a period of five years.

In conclusion, CNL requests that the Licence Conditions 16.1 and 16.3 be removed from the licence and that the expiry date of the replacement licence be extended for an addition term of 17 months. This is consistent with the Government of Canada's announcement that supports continued operation of the NRU reactor until March 31st of 2018.

Our team will now be pleased to take any questions that the Commission Staff might have. Thank you.

THE PRESIDENT: Thank you.

I'd like now to proceed to the presentation from CNSC Staff as outlined in CMD 16-H2 and 16-H2.A and H2.B.

I'll turn to Dr. Dave Newland for this presentation.

Over to you.

CMD 16-H2/16-H2.A/16-H2.B

Oral Presentation by CNSC staff

DR. NEWLAND: Thank you.

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

My name is David Newland. I am the Director General of the Directorate of Nuclear Cycle and Facilities Regulation.

With me today is Ms. Liana Ethier, Acting Director of the Nuclear Laboratories and Research Reactors Division, and Mr. Nhan Tran, Senior Project Officer of the same division. In addition we have Mr. Christian Carrier, a former director of the division, CNSC inspectors, and specialist staff, who are available to answer any questions that the Commission members may have.

This presentation provides Staff's recommendations regarding the requests from Canadian Nuclear Laboratories, CNL, to amend the Chalk River Laboratories' operating licence to authorize continued operations, with modifications to three licence conditions.

Finally, I would just like to note a change to slide number 14 in this deck that now shows an additional column for the assessment of the safety and control area ratings for 2015. This has been provided to Commission members and copies are also available at the back of the room.

Today's presentation will first provide an overview of Chalk River Laboratories. We will then present related information on the site-wide operating performance, followed by Staff's assessment of CNL's licence request, which focus on the National Research Universal reactor, more commonly referred to as NRU, and in particular the future of NRU and outages. We will then present our conclusions and recommendations.

First an overview of the Chalk River Laboratories.

The CNSC regulates Canada's nuclear facilities to protect the health, safety, and security of Canadians and the environment. The CNSC achieves this mandate through licensing, reporting, compliance verification, and, when necessary, enforcement.

Chalk River Laboratories are owned by the Government of Canada through Atomic Energy of Canada Limited, or AECL. The site is operated by Canadian Nuclear Laboratories, or CNL. The site is located near Deep River, in the Province of Ontario. Chalk River Laboratories has been in operation since 1944 and is host to a wide variety of activities, such as nuclear research and development, isotope production, and nuclear services.

All the phases of a nuclear facility

lifecycle occur at the laboratories, that is to say construction, operation, safe storage, and decommissioning.

The nuclear facilities are licensed by the CNSC under and site-wide operating licence, which includes research reactors, including the NRU, nuclear fuel development and fuel fabrication facilities, Class II-prescribed equipment, shielded facilities, nuclear laboratories, and waste management facilities and waste management areas.

This slide provides an overview of the current Chalk River Laboratories' operating licence. The operating licence was last renewed by the Commission in 2011 for a five-year term that expires on October the 31st, 2016. At that time a 10-year safety case was established for NRU based on the execution of an Integrated Implementation Plan, IPP. Though focused on NRU, the IIP provides a framework for improvements across the site-wide infrastructure.

The NRU was a point of focus during the last renewal and the Commission introduced three NRU-specific conditions into the operating licence, which read, 16.1:

> "The licensee shall implement extended outages of the NRU reactor for the purpose of

> performing maintenance, inspection, repair and replacement activities, including in-service inspection of the reactor vessel, which cannot be completed during regular outages."

16.2:

> "The licensee shall progress to completion the improvements identified during the NRU Integrated Safety Review, and shall report the status to the Commission annually starting October 31, 2012 through October 31, 2015."

Finally, 16.3:

> "The licensee shall by June 30, 2015 develop and submit for approval by the Commission a plan for the end of operation or continued operation of the NRU reactor beyond October 31, 2016."

CNL has applied for an amendment to the Chalk River Laboratories' licence expiry date from October 31st, 2016 to March 31st, 2018. CNL requested this term to align the expiry of the licence with the Government of

Canada's intention to cease operation of the NRU on March the 31st, 2018 and to allow the new executive team of CNL an opportunity to familiarize themselves with the operation of the site, and then to present an application the Commission for a longer duration licence.

Recognizing the organizational changes taking place for CNL, CNSC Staff support this approach and CNL's request for a licence expiring March 2018.

CNL has also requested approval of its plan for the NRU reactor beyond October the 31st, 2016 and the removal of the licence condition that requires annually extended outages of the NRU reactor. For CNSC Staff continued safe operation of the Chalk River Laboratories, including the NRU reactor, is the focus of our review.

I will now turn our attention to changes to the CNL organization.

In recent years there have been changes to the licensee's operating organization. In February 2013, the Government of Canada announced its intention to engage a private sector contractor to manage operations at the Chalk River Laboratories under a government-owned contract-operated business model.

To achieve this model, CNL was first created as a subsidiary of Atomic Energy of Canada Limited, then the Commission transferred the Chalk River Laboratories' operating licence to CNL, who remain the

licensee. Finally, the process was completed when the management of CNL was contracted to Canadian Nuclear Energy Alliance.

Under this arrangement, AECL remains the owner of the Chalk River Laboratories site and is focused on oversight of the contract. CNL remains the fully autonomous licensee and operator of the Chalk River Laboratories. When the licences were transferred CNL adopted all of the existing programs, processes, and procedures at the laboratories. Most importantly, the licensing basis, as approved by the Commission in 2011, continues to be maintained in this licensing request with no changes.

Although today we are focused on the Chalk River Laboratories, we thought it useful to remind the Commission of the broader aspects of the government-owned contract-operated model and contract. The GoCo contract has a duration of six years, with provisions for an addition four-year extension. The contract covers all AECL assets at 15 sites across Canada, with a special focus on the Chalk River Laboratories, Port Hope, Whiteshell Laboratories, and various prototype reactors.

The contract is funded for both Target Cost projects, decommissioning of Whiteshell Laboratories and the Nuclear Power Demonstration reactor, and the allocation of annual funding based upon AECL's approval of

proposed programs of work developed by CNL.

Under the GoCo arrangement, AECL is the owner of the site, responsible for the management of the contract with CNL, and approves CNL annual work plans called programs of work. AECL remains owner of the assets and all associated intellectual property. CNEA is the contractor responsible for management and oversight of CNL's performance under the AECL/CNL agreement.

CNL remains the sole licensee and operators of the facilities. CNL employs personnel and develops its own business plans, which are subject to AECL approval for funding. In this model CNL constitutes the enduring entity that can operate the site safely regardless of the contractor. NRCan provides advice to the Minister of Natural Resources on policy matters.

In accordance with the terms of the contract, CNEA is conducting a six-month due diligence review of all facilities, programs, and processes on site. This is referred to as the transition-in phase spanning from September 2015 to April 2016.

The purpose of the review is for CNEA to identify opportunities for improvements and propose a plan of activities to implement those. The outcome of this review will be the first annual work plan for CNL, spanning 2016 to 2017.

CNL's operations are and remain bounded by

the Commission-issued operating licence and its conditions. CNSC Staff expect that CNL will propose improvements to programs and facilities to align with this annual work plan. When any such changes are made, they will be subject to the change control process as required by the licence and as appropriate approval from the Commission.

The CNSC approach to licensing and compliance for CNL will not change as a result of the GoCo transition; however, Staff will make minor adjustments to ensure that CNL changes remain appropriately managed.

To provide information to the Commission to support the decision-making process, CNSC Staff will now turn its focus to CNL's performance at Chalk River Laboratories. I will now pass the presentation to Mr. Nhan Tran to provide CNSC Staff's performance assessment.

MR. NHAN: Thank you, Dr. Newland.

Good morning, Mr. President and Members of the Commission. My name is Nhan Tran and I am a senior project officer with the Nuclear Laboratories and Research Reactors Division.

The CNSC has a clear and robust regulatory framework in place to ensure the continued safe operation of nuclear facilities. Regular inspections and evaluations verify that licensees are complying with the requirements. In this way, the CNSC can assure licensees are operating safely and

adhering to regulatory requirements.

As shown in this table, compliance activities conducted by CNSC staff include inspection, event reviews and desktop reviews of CNL-submitted documents and reports. These activities represent over 13.5 thousand person-days of effort by CNSC staff since 2011.

Note that the year to year variance in the number of inspections and desktop reviews conducted are attributed to the number of licensee submissions received, the types of inspection conducted and staffing level changes. Additionally, the figures listed for total person days of compliance effort are rounded off and the figures listed for 2015/16 are preliminary. At the time of preparation of this presentation, the fourth fiscal quarter of 2015 had not yet passed. Therefore, the figures listed are approximately one-quarter lower than those listed for 2014/15.

This slide presents CNSC’s safety performance ratings for Chalk River Laboratories from 2011 to 2015.

As indicated, Chalk River Laboratories has improved in the management system safety and control area from a "Below Expectations" rating to a "Satisfactory" rating. However, CNL remains Below

Expectations in Fitness for Service. All other safety and control areas were rated satisfactory through the term.

To summarize CNL's performance at Chalk River Laboratories:

- Safety performance has remained satisfactory or has shown improvement in all safety and control areas;

- CNL's programs are implemented and maintained effectively in accordance with regulatory requirements;

- Operating performance remains satisfactory;

- No worker or member of the public received a dose in excess of the regulatory dose limits, and all radiological releases were well below regulatory limits.

CNL continues to make adequate provision for the protection of the environment, workers and the public.

CNSC staff have identified regulatory focus areas that may be of particular interest to stakeholders, the public and the Commission in regard to this licence renewal.

These regulatory focus areas are described in more detail on the following slides.

Please note that where a particular safety and control area has not been identified as an area of regulatory focus, this is a result of CNSC staff verification activities determining that CNL's performance in that area remains satisfactory and unchanged from what was previously presented to the Commission in CMD 14-H79 entitled "Annual Performance Report: AECL's Nuclear Sites and Projects".

Following the Fukushima accident, CNL reviewed existing safety cases and emergency management programs against the initial lessons learned from the event for Chalk River Laboratories. CNL identified 22 Fukushima actions to be carried out. A complete table of the actions is provided as an annex to CNSC staff's CMD 16-H2.

CNL has closed all Fukushima actions for the Chalk River Laboratories.

Staff notes that the implementation of severe accident management guidelines was particularly successful. In order to enable the effective use of the guidelines, CNL has purchased emergency mitigating equipment, installed new instrumentation in NRU, developed guidelines and trained staff on its use.

In addition to these essential elements, CNL has also installed a water connection to the top of the reactor to facilitate the water

injection in the highly unlikely case of a severe accident.

CNSC staff conclude that CNL has met its requirements regarding the implementation of Fukushima actions.

An integrated safety review of the NRU reactor was completed in support of licence renewal in 2011.

The integrated safety review is a comprehensive assessment of the current state of a facility and its performance, to determine the extent to which it conforms to modern codes, standards and practices. Analogous to a periodic safety review described by CNSC REGDOC 2.3.3, entitled "Periodic Safety Reviews", the integrated safety review is used to identify practical and reasonable modifications or upgrades to a nuclear facility.

The modifications and upgrades identified for Chalk River Laboratories were consolidated into an action plan called the Integrated Implementation Plan, or IIP. To facilitate efficient implementation, the Integrated Implementation Plan includes a process to control changes to the order or scheduling of activities, so long as the change does not impact safety.

In the Commission issued a licence for

Chalk River Laboratories, concluding that the site is fit for service and will continue to be while the activities of the IIP are implemented. Thus, the continued implementation of the IIP provides a safe -- excuse me -- provides the basis for the safety case of the NRU reactor.

I will now provide an update on the status of the plan. The IIP was prepared with a 10-year scope for completion of the activities from 2011 to 2021. The activities were divided into two five-year phases. The plan was front loaded. That is, Phase I contained significantly more activities than Phase II and the activities that yielded the most safety benefit were among the first completed.

CNL was scheduled to complete all Phase I activities by fall of 2016. CNL has made significant progress in implementing the IIP. However a number of activities have been delayed. The impacts of the delays have been assessed by CNSC staff and no safety concerns were identified. These activities have been moved to Phase II to ensure that they are completed.

Phase II was scheduled for implementation from 2016 until 2021. CNL has revised the IIP considering the future of the NRU reactor. As a result, Phase II activities required adjustment to

reflect a changed operating period for NRU. In doing so, CNL prepared an analysis to identify Phase II activities that remain necessary to ensure continued safe operation through March 2018.

CNSC staff assessed CNL's analysis and conclude that the scope of the IIP approved by the Commission remains intact. Therefore, CNSC staff concur that the rescheduling of the Phase II activities is acceptable.

CNSC staff will continue to maintain regulatory oversight to ensure that CNL progresses to completion of the Integrated Implementation Plan. This oversight will be conducted through document assessment, quarterly and annual updates from CNL and field verification activities.

CNSC staff conclude that CNL continues to progress toward completion of the IIP, thus supporting the continued operation of Chalk River Laboratories and specifically NRU.

Since 2011, CNL has shown significant improvement in the management system safety and control area. CNL has transitioned its management system to meet the requirements of CSA N286-05 entitled, "Management System Requirements for Nuclear Power Plants". CNL has also committed to conduct a gap analysis of the CNL management system against the

newest version of the same standard, CSA N286-12. This gap analysis will be completed early in the 2016-17 fiscal year.

Additionally, CNSC staff have engaged with CNL to discuss the potential impacts on morale, human performance and safety culture due to the shutdown of NRU and other organizational changes. These potential impacts have been a focal point for CNL and additional tools have been developed and put in place to mitigate these impacts.

CNSC staff conclude that CNL continues to meet regulatory expectations in the management system safety and control area.

CNL continues to maintain comprehensive and mature programs which govern operation of the Chalk River Laboratories. All events reported to the CNSC in 2014 were reviewed by CNSC staff who identified no safety concerns. Day-to-day operation at Chalk River Laboratories remains within the operating limits and conditions as described in the licence and LCH.

From the assessments conducted, CNSC staff conclude that CNL has operated the facilities at Chalk River Laboratories safely. Where performance has not met CNSC expectations, CNL has taken action to implement initiatives and improvements. Overall, CNSC

staff continue to see improvements in the operation of the Chalk River Laboratories site.

Please note that the preliminary number of reportable events in 2015 only captures events reported from the facilities at the Chalk River Laboratories site. Staff would like to clarify that an addition 37 events were reported related to CNL's programs in place to ensure the health, safety, security and environment and other events. This brings the total for 2015 to 93 events, which is in line with previous years.

Fitness for service has been an ongoing and historic challenge for Chalk River Laboratories. In particular, the ageing of infrastructures and weaknesses in maintenance and monitoring programs at Chalk River Laboratories has resulted in a number of events that have been reported to the Commission in the past. However, in all instances, CNL has taken action to correct and mitigate these deficiencies.

CNL has been addressing fitness for service for Chalk River Laboratories through several initiatives. While focused on NRU, the conduct of IIP activities has improved the fitness for service of the site as a whole since programs and infrastructure are shared. Additionally, CNL has undertaken initiatives

to improve site-wide fitness for service that do not directly stem from the IIP such as improving stormwater management, the natural gas mainline installation and domestic water supply for particular buildings on site.

Regardless of the status of these initiatives, CNL remains required to maintain fitness for service of the site and has a plan for the revitalization of Chalk River Laboratories.

CNSC staff have verified that many improvements related to fitness for service have taken place at Chalk River Labs.

For “fitness for service”, CNSC staff continue to rate this safety and control area as “Below Expectations”. The below expectations rating indicates that the safety and control measures implemented by the licensee are not as effective as CNSC staff would expect. However, the licensee is taking appropriate corrective actions.

Though CNL continues to experience challenges due to equipment aging, CNL has taken action to mitigate and correct these deficiencies. Strategic programmatic improvements are being implemented to increase performance rating in this SCA. However, both programmatic and infrastructure improvements require time to fully reap the benefits

of implementation. CNSC staff have noted the improvements and are satisfied that CNL is on the path towards a satisfactory rating but needs more time to achieve this goal.

CNL has implemented and maintained a radiation protection program to control the radiological hazards present in its facilities and to ascertain doses for each person who performs duties in connection with the licensed activities.

During the licence period no worker at the Chalk River Laboratory site was exposed to a dose exceeding the regulatory dose limits. Similarly, no member of the public received a dose that approached or exceeded the 1 mSv annual regulatory dose limit for the member of the public.

This graph shows the average and maximum individual effective dose for workers at Chalk River Laboratories from 2011 to 2014. Please note that this figure uses a logarithmic scale. Although not captured in the figure, the dose information from 2015 has also been provided by Chalk River Laboratories and is consistent with the annual dose information from the rest of the licence period.

For 2015 the average worker dose was 0.45 mSv, and the maximum individual dose to a worker was 10.72 mSv. Throughout the licence period, the

maximum individual dose to a worker has always been at NRU. Doses to workers have been consistently maintained below the regulatory dose limits throughout the licence period.

From this, CNSC staff conclude that CNL continues to meet the requirements of the *Radiation and Protection Regulations* and effectively control doses to workers and the public.

CNL continues to implement and maintain an environmental protection program that meets regulatory requirements. This program controls and monitors releases of radioactive and hazardous substances and their effects on the environment.

From its review, CNSC staff have concluded that CNL's environmental protection program meets the requirements of CSA N288.4 entitled "Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills", CSA N288.5 entitled "Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills" and CSA N288.6, "Environmental risk assessments at Class I nuclear facilities and uranium mines and mills".

Airborne and liquid radiological emissions remain effectively controlled and well below regulatory limits for radioactive and non-radioactive releases.

This figure indicates the low level of airborne emissions from Chalk River Laboratories. Please note that this figure uses a logarithmic scale.

In 2014, there was an increase in Iodine-131 and the noble gas releases due to an increased level of Molybdenum-99 production for the year.

As a minor correction, the same figure was presented in CNSC Staff's CMD 16-H2. In the CMD the legend entry for Carbon-14 was cut off. The values for Carbon-14 were, by percentage of the release limit, 0.03 in 2011, 2012, 2013 and 0.04 in 2014.

This figure indicates the low level of liquid effluent releases from Chalk River Laboratories. Please note that this figure uses a logarithmic scale.

Gross alpha and beta releases are typically identified at facilities associated with decontamination activities on site. In 2014, there was an increase in these emissions due to an increase in the schedule for decontamination of flasks from the molybdenum production facility.

While there was an increase in releases, we note that all releases are still a small fraction that is less than 1 percent of the licence

limits.

This figure indicates the low level of tritium concentration in water from the Ottawa River. This data was recorded near Petawawa, the nearest point of drinking water intake downstream of the Chalk River Laboratories. The concentrations vary from 2 to 4 Becquerels per litre, well below the Canadian Drinking Guideline limit of 7,000 Becquerels per litre.

In 2012, CNSC staff implemented the first Independent Environmental Monitoring Program around the Chalk River Laboratories to complement ongoing verification activities.

The detailed results are available on the CNSC website and are consistent with the results submitted by CNL. This confirms CNL's environmental protection program protects the health and safety of people and the environment.

With regard to nuclear emergency management, CNL has capabilities in place to respond to a highly unlikely severe beyond design basis event.

CNSC staff verified that CNL has been an active and cooperative participant working with provincial authorities in both Ontario and Quebec as well as municipal and regional authorities to ensure suitable emergency plans are developed and in place.

CNL has met the requirements related to pre-distribution of potassium iodide tablets to all residents, businesses, and institutions within the primary zone of the Chalk River Laboratories. CNL has also pre-stocked a sufficient quantity of potassium iodide tablets out to the secondary zone.

CNSC staff conclude that CNL continues to meet its requirements regarding the emergency management program and the distribution of potassium iodide tablets.

Radioactive and hazardous wastes generated from site operations, radioisotope production, research and development and decommissioning activities at Chalk River Laboratories are segregated at their point of origin, packaged as solid radioactive wastes and stored in various waste storage facilities at the Chalk River Laboratories Waste Management Areas. Liquid radioactive waste is collected, treated and processed at the Waste Treatment Centre prior to discharging to the environment.

