

**Canadian Nuclear
Safety Commission**

**Commission canadienne de
sûreté nucléaire**

Public meeting

Réunion publique

December 12th, 2018

Le 12 décembre 2018

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

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

Commission Members present

Commissaires présents

**Ms Rumina Velshi
Dr. Sandor Demeter
Mr. Timothy Berube
Ms Kathy Penney
Dr. Marcel Lacroix**

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D^r Sandor Demeter
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Secretary:

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Mr. Marc Leblanc

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Ottawa, Ontario / Ottawa (Ontario)

--- Upon commencing on Wednesday, December 12, 2018
at 1:01 p.m. / La réunion débute le mercredi
12 décembre 2018 à 13 h 01

Opening Remarks

THE PRESIDENT: Good afternoon and welcome to the meeting of the Canadian Nuclear Safety Commission.

Mon nom est Rumina Velshi. Je suis la présidente de la Commission canadienne de sûreté nucléaire.

I would like to begin by recognizing that we are holding this Commission meeting in the Algonquin Traditional Territory.

Je vous souhaite la bienvenue and welcome to all those joining us via webcast.

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

On my right is Dr. Sandor Demeter; to my left are Dr. Marcel Lacroix, Ms Kathy Penney and Mr. Timothy Berube.

Mr. Denis Saumure, General Counsel to the Commission, and Mr. Marc Leblanc, Secretary of the Commission, are also joining us on the podium today.

Today's Commission meeting will begin with

a Safety Moment on the subject of winter driving.

Driving requires all the care and caution possible any time of year. However, extreme weather conditions in winter introduce additional challenges. Whether going to work or on a road trip, it is important to check road conditions and weather alerts before you start your journey. In addition to taking extra care when driving, ensure that your vehicle is ready for the season before the snow starts to fall. Check the tires, liquids, wiper blades and have an emergency kit with flares, blankets, small shovel, et cetera. As soon as the temperature dips below 7° Celsius you should consider changing to winter tires in order to benefit from the increased traction, braking and handling.

These simple, yet essential, safety measures can protect your safety and that of others on the road.

I will now turn the floor to Mr. Leblanc for a few opening remarks.

Marc.

MR. LEBLANC: Thank you, Madame Présidente.

Bonjour, Mesdames et Messieurs.
J'aimerais aborder certains aspects touchant le déroulement de la réunion.

For this Commission meeting, we have simultaneous interpretation. We would ask that you please keep the pace of your speech relatively slow so that the interpreters are able to keep up.

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.

To make the transcripts as complete and clear as possible, please identify yourself each time before you speak.

The transcripts should be available on our website towards the end of next week.

I would also like to note that this proceeding is being video webcast live and that archives of these proceedings will be available on our website for a three-month period after the closure of the proceedings.

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

The *Nuclear Safety and Control Act* authorizes the Commission to hold meetings such as this one for the conduct of its business.

Please refer to the revised agenda published on December 11th for the complete list of items to be presented today as well as tomorrow.

In addition to the written documents

reviewed by the Commission for this meeting, CNSC staff and other participants will have an opportunity to make presentations, and Commission Members will be afforded an opportunity to ask questions on the items before us.

Madame Velshi va présider la réunion publique d'aujourd'hui.

President Velshi.

CMD 18-M60.B

Adoption of Agenda

THE PRESIDENT: With this information, I would now like to call for the adoption of the agenda by the Commission Members, as outlined in Commission Member Document CMD 18-M60.B.

Do we have concurrence?

For the record, the agenda is adopted.

CMD 18-M61

Approval of Minutes of Commission Meeting held on October 3-4, 2018

THE PRESIDENT: I will now call for the approval of the Minutes of the Commission meeting held on October 3rd and 4th, 2018, as outlined in CMD 18-M61.

Are there any comments, additions or deletions that the Commission Members wish to make to the draft minutes?

I do note that a change was suggested to paragraph 82 of the minutes to better reflect the contribution of NUREG's response to the Commission on the CNSC Open Door Policy as part of the CNSC Regulatory Oversight Safety Culture discussion. I think those are excellent suggested changes and we will certainly incorporate those in the minutes.

So with those amendments, I ask the Commission Members to approve the minutes.

Do we have concurrence?

Thank you. The November 8 minutes will be submitted secretarially for approval toward mid-January 2019 and will be made available prior to the first meeting of 2019 scheduled for February 21-22, and the October 3-4 minutes are approved.

The next item on the agenda is the Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2017. This is outlined in CMDs 18-M48 and 18-M48.A.

The public was invited to comment in writing on this item. The Commission received twelve written submissions. Five aboriginal groups have been

granted permission to make an oral presentation.

Marc, I understand that several participants and government representatives are joining us either by videoconference from our office in Saskatoon or by teleconference.

Have you got confirmation that they are all listening in?

MR. LEBLANC: We do have confirmation that we are linked to the Saskatoon office and that other participants are available, and as we proceed, I will reconfirm with you their availability.

THE PRESIDENT: Thank you.

I will turn the floor to Ms Haidy Tadros for the presentation on the Regulatory Oversight Report, as outlined in Commission Member Documents (CMD) 18-M48 and 18-M48.A.

Ms Tadros, the floor is yours.

CMD 18-M48/18-M48.A

Oral presentation by CNSC Staff

MS TADROS: Thank you.

Good afternoon, President Velshi and Members of the Commission. For the record, my name is Haidy Tadros. I am the Director General of the Directorate

of Nuclear Cycle and Facilities Regulation.

With me today and sharing in this presentation are my colleagues: Mr. Peter Fundarek, to my left, Director of the Uranium Mines and Mills Division; Mr. William Stewart, Senior Project Officer in the Uranium Mines and Mills Division; and behind us, Ms Dana Pandolfi, Project Officer in the Uranium Mines and Mills Division; and Ms Jocelyn Truong, Project Officer in the Wastes and Decommissioning Division.

We are also joined by Licensing and Compliance and Technical Specialist colleagues who are available to support and answer any questions the Commission may have.

We are here to present Commission Member Document 18-M48, titled "Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2017".

The CNSC currently produces a number of Regulatory Oversight Reports, as shown on this slide. This is the fourth Regulatory Oversight Report that CNSC staff presented to the Commission in public proceedings this year.

The 2017 Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada presents CNSC staff's assessment on the performance

of operating mines/mills for 2017 and active remediation and decommissioned uranium mines and mill sites for the years 2016 and 2017.

This slide identifies an error CNSC staff have found in CMD 18-38 on page 41, Figure 3.3. The total annual collective dose bar charts in that table for 2013 and 2014 do not display the correct values. Staff verified that the data associated with the table is correct. However, the bar charts were not well placed. We will correct the ROR before it is published. We apologize for any confusion this may have caused.

This report is the seventh annual Regulatory Oversight Report on operating mines and mills presented to the Commission. The public has been invited to intervene on each of these reports.

The Regulatory Oversight Report includes: a summary of CNSC staff's regulatory efforts at uranium mines/mills, historic and decommissioned sites; an overview comparing performance for all 14 safety and control areas; and an update on all licensed activities.

Our presentation today starts with a brief update on the production suspension at the Key Lake and McArthur River operations. Following an overview of CNSC staff's regulatory oversight activities, the presentation will focus on licensee performance across the licensed

facilities. Staff will then provide responses to key themes and topics of concern raised in interventions before going into our conclusions.

I will now pass the next part of our presentation to Mr. Peter Fundarek.

MR. FUNDAREK: Good afternoon, President Velshi, Members of the Commission. My name is Peter Fundarek and I'm the Director of the Uranium Mines and Mills Division.

On November 8th, 2017, Cameco notified the CNSC that effective January 2018 they would be temporarily suspending production at the Key Lake and McArthur River operations.

This would include all activities directly related to mining and processing of uranium ore.

Previously, in 2016, the Rabbit Lake mine and mill, also operated by Cameco, had entered into care and maintenance mode. This meant that all uranium mines and mills operated by Cameco would be suspending production.

Cameco stated that they would continue to comply with all applicable regulations.

It must be noted that during this suspension of production, there is much ongoing work, with about 100 persons remaining at each site. Water treatment

continues as before, ensuring that any discharges meet the performance criteria specified as part of the licensing basis and respecting all federal and provincial limits.

For mine workings, there are regular inspections to assess ground stability and maintain access to areas of the mine, and the mill systems and services require continued maintenance to ensure that they remain operational. Therefore, even though the sites are in a care and maintenance mode, there is substantial work ongoing at each location.

On July 25th, 2018, Cameco notified the CNSC of its decision to suspend production at the Rabbit Lake, Key Lake and McArthur River operations for an indefinite period until economic conditions improve.

As noted, there is still a complement of about 100 workers at each site.

CNSC staff requested and received additional information, including updated informational activities and programs impacted by the changes. CNSC staff continue routine compliance verification inspections at all sites to ensure that the licensee continues to meet regulatory obligations and to verify that safety is not compromised by the changes that have been implemented during the transition to care and maintenance.

CNSC staff conclude that the operations

were safely suspended and workers, the public and the environment continue to be protected.

I will now present the introduction for the operating uranium mines and mills.

The nature of CNSC's regulatory oversight is commensurate with the risk associated with the licensed site, according to their licensed activities and programs, and the performance of these by the licensee.

The base level of risk is reflected in the CNSC's staff's facility-specific compliance plans, which include the number and scope of inspections. These plans are regularly reviewed and, if necessary, revised.

CNSC compliance verification activities are primarily in the form of desktop reviews by CNSC staff. This comprises some 74 percent of CNSC's effort and includes reviews of licensee documentation, operations reports, event reports and responses to CNSC Staff queries.

Approximately 26 percent of CNSC staff effort is involved in on-site reviews with CNSC specialists or other CNSC staff. On-site verification can be focused inspections targeting one specific activity or safety and control area, or may be more general in nature and encompass a wide range of criteria.

CNSC staff evaluate licensees' performance using safety and control areas. The 14 safety and control

areas are common to all CNSC licensees, but the relative importance of each safety and control area is related to the type of operation being regulated.

CNSC staff assess licensee performance on all 14 safety and control areas for the operating mines and mills, and applicable safety and control areas for reactor remediation projects and decommissioned sites. Ratings are derived from the results of the regulatory oversight activities.