CNSC staff conclude that CNL continues to meet the regulatory requirements related to waste management.

In October 2015, CNL informed the CNSC of their intention to initiate a new major

decommissioning and waste management project. This project includes the decommissioning of many facilities and buildings on site as well as the construction of a Near Surface Disposal Facility for low level radiative waste generated from the decommissioning of legacy facilities.

CNSC and CNL staff have since met to discuss the project details, associated regulatory requirements, licensing approach and environmental assessment requirements. These discussions have facilitated CNSC coordination, resources and effort planning.

CNSC staff note that CNL must seek Commission approval for these projects, and these requests will be presented to the Commission separate from this hearing.

CNL continues to carry out their security program, meeting regulatory requirements and CNSC staff expectations.

CNSC Staff note that a detailed event report was presented to the Commission in January 2016 regarding a security event at Chalk River. CNSC staff are satisfied that CNL has made progress in resolving the actions from this event. CNSC staff are prepared to answer any questions from the Commission in an in-camera session.

Based on inspections conducted, CNSC staff conclude that CNL continues to meet the requirements regarding packaging and transport of radioactive materials.

Currently, there is an initiative at Chalk River Laboratories to repatriate stored highly enriched uranium to the United States. This initiative began with only repatriation of highly enriched uranium from fuel but has since expanded to include liquid highly enriched uranium currently stored in the Fissile Solution Storage Tank, also known as the FISST.

Such shipments are subject to stringent requirements for transportation safety as well as security. To date, four shipments of fuel rods have been made from Chalk River Laboratories to the United States. Liquid highly enriched uranium shipments will begin at a later date.

In January 2016, a significant event update was provided to the Commission on the weld failure of fuel caddies used in the removal of NRX fuel from the NRU fuel bays. Since then, CNSC staff have verified that CNL has procured new caddies and a corrective action plan have been developed. Additionally, CNSC staff have engaged with CNL to ensure reporting expectations are clearly understood.

CNSC staff will continue to monitor CNL's response to this event.

CNSC staff have also considered other matters of regulatory interest.

Aboriginal groups who may have an interest in the Chalk River Laboratories renewal were identified, provided information about the process and encouraged to participate in the Commission's public hearing. CNSC staff will continue to actively communicate and build relationships with groups who express an interest in the Chalk River Laboratories.

Participant funding was made available to assist members of the public, Aboriginal groups and other stakeholders to participate in the CNSC's regulatory process for this hearing. A total of approximately $15,000 was awarded to three applicants.

In terms of cost recovery and financial guarantees, CNL remains in compliance with the CNSC Cost Recovery Regulations and has acceptable financial guarantees in place.

CNL has a public information program in place that meets CNSC requirements. Relevant information on the Chalk River Laboratories activities are being effectively communicated to the public.

Finally, CNL continues to fulfill its obligations regarding nuclear liability insurance.

I will now pass the presentation to Ms Liana Ethier to discuss in detail CNL's submissions related to NRU.

MS ETHIER: Thank you, Mr. Tran.

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

For the record, my name is Liana Ethier. I am the Acting Director of the Nuclear Laboratories and Research Reactors Division. I will first speak to the operation of the NRU reactor beyond October 2016.

As required by condition 16.3 of the site operating licence, CNL submitted a high level plan for the future of NRU beyond October 2016. This plan was submitted in June 2015 for Commission approval. CNSC staff reviewed the plan and received additional clarifications from CNL on the proposed approach.

CNL has proposed to continue operating the NRU reactor until March 31, 2018. CNL made this proposal to align operation of the NRU reactor with the announcement made by the Government of Canada in February 2015, that it would provide support for the operation of the NRU reactor until March 31st, 2018. During the period of continued operation, the NRU reactor will operate without routine production of

Molybdenum-99.

The NRU will be used to conduct tests and produce other radioisotopes, but will only produce Moly-99 when directed by the Government of Canada; for example, in the case of a shortage of this isotope.

This is an arrangement between the Government of Canada and CNL. Regardless of activities conducted, CNSC staff remain focused on the continued safe operation of Chalk River Laboratories and the NRU reactor.

Staff note that the operation of NRU without routine production of Moly-99 is within CNL's licensing basis.

After March 31st, 2018, CNL plans to place the NRU reactor in a safe storage state and monitor it in that state until it is eventually decommissioned. CNL has provided no indication that there is a possibility to operate NRU beyond March 2018.

During the period from October 31st, 2016 until March 31st, 2018, CNL will be required to maintain the current licensing basis. This includes mature programs and processes for NRU reactor operations, including Moly-99 production.

CNL will also be required to continue carrying out the actions of the Integrated

Implementation Plan to ensure safety of the NRU reactor is maintained or improved and to report the status of the IIP to the CNSC.

CNSC staff reviewed CNL's plans for the NRU reactor, applying criteria and guidance for planning the shutdown of other nuclear facilities.

Staff took into consideration additional measures proposed by CNL to manage the periods of transition from routine Moly-99 production to standby production.

Staff conclude that CNL’s plans for the future of the NRU reactor are acceptable. I will now focus on CNL’s request related to extended outages.

CNL has conducted annual extended outages of the NRU reactor since 2012 as required. These extended outages are typically 30 days long.

During these outages, CNL has completed activities that could not be done in the regular maintenance outages, which are one week long.

Prior to 2011, only regular outages were carried out, but it was difficult to carry out the required inspections, maintenance and repair work in this short timeframe. Longer outages were imposed by the Commission at licence renewal in 2011 to ensure that this work would be carried out.

CNL has submitted an application to remove the requirement for annual extended outages. This request is based on a modified outage schedule that reflects the scope of activities required for the NRU reactor before the end of March 2018.

The modified schedule allows for outages that are two weeks long each quarter instead of one month-long outage each year.

CNL’s modified approach to scheduling outages is illustrated on this slide.

Previously, CNL has conducted 11 one-week outages and one 30-day extended outage each year. With the modified schedule, CNL will conduct one one-week outage and one two-week outage each quarter. Additional three-day outages will be added as necessary throughout the year.

CNSC staff emphasize that if an issue critical to continued safe operation emerges, CNL will perform an immediate outage to carry out the work, regardless of scheduling.

CNSC staff have assessed CNL’s application and gathered additional information from CNL for clarification.

CNL’s modified approach results in a comparable number of outage days per year for the facility, and gains can be made in efficiencies of

scheduling activities. CNSC staff have determined that all outage work to be carried out for the NRU reactor before March 31, 2018 can be completed within a two-week outage.

Further, the modified approach allows CNL four opportunities each year to perform work with a duration longer than one week, instead of the current one extended outage per year.

CNSC staff have assessed CNL's outage performance on an ongoing basis throughout the licence period, and have determined that CNL has improved in the conduct of outages.

CNSC staff will continue to monitor outage activities at the NRU reactor.

Staff conclude that CNL's application to remove the requirement to conduct annual extended outages is acceptable. We note that if the Commission approves the amendment to remove condition 16.1 from the operating licence, CNL may still conduct month-long outages if they are necessary to ensure safe operation.

More importantly, we note that the Commission always has the power to impose an outage at any time for any duration if it is needed to ensure safety.

I will now pass the presentation back

to Dr. Newland for staff's conclusions and closing statements.

DR. NEWLAND: Thank you.

Based on CNSC staff's assessment of CNL's safety performance at Chalk River Laboratories, staff conclude that, as per section 24(4) of the *Nuclear Safety and Control Act*, CNL is qualified to carry out the activities authorized by the licence and, in carrying out those licensed activities, CNL has made, and will continue to make, adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed.

So, in conclusion, CNSC staff recommend that the Commission accept CNSC staff's conclusions and recommendations presented in CMD 16-H2 and exercise its authority under the *Nuclear Safety and Control Act* to renew the licence to authorize CNL to continue to operate Chalk River Laboratories from November the 1st, 2016 to March 31st, 2018 with amendments to conditions 16.1, 16.2 and 16.3.

Second, authorize the delegation of authority as indicated in CMD 16-H2.

And thirdly, approve CNL’s plan for the future of NRU beyond October the 31st, 2016 in

accordance with licence condition 16.3 of the site operating licence.

Thank you. That concludes staff's presentation, and we are available to answer any questions that the Commission Members may have.

THE PRESIDENT: Thank you.

I'd like to move now to the written interventions.

The secretary of the Commission will identify each intervention, and the Commission Members will have the opportunity to ask questions on each submission.

Marc?

CMD 16-H2.2

Written submission from the Town of Petawawa

MR. LEBLANC: Thank you.

The first submission is from the Town of Petawawa, as outlined in CMD 16-H2.2.

Are there any questions from the Members on this submission?

CMD 16-H2.3

Written submission from the

Township of Laurentian Valley

MR. LEBLANC: The next submission is from the Township of Laurentian Valley, as outlined in CMD 16-H2.3.

Any questions from the Members on this submission?

CMD 16-H2.4
Written submission from
John Yakabuski, M.P.P. for
Renfrew-Nipissing-Pembroke

MR. LEBLANC: The next submission is from Mr. John Yakabuski, M.P.P. for Renfrew-Nipissing-Pembroke, as outlined in CMD 16-H2.4.

Any questions from the Members on this submission?

CMD 16-H2.5
Written submission from Frederick Boyd

MR. LEBLANC: The next submission is from Mr. Frederick Boyd, as outlined in CMD 16-H2.5.

Any questions from the Members on this submission?

THE PRESIDENT: Dr. McEwan.

MEMBER McEWAN: Thank you, Mr. President.

Mr. Boyd has, as his last paragraph, a question to CNSC staff about the whole site rather than just CNL, and I think it would perhaps be helpful for staff just to respond to this to provide some reassurance.

DR. NEWLAND: Dave Newland, for the record.

So this is to confirm that yes, CNSC staff do compliance across the entire site. Absolutely.

THE PRESIDENT: Anybody else? Any questions?

Ms Velshi.

MEMBER VELSHI: Mine was more on the intervenor's comment around the experience of the UK and the U.S.A. with the GoCo model and scepticism around that.

And I understand that the new President of CNL has had experience there. Did you want to make a comment on what he has suggested here?

MR. LESINSKI: Mark Lesinski, for the record.

From the GoCo perspective, I think the

potential improvements are an immediate injection of experience at a high level at the site to bring both better leadership and understanding of what's happening around the world for things such as a decommissioning or where science and technology is going, and it allows the site to then move to a better phase and be able to catch up with what's been happening around the world.

So I believe the GoCo model has proven itself in both the United States and the United Kingdom to be able to improve the site that has been under more of a government-owned and a government-operated approach for many, many years.

MEMBER VELSHI: The intervenor here implies that the UK actually reversed its position and has now decided to just stay as government owned and operated.

MR. LESINSKI: Mark Lesinski, for the record.

There might have been one case that that occurred, and it is a site that was extremely complicated, that has a number of various missions with competing needs at the site.

It's a -- quite honestly, it's a bit of an experiment right now to see if going back is going to improve or not. It's early days.

MEMBER VELSHI: Thank you.

THE PRESIDENT: You're pretty complicated, also. It's not that you are easy and, in fact, I still don't understand exactly your -- I know your relationship with the AECL. I don't know if you have any relationship with a department or the government, do you?

MR. LESINSKI: Our relationship is strictly with AECL. They're our -- they're our client.

THE PRESIDENT: So you keep talking about -- well, I guess I'll get into that a bit later on.

CMD 16-H2.6
Written submission from the
Canadian Environmental Law Association

MR. LEBLANC: The next submission is from the Canadian Environmental Law Association, as outlined in CMD 16-H2.6.

Questions from the Members on this submission?

THE PRESIDENT: Monsieur Tolgyesi?

MEMBER TOLGYESI: Merci, monsieur le président.

In page 9 where we are seeing that in spite of not detecting any corrosion in 2004-2005 life assessment study, reactor was shut down and eventually heavy leak was detected in 2009.

There is no mention in the state of the vessel any corrosion due to nitric acid.

Could you elaborate or comment on your aging managing and how you follow the vessel integrity?

MR. PILKINGTON: Bill Pilkington, for the record.

In the -- in the inspections that were done in mid-2000s, the vessel wall was inspected, but not in a region on the lowest 50 centimetres or so because of build-up of a material called gibbsite, which interfered with the instrumentation. And in fact, corrosion was occurring and had been occurring for a very long period of time. However, it was not identified in that inspection.

That then led to the vessel leak in 2009 and the repair that followed.

Since that time, inspection techniques were developed and cleaning methods to remove the gibbsite and allow inspection in the lower levels of the vessel.

Since 2010, or -- since 2010,

inspections have been carried out which are extensive, and have indicated that within the measurement capability of the instruments there has been no measurable corrosion on the vessel wall.

Now, it is predicted that corrosion is occurring at a slow rate. However, it is not progressing at a rate that is consuming the corrosion allowance on the vessel, so it continues to be safe and structurally sound.

Annual reports -- now, this -- the inspections are contained in an in-service inspection program which is reported annually to the CNSC staff. And in fact, there is still an R&D program ongoing in order to take continued mitigating actions to reduce the level of corrosion in the vessel.

One of those, as you pointed out, would be to reduce the amount of air in the annular space between the vessel and the water reflector in order to reduce the potential for nitric acid formation.

MEMBER TOLGYESI: So what you are saying that you are measuring that. The results of measuring do not show any deterioration, or do you see by measurements that there is some wearing or corrosion?

MR. PILKINGTON: So over the

measurements that have been taken over the space of five years, there is no measurable corrosion given the accuracy of the inspection equipment.

That's not to say that corrosion is not continuing. However, it is continuing at such a low rate that it can't be measured.

THE PRESIDENT: So staff, I remember the long debate about the annulus and the leaking water and all that stuff.

So has it been resolved to the point that it will not cause any damage between now and March 2018?

DR. NEWLAND: Dave Newland, for the record.

I'll ask Mr. Blair Carroll to step up to the microphone. And while he does, I'll just add that yes, we're perfectly satisfied that the integrity of the NRU vessel is sound.

And Mr. Carroll can go through the kinds of reviews that we do of the inspection programs and the reports that we get from CNL.

THE PRESIDENT: And you may as well also bring us up to date to all the welding that was done inside the vessel, whether they're holding.

MR. CARROLL: For the record, my name is Blair Carroll. I'm a specialist with the

operational engineering assessment division at the CNSC.

Since 2012, the NRU vessel has been inspected annually through a program that has been accepted and reviewed by CNSC staff.

And to this point, as previously stated, there has been no measurable corrosion to the level of detection of the inspection tools that are used.

Generally, that inspection tool sensitivity is around plus or minus five millimetres of the wall thickness, so reduction of wall thickness, so again, if -- it's a pretty sensitive tool.

So we're not seeing -- we haven't seen a change in wall thickness anywhere that measured more than five -- more than .5 millimetres.

As far as visual inspections go, we do -- when they do visual inspections of the annulus, they are seeing some changes to the surface, but very small changes, and not measurable to the inspection tools, so those changes that are occurring are not occurring to a level where we're seeing, you know, more -- we haven't seen more than .5 millimetres removed, which is within the allowance that was specified in 2012 of one millimetre corrosion allowance.

So from a practical perspective, there has not been a measurable change of the integrity of the vessel.

That does not say that there is not a possibility for a vessel leak to occur at some point. There are certain areas of the vessel which still cannot be inspected because of tool access limitations.

There are some areas where the vessel wall thickness is thin, and it -- there's always a chance that a leak could occur. However, since 2012, CNL has developed tooling that's capable of plugging leaks so it would not have to go through an extensive weld repair program any longer. If such a leak were to occur, they could just apply a little clamp to the vessel which would stop the leakage.

As far as the welding repairs have gone, they have been inspecting the weld repairs. All weld repairs have been inspected at least once.

There has been no detected change to any of the known fabrication indications that occurred when the vessel welds were installed, and there have been no new indications that have been provided -- or that have been detected.

MR. PRESIDENT: Thank you.

Question? Ms Velshi?

MEMBER VELSHI: This intervenor makes a number of recommendations, probably not directly related to this particular submission, but regulatory requirements around emergency management. But there were four recommendations that I thought we should probably look at as it pertains to this application.

And I'll start with recommendation 1, which has really got to do with the participant funding and time line. And maybe this is better directed at the secretariat on the concerns around the timing and the adequacy for preparation.

MR. LEBLANC: If I may, I see that Mr. Adam Levine is in the room, and he's responsible for the funding review, so -- or the PFP program, so if I can redirect your question to him.

Thank you.

MR. LEVINE: Adam Levine, for the record, the Participant Funding Program administrator for the CNSC.

So this was a unique situation. It's not reflective of the typical amount of time that we provide applicants to review the CMDs and other submissions and prepare their interventions.

Typically, in a normal situation, we have around up to three months in advance of the hearing, we have the funding agreements in place.

So in this particular situation, we received the application from the applicant, CNL, about five months prior to the hearing date, where normally we have around eight to 10 months, or even more, to prepare and run the entire funding process.

So despite the short time lines that we had for this particular funding review process, we decided it was important to still provide the opportunity for applicants to apply for funding and provide an ample amount of time for interested parties to apply for funding.

And staff internally worked very hard to expedite the process for approvals, which includes a review by the Independent Funding Review Committee, so we made sure that was done quickly and we got the contribution agreements in place as soon as possible.

MEMBER VELSHI: So I don't know if you got concerns from other intervenors, but this particular concern was that they had only one week prior to the deadline for submitting written interventions.

So was it just one week to prepare their interventions?

MR. LEVINE: So having the funding application in at a certain time, their contribution agreements in place by a certain time doesn't preclude

a particular applicant from conducting their work to review.

The particular applicant that made the comment, we were in constant communication with them and they did request if they could start their work prior to the submission deadline when their contribution agreement was in place. And because of the tight time lines, we understood that it's okay to start the work beforehand, to review the CMDs and do some preparatory work before the contribution agreement was in place.

So we were flexible. We always pride ourselves on being flexible with the program, and we didn't receive any requests from that particular applicant for an extension to their deadline and they did get the interventions in on time.

MEMBER VELSHI: So if you had your standard normal time line, do you think we would have got more interventions or maybe, you know, more extensive submissions?

MR. LEVINE: Adam Levine, for the record.

No, I don't believe so because we did offer -- there was about a two-month window for the applications, and we did advertise in local media and on our web site and to our subscriber list as well, so

we did the same process as we normally do. The only difference was, this time, we had a very short window from the contribution agreement period to when the interventions were due.

So that was the only difference.

And in the future, if we do run into a similar situation, which is again not the typical situation, and we have this expedited timeline, we will maybe shorten the application window to provide more time down at the end of the process for the review and interventions process.

MEMBER VELSHI: Thank you.

MR. LEBLANC: Marc Leblanc, for the record.

If I may. There is one other intervener that has indicated that, had more time been provided, they would have been able to retain some consultants, which they were not able to do so for that purpose.

So there as one intervener that did mention that this impeded somewhat. But that intervener still filed an -- it was not as complete as they would have liked it to be.

THE PRESIDENT: Dr. McEwan?

MEMBER McEWAN: Thank you, Mr. President.

This intervener, and indeed a couple of other comments. This four-year pattern of below expectations, I know we've discussed this below expectation category many times with the Commission.

But it does seem to me that the intervener makes a very good point, that an organization which has failed to move out of the below expectation category of over a period of four years perhaps deserves a little more scepticism than an organization which has maintained a satisfactory rating in that SCA.

In your presentation you said that there have been improvements in this below expectation category. So I'd like, perhaps from both CNL and from Staff, comments on that below expectation, the implications for the next 17 months.

But also if below expectations was on a scale of 100, has that improvement been from 30 to 60, from 10 to 90...? I think it would be good to have some frame of reference to understand what has happened within that framework for fitness for service.

DR. NEWLAND: Dave Newland, for the record.

So I think prior to 2011 the condition of certain equipment had not been tracked well and was

not known. Post that date, improvements were brought about in terms of understanding what was needed, their condition of the site, condition of equipment.

Improvements have been brought about through that increased number of outages, the longer outages. Improvements have been brought about in the processes and procedures in terms of the equipment, reliability program.