Safety and control area performance is rated using a set criteria such as key performance indicators, compliance with licence conditions, events, repeat non-compliances and licensee action in response to events, as well as the nature of the events themselves.

CNSC staff assigned ratings to safety and control areas based on their professional judgment, expertise and the information collected.

CNSC staff consider a multitude of inputs and assign a rating that best represents licensee performance in a holistic manner.

This slide clarifies the concept behind some of the graphs used in this report, which show the relationship between action levels and regulatory limits of a monitored parameter. The region with the green dots represents the range of normal operation for the parameter.

As with most measured parameters, there is some natural fluctuation in the value during normal operation. The regulatory limit is prescribed in a regulation and is shown as a red line on the top of the graph.

Action levels are usually set much lower than the regulatory limit and serve to indicate when control of that parameter may be compromised. The action level is shown on this slide as a blue line, and it may be site or licensee specific.

It is important to recognize that an exceedance of an action level on its own does not imply a potential health and safety risk to the people or the environment, but identifies a parameter that may be outside of normal operating range.

Setting action levels this way allows the licensee to respond and correct the situation well before there is the possibility of exceeding the regulatory limit.

An action level exceedance requires the licensee to notify the CNSC, perform an immediate investigation and, where needed, carry out subsequent corrective actions and take preventive measures.

Licensees can also set their own administrative levels within the green area range. Often called an administrative level, it is not shown on the

slide, but represents a very early indication for the licensee to evaluate their operations.

To keep the public information of regulatory activities occurring at mine and mill facilities, CNSC staff regularly engage with the public, indigenous groups and their leadership through attendance at community meetings, site tours and technical information sessions.

In addition to these outreach activities, the CNSC also provides information through the CNSC web site, social media and CNSC Online, and also communicates with the indigenous leadership and representatives through telephone, email and letters.

In 2017, CNSC staff participated in community activities, including information sessions in La Loche, updates to the Environmental Quality Committee meetings with the Ya'thi Néné Land and Resource Office representatives and Pinehouse Métis local.

In June 2017, the licence renewal for the McClean Lake operation was held in La Ronge Saskatchewan. Licensees have public information programs to engage communities and keep them informed of facility performance and developments.

CNSC staff often participate in these information sessions to listen to the issues being raised

by stakeholders and to provide information regarding the role and mandate of the CNSC.

To support existing and ongoing compliance activities, the CNSC implemented its independent environmental monitoring program to verify that the public and the environment around CNSC regulated nuclear sites are safe.

This verification is achieved by CNSC staff through independent sampling and analysis of the air, water, soil, vegetation and various foods. Samples are obtained by CNSC staff over by organizations directed by CNSC staff.

Licensees are not involved in collecting samples for CNSC verification through the IEMP program.

Analysis of the collected samples is by the accredited CNSC laboratory or a similarly competent laboratory independent of the licensee.

A sampling campaign took place outside the McClean Lake operation in the summer of 2016. CNSC staff presented the results of the McClean Lake operation independent environmental monitoring program sampling at the June 2017 McClean Lake licence renewal hearing and the 2016 regulatory oversight report for uranium mines and mills in Canada.

In 2018, CNSC staff updated the McClean

Lake IEMP with radon in ambient air results. The results of the radon sampling show the measured radon in ambient air to be within the natural background range for northern Saskatchewan.

CNSC staff also conducted an independent environmental monitoring around the Deloro Mine site in 2016. This included sampling locations along Young's Creek and the Moira River downstream from the site.

In 2017, CNSC staff collected samples around the Cluff Lake site of radon in ambient air, lake water, fish, blueberries and Labrador tea.

Samples were taken at a reference station in Saskatoon Lake which is not exposed to mining and milling activities at Cluff Lake, and at two exposure stations at Sandy Lake and Cluff Lake. All results, including radon, are now available on the CNSC IEMP web page.

The results from the independent environmental monitoring programs demonstrate that the licensee's environmental monitoring and protection programs are effective, and that the public and the environment in the vicinity of these sites are protected.

The map on the right shows the region covered by the Eastern Athabasca Regional Monitoring Program. The program is designed to report on cumulative

effects downstream of uranium mining and milling operations, and gives a good representation and assurance that country foods are safe to eat, the water quality is safe to drink and the environment is protected.

The Eastern Athabasca Regional Monitoring Program was initially established in 2011, building on the previous Cumulative Effects Monitoring Program. In partnership with the Government of Saskatchewan, industry and Saskatchewan communities, the program monitors the safety of traditionally-harvested country foods from representative communities located in northern Saskatchewan.

The CNSC is a funding partner, and funding has been secured through the 2022 sampling period.

The intent of the program is to evaluate the quality of country foods to assess any potential impacts resulting from industrial activities and to provide confidence to community members that traditional country foods remain safe to eat today and for future generations.

The request to add radionuclides to the national pollutant release inventory was evaluated using NPRI's documented decision criteria. It was determined that radio nuclides are not NPRI reportable substances, as the information was already reported and made available through other governmental organization.

However, it was recognized by both the CNSC and NPRI that public accessibility could be improved, and this is being addressed.

To address this, a formal CNSC NPRI Technical Task Force was established and a work plan accepted. Phase 1 was focused on short term deliverables such as the reporting of total annual releases within the appendices of the 2018 regulatory oversight reports and the establishment of CNSC NPRI web linkages providing NPRI users with access to CNSC environmental information products and sources of data such as the regulatory oversight reports, environmental risk assessments, and the IEMP data.

Phase II, currently under development, includes the standardization of digitally downloadable databases on radionuclide releases, transfers, and disposals.

The CNSC-NPRI technical task team has formally committed to updating the NPRI advisory working group, of which CELA is a member, on the progress of this project. To date, four progress updates have been provided.

I will now pass the presentation over to Mr. William Stewart.

MR. STEWART: Good afternoon, President

Velshi and Members of the Commission.

My name is William Stewart, and I am a senior project officer in the Uranium Mines and Mills Division.

The presentation will now transition to focus on uranium mine and mill operations.

There are currently five operating uranium mine and mill facilities in Canada, all located in the Athabasca Basin in Northern Saskatchewan. Cameco operates the Cigar Lake mine, McArthur River mine, Rabbit Lake mine and mill, and the Key Lake mill, while AREVA, now known as Orano, operates the McClean Lake mill.

To ensure compliance at the operating mine and mill facilities, in 2017 CNSC staff conducted 30 inspections, six at each of the five facilities. The 30 inspections resulted in 23 non-compliances. The non-compliances were addressed as inspection action items. No information requests under the *General Nuclear Safety and Control Regulations* section 12(2) orders or administrative monetary penalties were issued at the operating facilities in 2017.

Inspection action items ranged from low to medium in significance, and covered a variety of safety and control areas such as management systems, human performance management, and radiation protection and were provided to

the licensees in detailed inspection reports.

All enforcement actions were recorded in the CNSC regulatory information bank to ensure they were tracked to completion. CNSC staff have reviewed, verified, and accepted licensees' responses and corrective actions. All 2017 enforcement actions have been closed.

The trend arrows indicate changes since 2016.

The 2017 performance ratings for each of the 14 safety and control areas determined by CNSC staff based on regulatory oversight activities are shown on this slide. CNSC staff's review of key performance indicators resulted in a rating of satisfactory for all operating mines and mills with the exception of McClean Lake radiation protection program, which was rated fully satisfactory. In 2017, the radiation protection performance for McClean Lake was changed to fully satisfactory based on the results of compliance inspections, desk top reviews, and the determination the radiological hazard control, worker dose control, and ALARA programs were highly effective.

The following slides focus on the three safety and control areas of radiation protection, environmental protection, and conventional health and safety.

The primary sources of radiation exposure at uranium mines and mills comes from gamma radiation, long-lived radioactive dust, radon progeny, and radon gas. As part of routine and focussed compliance activities, CNSC staff verified that licensees have effective radiation protection programs and practices to monitor and control radiological hazards.

The five operating facilities have the same action level for nuclear energy workers of one millisievert per week and five millisieverts per quarter of a given year. In 2017, no radiation action level exceedances occurred at the operating uranium mines and mills. CNSC staff concluded radiation doses were kept as low as reasonably achievable and workers were being protected.

This graph shows the maximum and average individual effective doses measured for nuclear energy workers at each of the five uranium mine and mill facilities in 2017. The annual maximum individual effective dose for nuclear energy workers at the five facilities was 5.73 millisieverts, well below the annual regulatory limit of 50 millisieverts.

This slide shows the five-year trend of the collective dose for nuclear energy workers at each of the operating mine and mill facilities from 2013 through

2017. Collective dose is a well-established metric and is useful for showing dose impacts associated with significant changes in operational status such as Rabbit Lake's transition to a care and maintenance, which began in 2016, and McClean Lake's steady production increases from 2014 through 2016. Collective dose also provides a measure of ALARA performance for licensees during steady production periods as exhibited by decreasing trends at Key Lake, McArthur River, and Cigar Lake. Additional information explaining the collective dose trends for each licensee is provided in the regulatory oversight report.

CNSC staff verified that licensees have effective environmental protection programs to monitor and control the protection of the environment. In 2017, no environmental regulatory limits were exceeded and no action levels were reported for effluent releases at the operating uranium mines and mills.

Two action level exceedances for sulphur dioxide releases were reported at the McClean Lake operation. CNSC staff's compliance activity verified the environment was being protected.

Licensees are required to report to the CNSC and other regulatory authorities any unauthorized release of hazardous substances or nuclear materials. Reportable spills in 2017 at each uranium mine and mill

facility is displayed on this slide. For each of these spills, the licensee investigated the cause and implemented corrective actions to remediate and prevent a recurrence.

In 2017, there were 14 spills reported, which is consistent with the five-year average of just under 16 spills per year for the five operating mines. CNSC staff rated all spills in 2017 at mine and mill facilities as low significance, and all spills were mitigated, resulting in no impact to the environment. CNSC staff found that the licensees' reporting and responses to environmental spills during 2017 was acceptable.

All metal mines and mills in Canada are subject to the *Metal Effluent Regulations* and the Federal *Fisheries Act*. All annual average concentrations released were below *Metal Mining Effluent Regulations* discharge limits and site-specific action levels. Treated effluent released from the operating mines and mills met regulatory requirements.

This slide shows the five-year trend of the molybdenum concentrations in treated effluent at each of the operating uranium mine and mill facilities from 2013 to 2017. In the absence of a provincial or federal limit, the action level for the Key Lake facility, the most stringent of the operating facilities, is shown for reference.

This slide shows the five-year trend of selenium concentrations in treated effluent at each operating uranium mine and mill facility from 2013 to 2017. In response to rising selenium trends, and discussed at the McClean Lake licence renewal, the McClean Lake operation developed a selenium adaptive management plan. An update on this management plan will be discussed later in this presentation.

In 2013 to 2017, selenium concentrations in effluent at operating uranium mines and mills were below provincial licence effluent discharge limits.

This slide shows the five-year trend of the uranium concentrations in treated effluent at each operating uranium mine and mill facility from 2013 through 2017. Again, concentrations in treated effluent are low compared to the province licence effluent discharge limit and meet the requirements of as low as reasonably achievable.

CNSC identified an interim objective of 0.1 milligram per litre for uranium. This objective was derived based on treatment technologies in place in the uranium mines and mills and what would be achievable by the uranium metal mining sector. The interim objective is applied to all uranium mine and mill facilities. The interim objective for uranium and effluent is in place

until the CNSC requirements for release limits are published in REGDOC 2.9.2, which is currently under development.

This slide shows the five-year trend of the radium-226 concentrations in treated effluent at each of the operating uranium mine and mill facilities from 2013 through 2017. All operating mine and mill facilities continue to meet the licence discharge limits.

On this slide, effluent quality compliance data for uranium mines and mills is compared to base metal, precious metal, and iron mines. Data presented on this slide comes from Environment and Climate Change Canada and is provided for the 2016 year, as this is the most current information available. Compliance with the *Metal Mining Effluent Regulations* limits provides a good environmental performance indicator across the metal mining industry.

This table illustrates the number of mines in each mining sector that are out of compliance with at least one *Metal Mining Effluent Regulations* parameter in 2016 and also provides the specific information on the individual parameters that are out of compliance. In 2017, the uranium sector was in full compliance with the provisions of the *Metal Mining Effluent Regulations* for all regulative parameters and compares well to the other metal mining sectors.

This table shows the 2017 data for radionuclide concentrations measured in ambient air at uranium mines and mills. High-volume air samplers are used to collect and measure total suspended particulates in air, and the particulate samples are also analyzed for metal and radionuclide concentrations; concentrations of lead 210, radium 226, and thorium 230, and uranium are below the referenced annual air quality levels.

CNSC staff confirmed all uranium mining mill facilities demonstrated strong performance mitigating atmospheric effects of their operations on the environment and conducted regular air quality monitoring. CNSC staff concluded the environment was protected.

This chart shows the five-year trend of radon in ambient air. Radon measurements on site show radon ambient air is within the upper bound of regional background for Northern Saskatchewan. Also shown on the graph is the radon and ambient air concentration that would represent an incremental dose of 1 mSv per year above background.

Loss time injury statistics are a key measure of licensee performance for conventional health and safety. A loss time injury is a workplace instance that results in the worker being unable to return to work for a period of time. CNSC staff also consider the injuries,

frequency, and severity rate. CNSC staff and Saskatchewan Ministry of Labour Relations and Workplace Safety monitor and review reportable injuries to ensure that the cause is identified and satisfactory corrective actions are taken.

The severity rate of 67.8 shown for McClean Lake is related to incidents that occurred in 2014 and 2015, but the time was not lost until 2017.

CNSC staff compared licensees' performance with respect to relevant national and international benchmarks. The uranium mining and milling sector in Canada exhibits an injury frequency rate which is similar to or better than national and international benchmarks.

CNSC staff confirmed that the operating mine and mill facilities implemented effective management of conventional health and safety in their activities.

The next series of slides will focus on 2017 activities at the five operating uranium mines and mills.

The picture on the right of this slide shows an aerial view of Cigar Lake Mine. Cameco's Cigar Lake operation is the world's second largest known high-grade uranium deposit. Uranium ore mined at Cigar Lake operation is ground into ore slurry, loaded into containers, and shipped by truck to the McClean Lake Mill. Cameco's Cigar licence is valid from July 1st, 2013 to June

30th, 2021.

Construction on underground and surface infrastructure continues to support the mine plan at Cigar Lake. In addition, development of underground workings continued in accordance with the mine plan.

As reported last year, the Cigar Lake Operation identified in their 2016 annual report an increasing arsenic trend as a result of mining activities. Cameco identified causes of the elevated arsenic levels, and developed mitigation strategies.

CNSC staff conducted on-site verification of the implemented mitigation efforts to reduce the trend. CNSC staff will continue to review monitoring results and controls to ensure they are effective and meet regulatory requirements.

On the right of this slide is a picture from an information board taking during a compliance inspection at Cigar Lake.

The picture on the right of this slide shows the surface facilities at McArthur River Mine. Cameco's McArthur River operation is the world's largest high-grade uranium mine. Cameco's McArthur River licence is valid from November 1st, 2013 to October 31st, 2023.

High-grade uranium ore is mined, mixed with water, and ground in a mill to form a slurry and

pumped to surface. The ore slurry is loaded into specifically designed containers and transported from McArthur River to the Key Lake Mill.

In 2017 the McArthur River operation continued to develop ore production zones. In November 2017 Cameco notified CNSC staff that McArthur River would undergo a temporary suspension of operations. As mentioned previously, this temporary suspension has been updated to an indeterminate suspension.

CNSC staff will continue to conduct compliance activities to verify continued safe operations and protect the environment. CNSC staff use a risk-informed approach while conducting compliance activities during the current suspension of production.

The picture on the right shows an aerial view of the Rabbit Lake facility. Cameco's Rabbit Lake facility has been in operation since 1974 and is both a mine and a mill. Cameco's Rabbit Lake licence is valid from November 1st, 2013 to October 31st, 2023.

Mining and milling operations were suspended in 2016 at Rabbit Lake and associated facilities were placed into a state of care and maintenance. CNSC staff reviewed transition plans and schedules as well as carried out compliance inspections to ensure the transition to care and maintenance was conducted safely and met

regulatory requirements.

The Rabbit Lake in-pit tailings management facility continues to provide storage of solids produced by the mill water treatment system and progressive reclamation activities will continue throughout the care and maintenance period. There was no ore or uranium concentrate production in 2017.

Located approximately 570 km north of Saskatoon, Saskatchewan, the Key Lake operation is owned and operated by Cameco Corporation.

In October 2013 the Commission issued a 10-year licence following a public hearing in La Ronge, Saskatchewan to Key Lake. The Key Lake operation's licence expires October 31st, 2023.

The Key Lake operation processes McArthur River ore slurry and residual special waste from previous mining at Key Lake. In 2017 Cameco continued to use the existing yellowcake calciner due to unexpected corrosion with the newly constructed calciner. The shaft and associated brick work for the existing calciner were replaced during the July 2017 summer maintenance work.

In follow-up to anhydrous ammonia leaks at the Key Lake operation, they developed a three-year program to refurbish the existing ammonia storage tanks and infrastructure with work to begin in 2018. As previously

stated, Cameco notified CNSC Staff that the Key Lake operation would undergo a temporary suspension of production which was later updated to being indeterminate suspension of production.

CNSC staff will continue to conduct compliance activities to verify continued safe operations and protection of the environment. CNSC staff will use a risk-informed approach in verifying activities on site during the suspension of production.

The picture on the right shows McClean Lake Mill operated by AREVA Resources, now known as Orano.

The McClean Lake Mill has been designed to process high-grade Cigar Lake ore. Following a hearing on June 7th and 8th, 2017 in La Ronge, Saskatchewan, a uranium mine operating licence was renewed for McClean Lake and is valid from July 1st, 2017 through June 30th, 2027. McClean Lake continues to receive and process high-grade uranium ore slurry from the Cigar Lake Mine.

In 2017 work on Stage 2 of the JEB Tailings Management Facility Optimization included removal and relocation of infrastructure was completed. CNSC staff continue to monitor the optimization project through compliance inspection, document review, to ensure regulatory compliance.

After restart and commissioning of the

McClellan Lake Mill in September 2014 AREVA identified an increasing trend of selenium concentration in effluent from the JEB Water Treatment Plant.

AREVA submitted a formal Selenium Adaptive Management Plan in March 2017. The Selenium Adaptive Management Plan outlined selenium-related continual improvements and adaptive management actions taken at the McClellan Lake operation such as changes to leaching and tailings preparation circuits, changes to the hydrogen peroxide concentration and delivery system, and physical changes to improve hydrogen peroxide mixing.

CNSC staff reviewed the plan to verify that AREVA was taking adequate measures to manage and control selenium releases from the McClellan Lake operation and to verify that the Selenium Adaptive Management Plan met CNSC Staff expectations. CNSC staff concluded that the plan met regulatory requirements and was accepted in August 2017.

CNSC staff continue to review reported selenium concentrations in effluent to ensure the receiving environment remains protected. At the 2017 McClellan Lake relicensing the Commission requested that Staff update them on the status of the selenium management plan.

This information completes the Commission's request.

I will now pass the presentation over to Dana Pandolfi to discuss historic and decommissioned sites.

MS PANDOLFI: Good afternoon, President Velshi, and Members of the Commission. My name is Dana Pandolfi and I'm a Project Officer with the Uranium Mines and Mills Division.

This section of the presentation provides information on CNSC's oversight of the former uranium mine and mill sites undergoing remediation and sites that have been decommissioned and are under long-term monitoring and maintenance. All historic and decommissioned sites are reported on every two years, and therefore this year's report covers the years 2016 and 2017.

The map shows the locations of active remediation projects and decommissioned uranium mines and tailing sites in Canada. There are four sites currently undergoing remediation: the Gunnar Mine Remediation Project and Lorado Mill Site, which are both located in Saskatchewan; and the Deloro Mine Site Cleanup Project and the decommissioned Madawaska Mine Site, both located in Ontario.

There are 10 decommissioned sites listed on the left of the figure. They are located in Saskatchewan, the Northwest Territories, and Ontario.

Please note that the sites with an

asterisk next to their names are those sites where the Commission has delegated licensing authority to a designated officer as per Section 37(1) of the *Nuclear Safety and Control Act* due to their low risk and stable states.