And so over the past four years, five years, we have seen a constant trend up. And I'm not sure that I would want to put a specific percentage point. There is always a judgment here as to where they are on north to 100. But I would say that they are close to getting -- reasonably close to getting satisfactory.

I do understand the Commission's concern and frustration and that of interveners. And moving forward, what we intend to do is to set out more clearly our expectations for CNL, formalize those, ask for a plan so that everybody is clear as to when they meet satisfactory.

MEMBER McEWAN: CNL, any comments?

MR. PILKINGTON: Bill Pilkington, for the record.

So since Staff wouldn't put a number to the percentage of meeting the expectation, CNL will

not either.

However, I would point out that many improvements have been made in the area of fitness for service since the start of this licence period in 2011. And a large part of that is due to the integrated implementation plan for the improvements to the NRU; improving spare parts, improving preventative maintenance, putting in place an aging management program, putting in place an industry best practice system health monitoring program.

All of these things have made significant improvement in the fitness for service, improving the inspection programs, the in-service inspection program, the periodic inspection program, and a number of equipment upgrades.

And so I would point out two things. One, is when you're looking at equipment upgrades on a reactor the age of NRU it's not simply a case of buying new like equipment. It's a case of going through equivalency studies in order to be able to find equipment that's currently manufactured, that meets specifications. And it's also a case of going through a lot of design change in order to be able to come up with equipment that will be fit for purpose, but will be of a modern design.

And so there's a significant amount of

engineering effort that has to go ahead of the procurement and installation if equipment. And so it has taken time and we are currently in the phase of installing upgraded equipment for the NRU.

In addition, when you look at the programs, aging management, system health monitoring, it takes time for those programs to come to maturity. And so especially in the case of system health monitoring, that program needs to continue through the implementation phase and to mature to the point where we are meeting best industry practices.

So I would say that we have made a lot of improvement, there's a lot of improvements still in progress, and we look forward to receiving a satisfactory rating on fitness for service in the near future.

MEMBER McEWAN: Can I just then follow that up? So you are asking for removal of licence condition 16.1, which is a mandated extended inspection period.

Within the licence now in 7.1 there is simply a requirement for a maintenance and inspection program. There is no mandate for the length of that, although it was good to see in supplementary information a fairly detailed explanation of what would be proposed.

Are we comfortable that the removal completely from the licence of a mandate in the presence of a series of below expectations is an appropriate assurance of safety going forward?

DR. NEWLAND: Dave Newland, for the record.

So I don't think we should consider this as simply removal of 16.1. What we have put into the Licence Conditions Handbook is clear criteria around outages. So we've deleted 16.1 or we're suggesting that that be removed. But then additional criteria around outages are going into section 7 of the LCH.

I would also like to add that there is a broad degree of equivalency in terms of the numbers of days in terms of what was originally in the outage plan with the 30-day outage and what is being proposed.

And there just simply is no longer a need for that specific outage. Those same activities can be achieved in Staff's view in the proposed schedule outage.

And maybe CNL would like to comment further on that.

MR. PILKINGTON: Bill Pilkington, for the record.

And so the point we're trying to make is that we will actually be able to perform more work more effectively in the proposed outage schedule than we could by following the mandated one-month outage in the licence.

And when we look at the schedule that we propose, it has more available days in order to do work on the reactor, it has more days of work done with more decay time in order to give lower radiation exposure to accomplish the same amount of work. And it provides four opportunities within the year in order to do specific maintenance or perhaps, more importantly, to do installation of equipment that's been purchased to support the Integrated Improvement Program.

And so by the old schedule or this existing schedule of one-month outages, if we received equipment a month after the outage, then we would be waiting approximately a year in order to do the installation. Whereas now, the longest period would be three months.

Finally, scheduling an outage of two weeks' duration is significantly more effective in terms of planning and executing the work than a 30-day outage.

THE PRESIDENT: I'd like to go back to

the fitness for service. Fitness for service at least sounds like it could be a safety issue. Like it was one year or two years, fine. This is -- you're talking 2011. Some of us have been around longer than 2011. We remember I think it was the licence before, it was still below expectations.

So my question is when it'll become satisfactory for both sides? Because you're running out of time. By March 31st, who cares? March 31st, 2018, we don't care anymore about fitness for service, the thing will be shut down.

So what are we talking about in terms of being onside on fitness for service just for the next 17 months? What's the answer to that question? When will this satisfy the regulator that you're satisfactory?

MR. PILKINGTON: Bill Pilkington, for the record.

And I would point out that the Integrated Implementation Program is continuing right until the end of life of the NRU.

And my expectation is that during this period that we will in fact have achieved the objectives, the primary objectives of the program and that we will in fact be able to show CNSC Staff that we are meeting the satisfactory level in our fitness

for services program.

THE PRESIDENT: I'm hoping, because I hear that you're going to ask them for another plan. By now, a plan will not do you any good.

Are they now on the way to getting a satisfactory on existing activities that they are in the plan already?

DR. NEWLAND: Dave Newland, for the record.

So, first, I would just like to clarify something. Fitness for service, while important, very important to NRU, it's site-wide. And so we're talking about in addition to the NRU the site-wide infrastructure and the age of that infrastructure that needs to be improved.

I think CNL could talk to the capital expenditures that will happen and have been put into the contract in the next two to three years, as they will be AECL to improve that infrastructure. I think that perhaps Staff could have been clearer on what it takes to get to satisfactory, and that is what we will do.

THE PRESIDENT: Well, you made a very good point, which I wasn't clear about. So I understand site-wide fitness for duty. So are you telling me the NRU itself is fit for duty -- for

service, sorry, as opposed to...? So are you telling me the beyond expectations is because of other components in the site right at the NRU?

DR. NEWLAND: Dave Newland, for the record.

It's a combination, to be honest. Clearly, the focus of IIP was around NRU. And a lot of the IIP activities were very much front-loaded to make very strong improvements to NRU early on in the IIP program.

And it's not just about the fitness for service, the physical condition. It's about the maturity of the programs as well. And I think that within the next 17 months I would hope that they will be at that satisfactory rating.

THE PRESIDENT: That is not a right answer. Hope, here we're not talking about hope. I would hope that you have some specific activity, engineering, requirements, nothing to do with hope. Either you do it or you don't, implement or not.

And I would imagine, again, doing it beyond March 31st, 2018 is irrelevant. What I want to know is that's going to happen next month, the month after. Because, if I understand correctly, you said you had three outstanding items to fulfill before satisfactory is met, if I understood your comments.

Is that a true expectation?

MR. JAMMAL: Mr. President, Ramzi Jammal, for the record.

As the Chief Regulatory Operations Officer, I want to confirm one thing. We do not operate by hope here. So we operate, with respect, in accordance with regulatory requirements, and the fitness for service encompasses multiple things.

As you heard from Dr. Newland that the operation takes into consideration the full site and the NRU.

The fitness for service below expectations addresses it site-wide. With respect to the NRU, we've got our specialists in the room and our inspectors who are on site, who are conducting inspections to ensure implementation of the IIP and improvements established by the CNSC that CNL will implement.

So in conclusion, there is a reliability issue and there is a safety issue. If the safety at anytime is compromised, we will not be in front of you giving you a recommendation to allow an extension of a licence or even issue a licence, we'll be having a different discussion with respect to the operation of the site or improvements that are specific to take place.

So having said that, the programs are in place. It is not a single program or a single equipment, there is a collective oversight by the CNSC to ensure that the programs that are in place will be implemented and the engineering changes that the CNL will be conducting in order to meet our requirements are being carried on and carried out.

And we have the biggest hold point for you, before you, by 2017 to determine the progress associated with the fitness for service and the improvements that are taking place.

So we have a status report that we provide the Commission almost on a monthly basis, at every meeting. If the Commission would like to, I can commit the fact that to inform you with respect to the progress of the fitness for service as being presented and the progress being made by CNL.

So the key point here I would like to conclude is we do not operate by hope, we operate by regulatory requirements. And at anytime, if there was any safety issue, either we will issue an order or we come before you, the Commission, the seize the operation. So there is a bigger issue here with respect to the program itself that encompasses historical designs that need to be upgraded, that requires engineering changes.

And we are following up actively at every -- we have site staff, again, everyday that will verify the inspection program, the implementation is ongoing.

THE PRESIDENT: So are you saying that it makes sense to monitor it on a monthly basis? This particular item, because it's been around for -- out of memory, it's at least I think 10 years.

So the question is I hope it's coming to a conclusion very very quickly.

MR. JAMMAL: Ramzi Jammal, for the record.

We will update you accordingly and, if there are any deviations with respect to the progress, so in other words if there are delays in the implementation or we foresee no progress being made, we will highlight them to you to include in corrective action so that CNL will implement.

THE PRESIDENT: Thank you. Questions? Ms Velshi.

MEMBER VELSHI: So I want to follow-up a bit more on this fitness for service and beyond expectations.

So first to Staff, are you surprised that after more than five years there's still a beyond expectations? And what does this say about the

efficacy of the IIP if they still haven't reached satisfactory at this stage?

DR. NEWLAND: Dave Newland, for the record.

So, first, to speak to the efficacy of the IIP. I think it has been, as CNL has explained and we have explained, the IIP has been designed to so that it has high impact early on.

And in that respect and in the way in which the IIP has been delivered, I think it's fully satisfactory from Staff's perspective.

To come back to the question of why does it take so long, it's partly due to the age of the site, it's partly due to bringing those programs up to a level of maturity. And I think if you look at equivalent facilities around the world, that kind of time period is not unusual.

MEMBER VELSHI: So you're saying you're not surprised that at this stage there's still below expectations?

DR. NEWLAND: Dave Newland, for the record.

I'm not personally surprised. That does not mean to say that I'm happy.

MEMBER VELSHI: I think it would be very helpful for the Commission Members that when we

do see a below expectations and we get a comment from Staff and, you know, everything appropriate is being done, that we get some on indication on how long it's going to take to get out of that below expectations.

As opposed to five years later we're still here and, guess what, you shouldn't have expected anything different. I think it would be very helpful.

And I'd also maybe suggest that before they come back for a licence renewal they be out of below expectations, because that would not be acceptable.

DR. NEWLAND: I completely agree. Thank you.

THE PRESIDENT: Okay. There's lots more questions here.

Dr. McEwan.

MEMBER McEWAN: So recommendation 7 from -- we're still on CELA?

THE PRESIDENT: Yes.

MEMBER McEWAN: Recommendation 7 from CELA, that stable potassium iodide is pre-distributed in the secondary zone. And again, there have been a couple of interveners comments related to some of the difficulties of just movements, if there were an emergency which required the use of potassium iodide.

So I've always been a little bit concerned that we have this expectation in the secondary zone that people go to a central distribution site recognizing it is available for people to pre-pickup. The likelihood is most people won't.

So is there an argument to be made for revisiting the requirement for actual pre-distribution in at least a part of the secondary zone, which is geographically more remote or where the communication system is less good?

THE PRESIDENT: Okay, I'd like to open up this floor then because I think it's beyond the audience here.

I'd like to invite the Office of the Fire Marshal to update us as to some of their work that's not only in CNL and KI distribution. In Toronto it became a cause célèbre. So we can get an update as to where are we on the policy side.

And then I would like to hear from CNL and from staff on what was done and all the recommendations from CELA about what needs to be done to improve the emergency planning.

So why don't we start with the Office of the Fire Marshal.

Mr. Kontra, can you hear us?

MR. KONTRA: Good morning, Dr. Binder. Yes, we can.

THE PRESIDENT: Go ahead, please.

MR. KONTRA: I think the first thing I would like to say is that, similar to other jurisdictions, we continue in the CNL Chalk River area to work very closely with the facility, the municipalities and of course with your staff, and it's a successful union.

The specifics that you ask about the secondary zone and KI for Chalk River is quite different from the other facilities and I would ask Mr. Nodwell to give you a response and what we see on the need for KI.

MR. NODWELL: Thank you. Dave Nodwell, Office of the Fire Marshal and Emergency Management, for the record.

So perhaps a little bit about the planning zones around Chalk River.

As Mr. Kontra has pointed out, it is very different from the power reactors, the CANDU power reactors we have in other parts of the province. The CNL site does not have a contiguous zone because the exclusion zone or the area within the fence surrounding Chalk River is approximately six kilometres, so it's a much larger area that would be

under the authority of the facility.

We have a nine-kilometre primary zone and that was established in an independent study that was conducted in 2004-2005 and this particular study looked at severe beyond design basis accidents. In that study, it concluded that in a severe accident that sheltering would not be required beyond eight kilometres, that evacuation in fact would not be required beyond three kilometres -- so that's within the CNL site itself -- and furthermore that KI would not be required beyond one kilometre.

So our conclusion is that the nine-kilometre planning zone was set very, very conservatively. So we are looking at that. There is additional work underway to inform the validity of that planning basis, so we do continue to look at that. But based on that kind of information, we don't see the need for pre-distribution in the secondary zone.

I believe, as was pointed out earlier, however, there are over 200,000 pills that have been pre-stocked in convenient locations throughout the secondary zone in the extremely remote likelihood that that is required, but I think based on that information, based on what a severe accident looks like at the Chalk River site compared to a power

reactor site, I think that there are adequate precautionary measures in place.

MEMBER McEWAN: Thank you for that. That was very helpful. What I think you said was that the zone for potassium iodide requirement, i.e. exposure to Iodine-131, is a smaller zone than the sheltering and evacuation zone. Is that what you said?

MR. NODWELL: Dave Nodwell for the record.

That is correct. Now, that is based on the Intervention Guidelines produced by Health Canada. So that determines at what level various protective actions would be triggered.

Two different measurements, because the evacuation and the sheltering PAL, or protective action level, as we call them would be based on an effective dose over a period of seven days. The decision to administer thyroid or KI pills is based on the thyroid dose, so it's a calculation specific to the thyroid and that would be a different value than what we would find in the seven-day effective dose.

THE PRESIDENT: What about some of the other recommendations that -- well, maybe let me turn, first of all, to the CNL and staff. What was actually done to date in the emergency planning, emergency

management? And you've seen some of the recommendations that CELA is proposing and maybe, rather than go one-by-one, kind of a summary of your stance on some of the observations made by CELA.

MR. PILKINGTON: So you mentioned CNL first, so I will go first. Bill Pilkington for the record.

So the requirements on KI distribution in the primary zone and associated activities or actions was put in our Licence Conditions Handbook of March of 2015 with a requirement to complete distribution in the primary zone by December 31st of 2015.

And so what I would like to do is ask our Vice President of Health and Safety, Security, Environment and Quality, Mr. Kevin Daniels, to comment on our performance.

MR. DANIELS: Kevin Daniels, Vice President, Health, Safety, Security, Environmental and Quality, for the record.

This is actually a very good example of cooperation between us, the municipalities and the provinces in implementing this requirement.

So we had distribution plans in each of the municipalities where they verified that all individuals had the opportunity to get their

pre-distribution kits.

We provided outreach activities where we, along with the provinces and the municipalities, had meetings in the community to discuss the potential health effects and the value of potassium iodide. The most recent one was over in Quebec this last weekend because we're continuing those outreach activities.

So we provided education and knowledge to the individuals. We had opportunities -- we had verifiable methods to validate that all the property owners were contacted and had the opportunity to get these kits.

The municipalities have had for some time plans in place and they still have plans in place in case of evacuations, on how they would go to each of their areas, and it varies between municipalities because each of them had their own unique challenges. The ZEC areas over there have a lot of transient people that come in and out, so they have sign-in places where they can get notified. So it varies, but there are plans in place on how to make sure that individuals in those areas are actually notified in a timely manner and can be taking the appropriate actions.

In addition, we continue to work with the communities to determine what other plans might be

put in effect that would actually improve that capability to notify people in the area. One of the examples would be on the other side, in Quebec, it's difficult, as I talked about, and we're working on improving cell coverage there. And I know Bruce Power and some of the other places have tested things where anybody that's in the coverage area of that cell tower can be sent a message that actually notifies them of issues.

So it's a combination of us working with them to improve communications and then also the actual understanding by the individuals in the area of what their responsibilities are to make sure that they're able to be informed.

LE PRÉSIDENT : Peut-être c'est une bonne occasion d'écouter les représentants de Sécurité civile. Monsieur Lessard, avez-vous des commentaires?

And maybe after, Dr. Pinard.

We're going to try to hear from all the Ministry parties.

M. LESSARD : Gaëtan Lessard, directeur régional de la Sécurité civile.

Oui, effectivement, on avait la même préoccupation par rapport à la zone secondaire, par rapport à la zone primaire également, distribution des capsules d'iode. La particularité du côté du Québec,

c'est que la population résidente est relativement faible, mais la population en période estivale ou en fonction des activités est plus grande. Actuellement, la distribution des capsules d'iode est concentrée sur les résidents, mais, en même temps aussi, il y a des dispositions qui ont été mises en place pour offrir des capsules d'iode aux occupants notamment de la ZEC St-Patrice là, l'activité qui a été tenue en fin de semaine dernière.

THE PRESIDENT: Question? Monsieur Tolgyesi.

MEMBRE TOLGYESI : Vous avez parlé que c'est concentré sur les résidents. Ça veut dire quoi, qu'ils ont les pilules ou les capsules d'iode chez eux ou il y a un centre qui peut distribuer ou qui distribue les capsules? Et comment vous vous arrangez avec justement ce que vous avez parlé de ZEC ou de la population qui est estivale, est-ce que vous leur distribuez les pilules ou ils peuvent se les procurer à certains endroits?

M. LESSARD : Gaëtan Lessard.

Donc, les résidents permanents, oui, ont déjà eu la distribution de capsules d'iode. Il y a une mise en disponibilité pour les résidents non permanents qui est en place aussi.

MEMBRE TOLGYESI : Est-ce que je peux

ajouter deux, trois questions spécifiques à Québec?

LE PRÉSIDENT : Alors, on pourrait inviter Dr Pinard peut-être à participer à cette discussion. Allons-y.

MEMBRE TOLGYESI : Quand vous avez parlé de population qui est peut-être restreinte, vous parlez de quoi, 500 personnes, 50 personnes, 5 000 personnes?

Dr PINARD : Brigitte Pinard. Je suis médecin-conseil à la Direction de santé publique de l'Outaouais et membre du comité Chalk River de l'Organisation régionale de sécurité civile de l'Outaouais.

Peut-être pour commencer, je peux faire un topo sur la pré-distribution et l'entreposage actuel.

En fait, nous avons... en décembre 2015, les résidents saisonniers de la zone de planification détaillée, donc du 9 kilomètres, ont reçu par courrier recommandé des comprimés d'iodure de potassium et de la documentation sur les mesures d'urgence. L'envoi a été réalisé par la Municipalité de Sheenboro avec l'appui des LNC. En fait, il y a eu... excusez-moi. Les paquets ont été envoyés à 38 propriétaires de 44 bâtiments, et 37 propriétaires ont accepté le courrier recommandé.

Donc, tous les résidents saisonniers qui ont un chalet ou un camp dans la zone de planification détaillée ont été ciblés et ont eu la possibilité de recevoir des comprimés d'iode dans la campagne de pré-distribution. Donc, la zone de planification détaillée a été bien couverte.

Au niveau de la zone secondaire, nous avons reçu, en décembre et en janvier dernier, une quantité de comprimés d'iode pour l'entreposage. En fait, plus spécifiquement, nous avons reçu 30 600 comprimés d'iodure de potassium, et présentement, les comprimés sont entreposés à l'intérieur du réseau de santé à la limite de la zone secondaire. Cette quantité est suffisante pour couvrir l'ensemble de la population vivant dans la zone secondaire, et il est prévu de répartir cette quantité dans quelques points d'entreposage pour couvrir le territoire de la zone secondaire. Cette opération n'avait jamais été réalisée jusqu'à date du côté québécois.

Présentement, nous travaillons à la logistique de distribution rapide des comprimés d'iodure de potassium, advenant un accident sévère.