The following sections provide performance highlights for the active remediation projects.

The objective of active remediation projects is to establish long-term stable conditions with the role of ensuring the safe use of the site both by current and future generations. Active remediation projects consist of ongoing cleanup activities using full-time staff and contractors and a frequent monitoring and reporting on licensing requirements.

The table shows a licensing and compliant effort by CNSC staff in 2016 and '17 for the active remediation projects. In 2016 CNSC staff spent 110 person days on licensing activities and 182 person days on compliance activities. In 2017 CNSC staff spent 98 person days on licensing and 120 days on compliance activities. CNSC staff performed five compliance inspections in 2016 and four compliance inspections in 2017 at the active remediation sites. Findings resulting from the inspections were provided to the licensee in preliminary reports followed by detailed inspection reports. All enforcement

actions arising from the findings were recorded in the CNSC's regulatory information bank to ensure all enforcement actions are tracked to completion. All action notices arising from CNSC compliance activities in both 2016 and '17 have been closed.

For 2016 and '17 CNSC staff rated all applicable safety control areas as satisfactory for the remediation project sites. This report focuses on radiation protection, environmental protection and conventional health and safety, the three safety and control areas which cover many of the key performance indicators for these sites.

CNSC staff rated the 2016-17 performance of all remediation projects for the environmental protection safety and control area as satisfactory. CNSC staff have confirmed that environmental protection programs for all remediation projects were effectively implemented and met regulatory requirements.

The purpose of environmental monitoring at these sites is twofold. First, it serves to ensure protection of the environment during remediation activities and, second, additional data is used as a baseline to measure the effectiveness for remediation performance verification.

This graph shows a maximum and

average individual effective doses measured for nuclear energy workers at each of the three remediation projects in 2016 and 2017. The annual average individual effective doses and maximum individual effective doses at the three sites were well below the annual limit of 50 mSv in 2016 and 2017. Lorado was not included as they completed the remediation activities due to low dose rates on the covered tailings in short periods of time spent by workers on site in 2016. The previously existing dosimetry program that was in place during remediation was discontinued.

In the case of Deloro there is a correction to be made to the information next to the asterisk. There was a dosimetry program in place in 2017, however, all of the quarterly results from the optically stimulated luminescent dosimeters or OSLDs were below detectable limits. CNSC staff's compliance activities verified radiation doses were kept as low as reasonably achievable and workers were being protected.

Lost time injury statistics are a key measure of licensee performance. There were no lost time injuries at any of the remediation project sites in both 2016 and '17. The rating for this safety and control area also considers occupational health and safety program, their implementation on site, as well as the workers' awareness of these programs. CNSC staff confirm all sites

maintain an effective occupational health and safety program that protects workers, contractors and visitors to the site. Workers at the sites are not present year round or on a continuous basis. The rating for conventional health and safety at all four sites was satisfactory in both 2016 and '17.

This section of the presentation will highlight site-specific updates during 2016 and '17 for each of the active remediation projects. The Gunnar Mine site's licensee is the Saskatchewan Research Council or SRC. They have a 10-year licence which is valid until 2024. Gunnar remediation work began in 2016 and continued into 2017. This included tailings remediation, excavation of waste rock as well as cleanup aspects at the site. Remediation work of the TMAs will continue for the next few years and cleanup of the other aspects will begin in 2019.

The Lorado Mill site's licensee is also SRC. They have a 10-year licence which is valid until 2023. In 2016 the licensee completed the placement of till in the remaining areas of the cover, installed rip-rap on the shore of Nero Lake and initiated the re-vegetation of the cover which concluded the remediation work. In 2017 SRC continued to monitor the local environment as well as the progress of the re-vegetation on the cover.

The Deloro Mine site licensee is the

Ontario Ministry of Environment Conservation and Parks, MECP, formerly known as MOECC. They have a licence valid until 2022. In 2017 the CNSC issued MECP a licence for the Young's Creek area only. Two of the areas, the tailings area and industrial mine area where work was completed 2012 and 2016 respectively, were below conditional clearance levels and have been removed from licensing. MECP have expressed their intent to have the Young's Creek area released from CNSC licensing within the next five years.

The Madawaska Mine site licensee is EWL Management Limited, which is a wholly owned subsidiary of Encana Corporation. They currently have a license until 2021. In 2016 and '17 EWL Management Limited continued the rehabilitation work of the two tailings management areas. TMA-2 was completed in 2017 while approximately one third of the rehabilitation work on TMA-1 was carried out. Some of the goals of the rehabilitation work are to reduce radon flux, increase long-term stability, eliminate water ponding and decrease erosion and future maintenance. The rehabilitation work on TMA-1 will be completed in 2019.

I will now pass the presentation over to Jocelyn Truong to discuss the decommissioned mines and mill sites.

MS TRUONG: Good afternoon, President Velshi and Members of the Commission.

My name is Jocelyn Truong and I'm a Project Officer with the Waste and Decommissioning Division.

The next part of the presentation focuses on the 10 licensed decommissioned uranium mine and mill sites in Canada.

Activities at decommissioned sites consist of routine monitoring and maintenance activities and, in most cases, there are no permanent staff onsite. All sites, with the exception of Cluff Lake and Beaverlodge, are expected to remain under a CNSC licence for the foreseeable future.

This table presents CNSC staff's licensing and compliance effort for the decommissioned sites in 2016 and 2017. CNSC staff performed a total of 13 compliance inspections in 2016 and eight inspections in 2017.

Findings resulting from these inspections were provided to licensees in detailed inspection reports. All enforcement actions arising from the findings were recorded in the CNSC regulatory information bank to ensure all enforcement actions were tracked to completion. CNSC staff reviewed and verified that the corrective actions taken by the licensees were appropriate and acceptable. All non-compliances or enforcement actions issued in 2016 and 2017 are considered closed by CNSC staff.

For 2016 and 2017 CNSC staff rated all applicable safety and control areas as satisfactory for the decommissioned sites. With the exception of radiation protection safety and control area at three sites, Port Radium, Rayrock and Agnew Lake in 2016 and for the environmental protection safety and control area at one site, Elliot Lake in 2017 which received below expectations. The change in rating for these sites between the two years are shown in bold in the table. Information pertaining to the below expectations ratings will be discussed in the site-specific slides.

The safety and control area of environmental protection is a key indicator for the effectiveness of past remediation measures and is highlighted for each site in this report.

All decommissioned sites have an environmental monitoring program to ensure the continued protection of the environment and ongoing performance of remediation works.

In the case of sites located in the Province of Saskatchewan, once long-term environmental objectives for the site have been met these sites may be released into institutional control.

The rating for environmental protection at all sites was satisfactory in 2017 with the exception of

the below expectations for Elliot Lake due to their licence limit exceedance which will be discussed later in this presentation.

Uranium mine and mill sites that have been decommissioned are in the long-term maintenance and monitoring phase. In general, given the limited nature of onsite work, outdoor setting, low radiation levels following remediation activities, the potential for radiation exposure to workers and the public is very low. Based on each site's risk assessments and monitoring data CNSC staff conclude that levels of exposure are much lower than regulatory limits.

Elliot Lake and Denison and Stanrock are the only decommissioned sites with designated nuclear energy workers due to the maintenance of the effluent treatment plants. The maximum dose received by workers was 1.02 mSv in 2016 and 0.59 mSv in 2017.

All sites maintain an effective occupational health and safety program that protects workers, contractors and visitors to the sites. The rating for conventional health and safety at all sites was satisfactory in 2016 and 2017.

Saskatchewan's Institutional Control Program outlines the formal regulatory process for long-term site management by the Province of Saskatchewan.

Commission Member Document 18-M38, entitled "Overview of the Institutional Control Program for Decommissioned Mine and/or Mill Sites in Saskatchewan" was presented to the Commission on October 3rd, 2018.

The next section of the presentation will highlight site-specific updates during 2016 and 2017 for each of the decommissioned sites.

Cameco is the licensee for the Beaverlodge Mine and Mill site. Management of the site is the responsibility of Cameco, while the Government of Canada, through Canada Eldor Inc., is responsible for the financial liabilities associated with the site. The site currently has a 10-year CNSC licence which expires in 2023. Cameco has submitted an application for the release and/or exemption of 20 properties at the Beaverlodge site. The submission is undergoing review by staff and the Province of Saskatchewan. However, it is anticipated that this request will be presented to the Commission in 2019. Cameco's goal is to have all 65 properties either released for properties or portions thereof not disturbed by mining or exempted to allow the transfer to ICP by 2023, the end of the current licence term.

Cluff Lake Mine and Mill operated under a CNSC licence for its entire lifecycle. The licensee is AREVA, now Orano. AREVA's current 10-year CNSC licence is

valid until July 2019. AREVA applied for a 5-year CNSC licence while it petitions the Province to accept the properties into its Institutional Control Program. The CNSC licensing hearing is scheduled for June 2019. In 2016 and 2017 AREVA carried out monitoring and maintenance activities. CNSC staff continue to review monitoring results and can confirm that site conditions are stable or improving, as predicted.

The Rayrock Mine site's licensee is Indigenous and Northern Affairs Canada, or INAC. They have a licence which is valid until 2027. Rayrock received a "below expectations" rating in the area of radiation protection in 2016 due to inadequate documentation of their Radiation Protection Program. Although the site had elements of good radiation protection practices in place, such as dosimetry when onsite, signage and limited access due to the remote location, there was no formal program document, which is a licensing requirement. In 2017 INAC demonstrated improvements to radiation protection procedures and program documentation. CNSC staff rated the licensee's performance as satisfactory in 2017. In 2017 INAC undertook a field program to support an updated human health and ecological risk assessment and focused the development of future remediation activities.

Port Radium Mine site's licensee is also

INAC. The site has a licence which is valid until 2026. As previously mentioned, Port Radium also received a "below expectations" rating in the area of radiation protection due to inadequate program documentation. As with Rayrock, the licensee demonstrated improvements to radiation protection procedures and CNSC staff reviewed the updated documentation. In 2017 CNSC staff rated the licensee's performance as satisfactory.

CNSC staff will verify the implementation of the Radiation Protection Program for both Rayrock and Port Radium in the next scheduled inspection in 2019.

The Agnew Lake Mine site licensee is the Ontario Ministry of Energy, Northern Development and Mines, or ENDM, formerly MNDM. The licence is valid until 2021. In 2016 CNSC staff rated the radiation protection safety and control area as below expectations due to inadequate program documentation. During the 2017 inspection it was noted that ENDM had made significant improvements to radiation protection onsite and had addressed all previous enforcement actions. ENDM is committed to submitting a consolidated Radiation Protection Program in support of their request for a licence amendment to include upgrades to the tailings cover. Due to the improvements onsite and commitment from the licensee, CNSC staff have rated the safety and control area as satisfactory in 2017. ENDM is

proposing to repair sections of the cover of the tailings management area which were found to be degraded in a 2015 inspection. ENDM completed a gamma dose rate survey in 2016 of the tailings management area and confirms that the estimated dose to the public was below the regulatory limit.

Barrick Gold Corporation is the licensee for the Bicroft site. In 2016 and 2017 there have been no changes in the status of the Bicroft site since it was last reported to the Commission in the 2015 Regulatory Oversight Report.

EWL Management Limited is the licensee for the Dyno Mine site. In 2016 and 2017 there have been no changes in the status of the Dyno site since it was last reported to the Commission in the 2015 Regulatory Oversight Report. A renewal application has been received and CNSC staff are in the process of finalizing the review and preparing the designated officer documentation.

There are two licensees that manage the Elliot Lake sites: Rio Algom and Denison. There are three indefinite CNSC licences, one for Rio Algom, two for Denison, for the long-term monitoring and maintenance of these sites. There are 12 mines and 10 tailings management areas. Rio Algom Ltd. and Denison conduct site-specific and regional environmental monitoring programs, operate

effluent treatment plants, and inspect and maintain the site in the Elliot Lake area. The long-term plan for the site is to reach a state where reliance on water treatment can be reduced. There have been no changes to the Denison site since it was last reported to the Commission in the 2015 Regulatory Oversight Report.

In December 2017 Rio Algom Ltd. reported a monthly licence limit exceedance for radium-226 at the Stanleigh tailings management area. The radium-226 concentrations in the undiluted effluent remain below Health Canada's Canadian Drinking Water Guidelines. CNSC staff requested that the licensee perform supplementary monitoring which included toxicity testing and additional downstream monitoring. Toxicity test results of the undiluted effluent showed it had no effect on aquatic biota. CNSC staff issued a 12(2) Information Request pursuant to the *General Nuclear Safety and Control Regulations* on January 22nd, 2018. It should be noted that an exceedance was also reported in January 2018. However, CNSC staff considered these exceedances as one facility-specific event. The exceedance was reported to the Commission in early 2018. In September 2018, as a result of Rio Algom's corrective actions, the 12(2) was closed. This information is available on the CNSC website.

I will now pass the presentation over to

Mr. Peter Fundarek to discuss the public interventions received by CNSC staff.

MR. FUNDAREK: For the record, my name is Peter Fundarek and I will now discuss information arising from the interventions received during the public review of this Regulatory Oversight Report.

The CNSC awarded \$108,000 through the CNSC's Participant Funding Program for reviewing the 2017 Regulatory Oversight Report on Uranium Mines, Mills, Historic and Decommissioned Sites. The funds were awarded to organizations, indigenous groups and individuals which are noted on the slide.

In addition to the written submissions received from the eight participant funding recipients, CNSC staff received interventions from four other parties, also shown on this slide.

Interventions were reviewed and although many topics were covered, three key themes -- indigenous engagement, financial guarantees, and inspection and non-compliance reporting -- were identified. These three themes are discussed next, but a more detailed list of concerns raised by intervenors is addressed in an Appendix to this presentation.

CNSC staff conduct regular engagement activities with indigenous communities. However, CNSC

staff are looking to do more and are working with indigenous communities to establish a regular formalized and ongoing engagement system. As part of these activities, CNSC staff will continue to report annually on operating uranium mines and mills, and when available, indigenous communities will have access to participant funding.

Financial guarantees are in place to ensure that there are sufficient funds in place to perform decommissioning activities at nuclear facilities when the licensee is no longer able to do so. Where a government entity is the licensee, the ultimate liability rests with the federal or provincial government. Financial guarantees must be sufficient for the activities that are required to decommission a site, in a form accessible when needed, of sufficient current value and in a form that is acceptable to the Commission.

Financial guarantees for the uranium mines and mills must be approved by the Commission. These guarantees are reviewed every five years to ensure that their value continues to reflect the anticipated work if the licensee is no longer available to undertake the decommissioning. For licensed sites located in Saskatchewan there is an agreement that the Province is the recognized beneficiary of the financial guarantee.

Several interventions requested information about inspections or non-compliances. CNSC inspections listed in the Regulatory Oversight Report are available to the public upon request, pending review for privacy concerns.

Although onsite inspections comprise only 26 percent of CNSC staff effort, the CNSC has a comprehensive program in place with respect to conducting this form of compliance verification. It begins with inspector training in both the process of conducting an inspection as well as for their own personal health and safety and recognition of the requirements for conventional health and safety that they may face onsite. Through comprehensive planning, both 10-year and annual compliance inspection plans are prepared, and then the inspectors conduct their inspections by preparing for the inspection in advance, supplying the criteria for the inspection and then verifying compliance against those criteria.

While conducting an inspection, it is important that the CNSC inspector be able to fully concentrate on the subject of the inspection and not be potentially distracted by other matters. Non-compliances identified during CNSC inspections are included in inspection reports which are available on request. CNSC inspectors follow up with licensees to ensure timely

correction of any matters of non-compliance, regardless of their safety significance.

CNSC inspectors also have a range of enforcement actions available for addressing significant matters of non-compliance, including the authority to suspend work or any other activity if necessary. This is an authority of the CNSC inspector through provisions of the *Nuclear Safety and Control Act*. Information concerning events and incidents such as environment releases or spills are reported on licensees' and the CNSC's website where available.

I will now pass the presentation back to Ms Haidy Tadros for concluding remarks.

MS TADROS: Thank you.

For the record, my name is Haidy Tadros.

So, in conclusion, for 2016 and 2017 CNSC staff have confirmed that licensees have implemented effective programs to ensure safety and have met performance expectations with respect to health and safety of persons and the protection of the environment. Where programs rated below expectations, plans have been put in place to address deficiencies and CNSC staff continue to monitor effectiveness of updated programs.

With regards to coming years and our regulatory focus, as outlined on this slide, regulatory

focus for the 2019 year will continue to ensure licensees meet all regulatory obligations and requirements set out in their respective licensing basis.

CNSC staff will also continue with our commitment to structured, formalized and regular outreach and engagement activities with indigenous groups and communities and the public.

Furthermore, we will further improve our radionuclide reporting, as committed to in our work with Environment and Climate Change Canada on the National Pollutant Release Inventory Task Team.

This concludes CNSC staff's presentation. Thank you for your attention.

THE PRESIDENT: Thank you.

Before we get into questioning by Commission Members, I would like to give an opportunity for the licensees to provide comments.

So starting with Cameco Corporation, Mr. Mooney, do you wish to make any comments at this point?

MR. MOONEY: It's Liam Mooney, for the record, and yes, I do.

Good afternoon, President Velshi and Members of the Commission. For the record, my name is Liam Mooney and I am the Vice President of Safety, Health, Environment Quality and Regulatory Relations for Cameco

Corporation.

Joining me here today is Kevin Nagy, the Director of Compliance and Licensing for Cameco Corporation in Northern Saskatchewan; and I also have Janna Switzer, a Senior Specialist in our Sustainability and Stakeholder Relations Department in Saskatoon.

We are joining you as part of your review of CNSC staff's 2017 Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites.

I want to start by emphasizing that Cameco's highest priorities are the safety and health of our workers and the public, along with the protection of the environment. Our consistent performance in these areas is demonstrated in the report that CNSC staff is presenting today. We sustained our ratings on all safety and control areas while responding appropriately at our operations.

We are proud of our record on conventional and radiation safety as well as environment performance, which we feel is a product of our strong management systems and capable, dedicated staff.

In 2017 Cameco continued to manage our operations through a challenging global uranium market. We were forced to make some difficult business decisions, including to put another two of our operations into a safe state of care and maintenance.

To address any misconceptions of what care and maintenance means, we have about 270 employees at these facilities to preserve infrastructure, monitor the facilities and protect the environment, including continuing to treat water. We had detailed plans for successfully putting the operations into care and maintenance, and all of this work will allow us to resume safely production when the market improves.

We know our business decisions have an impact on Northern Saskatchewan. We have tried to lessen that impact by taking measures such as offering a top-up for those who were temporarily laid off to ensure they're receiving 75 percent of their original wage. This plan was favourably received by the Steelworkers' union. We also worked with government agencies to ensure that appropriate supports for affected employees were in place, readily available and communicated.

More recently when it came to the difficult decision regarding permanent layoffs in 2018, we did our best to maintain the percentage of Northerners working at our operations. This means that about 50 percent of the total workforce at our operations are still from Northern Saskatchewan.

In this context it remains important to have consistent engagement with our target audience in

Northern Saskatchewan in order to hear their thoughts and answer their questions.

Our engagement framework consists of numerous types of communication and contact with northern leaders and community members. Collaboration agreements with our northern partners formalize the framework for our engagement and environmental stewardship, workforce development, business development and community investment efforts.

With respect to engagement in Northern Saskatchewan, we are also able to rely on existing organizations that have been in place for decades. This includes the Northern Saskatchewan Environmental Quality Committee, which was established in the 1990s after the Joint Review Panel.

In addition, community-based monitoring programs, such as the Eastern Athabasca Regional Monitoring Program, confirm that country foods continue to be safe to eat and the water safe to drink.

We also continue to contribute to the community vitality monitoring partnership, an initiative to assess the social well-being and quality of life of residents of Northern Saskatchewan.

Regardless of difficult market conditions and the resulting changes we have had to make, Cameco

remains committed to the continued safe operation of our facilities and meaningful engagement with local communities.

We are available to respond to any questions that you may have for us this afternoon.

THE PRESIDENT: Thank you, Mr. Mooney.

I will now turn the floor to Orano Canada Inc.

Mr. Huffman, do you wish to make any comments at this point?

MR. HUFFMAN: Thank you. Yes, I do.