Il y a un constat qui émerge présentement. C'est que la logistique pour la distribution rapide des comprimés lors d'une urgence s'avère compliquée, particulièrement dans un contexte

rural. Sans distribution rapide, donc à l'intérieur de quelques heures au maximum, la mesure de protection n'est pas efficace. Donc, présentement, nous sommes en attente d'un nouveau scénario d'accident sévère des LNC pour mieux cerner le besoin des comprimés d'iodure de potassium dans la zone secondaire.

Selon l'évaluation que nous allons faire du nouveau scénario d'accident, nous pensons sérieusement à la possibilité de faire une pré-distribution de comprimés d'iodure de potassium dans la section de la zone secondaire qui pourrait être affectée lors d'un accident sévère de cinétique rapide pour s'assurer, bien entendu, de l'efficacité de la mesure.

Tant que nous n'avons pas eu, en fait, le scénario d'accident sévère, le nouveau scénario, nous ne pouvons pas juger s'il y a un besoin ou non. S'il n'y a pas besoin, nous ne le ferons pas. Si jamais il y a un besoin de préciser, nous pensons qu'une pré-distribution pourrait être la façon de faire pour assurer que la mesure en soi soit efficace.

LE PRÉSIDENT : Merci beaucoup.

D'autres questions?

MEMBRE TOLGYESI : Oui. Dites-moi, O.K., vous avez les comprimés disponibles, mais quels sont les moyens d'avertissement? Comme la question

avec la population, comment ils savent qu'il faut qu'ils les prennent ou comment ils savent qu'il faut qu'ils se mettent à l'abri? Est-ce qu'il y a une communication, je ne sais pas, d'avertissement par téléphone, sirène, je ne sais pas? Pouvez-vous nous expliquer?

M. LESSARD : Gaëtan Lessard.

Oui, effectivement, on travaille sur un schéma d'alerte. Actuellement, on sait que la sirène qui est sur le site des laboratoires de Chalk River n'a pas une pénétration très grande. On pense que ça se limite actuellement à peu près à trois kilomètres à partir du site, ce qui veut dire que pour rejoindre la limite du 9 kilomètres, il y a une problématique.

Un sous-comité de l'ORSC travaille actuellement sur une proposition à l'effet, effectivement, d'ajouter à la tour de cellulaire qui est sur le site des laboratoires de Chalk River -- là, je vais le dire en anglais -- un booster pour augmenter le signal. On croit qu'une fois en place, ce système-là, il va être facile de rejoindre les gens par cellulaire avec un message qui pourra leur être diffusé, et quand on rejoint 80 pour cent de la population par cellulaire, les chiffres nous disent que c'est une alerte qui est acceptable.

Par ailleurs, on ne travaille pas uniquement sur ce mode d'alerte là. Il faut aussi penser à des modes avec une certaine redondance pour être certain de couvrir l'ensemble de la population, et, évidemment, on va se servir du système national d'alertes avec les radiodiffuseurs et les... ce nouveau système qui est en place au Canada depuis quelques années. On a encore fait des tests récemment, et, évidemment, on sait que du côté de l'Ontario, le bureau du Fire Marshal, anciennement EMO mais maintenant aussi EMO là, probablement travaille aussi là dans ce sens-là. Donc, avec EMO, on n'a pas encore fait les arrimages par rapport au message qui serait diffusé par le système d'alertes national.

THE PRESIDENT: It's time now to bring in some other communities. I would like to hear from Ms MacDonald from Laurentian Hills and also from the Town of Deep River, from Ms Turney. They can join the conversation here about how things are going in your municipalities.

MS MacDONALD: For the record, Ela MacDonald, Laurentian Hills-Deep River Nuclear Emergency Preparedness Coordinator.

The distribution of the potassium iodide tablets was very well organized with big help from the CNL staff and the organization was timely,

efficient and effective. Within a very short period of time, public meetings were organized and information was provided to the public. The opportunity for the residents of the primary zone to receive these tablets was 100 percent because it was through the registered mail delivery that people were signing for this and the distribution within the primary zone was very effective.

For the secondary zone also, distribution was completed and over 200,000 tablets have been placed at strategic locations for the population of the secondary zone.

THE PRESIDENT: Thank you.

Do we have Ms Turney?

MS TURNEY: Good morning. Ann Turney, Community Emergency Management Coordinator for the Town of Deep River.

I would confirm Ela MacDonald's comments that from the Town of Deep River's perspective we offer unwavering support for the Canadian Nuclear Laboratories and the extension of the operating licence. We are satisfied with our relationship and very pleased in the partnership.

THE PRESIDENT: As a final question to the municipality, when you do the distribution, do you also make sure that those are available in schools and

hospitals as such?

MS TURNEY: Ela, I'll leave you for that one.

MS MacDONALD: For the record, Ela MacDonald.

Yes, all the locations such as long-term care residences, the local schools, hospital, emergency worker centres like police and fire department, all these locations have the tablets.

LE PRÉSIDENT : Et c'est la même chose au Québec?

Dr PINARD : Brigitte Pinard.

Comme je vous disais, nous avons reçu une quantité suffisante pour couvrir toute la zone secondaire. Présentement, les comprimés sont dans la réseau de la santé, mais nous n'avons pas distribué dans d'autres points. Nous avons le plan de le faire, nous devrions le faire bientôt, mais nous attendons d'avoir l'information provenant du scénario d'accident sévère pour évaluer le besoin.

MEMBRE TOLGYESI : Vous avez parlé tantôt et je pense que vous étiez hésitant un peu quand vous avez parlé des relations entre vous et le bureau du Fire Marshal. Pouvez-vous nous expliquer un peu de quelle façon vous coordonnez vos activités avec CNL, avec les autorités tant provinciales que

régionales en Ontario, et aussi comment le faites-vous?

M. LESSARD : Nous avons formé un comité assez tôt en 2012 pour élaborer un plan de mesures d'urgence pour la région de la MRC Pontiac mais aussi pour l'Outaouais. Il y a un représentant d'EMO sur le comité qui a suivi les travaux du... l'élaboration du plan des mesures d'urgence.

Par ailleurs, dans notre plan, il y a une ligne directrice qui est que nous allons nous harmoniser aux plans qui sont en place du côté de l'Ontario. C'est vrai pour les mesures. C'est vrai aussi pour les prises de décision. Donc, on va devoir s'harmoniser.

Quand je parlais des relations qui sont à faire concernant EMO, c'est surtout au niveau de l'alerte actuellement, qu'il nous reste des démarches à faire, parce qu'au moment où on se parle, oui, les gens sont prêts à prendre des capsules d'iode, mais encore faut-il qu'ils sachent quand les prendre. Et c'est au niveau de l'alerte, où actuellement il nous reste des travaux à faire, et par des projets comme éventuellement la possibilité d'une alerte par cellulaire, ça viendra au mois de juin prochain.

Par contre, pour ce qui est de

l'alerte via le système national d'alerte au public, on peut déjà travailler à s'harmoniser au niveau des messages. On sait très bien que dans le secteur au Québec où les radios seront diffusées, s'ils écoutent les postes qui sont présents en Ontario, ils vont recevoir l'alerte. Il s'agit juste, nous là, de savoir si on doit faire des messages en anglais et en français pour ces mêmes stations de diffusion.

THE PRESIDENT: Staff, anything else that needs to be done or improved in the emergency planning?

DR. NEWLAND: Dave Newland for the record. I'll ask Mr. Sigouin to respond, please.

MR. SIGOUIN: Luc Sigouin for the record.

I think I'll take this opportunity to come back to Dr. McEwan's question about the 50-kilometre issue, whether or not pre-distribution could be revisited there.

Staff's view is that the current KI pre-distribution and pre-stocking strategy is actually very protective, it's very conservative for the CNL facility. The NRU reactor has been grouped in with all the other power reactors when we set up this program for KI, this requirement for KI, and as we know, the NRU reactor is very different than a power

reactor, much lower power, different fuel types.

All that to say that the magnitude of the hazard that is present there is much lower than at a power reactor and the current studies that we have on hand indicate that KI would not be required certainly beyond the nine kilometres that we have now in an urgent fashion.

The secondary zone pre-stocking that was done is comprehensive. It's across many locations, including institutions, and it is available to be picked up in advance for those residents who would want it.

So our view is that there is no need or at this time no benefit to extending the pre-distribution beyond the current nine kilometres.

I think, President Binder, you asked a question about our overall views on the CELA recommendations. So I think I've given you staff's view on Recommendation 7, is there is no need to change the pre-distribution strategy at this time.

Regarding the other recommendations made by CELA, I think many of them have already been completed or they've been achieved. For example, the alerting time recommendations or KI outreach, those recommendations are already being met or they've been done as part of the KI pre-distribution/distribution

program.

Some of the other recommendations about public education and public outreach, I think we can all agree that those are good recommendations, that the local and provincial authorities can consider as they review their public education programs as opportunities for continuous improvement in engaging with residents.

Thank you.

THE PRESIDENT: Okay. Thank you.

Any other questions on emergency management?

Any other questions on CELA?

Autres questions? Non.

Okay, I guess I'm told that we're going out for a lunch break. We will come back at 12:40, okay, one hour. Thank you.

--- Upon recessing at 11:43 a.m. /
Suspension à 11 h 43
--- Upon resuming at 12:42 p.m. /
Reprise à 12 h 42

MR. LEBLANC: We are back. We're going to resume with interventions and the next submission is from the Canadian Nuclear Association as

outlined in CMD 16-H2.7.

CMD 16-H2.7
Written Submission from
Canadian Nuclear Association

MR. LEBLANC: Any questions from the Members on this submission?

THE PRESIDENT: On the second page, they -- on item No. 1 there's a statement:

> "CRL is also in a position to play a leading role in the development of small modular reactor technology."

Do they know something that we don't know? Question, is it true? What's the plan; is there a plan?

MR. PILKINGTON: So Bill Pilkington for the record.

I'm not part of the CNL Marketing and Business Development group, however, I am not aware of any firm plans at this point, only that the CNL site is a licensed site and prototype SMR reactors will need to be built somewhere.

--- Laughter / Rires

THE PRESIDENT: You are becoming a

diplomat. Okay, I will not probe at this stage.

Anybody else?

Okay, thank you.

MR. LEBLANC: The next submission which is in CMD 16-H2.8 is from the Deep River Science Academy.

CMD 16-H2.8
Written submission from
Deep River Science Academy

MR. LEBLANC: Any questions?

THE PRESIDENT: Dr. McEwan...?

MEMBER McEWAN: So I was really interested to read about the Research Science Live part of that program. How easy was it to put together and how easy has it been to sustain because it looks a very, very exciting introduction to science?

MR. PILKINGTON: It's Bill Pilkington for the record.

I have not been on-site long enough that this program has gone on while I've been there, but I do believe that our Director of Corporate Affairs, Pat Quinn, might be able to comment on it.

MR. QUINN: Good afternoon. Pat Quinn, Director of Corporate Communications, for the

record.

The Deep River Science Academy has operated with Chalk River Laboratories for over 30 years. A new program that they've introduced over the last several years is Research Science Live, and that's a great program where they actually conduct video links and outreach to high schools throughout Ontario actually, I just received an update on it, and so they access some of the expertise from the laboratories and bring that to the classroom through their program.

MEMBER McEWAN: So it's available to any high school that wants to participate, or is there sort of a difficult registration process or...?

MR. QUINN: Pat Quinn for the record.

The access to the program is available through their coordinator and they're accessible through their website. I believe that that's, in fact, Commissioner, how schools have been reaching out to them.

They do some active programming as well with them, but it's reach back as well.

THE PRESIDENT: Just piggybacking on this, you used to, or still do run a summer program for kids that is very, very popular, very, very -- at least my understanding was, it's very, very popular

and it's run into some difficulties for this coming summer.

Anybody can clue us in as to what's going on?

MR. PILKINGTON: Bill Pilkington for the record.

And I would again ask that Pat Quinn respond to that question.

MR. QUINN: Pat Quinn for the record.

The Deep River Science Academy has run a summer school program, summer student program on-site and with other employers in the general area for 27 years.

It's their decision this year because of program challenges to put that program on hold and focus onto their Research Science Live and they're currently looking at how they offer the program going forward.

CNL continues to be their principal sponsor for their activities though, we continue to work with them on the Research Science Live program.

THE PRESIDENT: Well, I can tell you that, in fact, we were I think -- maybe Staff can help here -- but I think we were supportive. It was very popular. Many of the graduates of the summer program got into the nuclear business or space. For some of

them it was their first exposure, so it's really a shame that this program will not continue. It's kind of a personal observation.

MR. QUINN: Pat Quinn for the record.

I agree that the program is very much an important aspect in developing how we qualify people and I know that the Deep River Science Academy is working hard to see how they can re-establish that program.

THE PRESIDENT: Okay, thank you.

MR. QUINN: You're welcome.

THE PRESIDENT: Mr. Leblanc...?

MR. LEBLANC: The next submission is from the Town of Laurentian Hills as outlined in CMD 16-H2.9.

CMD 16-H2.9
Written submission from
Town of Laurentian Hills

MR. LEBLANC: Any questions from the Members?

The next submission is from Women in Nuclear Canada as outlined in CMD 16-H2.10.

CMD 16-H.10

Written submission from Women in Nuclear Canada

MR. LEBLANC: Any questions from the Members on this submission?

Madam Velshi...?

MEMBER VELSHI: Question for CNL. One of the concerns that's been identified in this submission is staff attrition having an unequally higher impact on women.

Can you comment on that, on why that would be and how your strategies may be specifically addressing that?

MR. PILKINGTON: It's Bill Pilkington for the record.

I believe the context of that comment is around the retirement of the NRU reactor and the fact that our women employees might be disadvantaged in terms of the programs we have.

But I can assure the Commission that the programs for retention, retraining and redeployment will be equally offered to our women who are employed in the NRU organization as well as the rest of the staff.

MEMBER VELSHI: But would the women at the NRU be affected any differently or more so than the men?

MR. PILKINGTON: No, I would not expect that.

MEMBER VELSHI: I was also -- when I saw the title on what they were trying to address here, which was, are there going to be different safety implications for women as a result of the extended operation. Well, I didn't see anything there, but I just wondered what the premise was and why would they think that there would be a different safety impact on women as opposed to all your workers?

MR. PILKINGTON: So Bill Pilkington for the record.

I cannot think of a safety impact that would be unique to the women employed at NRU.

I can point to the fact that the Chalk River labs, in general, have a reasonably good representation for women in our employees, 25 per cent of our executive, more than 25 per cent of senior professionals are women. So that's not exemplary, but I think it's relatively good performance on behalf of the labs.

THE PRESIDENT: M. Tolgyesi...?

MEMBER TOLGYESI: I have one. In the document which was supporting the Women in Nuclear, which is a document from B.C. Watson Engineering, at page 6:

> "5.1 - Nuclear Safety Culture: Women in Nuclear is concerned that the strong nuclear safety culture will continue this year at facilities during the proposed continued operation period." (As read)

Is there some indication that the safety culture, how it performs, because we had some discussions in the past about safety culture at NRU.

MR. PILKINGTON: It's Bill Pilkington for the record.

Mr. Tolgyesi, could I ask you to repeat the question? I didn't understand it.

MEMBER TOLGYESI: What this support is saying that Women in Nuclear is concerned that the strong nuclear safety culture will continue.

My understanding is that they are concerned that it will continue, or do you have some reasons to believe that there is some weakness?

MR. LESINSKI: Mark Lesinski for the record.

Actually -- so I believe the question is, will it continue or will it decrease?

Actually, one of our goals, our number one priority is improvement of the safety culture and

we've said this in many venues, that although there's improvement now to really reach a world class status, we have to improve in our safety culture going forward and that's one of our focus areas as we transform the site.

MEMBER TOLGYESI: So how do you expect -- you are saying that you will improve it. What's the problem? What's the process to reach this improvement?

MR. LESINSKI: Mark Lesinski for the record.

Our process for improvement, it's -- well, it's a number of pronged attack, so to speak. One of the things I can point out that we've already implemented is we have a quick learning called Rapid Learning every morning, as an example, so that we ensure that learning that we have on any particular day of any events that it's communicated widely to all of our sites and to all the facilities so that we can know immediately as to what the issue was so we don't have repeat events.

So rather than being bogged down in process, although you do need to do that in order to hunt down what the root causes are, you want to ensure that you find out what some of the immediate effects are and the immediate issues so that you can correct

that, as an example.

So it's putting that safety culture and safety thinking on the top of the list every single day.

MEMBER TOLGYESI: Thank you.

MR. LEBLANC: The next submission is from Ms Cheryl Gallant, M.P. of Renfrew-Nipissing-Pembroke as outlined in CMD 16-H2.11.

CMD 16-H2.11
Written submission from
Cheryl Gallant, M.P. from
Renfrew-Nipissing-Pembroke

MR. LEBLANC: Any questions?

The next submission is from the Canadian Nuclear Workers Council as outlined in CMD 16-H2.12.

CMD 16-H2.12
Written submission from
Canadian Nuclear Workers Council

MR. LEBLANC: Any questions?

Mr. Tolgyesi...?

MEMBER TOLGYESI: This is to CNL. How and to what extent labour and union reps are involved in your retain, retrain and redeploy strategy?

MR. PILKINGTON: It's Bill Pilkington for the record.

And, so the retain, retrain, redeploy has primarily been developed for the NRU and there are other areas where changes occur in the organization where we would be applying the same process.

In terms of the NRU, I would ask Dave Cox, our General Manager for NRU, to respond.

MR. COX: David Cox, General Manager of NRU for the record.

The workers in NRU and those affected in the NRU family that include the fuel fabrication facility and the Moly processing facility, waste treatment facilities, et cetera, that are all tied together through the NRU operations, are quite proud of the role that they played in isotope production and its supporting science and technology.

About three quarters of the workforce, which amounts to about 500 individuals in the affected group, are unionized and there are a number of different unions involved.

We're having regular discussions with them in order to work out and finalize the details of

retraining and redeployment options and, as well, options to retain the critical staff that are necessary to ensure safe operations for the remaining life of the reactor.

THE PRESIDENT: Do they -- I know that in the NPP union management agreement the unions always proud to point to a clause that allow any worker to refuse work that they believe is unsafe.

Does that kind of a clause exist in your arrangements?

MR. PILKINGTON: It's Bill Pilkington for the record.

I would ask Kevin Daniels, our Vice-President of Health, Safety, Security, Environment and Quality to respond to that question.

MR. DANIELS: Kevin Daniels for the record.

So that actual clause, it's not just nuclear workers, any employee on-site at any time that feels like there's anything unsafe can actually not only refuse work, but stop other work activities that are going on.

THE PRESIDENT: So that clause exists in all the agreements?

MR. DANIELS: So I know that it's on our procedures. I do not know whether it's

specifically written into the labour agreements, but it's in our procedures on-site where we allow any site employee to stop any activity or refuse work if it's unsafe.

THE PRESIDENT: Okay, thank you.

M Leblanc...?

MR. LEBLANC: The next submission is from the Power Workers' Union as outlined in CMD 16-H2.13.

CMD 16-H2.13
Written submission from the Power Workers' Union

MR. LEBLANC: Are there any questions?

Madam Velshi...?

MEMBER VELSHI: I'd like to talk a bit more about attrition again. So you've got what, 700 or so employees at the NRU? When you go to the standby mode, what kind of reduction are you expecting?

MR. COX: David Cox for the record.

I think the number I meant to say was 500 affected employees. When we go into standby mode for Moly production it will largely be business as usual in the NRU facility, which is the largest employee group.

There will be lesser fuel fabrication activities in the fuel fabrication organization at a certain point in time, not immediately, but ahead of the cessation of reactor operations, but those staff are -- we are working on projects to redeploy them into other activities.

The most affected group is the Moly production facility which, when it's in standby mode, actually won't be producing product, but the employees need to be maintained in a state of readiness, as does the facility itself through maintenance and other activities.

So there will be regular training, refresher training, as required, but those employees, likewise, will be redirected to work on other activities, a separate project, that will utilize their time during the standby period, but they'll be brought back to produce moly when required -- when and if required.

MEMBER VELSHI: So your required headcount, you don't expect it to change, though they could temporarily be assigned to other work. But then the risk is people leaving because they don't see a longer term future perhaps.