President Velshi, Members of the Commission, good afternoon. My name is Dale Huffman and I'm the Vice President for Health, Safety, Environment and Regulatory Relations at Orano Canada.

We've undergone a name change in 2018. We were formerly known as AREVA Resources Canada.

I'm joined by colleagues in Saskatoon: Tina Searcy, our Regulatory Relations Manager, and Carolanne Inglis-McQuay, our Senior Corporate Social Responsibility Advisor.

Orano operates the McClean Lake operation and we are Joint Venture Partners on the McArthur River/Key Lake and Cigar Lake Operations. We operate the Cluff Lake Decommissioning Project, for which we will appear before

the Commission in May 2019 for a licence renewal hearing.

In 2017 the McClean Lake operation continued to receive high-grade ore slurry from the Cigar Lake Mine and produced 18 million pounds of yellowcake, while achieving good safety and environmental performance. We processed ore slurry at grades averaging 19 percent uranium, while achieving average worker radiation doses near the public dose limit.

We value transparency and sincerity in our public engagement activities and we have had several occasions to meet with our local stakeholders and update them on our performance and our activities, notably through established forums of the Athabasca Joint Environmental and Engagement Subcommittee and the Northern Mines Monitoring Secretariat's Environmental Quality Committee.

We have reviewed the CNSC staff Regulatory Oversight Report provided for information purposes and find it accurately summarizes performance at the McClean Lake operation and the Cluff Lake Project. As is seen in the report, uranium mines continue to be good performers in the mining industry in terms of protection of health, safety and environment.

We are available to answer any questions you may have. Thank you.

THE PRESIDENT: Thank you, Mr. Huffman.

Licenseses from the historic and decommissioned sites are also joining us by teleconference. I would also ask them if they wish to make any comments.

The first site listed in the report is the Gunnar Remediation Project with Saskatchewan Research Council.

Mr. Wilson, do you wish to make any comments regarding the Gunnar Remediation Project?

MR. WILSON: For the record, my name is Ian Wilson. We have no comments at this time and are able to answer any questions going forward. Thank you.

THE PRESIDENT: Thank you, Mr. Wilson.

For the Deloro Project, joining us from the Ministry of the Environment, Conservation and Parks, Mr. Kaye or Ms Faaren, do you wish to make any comments?

MS FAAREN: No, we don't wish to make any comments, but we remain available if you have any questions.

THE PRESIDENT: Thank you.

For the Rayrock Remediation Project, joining us from Indigenous and Northern Affairs Canada, Mr. Breadmore and Mr. Richardson, do you wish to make any comments?

MR. BREADMORE: For the record, this is Ron Breadmore and we have no additional comments at this

time but would also be available for any questions if they come up.

THE PRESIDENT: Thank you.

For the Agnew Lake Project, joining us from the Ministry of Energy, Northern Development and Mines of Ontario, Mr. Westhaver and Mr. Cobb, do you wish to make any comments at this point?

MR. COBB: For the record, Eric Cobb. No, we don't have any comments at this time, but we will be available as a resource to answer questions.

THE PRESIDENT: For Elliot Lake, from Rio Algom, Mr. Lambert, do you wish to make any comment?

MR. LAMBERT: It's Tony Lambert with Rio Algom. No comments at this time but we are here for questions if you have some.

THE PRESIDENT: Thank you.

For the Denison Mines, Ms Lowe, do you wish to make any comments?

MS LOWE: For the record, my name is Janet Lowe for Denison Mines. Thank you but we do not have any comments at this time but are available for questions.

THE PRESIDENT: Thank you. We'll move to the presentations from intervenors now.

The first presentation is from the English River First Nation, as outlined in CMD 18-M48.4

I understand that Ms Cheyenna Campbell will begin this presentation.

Ms Campbell, the floor is yours.

--- Pause

MR. LEBLANC: Please proceed to the front.

Thank you.

--- Pause

CMD 18-M48.4

**Oral presentation by the
English River First Nation**

MS CAMPBELL: Thank you, President Velshi.

I would like to begin by acknowledging the Algonquin, Mohawk and Mississauga Indigenous Nations and their traditional territory that we have gathered on today.

For the record, my name is Cheyenna Campbell, and I'm from the English River First Nation.

I would also like to acknowledge the Elders, visiting Chiefs and leaders of the indigenous Nations who are gathered here with us to address the CNSC.

And finally, I would like to thank the CNSC and the Commission Members for the opportunity to attend this meeting.

I bring greetings from the Cree and Dene people of the English River First Nation.

My name is Cheyenna Campbell. I am a lawyer, and I am the current Lands and Resources Officer for the English River First Nation.

I brought with me a delegation from the English River First Nation. Angie Campbell, who is a councillor and representative of our leadership. Jeffrey Skopyk, who is an English River First Nation member, a geologist and a geophysicist. And Archie Campbell, who's a former Chief of the English River First Nation, as well as a traditional land user.

In addition to the members of the English River First Nation, we have also brought with us Ms. Robin Kusch, who has been an invaluable resource in reviewing the ROR specifically. She's an environmental scientist that we have retained.

So we're here today to basically put a face to the indigenous Nations of northern Saskatchewan and to exercise our right as a sovereign indigenous Nation to engage in dialogue with the CNSC.

The English River First Nation is a small community in northern Saskatchewan. We have approximately 1,500 members, and our Nation is comprised of 19 reserves in northern Saskatchewan.

The bulk of the population for the English River First Nation resides on the reserves located at Patuanak and La Plonge. Of special note is the fact that the ERFN members live and continue to live on the Cree Lake in northern Saskatchewan.

These members of ERFN have grown up at Cree Lake, carrying on the traditional lifestyle of our people. They follow the old ways, hunting, fishing, trapping and harvesting along the same lines and places that their families have done for generations.

We're here today to build a meaningful relationship between the CNSC and our Nation to illustrate to the CNSC that English River is more than just two small reserves.

We are made up of 19 different areas, reserves, in northern Saskatchewan and, moreover, our homelands, our traditional territory extends far beyond these small borders.

It's the land that our families have lived on and inhabited historically for generations.

And so when the CNSC engages in dialogue or consultation with Nations impacted by the nuclear mining industry, the ERFN is eager to outline our traditional territory so that our Nation is not overlooked during the dialogue or consultation process and so that our historic

borders are acknowledged.

I would like to highlight the fact that ERFN has enjoyed a positive experience in our review of the ROR. It has provided us with much insight and information and a solid base for collaboration with the CNSC.

We look forward to building a strong, long-lasting relationship with the CNSC, and I thank you for your time.

THE PRESIDENT: Thank you for your remarks.

I will now open the floor for questions to any of the parties here.

Ms Penney?

MEMBER PENNEY: Thank you for your presentation.

I was interested in your recommendations with respect to better communication with the CNSC and interested in hearing what form that would take.

MS CAMPBELL: In my opinion, I -- right now, we enjoy a very good relationship with industry working within northern Saskatchewan, namely Orano and Cameco. However, there seems to be a lack of information exchange specifically with their regulators.

Cameco and AREVA has historic -- sorry, Orano has historically had an extremely positive

relationship with our Nation specifically, with the English River First Nation. However, we haven't had much contact specifically with the -- their regulatory agency, so any information we get is filtered through the companies.

Now, we don't have any opposition or negative information specifically with dealing with our industry members through the companies of Orano and Cameco specifically. We just see that there has been a lack of communication between the CNSC and our Nation itself.

So we'd like to build that up and allow for a freedom of information to flow between our Nation and the regulatory bodies of the industry itself.

MEMBER PENNEY: Thanks for that.

I'm going to turn to staff and ask them to comment on the frequency and regularity of communications and what we can do to improve it.

MS TADROS: Haidy Tadros, for the record.

Before I pass it back to our colleagues who can speak to the specific frequency and regularity we have with the Indigenous communities, especially with English River First Nation, I would like to emphasize that our commitment to continuous and formalized engagement has been slowly growing with our efforts internally to ensure that any engagement, present and in future, are meaningful engagement.

So the conversation, the interest, the concerns raised go beyond just a period of time, an annual report.

With that, I'd like to perhaps ask Mr. Adam Levine to describe our engagement efforts, specifically with English First Nation.

MR. LEVINE: Adam Levine, for the record. Team lead, Indigenous Relations and Participant Funding.

So this is really important what Cheyenne is saying, and we actually were meeting with her and her community members yesterday.

I wasn't there personally as I was away in Toronto for other work, but my colleagues who were there said it was a very positive meeting and English River First Nation is saying exactly what we're hoping to accomplish as well, is establish consistent, ongoing communication flows between both us as a regulator and them as First Nations within their territories of interest and the facilities we regulate in their territory.

And so the first step in that is better understanding what their interests are, what information they're looking for and how we can establish a frequency that meets their needs.

So that's the conversations we're having right now and how we can formalize that moving forward, and

we can make sure they're getting the information they need to feel like they're a part of the regulatory activities going on in their territory.

So this is a conversation we're starting now, and we want to continue to build that moving forward.

THE PRESIDENT: Thank you.

Mr. Berube.

MEMBER BERUBE: I'm actually looking at your report, and you ask specifically about being informed of what -- specifically what you're looking for is exceedances of regulatory limits.

And so my question to you, and maybe to CNSC, is what's the best format to present that information to you so that you -- your safety and security and your welfare and well-being are being seen to, and maybe we can make some changes to our formats to accommodate you better.

Let's start off with what you would like to see and then CNSC whether or not we can actually accommodate that.

MS CAMPBELL: Absolutely. Cheyenna Campbell again, for the record.

For -- specifically for information that we would like to see, I think a good story that would illustrate that is my grandfather is a Cree speaker, a Dene speaker. He's since passed on. An English speaker, French

speaker and a Michif speaker.

He lived on the land for his entire life. And having that ROR in front of him would do him good once when he used that to start the wood stove at his hunting cabin.

So whenever I think about our Nation and our people and receiving information from government agencies, from regulators, from industry, it -- I need to keep my grandfather in mind because he's the one who is fishing in those lakes. He's the one who is picking those berries. He's the one who is hunting those moose. And he's the audience that the CNSC should be tailoring their information to, in my humble opinion, from our perspective.

He needs to know that the way that he is living is not going to change and the way that he is providing for our family is going to remain safe and healthy.