Maybe better directed to Staff, at what point would be you concerned that they just don't

have the sufficient capacity needed to address their needs? Is this going to be an area of increased focus for you, because it's one of the biggest risks that's been identified?

MR. PILKINGTON: Bill Pilkington, for the record.

Just speaking a little more broadly, in the period that the facilities are in standby operation for moly production, we have other projects and other work that we can assign people to as a part of their duties, and, as Mr. Cox mentioned, the training and maintaining the facility will still be a part of their jobs. But people will be fully occupied.

In the case of the fuel fabrication, we're looking for external commercial opportunities to be able to fabricate fuel.

So in each case there is work that needs to be done. Another example is preparing the plans for the shutdown of the NRU.

So there is work. People will be occupied. At the same time, there will be also some time available for potentially some retraining and looking at people's future within the organization.

THE PRESIDENT: But you are talking about 17 months. I'm just trying to understand the

math here. After 17 months those people don't have a job. Or am I missing something here? Have you thought about what some other people are trying to do -- and I don't know if you are able to do it -- which is guarantee their job so they stick around?

And while I've got you, maybe it's a good time for me to try to understand -- I wasn't going to raise it here, but since it came up I'd like to understand the relationship between you and AECL and the government.

Who orders -- you're now into production mode. How is it going to happen? Does somebody pick up the phone, somebody write a letter, somebody does -- maybe AECL can tell us. How do AECL know there's shortages? And not only that, what kind of an arrangement for distribution do you have with Nordion? Is Nordion part of the equation?

There's a lot of stuff in there. Maybe you can give us a little overview of how this will all fit together.

MR. PILKINGTON: Dr. Binder, that's a large question, but let me see if I can pick away from it.

First, starting with the retention aspects for staff, there are -- I mean one of the benefits of the Chalk River site is the diversity of

jobs that are available. So people who are working in a facility that is not going to be continuing, they have opportunities to move into other parts of the organization which you wouldn't see in a nuclear power plant.

For instance, in the moly processing facility we're looking at making changes to the decommissioning plan to move into earlier decommissioning, which will then have staff available, with expertise to write plans and do preparation work.

So there are other opportunities that people can in fact be slotted directly into or retrained to be able to move into and all at the Chalk River site.

On the question of the standby production of moly-99, I will need to have AECL participate in the discussion. But I could maybe start by just saying, from the Chalk River site point of view, we have been in discussions with the different parts of the supply chain for moly. In our part we're clear on what our role is, and that is in the -- the NRU to irradiate targets and in the moly processing facility, and then in the transport from the Chalk River site to MDS Nordion.

So we understand our role in the standby production of moly-99, and we are able to

fulfill that role. At that point perhaps --

THE PRESIDENT: Ms Quinn is, I think, ready to elaborate this process.

MS QUINN: Thank you, Dr. Binder, and members of the Commission.

My name is Shannon Quinn. I'm Vice-President of Science, Technology and Commercial Oversight for Atomic Energy of Canada Limited, for the record.

As you very correctly pointed out, Dr. Binder, the supply of moly-99 into the market, and more specifically to patients both in Canada and globally, requires a number of actors, and there are many participants in the supply chain. This is true today, and it remains true during that standby period as well.

So when the Government of Canada makes the decision to ask that the capacity to produce moly be retained during that standby period, which is effective November 2016 through to March of 2018, then for that to be fully effective it requires not only preparations and procedures on the part of CNL, but it also has implications for the Government of Canada. AECL is a federal Crown corporation and, as already identified, for other participants in the supply chain, including Nordion.

So I can confirm that there are ongoing activities to ensure that all parts of that supply chain and all of those members that have their own parts to play are, within their own respective organizations, doing what is required to be able to supply moly-99 during that period in a very timely and effective way.

But also there is ongoing communication between all of those actors to make sure that there is the level of coordination that would be required should it be called upon during that contingency period because we know that the government intends to restart the production of moly-99 only in the event where there would be expected to be a significant and prolonged shortage.

We know that, should that decision come, it would be because there was an imminent and urgent need, and that everybody is preparing today so that in that event there would be as rapid a response as possible so that supply could reach patients in the mostly timely and effective way.

Mr. Pilkington has already talked a little bit about what CNL is doing for its part in order to prepare. On its side, AECL has a role to play in ensuring that the raw materials necessary to produce moly are in place, and so we are looking at

that.

We also have, as a federal Crown corporation, and within the new GoCo paradigm, a very important role to play to be that link between CNL, which is now a private sector entity, and back to the core federal government.

So it is the Government of Canada that ultimately will make that decision to, if required, restart the production of moly-99. That decision on the part of the Government of Canada would be communicated to Atomic Energy of Canada Limited formally by way of letter, but also immediately and expeditiously to AECL by a phone call and other means.

At that point the procedure would be that AECL would contact directly in person or by phone the appropriate people within CNL to indicate the nature of that decision so that the preparations on the side of CNL could start immediately towards the production of moly-99 during that period.

At that same time, CNL would also be notified of the decision so that it, for its part, could also make those preparations that would be necessary.

Between all of these actors, what we've identified is that from the moment that the Government of Canada makes the decision to restart the

production of moly-99 there is an expectation that the time from that point to when the product reaches generator manufacturers would be dependent on a number of factors, including, importantly, the planned schedules for maintenance outages at CNL, and so could vary, but it's expected to be within a three-week time period.

THE PRESIDENT: Just so I'm absolutely clear here -- thank you, by the way, for this detailed explanation -- but the Government of Canada, is it AECL or NRCan or Health Canada that actually monitor whether shortages are about to happen or not? Who does that?

MS QUINN: Shannon Quinn, for the record.

So there is a role for all of those players to monitor the market. AECL, for its part, participates as a member of the High- Level Group on Medical Radioisotopes, which is a group formed under the Nuclear Energy Agency as part of the OECD, and also has engagements in the market through other means. So we continue for AECL to continue to monitor both the projections for supply and demand during that period, but also monitoring other risk factors that develop within the context of that global market.

And I know that communications

protocols are being established between the government, AECL, CNL, and Nordion, as well as on the side of the government, with other international entities, and those who have been identified that would have important information in order to be able to monitor the state of the market and risks as they emerge.

So we all have a role in that, and we all have a role in bringing that information forward in a timely and effective way, and sharing it with all of those who would require it.

But to your specific point of who ultimately is responsible for making decisions around the restart of moly-99 production, it is not AECL, it is the Government of Canada.

If you would like I would like to call on Dr. Lafaille, from Natural Resources Canada, who is in the audience, who could speak more specifically to that.

THE PRESIDENT: Please. We always like to hear from the Government of Canada.

--- Laughter / Rires

MR. LAFAILLE: Jean-Frédéric Lafaille, Ressources naturelles Canada.

Thank you for having me today. I'm always pleased to be here to provide information.

I will simply confirm what Dr. Quinn has indicated, in terms of the overall context for it. And, specifically, I want to reiterate the point that we have or are in the process of establishing communications protocol among the key stakeholders, and that includes -- and the purpose for that is to make sure that when the Government of Canada makes a decision that it's a well-informed decision with the relevant bodies who would have the most accurate information regarding the possibility of a shortage.

In terms of the decision-making, it rests with the Government of Canada. Natural Resources Canada, of course, would monitor through the supply chain actors, but also there is an important partner within the federal family, which is of course Health Canada, who would have access to the health system and see how -- their assessment of a potential shortage and the potential impact on patients.

Ultimately, if the Government of Canada decided to go ahead with this -- you know your contingency plan as an insurance policy, it was to prevent the unlikely event of shortages to patients. So that's why Natural Resources Canada and Health Canada are working hand in hand on this matter.

We understand that, also, if we are facing some circumstances of a potential shortage, the

decision-making would have to be swift. So we have established between our departments a way to make rapid decisions with respect to resuming production for moly-99 from the NRU should there be a need.

THE PRESIDENT: Thank you.

Dr. McEwan.

MEMBER McEWAN: So if I could just follow up on that.

Is the intent of this restart of moly production to supply only the Canadian market or to supplement the worldwide market in the event of production going down for a long period of time?

And I guess my second question is: I think, Dr. Quinn, that you indicated about three weeks is the expectation. Does that give CNL enough time to be able to move from a standby mode to a full production mode and processing and shipments?

MR. LAFAILLE: Jean-Frédéric Lafaille, for the record.

I will address the first question in terms of the intent.

As we know, the moly-99 market is a global market. Therefore, the determination of the circumstances under which the government would consider resuming moly-99 production is because, ultimately, Canadian patients will be affected. But

if Canada patients are affected, it's because other countries' patients will be affected as well.

MS QUINN: Shannon Quinn, for the record.

So the three-week time period that I set out earlier, that time period starts -- the clock starts when the Government of Canada makes a decision, and communicates that to AECL. The time that's required, then, for AECL to turn around and pass along that information to CNL is on the order of minutes, not days, and so there's really not expected to be any delay there whatsoever.

Then the remainder of that period takes into account all of that time that CNL would need in order to restart that production process. The three weeks even takes into account the circumstance where the decision would be made at a time that would be just in advance of, for example, going into a two-week outage, and what that would introduce into the process, together with the delivery of the material to Nordion.

MEMBER McEWAN: Does CNL believe they can meet that deadline?

MR. PILKINGTON: Bill Pilkington, for the record.

I'd ask David Cox, the general manager

for NRU, to respond to that question.

MR. COX: David Cox, for the record.

Yes, we've had discussions with AECL, and understand what the basis for the three-week estimation. As Dr. Quinn mentioned, there are a number of factor that come into play. So three weeks, we believe, in most circumstances, would be achievable.

The primary uncertainty is around the timing of the request in relation to where the reactor is in its operating cycle. That aside, three weeks is quite achievable.

Thank you.

THE PRESIDENT: I'd like to put maybe a little bit of a question or focus here.

So is it our expectation that there will be shortages or not, given all the mad rush internationally, globally, and in Canada to develop alternative suppliers? Is the current thinking that there are not likely to be shortages?

Who wants to take it on? Dr. Lafaille? Maybe we'll start with the government again.

MR. LAFAILLE: Jean-Frédéric Lafaille, for the record.

So if we look at the latest

projections coming from the OECD, it's expected that supply will meet demand, in particular after the NRU would stop routine production in October 2016, with some buffer to manage potential disruptions in the system. So supply is expected to meet demand.

The government choice is still prudent, though, to have this insurance policy with NRU should there be some exceptional circumstances where it would be needed.

THE PRESIDENT: Okay. Thank you.

Mr. Tolgyesi.

MEMBER TOLGYESI: I understand well the moly -- the production will be on a standby basis. At the same time, CRL will increase production of other isotopes, like cobalt and all the other ones. So is there a market demand for these other isotopes?

That's my first question, and I have one more.

MR. PILKINGTON: So I will ask David Cox to respond to that, but the simple answer is that, yes, there certainly is a market for other isotopes that NRU will take advantage of from the period of time, actually, even before going into standby production for moly-99 until the end of the life of the reactor.

Mr. Cox.

MR. COX: David Cox, for the record.

When regular production of moly-99 ceases, we will also stop the production of xenon-133 isotope, which is a byproduct of the moly processing. So that isotope stream will be affected, along with the moly stream.

However, there are a number of other isotopes that NRU does produce for medical and industrial purposes. One of the key isotopes is high specific activity cobalt-60, for which NRU is a major world supplier. This isotope, fortunately, has a long half-life, about five years, and we've been gearing up already for several years to produce a large amount of cobalt-60.

Even as we're operating the reactor today, we have a significant number of cobalt absorbers in the reactor all with the intent of enhanced cobalt-60 production through the remaining life of NRU, and actually harvesting those rods in the year after NRU is shut down.

So we're making a contribution in cobalt-60 production. Also, iodine-125, we're increasing that isotope stream as well. Iodium-131 and iridium-192 likewise will continue to be produced, and we'll grow that business as the markets support. We also produce other minor isotopes, such as

yttrium-90, which have different medical applications.

So we will be continuing and growing the business, and there is a significant push on growing the cobalt-60 business right now.

MEMBER TOLGYESI: So once you will increase the cobalt-60 and other isotope production and the moly-99 will come back in the stream, okay, do you have a capacity to maintain production of both a higher production of all other isotopes, plus moly, which is coming back to the stream?

MR. COX: David Cox, for the record.

Yes, we would not have any difficulty in resurrecting moly production in the standby period. We'll reserve spaces -- reactor positions for moly production and it will not impede our ability to produce other isotopes in that period.

CMD 16-H2.14

Written submission from Northwatch

MR. LEBLANC: The next submission is from Northwatch as outlined in CMD 16-H2.14.

Questions from Commission members on this submission.

Dr. McEwan.

MEMBER McEWAN: Thank you.

So if we go to page 3 of the Northwatch submission, the end of that first paragraph below the italics, I have to say as I reading the two CMDs, from Staff and from CNL, I was struck by the fact that they did entirely focus on the NRU and that there was no discussion, for example, of the fitness of the moly production facility for service.

I think, Dr. Newland, you mentioned that the fitness-for-service piece is across the whole site not just the NRU, so I think it would be very helpful to have a discussion on that, particularly if it has to be reactivated and brought back into service.

Are there any issues that you see in bringing a dormant processing facility back on stream after a year or 15 months of inactivity?

DR. NEWLAND: Dave Newland, for the record.

So whilst those facilities might be dormant, our requirement is that they be maintained on an ongoing basis so that should CNL or the Government of Canada wish to re-enter the production of Moly-99 it can do so, meeting our requirements and in a safe manner.

MEMBER McEWAN: So does that require effectively live testing of the facility to ensure

that it is capable of dealing with the significant amounts of radioactivity that will be put into it for processing or Canada will be down as, if you like, a desktop exercise?

DR. NEWLAND: Dave Newland, for the record.

So I'll put -- maybe I would like to just emphasize a couple of things. One is, first, we expect the licensee to maintain both the adequacy of the equipment structures, et cetera through their programs and we expect them to keep staff trained.

I will ask Mr. Carrier to expand on the specifics of your question.

MR. CARRIER: Christian Carrier, for the record.

So the Moly-99 facility -- we had specific meetings with CNL regarding the standby mode for the operation of the Moly-99 facility including staffing, including strategies regarding retaining, retraining, redeploying people. So they are covered also. Those were the additional people besides NRU that were covered by this initiative.

So the maintenance activities, everything that was needed to keep the people and maintain that facility in operational mode were discussed. So the facility will be maintained; the

filtration system.

Some elements of the facility will be subject to decommissioning like removing of the Xenon production facility. So those details were in discussion.

Some of the facilities' staff will also remain available because they will be actively involved in repatriation activities of the solution. So the staff is not disappearing. They will be reutilized for other purposes onsite.

If you have any more questions, I can ask my project officer that was specifically involved in those discussions. Maybe Mr. Pierre Tanguay could be completing the information.

MEMBER McEWAN: So while we are waiting, does CNL have any comments?

MR. PILKINGTON: It's Bill Pilkington, for the record.

We would agree with all of the statements that have been made by CNSC staff. I would also point out that the staff will be in continuing training. The facility will be under normal maintenance as required that there will be some processing without product, I believe, using water as the stream in the facility.

And I would also point back to the

summer of 2010 when the NRU had been out of service for 15 months and from the start-up of the NRU, Moly was produced within less than a week. So by keeping the staff available, keeping the facility maintained, there should be no impediment to coming back into production.

THE PRESIDENT: Questions somebody? Ms Velshi...?

MEMBER VELSHI: A question to staff.

One of the big concerns identified in the submission is the lack of adequate information or missing information. And on pages 4 and 5 the intervenor lists a whole lot of information that they thought would have been relevant.

So before we get into the specifics here, maybe you can walk me through what the difference would have been had this been a real licence as opposed to an extension, because in staff's submission you said you really treated this as though it was a licence renewal versus a licence extension. So what would have been the difference as far as submission requirements between the two?

And then we can go through the specific gaps that the intervenor has identified.

DR. NEWLAND: Dave Newland, for the record.

So in terms of you talk about submission requirements from CNL?

MEMBER VELSHI: That's correct, submission requirements.

DR. NEWLAND: Dave Newland, for the record.

So we would expect a far more extensive submission from CNL that would be forward-looking in terms of their planned activities, remediation activities, waste and decommissioning on the site and capital expenditure. We know that those exist.

What this 17-month extension permits is for them to do a better characterization so that they can finesse their plans going out from October 2000 -- sorry, March 2018 for a longer period.

We always understood that there was going to be this need, and that is why staff supported this approach coming forward with a licence extension.

MEMBER VELSHI: Okay. So I may come back to that.

But if we then turn to page 4 and 5 from the intervenor on -- and it was mostly around events that information was not available. And rather than going through specifics maybe you can comment more generally on what your thoughts are on what the

intervenor is saying about lack of required information to make this decision?

DR. NEWLAND: Dave Newland, for the record.

So I think one of the first things that I would like to emphasize is that what we are relying upon is the original licensing basis in 2011, as approved by the Commission. Staff have ensured that there are no changes to that licensing basis. The programs are the same or better. The processes are the same or better and we have done our sort of assessment of the performance of CNL over the duration of the licence.

Maybe I can -- are there some specifics within the intervenor's submission that you would like us to comment on?

MEMBER VELSHI: No. But I see Mr. Ramzi is eager to say something.

MR. JAMMAL: Well, it's Ramzi Jammal for the record.

I would just like to clarify the fact of a couple of things that the intervenor you asked, Madam Velshi, the question, and we did not provide you with the answer.

We applied the licence renewal process, not the requirements that we will request the

licensee to provide us with information.

So in other words, when there is a licence renewal we look at two things. We look at the past performance of the licensee during the licensing period and then the requirement to submit information forward looking with respect to the new licensing term based on the licensed activity they have applied to operate.

As Dr. Newland mentioned, there are some elements from decommissioning but decommissioning is not the only licence renewal that will take place in the future.

So I am responsible for this licence renewal process being applied here, because what we try to do is provide you with information relating to the performance of CNL for the period of their licence and, in specific, for the last couple years. So we are trying to do two things; use the time of the Commission members effectively by providing you almost like an annual report review based on the licensed activity and their performance and address the issue with respect to the licence amendment. So that's at the high level with respect to the process.

With respect to the intervenor's question and her presentation of reportable events were not available for the intervenor to review, the

numbers were given of 111 and so on and so forth. These reportable events have been reported to the Commission and we have two levels of reportable events. We have not two levels but there is the practice of disclosure of the licensee and the reportable events in accordance with a performance indicator or a document called S-99 that the licensee must report against.

The information is available upon request. We do not post every and each one of those information. So if the intervenor or anyone requests information in detail with respect to the events reported to the Commission our analysis are available.

That's one of the big differences that we provide between a licence renewal process, the in-depth, but the analysis has not changed. So the reportable events to the Commission will continue to come from the licensee. They are available upon request to anybody.

And then -- now, we are working with enhancement of the proactive disclosure so that you are disclosing the information with respect to reportable events.

But again, not every reportable event that comes to the Commission makes our website.

MEMBER VELSHI: Thank you. That's

very helpful.

So I would like to speak on two specific things that the intervenor has identified. One is this incident that got reported to the Commission in January of 2016 and CNL started their presentation off with that and then the Commission has got an update since then, and staff mentioned that.

So in that report and in staff's CMD there were a number of issues that were identified. Reporting was one big one, and you have given us reassurance that reporting to the regulator certainly will be improved. The whole contract management, quality assurance and so on, and we have got a great update on that as well.

But there are two other big ones that I thought had not been addressed. It was all around safety culture, conservative decision making, the fact that a second shipment went out without understanding what the implications were from that dropped and failed caddy. We didn't see mention of that.

And I know this particular intervenor doesn't go into that in that great a detail, but I am just wondering would some -- if this was a licence renewal as opposed to an extension, would that have got more airtime? I know we are going to talk about this incident a bit more because I do want to talk

about the gaps in that. But just taking that as an example, would the analysis or assessment by staff have been at a different level?

DR. NEWLAND: Dave Newland, for the record.

So I would say, yes, as part of a renewal for a licence application for five or more years there would be a lot more information provided on those kinds of topics.

I would like to come back to a question that I think you raised previously about safety culture and staff's oversight. And maybe I could broaden that a little bit to the fact that we recognize that this is under new management as it were with a new executive team. They have been given a mandate to bring about transformational change and so we do expect to see organizational changes. We do expect to see maybe changes in safety culture, operational culture.

And so we are enhancing our compliance oversight to monitor those changes and we have signalled that to CNL just recently.

THE PRESIDENT: So let me tell you what I'm kind of expecting. Since in a year from now CNL will be coming in front of us in a full licence renewal, so applying the same methodology, all we have

done is we are going to drop to year 2011 and we will start from 2012. Then you will have a review of the previous.

We'll go through the same territory because they are going to review backwards five years' performance and then, I assume, you are going for at least five-year renewal, maybe 10-year renewal. So you will go five years backwards, here is how we perform and then 10 years ahead where you are going to put all the forward-looking kind of initiatives.

So I expect a lot more information at that time and I don't expect any loose, unfinished open files that went back five years. That's my understanding of what's going to happen in 2017 as to knowing that what we have expected this time.

So I don't know if I am simplifying things or complicating things but that's to me the difference between this extension and the full-blown application we will expect next year. Did I get it right?

DR. NEWLAND: Dave Newland, for the record.

Yes, I think that's exactly it.

THE PRESIDENT: This is all assuming that this hearing is successful; right?

DR. NEWLAND: On the assumption that

this hearing is successful, yes.

THE PRESIDENT: Okay. I have just been told to make sure I say it. So I said it.

Just on another point here is on the caddy on the casket failure, I think it's maybe a good time to update. I think there was a note that was circulated to bring everybody up to speed on this.

MR. LEBLANC: Yes, there is and this note is -- because of being raised is going to put it on the record. It's available in the backroom for those who have no access.

It's entitled, "Update to the Commission on the Caddy Failure that Occurred at the CNL -- at the Canadian Nuclear Laboratories" and a copy has been distributed earlier today to staff and CNL.

THE PRESIDENT: Okay.

Ms Velshi...?

MEMBER VELSHI: So given that we have just said that this is going to be part of the discussion, maybe CNL can comment on the two areas that I felt we had identified as issues but haven't seen any corrective actions, at least specifically highlighted for us, which is around the safety culture and you know, it's questioning attitude of conservative decision making and any learning from

this particular incident and corrective actions following from that, please.

MR. PILKINGTON: So it's Bill Pilkington, for the record.

And really, there is two areas around this event. One is the technical issue, the procurement issue and the resolution of the findings from that. I am going to ask Kurt Kehler, the Vice President for Decommissioning and Waste Management to speak to that aspect.

And then I will come back to the investigation that was done around the root causes for the poor communication and the lack of proactive disclosure and I will speak to that.

MEMBER VELSHI: Yes, but okay, let me hear what you have and then see if the other areas have been addressed as well.

MR. PILKINGTON: Okay, thank you.

Kurt...?

MR. KEHLER: Kurt Kehler, for the record. I am the Vice President of Decommissioning and Waste Management.

I will talk about the technical side which I think was covered very well in the update that was put out today from staff. It covered the areas of the audits done by the supplier and by the supplier to

the subsequent supplier who actually made the caddies. Those audits were done successfully and oversight was completed on those.

During those reviews and inspections, and we have also changed the inspection requirements for the caddy itself because of the manufacturing techniques to improve the inspections coming out of there including putting a load test into the process to expose any weaknesses that would have come out of the caddy.

We also witnessed the re-fabrication of the new caddies and they are at the supplier to ensure that everything is done appropriately.

We removed the non-conforming caddies from the basin and returned them to supplier and had them destroyed. And the new caddies have been received successfully onsite and have been put into use.

During this time there was actually two casks at Savannah River that the shipment that was in question the next -- the morning of the event and one had been shipped previously with NRX fuel in those shipments have been unloaded and there was no failure of the caddies or issues with the caddies in unloading those shipments.

And of course we performed an extent

of condition from the QA standpoint both at the supplier, the sub-manufacturer and internally at the site to, you know, the extent of the problem with QA, what other issues, what other areas this may have gotten in and followed those, all those areas, to ground to make sure we have caught this issue from a technical standpoint.

Although Bill said he was going to come back to the communication standpoint, I want to add a little bit from the project standpoint on the communications issue.

The project has established new requirements as noted in the update for the shipment checklist. Some of the discussions previously on safety culture and the lack of conservative decision-making really came down to some of it timing and simple communications issues and getting the information up the chain and to the right people to make those decisions at the time. That's not acceptable and so to fix those communications issues we have added specific steps in the pre-shipment authorization to make sure that you go back and connect with the operations and make sure there is no operational developments. You know, just previous to any of the shipments coming out and to go back to those communications lines.

We have also established communications protocols on the project we put in place, working hard with the team to define, you know, what would be considered an off-normal condition to make sure they know what would be expected to be reported up the chain, what those reporting responsibilities are in timing and who should be contacted. We have all those in place at this point in time.

And so although from a project perspective it appears that it was poor decision making and lack of conservative decision making, and in going through the root cause analysis, I think part of it was a simple lack of communications even through the process. And so we have certainly closed that window on the communications issue which would lead to the proper decision making on that.

Thank you.

MR. PILKINGTON: And Bill Pilkington, for the record.

And so Kurt has actually covered quite a bit of what I would have talked about. But I would point out that we did do a root cause analysis of the problems in communication and the delay in reporting to the CNSC around this event. And the detailed report from that investigation actually has just been

completed. So we provided that to the CNSC, I think, on April 1st. So that's very recent.

As Kurt points out, a number of corrective actions have already been taken particularly around the project, but I think it's useful talking at least briefly about the findings of the investigation.

And also I would like to point out that in the days following our appearance before the Commission January 28, within a few days our President and CEO, Mark Lesinski, put out a notice to all staff that expressed his expectation that we would communicate events up the organization promptly when they occurred and that we would be transparent and proactive in disclosing events that occur to the CNSC. And then -- so that immediate expectation was communicated to the organization.

So in the root cause analysis there were actually three root causes that were identified. One is the management failure to enhance the use of communications processes to inform senior management in a timely manner, and so I think this goes to the cultural aspects that you were questioning because we do have processes that could have been put in place or could have been used by staff.

We have problem reporting. We call it

impact process. And no impact was raised on the event.

We would expect to see line reporting up the organization, but that did not occur immediately. It didn't reach the right people in more senior levels.

Really, the staff at lower levels undertook to investigate what had happened themselves without communicating up the organization and, therefore, allowing senior management to direct and set priorities.

So that was -- that was one issue. That was one finding.

The second was that there was a lack of clear roles and responsibilities, and that between the NRU organization and the project organization and within the project organization. And I think Kurt has spoken to that one.

And then the third finding was a lack of proactive disclosure process at CNL to inform the regulatory. And in that case, looking at the way we approached reportable events, near reportable events, potentially reportable events, the organization would tend to take the time to make a determination on reportability before passing the information on to the CNSC.

And in this case, what happened was the -- there was a delay in the information getting up to the point where a decision could be made, so already there's a delay.

And then the reportability was not immediately recognized, and so it was -- it was essentially a month later that the CNSC was informally informed and it would have been just roughly about two weeks later than that when the event was reported to the CNSC as a reportable event.

If we had a process for more proactive disclosure, we would have provided the opportunity for the CNSC to identify that we had not made a correct call in the first place and we could have avoided a lot of the fallout that occurred after that.

And so we are looking at how utilities in their relationship with the regulator can more effectively provide proactive disclosure and that we are going to take the learnings from that and come up with a process where we can ensure that near reportable events, events where it's unsure whether it's reportable, that we are disclosing this to the CNSC at the earliest opportunity.

THE PRESIDENT: Just it's very ironic, you would remember that the whole idea of proactive disclosure originated with you when we had these

troubles of 2008, with the leak of 2009 and there was a public Ministerial agreement that we will disclosure any leak and all leaks and all such events. And everybody signed up.

But it's always -- it's very unfortunate that it didn't penetrate throughout the whole organization.

It worked very well on the NRU, I think, but not the rest of the organization. And that's very unfortunate.

Any other question to this?

I have on the last -- I have on page 7, staff, you want to comment on the recommendation about the current version of the IEMP that presented on the CNSC web site?

DR. NEWLAND: David Newland, for the record.

I'll ask Mr. Rinker to respond to that. Thank you.

MR. RINKER: My name's Mike Rinker. I'm the Director-General for the Directorate for Environmental and Radiation Protection and Assessment.

I'll ask Kiza Sauvé, I think, to give us some details, but what I'd like to report is that the 2013 and 2015 data has been uploaded and is now currently live on the CNSC web site.

Generally, across our facilities, we want to get three years' worth of baseline data for every facility, and this has been a busy 12 months or so.

We've got G2 and Port Hope that we're working on, but we do endeavour to get all years of data posted as quickly as possible.

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

In response to the recommendation from the intervenor where there's recommending that the Commission direct the CNSC staff to replace the current version of the IEMP, I want to remind the Commission that the IEMP takes a snapshot in time of the contaminants in the environment surrounding the facility from publicly accessible areas.

So at no point are we -- is the IEMP expected to replace the licensee's environmental monitoring program, of which CNSC staff review and approve and inspect against. So it's a complementary program to the licensee's environmental monitoring program.

THE PRESIDENT: Question about that?

Okay. Thank you.

Marc?

CMD 16-H2.15

Written submission from the County of Renfrew

MR. LEBLANC: The next submission is from the County of Renfrew, as outlined in CMD 16-H2.15.

Any questions from the Members?

The next submission is from the Town of Deep River, as outlined in CMD 16 -- oh, you had a question, Mr. Tolgyesi?

MEMBER TOLGYESI: Yes. I'm sorry.

No. No, it's okay.

CMD 16-H2.16

Written submission from the Town of Deep River

MR. LEBLANC: So as there's no question, the next submission is from the Town of Deep River, as outlined in CMD 16-H2.16.

Any questions?

Mr. Tolgyesi?

MEMBER TOLGYESI: No, no.

THE PRESIDENT: Okay. So here's the Mayor who giving advice, I think, about the addition of a new reactor to continue ground-breaking research

and innovation.

So I got, again, a question maybe -- maybe I'll ask the question also for AECL and for the Government of Canada again.

I heard in the presentation from CNL that one of your objective and mission is to enhance scientific knowledge on site. So this is a leading question, really.

Can you do scientific knowledge without a nuclear research facility?

Let me start with CNL.

MR. LESINSKI: Marc Lesinski, for the record.

I think there's a bit of a misconception at times that the whole site is -- revolves around the NRU reactor and, in fact, we do have a number of work streams research that we do, science and technology beyond the NRU reactor.

To be a world-class organization in nuclear, certainly a reactor is a handy thing to have. But currently, where we sit and where our contract is, we are not pursuing a reactor at this time.

In our discussions, we have not said that it's off the table, that it'll not ever be brought up. Currently, that is not part of our annual work.

We are going to be pursing our five and 10-year plans. That's part of our work for this coming year, to come up with our five and 10-year strategies. And I'm sure there will be ongoing discussions both with industry as well as with government as we go forward.

Thanks.

THE PRESIDENT: So one of the observation, at least from our perspective, was that some of the aging data, aging techniques always were confirmed by actual experiment using the NRU.

So for the future, I just don't see -- unless we go to other -- outside of Canada to do some of those tests, I have no idea how you can maintain a fleet of nuclear facilities here in Canada without some research capabilities.

And that's maybe not to you. Maybe to AECL and the government.

Who wants to take it on?

MS QUINN: Shannon Quinn, for the record.

So there are a number of elements to your question. Maybe I'll start with one of the first aspects of your question, which related to the science that is ongoing and enduring at Chalk River Laboratories and the value of that science,

potentially, in the absence of a research reactor.

So I would like to say that the Government of Canada has made very important commitments to science and technology, particularly at Canadian Nuclear Laboratories, in the very recent years, and in the signing of this GoCo contract, which is a long-term contract, an initial six years with an option of four for a total of 10 years, there is a commitment in that by the Government of Canada to ongoing, important investments in nuclear science and technology both in terms of the research that will go on year over year as well as investments to infrastructure that will enable that science going forward.

I would also like to acknowledge the very important and significant history that the NRU has made to science and technology in Canada.

Indeed, we know that it has been at the heart of the reactor technologies that we use here in Canada that provide for very important electricity, primarily in Ontario, but have made contributions in other provinces and across Canada and have led to an important scientific base across Canada related to nuclear, but that extends and applies far beyond nuclear.

It also has, of course, had very

important applications and developments in the areas of health, in many other areas, and broadly in enabling materials research that has contributed to a large number of industries.

So nothing that I will say should be seen as taking away from that very fundamental contribution that the NRU has made.

That said, I would like to reiterate what Mr. Lesinski has just said, which is to say that, today, the science and technology that goes on at Canadian Nuclear Laboratories within the statement of work of the GoCo arrangement as funded in part by Atomic Energy of Canada Limited is an extensive program and, in fact, the vast majority of that program does not rely on the availability of the NRU.

That program is part of AECL's ongoing mission.

So back in 2012, the Government of Canada confirmed that there were three elements to AECL's mandate. Two of those elements relate specifically to science and technology, science and technology to provide for what the Government of Canada needs to meet its responsibilities with regard to nuclear as well as to contribute to its broad priorities.

Also, there was a commitment to making

available those nuclear capabilities that industry would need on a commercial basis.

That mandate that was set out back in 2012 is captured in the contractual agreements that serve as the basis of the GoCo arrangement and also provide for the foundation for an ongoing and enduring scientific mission at the nuclear laboratories that would extend even beyond the 10 years of that original contract.

Then, coming back to your specific points about the reactor itself, we do know that the Government of Canada has made a decision to continue the operation of the NRU to March 2018, and beyond that, it's expected to be put in a safe shutdown state.

I'll come back again to one of the things that Mr. Lesinski mentioned which I think is very important, and that is to say that, as CNL goes forward, there is expected to be an investment in renewal in very important scientific facilities and capabilities at that lab that will serve the interests of Canadians broadly, also serve the interests of the nuclear industry here in Canada.

Dr. Binder, you raised the question around the ability of Canada as a nuclear nation and the industry to be able to continue in the absence of

a research reactor, and I think that others have mentioned that there are opportunities to do experimentation in research reactors elsewhere in the world.

But I would also point out, in addition to that, there is a very large now base of data that will serve Canada and the industry well beyond the shutdown of the NRU.

And I would also point out that there does remain some life left in the NRU and that there is opportunity to carry on the materials and other research to be able to augment the data set that already exists.

And maybe now I will turn to Dr. Lafaille from Natural Resources Canada to make any additions.

MR. LAFAILLE: Jean-Frédéric Lafaille, Ressources naturelles Canada.

Dr. Quinn's answer was quite comprehensive and correctly stated the intention of the government in setting this GoCo model and the related contracts that would put the laboratories of -- on grounds or conditions for success in terms of conducting scientific technology work in the coming years and a strong commitment to use the services of the laboratories to perform work that would serve the

policy needs of the government in Canada, on the one hand, and on the second hand, it was mentioned by Dr. Quinn and Mark Lesinski as well a commitment and a condition that there needs to be a revitalization of the lab, so commitment that would be investment in that respect over the coming years.

So that's a strong commitment to the future of the laboratories.

There will be discussion among the sector, the nuclear sector in Canada, about what it means to revitalize the labs and investment in additional S&T capabilities, and we'll go into that -- these discussions with interest.

THE PRESIDENT: Okay. Thank you.

Thank you very much for this clarification.

Anybody else has a question on this subject?

Okay.

CMD 16-H2.17
Written submission from
Concerned Citizens of Renfrew County

MR. LEBLANC: The next submission is from the Concerned Citizens of Renfrew County, as

outlined in CMD 16-H2.17.

Any questions from the Members on this submission?

THE PRESIDENT: I'm sure there are going to be lots on this one.

Who wants to start?

Dr. McEwan.

MEMBER McEWAN: So this submission has provided a nice summary of recommendations which I think makes the document a little easier to read.

It would be very helpful, I think, for educational purposes and to understand the significance of recommendation 28 and the background that the intervenors put into the text.

Can you please explain for us the difference between tritium and organically bound tritium and why organically bound tritium is considered to be a more significant risk factor, and has the intervenor got it right in terms of assessing what that potential might be?

MR. RINKER: Mike Rinker, for the record.

I'll ask Andrew McAllister, the Director of our Environmental Risk Assessment Division, to begin the answer.

ANDREW McALLISTER: Andrew McAllister,

Director of the Environmental Risk Assessment Division.

With respect to the organically bound tritium and the comments that the intervenor raises, that is all taken account for in the way we regulate these facilities.

The OBT is dealt with. We have the CSA Standard 288.1 which looks at, sorry, modeling dose to the public.

That -- the aspect of the organically bound tritium in that is incorporated into that, and that was really based on a body of work that was done in the 1990s internationally, including studies at the Chalk River site, which allowed for that to be -- to be integrated into that.

Further, this is an area that we continue to be active on a number of fronts from a research perspective. We have targeted research in place that we've been doing some work at the SRBT facility in Pembroke, for example, and are publishing those results in the scientific literature.

We are involved in international initiatives such as those of the IAEA and as well as working with other international partners such as the ERSN, CNL and others.

All to say is that the areas around

OBT is an area that we're still gathering the lines of evidence. The -- our regulatory oversight and how we treat it with respect to doses, we're satisfied with that and any sort of future updates to dealing with OBT from a regulatory oversight.

As I mentioned, we currently use the CSA standard.

They have those processes in place in the CSA standards to update that, in other words, to -- when the science has been refreshed to see if any changes are needed to that.

Perhaps I'll pass it back to Mr. Rinker to wrap things up.

MEMBER McEWAN: So can I just -- at the end of that, I still have no idea what the difference between tritium and OBT is, why it's significant and recommendation 28, "The Commission should incorporate new findings about the persistence of OBT in its regulation of tritium releases."

You reference literature from the 1990s. Is there new literature?

Please help me understand the importance of this recommendation and whether it's a recommendation that the Commission needs to look at, you know, in detail at the moment.

MR. RINKER: Mike Rinker, for the

record.

So to start off with, the main difference between organically bound tritium and tritiated water, for example, is -- relates to the residence time where the two would reside within the human body.

So tritiated water passes through the body quite quickly, whereas organically bound tritium could reside within a person's body for up to 40 plus days.

And so there's differences in dose consequences between the two, and so it's very important to understand, you know, what is the exposure to OBT as well as HTO and total tritium.

The literature -- the more recent literature has been incorporated into a fairly recent CSA standard, I think published in 2014, that includes in its model the pathways for organically bound tritium and tritiated water, and it -- the dose consequences to that.

But science doesn't stop. There has been new publications. In fact, the CNSC has two publications on this topic that were published in 2015.

And there's a number of working groups that are continuing to look at new science. However,

there's no consensus yet on any new findings that should -- that would warrant any changes to how we calculate dose.

In fact, I think any changes to how we look at residence time and OBT behaviour in the human body is a very marginal dose consequence simply because the way these facilities are regulated, the exposure to OBT to members of the public and the workers is extremely low.

Nevertheless, we are pursuing and working with these groups for science, and the CSA standards are updated every five years.

If there's something over the next few years that would warrant a revision to the models, we would ensure that the licensees do follow that.

MEMBER TOLGYESI: On page 2, the intervener's talking about deep geological repository versus near surface disposal facility. Is it something what CELA is considering? And what's the impact? What's the advantage or disadvantage of this?

MR. PILKINGTON: Bill Pilkington, for the record.

We'll get to that in just a moment. Perhaps, Mr. Tolgyesi, you could just repeat the question?

MEMBER TOLGYESI: There is something

about handling a near surface facility instead of deep geological repository. It's on page 2, bottom part.

So what I'm asking, what's the difference and what's the advantage of the near surface disposal compared to deep geological repository?

MR. KEHLER: Kurt Kehler, for the record.