So what I would say is, as it stands now, the ability for us to review something like the ROR, we do have the ability to do that. We apply for a limited amount of funds to the CNSC to retain somebody like Ms. Robin Kusch, who's been amazing to work with, and we review the information and she relays it back to us and then we relay that through myself, being an educated member of English River, through a technical person like Mr. Skopyk, who's

also a geophysicist from the English River First Nation, from leadership and from our traditional land user, Mr. Archie Campbell, we're able to take that information back.

However, there are still some gaps. The first languages in English River First Nation are Dene and Cree, so to try to translate those -- some of the technical information in there is very difficult for us. And to get that information across to them can be very difficult for us.

So what I would propose is still leaving that ability to continue down the road that we're on right now as far as gaining the participant funding and going down that road and getting our consultant and being able to disseminate information from that manner but also, in addition to that, what I would like to see is somewhat of an executive summary highlighting the significant changes from year to year or significant information that could be seen as of concern to the specific First Nations in a more reader-friendly manner.

The average newspaper is written for a sixth grade education. I have two university degrees, and that ROR was hard for me to get through.

So I'd like to see something that is more reader friendly and more easily able to be translated into our first languages of Cree and Dene in our community,

something more flexible and simplified without losing the content and integrity of the document.

MS TADROS: Haidy Tadros, for the record.

All very good points, and I believe as staff were going through the intervention what came across is the willingness to want to know and understand more on what we do and how we do it.

With every regulatory oversight report, just picking up on the last point, there is an executive summary. I think staff can look at that and find ways to help with ensuring the information that's captured in that executive summary is digestible, it is absorbable, if you will, at a snapshot in terms of what the ROR contains.

So these are the types of improvements that we'd be looking to to help gain a bit more of the readability that goes into these regulatory oversight reports.

There are also several mechanisms beyond the regulatory oversight reports that are being used to help disseminate plain language information to communities, to the public who are interested in knowing what we do and why we do it.

One such mechanism is the Environmental Quality Councils that exist in the area in the province of Saskatchewan and are available for any community who is

interested in knowing what is happening.

The licensees are there. We participate. We have our site office that participates and observes these conversations.

And I would also like to point out that through this year and as no surprise to the Commission Members, we are looking at our RORs, what is the purpose of them, what do they serve, are they instruments for technical documents for the Commission to relay information on the licensees' performance or are they public information documents.

The language used needs to shift depending on what we decide to make of this ROR, so these are all considerations that we currently are looking at as CNSC staff, ensuring that any conversation is meaningful and is understood.

We have -- the licensees have requirements for public information and disclosure programs so there are requirements on licensees to be able to engage and provide information to the communities that are of interest.

So all to say this is really great information and we need to look at it and understand what is needed and what mechanisms are most appropriate to relay the information that our communities needs.

MEMBER BERUBE: Just in particular, one of

the points on this report was talking about exceedances or, I guess in this case, emissions that would exceed regulatory boundaries.

What mechanisms do we have to inform the local communities that these events have happened and what the potential risk is?

MS TADROS: Haidy Tadros, for the record.

So with regards to events, as they happen there are requirements, and if they are reportable events to the Commission the licensees notifies us and also part of their public information and disclosure programs requires them to post information on their web site in terms of what the event was, the significance of the event, the impact of the event and what corrective actions are being taken to ensure the event does not happen again.

This is with regards to events, and we do, on occasion, provide those events to the Commission so the Commission is aware that we come before you and provide early information reports on what has happened with these events and we follow up with the licensees as required.

With regards to exceedances of regulatory limits, the information is found and we get that information from the licensees' annual compliance reports, which are also required reports that the licensees need to provide to the CNSC.

Some licensees make their annual compliance reports available to the public and do post it on their web site, and our ROR includes graphs that explain where that threshold is and what the current operating thresholds are within the licensed activities.

So this information is available, but I understand it takes a while to get it all together and package it in such a way. So as my colleague, Adam Levine, was saying, if these are the points that are of interest to our indigenous communities, then we will focus our conversation on those points and formalize a structure with these communities that brings that information forward in a more proactive nature as opposed to waiting for annual regulatory oversight reports.

MEMBER BERUBE: So I'm thinking about her grandfather and he's out on the lake fishing, and suddenly we've got a selenium issue in the lake in terms of exceedances. How does he find out?

I mean, he's sitting there, you know, fishing away happily and he doesn't know because who actually goes out and says, "Look, maybe you shouldn't be fishing here right now because we have a selenium problem"?

Does anybody actually do this? I'm trying to understand how he would get that information in a real way that has meaningful impact.

THE PRESIDENT: Does the licensee want to start first?

MR. MOONEY: Sure. It's Liam Mooney, for the record.

I think I want to take us back to first principles, and appreciate the words of support from English River First Nation. And we do -- we have and continue to have a very strong relationship with English River First Nation.

We signed a collaboration agreement in 2013, and perhaps in the creation of these environment subcommittees, which have been the vehicles for discussion, we haven't brought the CNSC into that mix as much as we might have otherwise, but those subcommittees -- the environmental subcommittees under those collaboration agreements meet four times a year and the agendas are set by the members of the environmental subcommittees.

So in that space, there is some give and take about what folks would like to hear about.

Going to the actual issue of exceedances, we don't have exceedances at our facilities. You saw the MMER data that was presented.

The concern that was expressed was in relation to environmental assessment predications on performance of the facility, and in that conversation the

EA process -- you're familiar with it -- is a planning tool.

We have since updated that risk assessment that was from 2011 and reflects the performance of the Cigar Lake operation. And in that conversation, the operation has always remained within the licence limits and performance continues to be optimized with respect to the water treatment circuit as well as the water handling.

So going to your circumstance of Ms Campbell's father on the lake, I think another piece that I don't want to lose in this conversation is the country foods study that is part of a number of different studies that have been undertaken and feedback from communities that are incorporated in relation to the animals that are being eaten or the water that's being drank or the berries that are being collected and the reassurances that we try and provide in that regard.

So I think the -- there's been a real push on public information program and we have our performance and events, as Ms Tadros laid out for you that are posted on our web site, but there's other vehicles for direct communication with First Nations, and perhaps there's room for improvement there.

Again, the collaboration agreements are relatively fresh and we're working our way through that,

but we nevertheless have a very open dialogue and welcome the opportunity to improve that.

MR. STEWART: William Stewart, Uranium Mines and Mills, for the record.

In addition to what Mr. Mooney has presented, there's also a provincial notification process in the event that something were to take place enough to impact the quality of fish.

There is provincial process that they notify people. In addition, the CNSC has our own independent environmental monitoring program, as was mentioned, for monitoring around these facilities.

And I believe there are staff available from Saskatchewan Ministry of Environment in Saskatoon who may be able to provide some additional information if the Commission requires.

THE PRESIDENT: I think we should, if they are around, see if they have anything to add.

Mr. Moulding, are you on the line?

MR. MOULDING: It's Tim Moulding, for the record, Ministry of Environment in Saskatchewan.

Yes. If there are significant events that would constitute some provincial advisory can be issued for reportable discharges, that information is also available for events on the web site provincially as well so that

information can be accessed when there are issues that would require that sort of information to be available.

THE PRESIDENT: Thank you.

Dr. Demeter.

MEMBER DEMETER: Thank you very much for your presentation.

I was going to address the question raised by the intervenors in their written submission about financial guarantees and then CNSC's disposition of that question.

So the intervenor asked about whether the financial guarantee included monies for the engagement of consultation. CNSC's response was engagement may be included in the financial assurance and guarantee, and then it goes on to talk about what that would include.

From a very mechanical point of view when you're building a budget for -- to deal with this issue, you'd think there'd be line items and there should be a line item for engagement and consultation. And the amount in that line item might vary depending on the circumstance.

Engagement may be included doesn't tell me there's a line item. It tells me that it may be considered, but mechanically, I would suggest or ask whether it's a standard line item that you vary depending on the circumstance versus an afterthought that may be

considered.

MS GLENN: Karine Glenn, for the record. I'm the Director of the Wastes and Decommissioning Division.

So under -- the financial guarantees are based on preliminary decommissioning plans or detailed decommissioning plans, depending on what state the facility is in. And one of those requirements is for the licensee to have a public information program and to consider public input. So certain ones -- certain PDPs or for instance the operating mines do have a line item in their cost estimate that is stakeholder engagement.

We are in the process of revising the standard related to decommissioning through the CSA as well as the CNSC's regulatory documents, where we will explicitly indicate that Indigenous engagement is a required component of decommissioning plans. Right now it just says "public" or "stakeholder" engagement. So we are clarifying that line item -- explicitly that line item.

But right now it is a sort of very broad line item that says public engagement or stakeholder engagement, depending on the state that the facility is in. So we would expect them to consult with the public when developing a detailed decommissioning plan if you're an operating facility. But for a facility that's already

decommissioned, there's much less engagement that is required, because they're in long-term maintenance and monitoring.

MEMBER DEMETER: Thank you. So if you got an application before you that was missing that item, then -- as an oversight, you'd say, Well, you need to consider this, and then try to figure out what it may cost to achieve that.

MS GLENN: Karine Glenn, for the record. That's correct. We actually do a line-by-line comparison against the CSA standard. And so if there was no provision for public input or if this wasn't addressed at all by the licensee, we would provide that comment back to the licensee and ask them to provide some information as to how that was going to be addressed and if it was included in their costs.

MR. MOONEY: Sorry, it's Liam Mooney, for the record.

At the danger of jumping in there, one other piece I would like to add is that when we do environmental assessments for projects, the decommissioning strategies for the project are often -- the strategies are included, and there's consultation around the environmental assessment process. So there is not just the window around decommissioning, but the planning for the project to secure

input as well. Of course, that is usually accompanied when you're in a growth area and you're looking at newer projects.

So that's -- would be a welcome situation, but nevertheless that's also an important part of our planning along with the regular meetings that we have, discussions on active reclamation and not just decommissioning.

So I think the EA process is another space. Well, when we develop budgets internally for EA, obviously consultation with First Nations is very important in that space.

THE PRESIDENT: Thank you.

Dr. Lacroix.

MEMBER LACROIX: Well, first of all, thank you for the written submission and your oral intervention.

I've read in the written submission that you have established a company in 1991 that is called Des Nedhe Development LP -- I hope I pronounced it correctly.