The advantage with the near surface disposal, which we're proposing for Chalk River, is to just be focused on the low-level waste category. As where most of the deep geologic repositories, I'm sure you're aware, go into intermediate-level waste storage and obviously the potential for spent fuel storage through NWMO.

And so at Chalk River the advantage is we have a lot of experience, the companies coming in and performing low-level waste disposal through near surface disposal facilities. In several countries, both the U.S. and the UK, and we believe it is a simpler, more economical solution to disposal of near surface low-level waste.

And it has some advantages, in that it is from a deep geologic standpoint that it's easier to monitor since it is close to the surface. And if your monitoring ever shows any issues with the disposal

cell which we, for instance, haven't had any issues with any that we've built so far, you have easier access to get at the waste to take care of the issues that may be happening.

MEMBER TOLGYESI: It applies just to low-level uranium?

MR. KEHLER: Yes. We are just looking at low-level waste, not intermediate-level waste in the near surface disposal facility.

MEMBER TOLGYESI: Staff, do you have any comments to add to that?

DR. NEWLAND: Dave Newland, for the record.

So I would just add that that is a kind of a facility that has been constructed at the Port Hope Area Initiative.

It is for low-level waste, it's not for intermediate or high-level waste. And a deep geological repository is not required.

THE PRESIDENT: And there will be a separate application provided to us to get approval for it. So we will deal with this at that time.

DR. NEWLAND: Dave Newland, for the record.

That is in fact the case. Yes, exactly.

THE PRESIDENT: Ms Velshi?

MEMBER VELSHI: I'd just like to get confirmation from staff. If I look at the recommendations, 32 in all, many of these are what the Commission should expect when CNL is in front of us possibly next year for licence renewal, correct? Or maybe you just want to comment on -- take the first seven, for instance, we need to get details around decommissioning plan, liabilities, financial guarantees and so on.

That next year we would go through that in a whole lot more detail, correct?

DR. NEWLAND: Dave Newland, for the record.

Yes, exactly.

MEMBER VELSHI: Thank you.

So a specific question here is on recommendation 19 around reducing air emissions. And the intervener talks about Argon-41 emissions, airborne emissions, being particularly high in 2015. It wasn't in the CMD that we got.

Can you comment on that? And actually maybe we can get CNL to comment on were the emissions really indeed high and, if so, why and what's being done about it please?

DR. NEWLAND: Dave Newland, for the

record.

I'll ask Mr. Rinker to respond please.

MR. RINKER: Mike Rinker, for the record.

So, yes, the emissions were higher in that calendar year, but they were directly related to the activities that were happening on site. There was -- NRU was active, the Moly Production Facility was very active, and the wastes that are generated in relation to that increases as well.

So there wasn't -- they're not related to upset conditions or abnormal operations. They're in fact increased because that was a very busy calendar year at that site.

MEMBER VELSHI: So on that note, because we didn't get results for 2015, would we have seen that for other radionuclides as well?

MR. RINKER: Mike Rinker, for the record.

I think in general, yes, we would see it for a argon, for iodine, not so much particularly for something that's associated with the legacy plumes and so on. Those would be fairly static. So what you would see in the river from those plumes would not change. But those that are directly related to the operations there's some increase.

However, we do have results from our IEMP program for 2015, the results in the environment are unchanged compared to previous years. So these are a very close look at the facility, very close to the facilities themselves where the releases occur.

There are some increases, not in a large number of action-level exceedances, for example, but just higher numbers, and they're not reported or measurable in the environment itself.

MEMBER VELSHI: Thank you.

THE PRESIDENT: And they're all -- I assume you're also saying they're all within regulatory limits?

MR. RINKER: Mike Rinker --

THE PRESIDENT: I didn't hear you say that.

MR. RINKER: -- for the record.

So there were two action-level exceedances during that year, but they're not what resulted in the higher emissions in general. The higher emissions in general are all within action levels, are all within regulatory operating limits.

THE PRESIDENT: Thank you. Question?

Mr. Tolgyesi.

MEMBER TOLGYESI: Just one. On page 8 there is mention of down-blending of high-enriched

uranium, which was approved in Indonesia. And here's the question, procedures could not be -- why could not be carried out at Chalk River?

Could you comment on that?

DR. NEWLAND: Dave Newland, for the record.

So the preferred option currently by CNL is that it be repatriated to the United States. That's a much better option to get rid of it from Canada.

THE PRESIDENT: Obviously the intervener doesn't agree. So the question, first of all, is it doable? And why is it a better option if you can cement and store it on site?

Somebody's got to give a clear answer. Maybe CNL, have you done the engineering investigation? Is it economic or is it -- we're looking from a safety... Maybe both are safe, but we want to know what is the difference between the two options?

MR. KEHLER: Kurt Kehler, for the record.

I'll try to address it to the best of my abilities at this point. I will reiterate from the start that, you know, repatriation is a high-level agreement, you know, between the two Governments of

United States and Canada to proceed with that repatriation as part of the, you know, non-proliferation issues. And just as recently was just discussed, you know, in a conference for potentially some more materials.

Obviously, you can down-blend, solidify, vitrify, you know, any number of ways to try to take care of high-level waste. And I'm sure option studies were done, I can't sit here off the top of my head and recite those or class their volumes.

But all those options, you know, for this type of material would either lead to a high-level waste storage issue or an intermediate-level waste storage issue. And so the cost would have to take not only what the cost for doing the process typically are quite expensive. You have to take the ultimate waste disposal cost in with those processes as well.

But I'd have to get more information in detail on those options to come back.

MR. JAMMAL: Ramzi Jammal, for the record.

Just to compliment the response. These studies were done for those of us who have been in the business for a while. And I will mention the name of Dr. Joan Miller. At the time there was an

assessment being done with respect to the best way of vitrifying or new technology.

And at the time the assessment determined two things; that the time period it will take to optimize and refine the process was going to take in the neighbourhood of anywhere from seven to 10 years in order to put in place such a process.

As it was mentioned, the repatriation element by then, it will be repackaged and repatriated to the United States for reprocessing. Hence, there are two elements; is the safety element and the timeliness of removal of the substance from a Canadian soil or Canadian site to be reprocessed somewhere else in a safe manner.

The key point here is safety, number one, that will not be compromised. Second, is the time it will take to develop the technology. It is not every effective with respect to long-term element for Canadian interest and for the purpose of safety.

THE PRESIDENT: Anybody? Okay, there's lots of questions here still unanswered.

Page 3, the intervener talks about the fact that nobody knows where the original NRX reactor vessel is buried.

Somebody help me on this. Is that true?

MR. PILKINGTON: Bill Pilkington, for the record.

And I don't have personal knowledge myself, but I'm absolutely certain that the location of the original vessel is known and it is on site.

THE PRESIDENT: I guess he's arguing that it's not documented anywhere to be found. So presumably, somewhere in their characterization of the waste somebody will identify the particular place.

MR. PILKINGTON: Bill Pilkington, for the record.

And what it takes is somebody that's a long-time part of the organization. And I understand that our Director of Environmental Protection and Radiation Protection, George Dolinar, fits those requirements. So I'd ask him to come forward.

--- Laughter / Rires

MR. DOLINAR: Thank you. George Dolinar, for the record.

The NRX calandria is buried in Waste Management Area A. And for those people that may be familiar with Waste Management Area A, there's a fairly prominent rise of land in the middle of that facility, and that soil was put on top of the calandria in 1953 to provide shielding.

So the calandria remains there from

the time that it was removed from NRX in 1953.

THE PRESIDENT: Thank you. I'd like to go through a couple of more here just to clear the record, whether the intervener is making a useful recommendation or not. Here recommendation 9, the Commission should verify that reliable back-up power is available for the U2 test loop. Somebody explain to me what this is. What is the recommendation trying to say?

MR. PILKINGTON: Excuse me, Dr. Binder. Bill Pilkington, for the record.

Which recommendation was that?

THE PRESIDENT: Recommendation 9, page 5.

MR. PILKINGTON: Okay. So the U2 test loop is an experimental loop that runs two passes through the NRU reactor core. And so it has two sections very similar to a CANDU fuel channel. And the loop is able to operate at high temperature, high pressure, therefore CANDU operating conditions and can be loaded with CANDU fuels or experimental fuels similar in design to CANDU fuel.

And so the question here is around backup power supply in the event of loss of site power. And there currently is backup power available for the U2 for loss of site power.

So I'm not entirely sure what the intervener's question is pointing to.

THE PRESIDENT: So there is no kind of a safety concern here about lack of power coming into a particular facility here?

Staff, you're nodding your head?

DR. NEWLAND: Dave Newland, for the record.

No, there's no safety concern. There is backup power through diesel generators.

THE PRESIDENT: Okay. On recommendation 20 I thought you, as a matter of routine, you used to publish annual reports on environmental data and methodology associated with it. I thought that's still being done. Is that not still being done?

So I don't understand, is the method or frequency not mentioned in that particular report? Is that what the intervener's pointing to?

MR. PILKINGTON: Bill Pilkington, for the record.

And this would be another question that George Dolinar could answer.

MR. DOLINAR: George Dolinar, for the record.

So we do -- we provide information

about our emissions in several different ways. One is through an annual report, which is quite comprehensive to the CNSC, that's done on an annual basis. Emissions are reported by the end of April and environmental monitoring by the end of June. In addition, we post on our website an environmental performance report. We have a licence condition that requires us to post that quarterly. We actually update that monthly and that's available on the website.

It does report NRU stack emissions of Argon-41, for example, and a number of other emissions from the Chalk River site. That particular environmental performance report is informed by our Environmental Stewardship Council as to the type of information that they would like to see posted regularly.

THE PRESIDENT: So in recommendations 23, 24, 25 it's almost on the same kind of report, environmental data that should be published in SI units. I assume everybody's doing SI units nowadays. And derived release limits, are they not posted?

So again, I'm trying to understand what is the intervener's concern?

MR. DOLINAR: George Dolinar, for the record.

So we do post information or data, as I just mentioned. I think these requests are for more specific documents. So, for example, recommendation 24 is a request for the licensee to post a copy of the derived release limits document, the actual document that describes how those release limits are determined.

I should mention that many of our reports are available upon request. We don't routinely post them on our website, however. This particular -- the derived release document, we determine our DRLs based on a CSA standard. The CSA standard, which is available, describes a methodology. We provide the DRL calculation document to CNSC Staff.

THE PRESIDENT: Staff, do you want to comment on this?

DR. NEWLAND: Dave Newland, for the record.

So I guess if the intervener would like a copy, we could send them a copy.

THE PRESIDENT: CNL can send them a copy.

Kiza, do you want to add something on this?

MS SAUVÉ: Kiza Sauvé, for the record.

I would add that CNSC staff does

review the DRL document and approves the document for use.

THE PRESIDENT: Okay. My very last question is on recommendation 32, and this is for Staff.

I don't like -- I thought that the CNSC library is an open library. And it's troubling if people cannot get in and get the material they want.

So if somebody can comment on this please?

DR. NEWLAND: Dave Newland, for the record.

I'll ask Mr. Saul to respond to that.

THE PRESIDENT: He's not here?

DR. NEWLAND: Dave Newland, for the record.

Perhaps Ms Rupert, if she's available?

I would just like to add that a lot of our information is public, it's posted online and we're very proactive, ensuring that we disseminate scientific and objective information on a regular basis through our website.

THE PRESIDENT: But this intervener implies or at least describes not a very user-friendly treatment by CNSC Staff. So somewhere along the line

I want to make sure that we are very clear about policy of access to our documents.

I see somebody volunteer an answer?

MS RUPERT: Yes, Aimee Rupert, Senior communications Advisor, for the record.

I'm not aware of the specifics of this visit, but we do know that on our website there was information about the library. And through this intervention we have addressed the issue about a request needs to be made to the library in advance of coming to the CNSC Headquarters to access the records that we have at our library.

So that information has now been updated on our website hopefully within the next 24 hours.

So a person does have to make a request to visit the library, they just can't walk in. So the contact information is now on the website on how to do that.

THE PRESIDENT: Okay, thank you.

Anybody else? Okay, I guess this concludes the list of written submissions.

So now we are going to start the round of questions. And I'm going to start with Mr. Tolgyesi.

MEMBER TOLGYESI: To begin, I have a

very short... Mr. Lesinski, when you were doing your presentation at the beginning you were mentioning that potential future changes in ownership.

What do you mean by that?

MR. LESINSKI: Mark Lesinski, for the record.

As has been stated before, our current contract is six years. And our desire or hope is that we'll have the extensions, it's actually 2 plus 2.

But anytime during that time the Government of Canada can decide that the performance is not to their liking or for whatever reason and they can rebid or takeover the shares of the site and stop our agreement.

MEMBER TOLGYESI: And as the operator, right now operator is CNL and AECL is an owner of all nuclear sites.

So as operator, CNL, you will consider applying for one licence for all sites or you will continue like this, each site has its own licence?

MR. LESINSKI: Now, currently as the operator for ach of those sites, we are considering just maintaining the individual licences that we have.

THE PRESIDENT: Staff, on your slide 9, just relating to this question, there is the holding of CNL.

So the question is: Will it be more efficient to have one -- it's one licensee who holds the licence for all of them. So is it more efficient to consolidate or to keep it separate by site? I know there is no easy answer for this and it varies across different facilities, but we are talking about the same organization who is managing all those sites. What is your view on that?

DR. NEWLAND: Dave Newland for the record.

I think where it makes sense we would consolidate licences into one licence. And so, for example, we did consolidate NPD, Douglas Point and G-1 into one licence because at that time it made sense.

Whether it would make sense to do so for some of the other sites at this point, I don't believe so. I think, for example, for NPD, with the accelerated decommissioning, that would be a licence that will disappear more quickly than, say, Douglas Point and G-1. The same is true for Whiteshell. And so there may be advantages to keeping them separate.

THE PRESIDENT: Okay. So is it at least doable to have one annual regulatory oversight report on all of them while we have the same kind of team sitting in front of us?

DR. NEWLAND: Dave Newland for the

record.

We tried that last year and, quite frankly, we didn't feel that it worked. And so for this year for certain, we're going to do an update on, for example, Port Hope Area Initiative while we're in the community, along with the other processing facilities. And so we are looking at how we organize our regulatory oversight reports on an annual basis and, quite frankly, there isn't a sort of one solution.

THE PRESIDENT: CNL, do you have any preference with this?

MR. LESINSKI: Mark Lesinski for the record.

I don't believe at this time that we would have a preference. We're going into our strategy sessions this next year and as we look at that, if there is an efficiency or an economy both for the Commission and ourselves, then we would certainly address it.

THE PRESIDENT: Thank you.

Who is next here?

MEMBER McEWAN: So I guess pages 9 and 13, you're talking about Phase 1/Phase 2 activities and the completion and the delaying. It seems to me that in 3.1.2 on page 13 there's been an awful lot of

changing and flexibility in the time points and in the targets that were set.

And so if I just look, Phase 3, which consists of closing outstanding gaps, completing compliance is scheduled for completion June 2016, would we have confidence that that would be completed as so many timelines, there has been shifting of activities from Phase 1 to Phase 2 to Phase 3?

I'm just concerned that I see, with not a lot of detail, great flexibility in whether or not timelines were met, great uncertainty in whether or not timelines are going to be met and a commitment to a 2016 timeline that seems to me pretty hard, which I don't have a lot of confidence can be met.

MR. LEBLANC: Just so everybody -- I see everybody leafing through their documents. We're in CMD 16-H2, which is the document from CNSC staff, and we're at item 3.1.2 at page 13, second paragraph.

DR. NEWLAND: Thank you for the clarification. I'll ask Mr. Ken Jones to speak to our degree of confidence in terms of the timeliness of resolving this. Thank you.

MR. JONES: Ken Jones, Senior Project Officer.

I assume you're referring to the transition to N286-05?

MEMBER McEWAN: Yes.

MR. JONES: Yes. This is Phase 3, which is due for completion this June. Phase 1 and Phase 2 were met on time and we have no concerns that Phase 3 will also be met on time. We've had personal assurances very recently from CNL that they are on track and will meet that date without any problems. They have a good track record of meeting their commitments on this project.

THE PRESIDENT: Ms Velshi.

MEMBER VELSHI: Thank you.

I have a couple of questions around the whole outage schedule.

So the easy one is in the Licence Conditions Handbook. On page 151 there's a minor typo. It should be criterion 6.12 as opposed to 16.22.

But my question is more on why is the CNSC being so prescriptive about the outage schedule. Maybe conditions were different in 2011 and we needed to specify that they needed a longer outage, but is it not sufficient to say "We want adequate inspection, maintenance, whatever, to meet these requirements" as opposed to "And you shall take a long outage or a short outage or whatever"? Should that not be left up to them to determine what's best to meet the

regulatory expectations?

DR. NEWLAND: Dave Newland for the record.

I certainly agree that we do not want to be prescriptive in terms of the outages, but we do want clarity around commitments that have been made by CNL and those are incorporated into the Licence Conditions Handbook, and for that reason we've taken CNL's commitments and imported those into the LCH so that we, each of us, have a common understanding of what is expected.

MEMBER VELSHI: Well, then maybe I'll ask CNL.

Does this reduce your flexibility for instance in doing what's required and yet meeting the CNSC's expectations on the endpoint as opposed to the outage? So perhaps you get a call from NRCan and Health Canada, "We need Moly production next week," and you say, "Well, we've made this commitment to the CNSC and we could have made the outage a week earlier or a week later but we can't." Does this hamper your operation flexibility at all?

MR. PILKINGTON: It's Bill Pilkington for the record.

I believe there is some history around outages on the NRU and whether expected maintenance

requirements are met or modifications are met. I think there was an incident back in about 2007 that raised a lot of issues.

In current times the implementation of outages is considerably different. There is now better cooperation between producers of Moly-99 for instance and so NRU is able to schedule outages and to be able to hold to those schedule dates. So in recent years, the NRU outages have proceeded as planned and I don't believe that a prescriptive requirement around things like the extended month-long outage are necessary at this point in time.

Having said that, it is important that we have an outage schedule for planning purposes for the effectiveness of the organization and that we follow that outage schedule. So in our request for removal of licence condition 16.1, that's exactly what we're driving at, that we need to meet our requirements as well as our commitments and we should determine the schedule that does that most effectively.

MEMBER VELSHI: Right. I understand that. If I were to turn to CMD 16-H2.1B on page 7, where you provide the outage format, the existing one and what you're proposing, my question is: Is making a commitment to this unnecessarily tying your hands so

that instead of the last two weeks of July, you want to have the outage in the second and third week of July but you can't do that because you've made this commitment, does that compromise in any way your flexibility and operability?

MR. PILKINGTON: Bill Pilkington for the record.

I'm going to ask Dave Cox to provide comment as the General Manager for NRU. However, I believe that planning outages in advance and planning the work and then holding to the schedule is the most effective way to get the work properly planned and executed, but I'll leave that question to Dave.

MR. COX: Dave Cox for the record.

Obviously, we've talked about the proposed or requested change to eliminate this clause, so I won't go back over that. I think the question is more around specific language perhaps in the new proposed Licence Conditions Handbook text. Unfortunately, I have not had the opportunity to review that in detail. I think it has just reached us.

With that aside, I think that we need to strive to find an appropriate level of flexibility for which -- that would provide us with an ability to respond, for example, to the emergent Moly production

needs that may arise and other emergent issues, without being constrained to very specific dates for outage starts and finish, in that we're always striving to execute our outages in a manner to optimize maintenance in order to achieve safe, reliable operation for the reactor.

MEMBER VELSHI: Thank you.

Well, maybe I'll pose the question slightly differently to staff.

If CNL wanted to make a change to this proposed outage schedule, they would need to come to you for approval before they could do that; is that correct?

DR. NEWLAND: Maybe I can answer a slightly different question, if I may. Dave Newland for the record.

So, first, I will make an apology that we got the Licence Conditions Handbook to the Commission Members very, very late. That was an oversight on my part and my team. It is a staff document, it's presented for information and we have not yet had the opportunity to discuss this with CNL, and so it is a draft at this point. If there were any concerns about us being overly prescriptive, then we would look at those.

I would just like to make one final

remark about isotope production. That is just to remind everyone that there is that directive from the Government of Canada that we have to take into account the health of Canadians when regulating, we have to balance the health of Canadians with safety requirements. Thank you.

MEMBER VELSHI: So my question still remains unanswered and I would still like you to have another go at that part, which is, on page 7 of CNL's submission where they have provided this new outage format recommendation, if they wanted to change the dates slightly, so instead of the last two weeks of July for their major outage, they wanted to do weeks second and third, do they need to come to CNSC for approval for that deviation?

DR. NEWLAND: Dave Newland for the record.

So we would expect a confirmation from them with respect to that change, yes.

MEMBER VELSHI: Before or after the fact?

DR. NEWLAND: Before.

MEMBER VELSHI: Thank you.

THE PRESIDENT: But again, I want to -- so there's two things.

First of all, on the Licence

Conditions Handbook, if there's something in there that is too prescriptive, too demanding, unclear, obviously, the two sides should have an opportunity to clarify. The last thing I want to see is a lack of clarity about requirements and fulfilment of those requirements.

And the second thing, there's always an amendment capability that is delegated down to some operators sometimes so seeking approval is not onerous on things like that, particularly if it's justified and there is ongoing dialogue. So I don't see this as particularly onerous and I actually like the idea that there's a regular planning frequency, because that's the problem we had, that production had overtaken maintenance and that's where problems can come up. But it doesn't mean that it's rigid and without flexibility. Did I get this right?

DR. NEWLAND: Dave Newland for the record. Yes. Thank you.

THE PRESIDENT: Ms Velshi.

MEMBER VELSHI: And again, related to this outage schedule, and I think it was the last intervenor that had raised the issue that the proposed schedule is moving to a greater number of outages -- I think it was from 14 to 17 -- and does that pose an increased risk to the reactor, increased shutdown and

startup, and did that factor in in your decision-making as you were looking at the two schedules?

MR. PILKINGTON: Bill Pilkington for the record. Again, I would defer to Dave Cox to answer that question.

MR. COX: Dave Cox for the record.

We did consider the number of reactor shutdowns and startups in the development of our proposal for changes to the outage format. That was a minor consideration. It was taken into account and does not affect our proposed change. In fact, there were so many benefits that outweigh that aspect, it really -- we would be increasing the maintenance and the optimization of that substantially through this change.

MEMBER VELSHI: Thank you.

LE PRÉSIDENT : Monsieur Tolgyesi.

MEMBER TOLGYESI: In the Licence Conditions Handbook, page 45, regarding minimum staffing requirement, you specify that:

> "The licensee shall have a sufficient number of qualified staff for operation in an emergency situation."
>
> (As read)

This number is not quantified.

When I'm looking at CMD 2.1A by NCL on page 13, third row, there is special attention being paid to ensure that an acceptable level of certified staff are retained.

Is "acceptable" and "sufficient" the same thing?

DR. NEWLAND: Dave Newland for the record.

So perhaps part of the distinction here is -- well, the confusion is the distinction between "qualified staff" as referred to in the minimum staffing requirements and "certified staff" and I'll let Mr. Carrier draw the distinction between those two.

MR. CARRIER: Christian Carrier for the record.

So again, the certified staff are the positions identified in the licence that are required to be certified by the CNSC. So SRSCs and the Senior Health Physicists at NRU are identified positions and you need to have a minimum number of those people to ensure basically holidays and coverage. So there's a minimum number associated with that.

There's also a minimum number of people that are qualified to operate on site and are

qualified by CNL, and a minimum staff number needs to be sufficient not only for the facility but for the whole site to cover emergency situations.

So specifically to the reactor, the minimum staffing during a shift is included in the operating limits and conditions that are contained in a document that is called the Facility Authorization. So these people have to be available on a continual basis during -- at all time, if you wish.

I hope I answered your question on this one.

MEMBER TOLGYESI: So you're saying that you could be qualified, not necessarily certified --

MR. CARRIER: That is correct.

MEMBER TOLGYESI: -- and by being qualified, even though you are not certified, you could operate?

MR. CARRIER: The licensee is required to have training programs for all people on site that are site-based and those positions are all identified. They have to identify their own minimum staffing to cover for emergency situations in normal operating conditions, and the licensee is qualifying its own people through this internal qualification process.

THE PRESIDENT: Thank you.

Dr. McEwan.

MEMBER McEWAN: Thank you, Mr. President.

CMD 16-H2, pages 14 and 15, please. On page 15, paragraph 3.3.2, Discussion, second paragraph, this is talking about authorization and conduct of operations documents. So, simplistically, would I be right in thinking that those are effectively the facilities' SOPs, the cascade of SOPs under which the facility is operated -- simplistically?

DR. NEWLAND: Dave Newland for the record. Mr. Carrier, please.

MR. CARRIER: Christian Carrier for the record.

Yes, the operating procedures, the operating manuals are the standard operating procedures equivalent basically --

MEMBER McEWAN: Okay.

MR. CARRIER: -- and that is primarily in the control room.

MEMBER McEWAN: So if I read this paragraph correctly -- CNL 27 months late in delivering their SOPs -- to me, that is a cause for concern. You indicate clearly that there are no safety issues, but to be not operating under SOPs to

which you had committed 27 months ago, I mean I'm taking this to the future, June 17, when the completion is, seems to me to be unreasonable in terms of delivering on a commitment and so I'm surprised that this has just been passed off with a relatively benign comment.

DR. NEWLAND: Dave Newland for the record.

I would stress that these are ongoing updates to existing procedures to improve them.

I'll ask Mr. Fassi Fehri to provide a level of detail in terms of what kind of changes/improvements are being incorporated. Thank you.

MR. FASSI FEHRI: Majid Fassi Fehri for the record.

Actually, they currently have an operating manual that exists. So it's especially an update to have a format more aligned with the current practice in the industry. So they have approximately 78, I think, procedures that needs to be updated -- manuals that needs to be updated.

So there is no safety concern here. They already have manuals in place, it's just a matter of updating them.

THE PRESIDENT: But you see this -- to

us reading this, that can drive us nuts to be real scientific term here.

This is more -- there's a three-year delay that you're going to -- in fact, I don't know why you even work on it. The NRU is going to shut down in 2018, what's the purpose of this activity?

You know, three years ago it may have made sense; to try to drive this work into now to June, 2017 for something that you're going to decommission; why?

So something doesn't compute here and we should not have allowed that to happen and you guys should not have done it that way.

That's what's really -- you lose credibility when we hear things like that, and I'm not talking about the safety issue because updating your manuals should be routine. What am I missing here?

CNL...?

MR. PILKINGTON: So it's Bill Pilkington for the record.

And I've had a similar discussion with my staff and the answer that was given back to me is that there is sufficient benefit in the improvements to the manuals that we should continue the program, even though we're approaching end of life for the NRU.

MEMBER McEWAN: So let me juxtapose

that paragraph with the bottom paragraph, 3.2.2 on page 14.

So again, this is radiation protection training. Even in my short time on the Commission, we've had a number of issues around radiation protection.

And so the inspection was in 2013 and so it's taken three years for a new SAT-based training program to be completed if, indeed, the target of 2016, April is going to be met.

So this is something that is going to go beyond the life of NRU. So do we have confidence that the 3.3.2 discussion that we've just had is actually going to be not the case in the case of this training program and that there will be completion acceptable to the Commission by this month?

--- Pause

MEMBER McEWAN: So I don't know, maybe CNL would like to start with an answer to that.

MR. PILKINGTON: So Bill Pilkington for the record.

And I would ask Kevin Daniels, the Vice-President of Health, Safety, Security, Environment and Quality to respond.

MR. DANIELS: Kevin Daniels for the record.

So the systematic approach to training has a lot of requirements in it on how you actually define what training is needed and all the documentation required in there.

So it wasn't a case that we didn't have good radiation protection training, but we weren't in alignment with really the program and process that you should have for the systematic approach to training.

So the timeframe there is really to go through and look at all those things, produce all the documentation required by a systematic approach for training, get them reviewed to really validate that you are training your people in the appropriate way on the right topics.

So the time taken is to go through and really put all those things in place, and we don't have any trepidation that we're not going to be able to meet that date.

And if you'd like more details, I can actually pass it to George Dolinar to discuss that more.

MEMBER McEWAN: It would be helpful, because you've got 24 days.

MR. PILKINGTON: George Dolinar...?

MR. DOLINAR: George Dolinar for the

record.

So as noted, there was an inspection of the RP Training Program going back several years. The CNSC Staff prepared an audit report and communicated several deficiencies. We responded -- I was describing the process to sort of get it to the timeframe involved here.

We described corrective actions that would be applied and suggested means of documenting closure criteria for those corrective actions. That took a little time to iron out some details, there were some misunderstandings on those corrective actions.

When we finally settled into a plan of attack on the number of actions that needed to be completed, they extended out over a two plus year period from the time that that agreement was reached.

We are on track for completion in 24 days or less. There's a few actions left outstanding at this point and we are closing those out as we speak.

As recently as April 1st, 2016, the CNSC wrote to us at CNL accepting closure of a series of actions. So the CNSC Staff have kept a close eye on where we are on this plan of corrective actions and we are firm in our commitment to complete this by the

end of April.

THE PRESIDENT: Ms Velshi...? M. Tolgyesi...?

MEMBER TOLGYESI: On page 5 of H2, the Staff document, the last paragraph is that:

> "At time of writing the CMD, CNSC Staff are assessing whether to implement the standardized format as an administrative change during this renewal." (As read)

Was the decision taken what you will do, since this was written February 10th?

DR. NEWLAND: Dave Newland for the record.

So what you will notice about this licence and this Licence Condition Handbook, it does not meet the modern licences that we have for other facilities, and so what we did at the time of writing was to see whether it was possible to move to the modern licence NLCH.

And what we concluded was: (a) staff really didn't have the time to do that work; and (b) we felt it more appropriate that we leave for that 17 months the licensee with the existing licence and the existing LCH, so there was absolutely clarity and that we would bring forward a modern licence with modern

licence conditions, an LCH for the next licensing period.

THE PRESIDENT: Dr. McEwan...?

MEMBER McEWAN: So for the Staff slide presentation, I can't read the number, it's on Operating Performance.

THE PRESIDENT: Yeah, we had some problem with that document.

MEMBER McEWAN: So it's about, I don't know, two thirds of the way through. Operating Performance, it is just before Fitness for Service.

DR. NEWLAND: Slide 22, I believe.

MEMBER McEWAN: Thank you. Thanks.

So reportable events. The reportable events, we've got the preliminary data for 2015 and that is three months? I can't remember if you said three months or four -- nine -- nine months. So that will give an annual total of about 75, 80 something like that. So it's probably for about nine months, okay.

So what would you consider to be an acceptable performance in this area in terms of reportable events? I mean, is 223 average and they brought it down to something that is very good; or is 223 outrageous and the 75, 80 that may be from -- if you look at the numbers for 2015, is acceptable?

Because I think there's no commentary on that trend and I think it's very difficult to understand whether we're moving into acceptable territory or very acceptable territory.

DR. NEWLAND: Dave Newland for the record.

So maybe I can just clarify around this table, why the numbers have come down from 223 in 2011 to 111 in 2014 and I would note that that preliminary number, 56, actually goes up to a total of 93 for 2015. We had excluded some events from that for the site wide.

So in 2011 there was no LCH and so AECL at that time reported on a number of events that were of low-risk significance.

In 2011 we brought in the Licence Condition Handbook and that clarified the reporting requirements, and so a lot of what was being reported in 2011 and prior to that were no longer reported because they were of no significance to us.

So from 2012 through to 2014 there has been a decline, a general trend downwards and down again to 2015.

With respect to, are those numbers good, I think there is always room for improvement.

I would add that this is a facility

with -- a site with aged facilities, it's a complex site and events do happen.

Maybe I'll ask CNL to have some kind of commentary on whether they think a hundred or thereabouts is acceptable or not.

MR. PILKINGTON: It's Bill Pilkington for the record.

And in the time to assess the significance of events that have occurred in recent years, I think the best spokesperson for that would be Shaun Cotnam, our Senior Director and Chief Regulatory Officer.

MR. COTNAM: Thank you, Bill. Shaun Cotnam for the record.

I agree with what Dr. Newland has said. I think that's a very important part of the discussion here, is that the five years that we are completing this year is our first experience with the LCH at Chalk River.

Mr. Jammal had reported earlier about the *S.99 Standard*, very broad requirements in reporting. When it was translated into our LCH, and I think you folks have looked at it, the Commissioners have looked at it, you'll see there's 65 categories. So when you look at the number of events here, the comparator, I would say, is us. We have a complex,

multi-facility, multi-mission site with many Class 1 and four Class 2 facilities, and so you would expect that when we're accomplishing things there are minor issues.

And I would also say that most of this 111 would not be what you Commissioners, with respect, would deem as non-compliances. Everything here includes things like action levels which are well below regulatory levels. If you looked at our LTI stats, you would see a positive trend there.

Back in 2012, '13 and '14 every time we had a lost time injury our OSH folks, our program authority, would notify ESDC as the *Canada Labour Code* regulator and that would be a reportable event to CNSC, so they would get a copy of the same, what's called Hazardous Occurrence Injury Report.

So you can see that there would be 20 some reports submitted just in the category of what we would call HSSE&Q. In 2015 I think my boss, sitting beside me, Mr. Daniels, would say there was three and we've now agreed with Staff, we do that on a quarterly basis because our safety posture has improved and, therefore, we're not having many of these per quarter.

So right there I've given you an example of 20 less reportable events just in the last two years alone.

So this covers many different items that are in the 65 categories that you can look in our Table H-1 of the LCH.

THE PRESIDENT: I think I actually agree. I think it would be very dangerous to use the reportable as a proxy for health or safety because you do not want to stifle the ability to report anything by staff, you want to encourage it, in fact. So I would be very careful -- I advise you to be very careful about using that as a proxy for the health and the safety of the whole shop.

In fact, one can argue, the more reportable you have, the healthier it is because you get staff to adopt to a culture kind of a view. So we've got to be careful with this.

Ms Velshi...? M. Tolgyesi...?

MEMBER TOLGYESI: Do you have any experience in turnover in labour force? I see changes in the corporate structure, so is there a movement of labour? How many they leave, you hire; do you hire contractors?

MR. PILKINGTON: It's Bill Pilkington for the record.

And so we have a fairly broad spectrum contributing to the workforce. We have scientists and engineers, we have technicians, we have trades. In

some cases -- mainly for trades, in some cases we would bring in contractors to cover off peak loads, but the majority would be -- the majority are employees of CNL.

I'm not sure if that answers your question.

MEMBER TOLGYESI: No, I understand that. What I'm saying is that is there a turnover, which means, since you've changed the corporate structure, is there people who left because of these changes or some trade employees, they change?

MR. PILKINGTON: Bill Pilkington for the record.

So in the year following the government's announcement actually of the life of NRU and the permanent closure at the end of March, 2018, there has been a higher level of attrition on-site than was seen in the past. I would say not at an alarming level, but a measureable increase.

MEMBER TOLGYESI: And your stats, reportable lost time injuries, you're saying that you have contractors. Are these contractors included in these lost time injuries performances?

MR. PILKINGTON: I'll pass that question to Kevin Daniels.

MR. DANIELS: Kevin Daniels for the

record.

No, contractors are not included. We've actually had on-site, although he said two -- he said three, there's actually been two lost time injuries for site employees and there have been three lost time injuries for contractors.

So we do track those injuries, but they are not, I believe, reported in those statistics. If we do have a serious injury, we do actually report to CNSC whether it's a contractor or an employee.

MEMBER TOLGYESI: Staff, you are not including contractors. When you're looking uranium mines, all contractors are included. Why it's different?

DR. NEWLAND: Dave Newland for the record.

So I think this came up at a previous public meeting where there was an expectation from the Commission that when reporting LTI as part of the Regulatory Oversight Reports that we would include both permanent employees and contractor data. So we would be doing that as part of our Regulatory Oversight Report.

MEMBER McEWAN: So just one final comment, which is really a request. So, again, the Staff CMD, page 19, the paragraph on the system health

program. I guess this is a request.

Implementation of this program, even partial, is an improvement, it's not a ringing endorsement. So I think it would be helpful for us if we could get an update on the implementation of the system health program because, as of the time of writing this, you conclude, it's not fully implemented and it did not in all instances identify key issues.

So I think this is just a request.

THE PRESIDENT: I think Mr. Jammal commented, this is part of the Fitness for Service and he committed to give a monthly update.

MEMBER McEWAN: So I think that would be helpful, yeah.

THE PRESIDENT: Ms Velshi...?

MEMBER TOLGYESI: I've got three quickies. Page 17 of Staff work, it says here:

> "CNL is committed to completing the revision of the NRU Safety Analysis Report by March 30th, 2016." (As read)

Done?

MR. PILKINGTON: So Bill Pilkington for the record.

I believe the date that CNL used was March 31st of 2016 and it is done.

MEMBER TOLGYESI: So clearly you've done that. Just quoting what I read.

--- Laughter / Rires

MEMBER TOLGYESI: So it's done?

DR. NEWLAND: To confirm, we have received it.

THE PRESIDENT: Okay. Is something like this going to get posted? Yes?

MR. PILKINGTON: By posted, do you mean --

THE PRESIDENT: On your website?

MR. PILKINGTON: No, it is not.

THE PRESIDENT: Any particular reason why not?

MR. PILKINGTON: Bill Pilkington for the record.

And I guess it would be the technical nature of the document.

THE PRESIDENT: Staff, what are you going to do with the report when it comes to you? Is that one of the reports that we expect to be posted, not expect to be posted? Staff, can you --

DR. NEWLAND: Dave Newland for the record.

No, we would not expect such a report to be posted. They're very technical, they're for

specialists, they're only understandable by specialists.

THE PRESIDENT: So there's no executive summary that -- I think it's Executive Analysis Report. Sounds like somebody would like to hear at least a high level assessment, everything is good, everything is safe, we've updated and we still think that everything is good and safe.

DR. NEWLAND: So the Safety Analysis Reports are very technical reports. I think that -- I think I would guess that a member of the public can get sufficient information from both the Regulatory Oversight Reports that Staff use and the other information that is available on CNL's website.

THE PRESIDENT: Look, you may want to think I'm the advice man, but you spend the time and effort to actually come up with a report, I don't know why you wouldn't try to share it. I leave it with you.

On the Licence Condition Handbook -- so I'm coming back to Fitness for Service, and I thought somebody mentioned, I can't remember it's CNL or Staff, that there will be an increased scrutiny of performance to make sure that you are moving toward a satisfactory rating, but in the LCH I don't see any increased scrutiny.

Since this is a draft, you may want to consider putting something in there about that particular commitment.

DR. NEWLAND: Noted. Thank you.

THE PRESIDENT: And the last thing is, in Appendix C you have a long, long, long list of definitions and acronyms and I can't resist, I think tomorrow we're going to go through a glossary, a brand new glossary -- proposed glossary of terms.

I just want to know if you did the cross-check?

DR. NEWLAND: Dave Newland for the record.

We will do that cross-check for the next version.

THE PRESIDENT: Well, you mean for ---

--- Laughter / Rires

THE PRESIDENT: If the glossary goes ahead and being published in a month, before you finalize this you may want to make sure that they don't conflict with each other.

DR. NEWLAND: Agreed. Yes, thank you.

THE PRESIDENT: Okay. Any final comment by CNL?

MR. LESINSKI: Mark Lesinski for the record.

This has been fun. We look forward to 2017.

--- Laughter / Rires

THE PRESIDENT: Take a break.

MR. LEBLANC: Yes, we will resume at 20 to 4:00.

THE PRESIDENT: Twenty to four. Thank you all for your patience. Actually, you're still with us.

MR. LEBLANC: As we're being reminded, this closes this meeting and when we come back I thought it was understood that this would be for the Commission meeting. We were not clear.

So this hearing is closed and we will proceed with the meeting at 20 to 4:00.

Thank you.

THE PRESIDENT: Thank you.

--- Whereupon the hearing concluded at 3:25 p.m. /
L'audience s'est terminée à 15 h 25