MS CAMPBELL: (Des-neh-deh) (phonetic).

MEMBER LACROIX: Oh, Des Nedhe, thank you. And this company invests in mining and construction in Saskatchewan. And I would like to know how beneficial has this, the creation of this company been for the overall quality of life of the Nation?

MS CAMPBELL: For the record, Cheyenna Campbell.

Des Nedhe Development is actually the parent company. In order to do business as a First Nation, you need to first off develop a company to work under. So Des Nedhe is our parent company. And beneath Des Nedhe, we have approximately 12 to 15 businesses in operation.

So of one of those businesses is Tron Construction and Mining. And Tron Construction and Mining is employed -- we have employment and contracts throughout Saskatchewan, and we're currently expanding into Ontario. One of our largest employers in the past has been Cameco and Orano. And that's, I think, one of the bases for our strong relations with Cameco and Orano specifically.

But going back to Des Nedhe, it has developed -- given English River First Nation freedom for -- to expand and consult with agencies and government, specifically in my position.

English River First Nation is a receiver -- as a Treaty 10 First Nation, we receive funding from Indigenous Services Canada specific to certain headings -- education, housing, that type of thing. But there is no heading or budget from INAC for protection of your homelands. There is no heading for protection of your resources.

So English River First Nation has actually employed me specifically. I'm a member of the Nation, and I was out, got educated, spent some time in litigation for 10 years, and then came back home to my community. And I'm employed as the Lands and Resources officer as well as counsel for the community. And Des Nedhe pays my salary.

So we have had the ability to build capacity within our community starting with education as well as Jeffrey Campbell -- or sorry, Jeffrey Skopyk. He's my first cousin; he's a Campbell also, but ...

--- Laughter / Rires

MS CAMPBELL: Everybody's my first cousin on the reserve, basically.

But we've been lucky enough to have people like Jeffrey Skopyk, who's a geophysicist and a geologist. And we've brought him on as well through Des Nedhe. And we've been able to employ these people in our community and build that capacity and come out and meet with agencies and build our voice and take ownership of our sovereignty and our ability to speak on our own behalf apart from industry. While we value our partnerships, I think we do value our own voice as well.

MEMBER LACROIX: So if I read you correctly, it's a good thing. It's a good engagement tool.

MS CAMPBELL: Cheyenna Campbell, for the

record.

Absolutely it is.

THE PRESIDENT: Question for staff. And I know you've tried to address this in Appendix A around non-compliances. And many intervenors have raised this when staff say that the non-compliances were of low safety significance, but no details have been provided. And then there is a statement that inspection reports, redacted, are available upon request.

So question to staff. Given -- one is how you've dispositioned the comments -- again, no details have been provided -- that have you considered, one, including what the non-compliances are from these inspection reports, or at least some kind of an analysis and categories of these non-compliances so that Commission Members and members of the public can get some sense of how you're assessing these as being of low safety significance. So that's the first part of the question.

And the second part is have you considered making these inspection reports publicly available, redacted as appropriate, but without people having to go through the hoops of actually requesting that.

MS TADROS: Haidy Tadros, for the record.

So with regards to President Velshi, your first question with regards to summary of non-compliances,

in looking at how we improve our information with regards to the regulatory oversight report and similar to what we do with events, we can definitely look to adding a bit more salient information as to what the non-compliances were.

In hazard of increasing the report, the regulatory oversight report, this is an area where if there is groups or themes that we can put together based on safety and control areas and the inspections that we conduct, we can always look to improving how we describe and what we describe as low significance in our reports.

So that one is definitely something that we can look to and improve upon in terms of communication.

With regards to making our inspection reports publicly available, the CNSC had undergone back in 2016 an analysis of what it would take to make our inspection reports publicly available. And the results of this analysis indicated that we can potentially move that way, recognizing the impact of needing to translate the reports to make them -- to post them on our website, and looking at the impacts of turning the report, which they currently are focused on licensees.

The inspection reports are for licensees. That is the audience that we are catering the information to. The inspection reports are written in such a way that there will probably be a lot of jargon, a lot of

abbreviations, indication of information that, from the outside looking in, the contextual information will not be there. So that is another area that we need to look at, if we do make these inspection reports publicly available.

So I don't believe it's an easy flip of a switch and putting them on our website and having everyone comment on them. It is an exercise that we will need to look at and ensure is consistent across the different groups that we have at the CNSC as well.

So there are areas that we can explore to improve with regards to our inspection reports and what we put in them, but I would also like to go back to other mechanisms that we will engage in. It does not necessarily need to be within the regulatory oversight report or on our website. As we move forward with increased outreach, increased transparency, areas such as talking about what we find, our inspections, what we look for, what compliance activities have we conducted -- these are all areas that we can use other mechanisms to update the communities on as we go forward.

THE PRESIDENT: Thank you. That is very helpful. But even for the Commission, the only time we hear about the oversight of these facilities is at the regulatory oversight report annual basis, unless there has been an event. So even as a first start [sic], to start

getting a summary or some kind of analysis of what these non-compliances are would be helpful.

Dr. Jammal, you had something to add?

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

And thank you, Madam President. There are a couple things I would like to add, since we have quite a significant audience here.

We are reviewing, as it was mentioned previously, we are reviewing at the regulatory oversight report and its functionality. And I just signed off the term of reference for the working group to move forward. We will be going out for consultation for the public and the stakeholders, and it's very important that we will expect that engagement will take place with our stakeholders and the communities that would like to have more information with respect to the ROR.

In addition to the ROR itself, we are looking at international best practices. And I have no issues at all where staff will take a dedicated trip and a meeting with the local communities to discuss findings on a quarterly basis based on inspections, with the presence of the licensee or no presence of the licensee, and that such practice does exist in the south of the borders, where the local regional inspectors meet with the community and

discuss with them non-compliance issues in a transparent manner.

So we're going to look at it globally instead of doing it bits and pieces, and I will come back to the Commission with the way forward.

THE PRESIDENT: Thank you. Thank you very much.

MR. MOONEY: Sorry, it's Liam Mooney, for the record.

And at the risk of providing the licensee perspective on that, I think that there's a conversation around the findings and the publication of them in the ROR. In the inspection reports themselves, we see those in a very different light. They're, again, the CNSC doing their job and we're trying to respond to the findings. I think that we have to be mindful of that impact that that broader dissemination of those inspection reports will have.

I think on the process side of things, it's important to emphasize too that we had a REGDOC produced -- 3.2.1 -- not that long ago about public information and reporting. The process would seem to be that that's one of the avenues about a discussion paper around that and there would be comments and consultation.

I'm glad to hear from Mr. Jammal that there will be further consultation in that regard, but

licensees have a perspective, I think, that would see the appropriate balance is maintained through the access to information request. We recognize that that carries with it some hoops, as you said, but that's a balance between confidential and proprietary information that can be contained in those inspection reports.

And the other balance I think of as well when I start to go upstream into our fuel services division, we start talking about nuclear technology information, and there's disclosure issues around that in relation to what might be in a report.

So I think that the point we would make is that there needs to be an open discussion on that and recognize all perspectives.

THE PRESIDENT: Thank you, Mr. Mooney. I think what you said goes actually without saying, because as you know the CNSC would not take on any action without doing the appropriate consultation with all the stakeholders.

Anyone else with any -- Ms Penney, question?

MEMBER PENNEY: It's a technical question. So following up on the technical review that you've submitted, which is quite good, I want to get some answers to the question around arsenic in Seru Bay. So it's a

question for Cameco.

And I think I heard you say that you've revised your ERA from the 2011. And so the specific questions were around the arsenic levels elevated in water and is it also elevated in sediment. And I think somewhere in the report it says that it's elevated above predicted levels, but not exceeding protective guidelines.

So I just want you to answer the questions that have been proposed. It's on page 5 and 6 of their document.

MR. MOONEY: It's Liam Mooney, for the record.

And you're right, you did hear we have an updated environmental risk assessment in relation to Cigar Lake that was submitted in 2017. And there has been a concerted effort at the facility, as our own monitoring systems flagged, that we were seeing arsenic above the predicted levels in the 2011 EIS. There's been considerable effort to address this.

Similarly, when we updated the Commission on Cigar Lake a couple years ago, the parameters have to be looked at as you go through the facility and through optimization of the treatment circuit as well as water handling, i.e., keeping clean water away from contaminated water.

We've been able to both reduce the water flow and the concentrations at the facility. So right now, the performance that we're seeing in relation to water quality is well within the objective of the licensing basis as established by the updated environmental risk assessment that was submitted to CNSC staff.

I'll ask Mr. Nagy to give you a bit of information on the sediment quality in Seru Bay as well.

MR. NAGY: Good afternoon. Kevin Nagy, for the record.

Specifically looking at sediment to answer that question, the concentration of sediment -- of arsenic in the sediments in Seru Bay as measured sampled in 2016, the last round of comprehensive environmental monitoring that was done at Cigar Lake, the concentrations are slightly elevated above the levels that were predicted in the 2011 EIS. The EIS value in 2011, those predictions were 4.7 micrograms per gram of arsenic. And the levels measured in 2016 were 7.9 micrograms per gram of arsenic.

That said, those levels are within environmental quality benchmarks, such as a lowest observable effect level for aquatic biota. So the monitoring also indicates that those levels aren't having an environmental impact, and we're still within the licensing basis for the operation.

MEMBER PENNEY: And would there be toxicity testing on those sediments to demonstrate that they're not having an effect?

MR. NAGY: Kevin Nagy, for the record.

As Mr. Mooney indicated, we updated our environmental risk assessment, submitted that I think about this time last year to CNSC staff. So through that process, the concentrations in the sediment of a range of parameters are looked at and the uptake to aquatic organisms and the toxicity to receptors. So that was looked at in the ERA, and no risks were predicted to receptors.

THE PRESIDENT: Okay, anyone else with any questions?

Ms Campbell.

MS CAMPBELL: Thank you, Madam President.

I hear Ms Tadros speaking about availability of information on the Internet. And I hear the same thing from Mr. Mooney.

And to that, I would like to say I live in northern Saskatchewan, where our power goes out on a weekly basis, and our Internet is very unreliable. So for us to rely on information to come in and be available on the Internet is not a reliable source as it would be in an urban centre.

So when there's information going out and disseminating, as Ms Tadros has indicated that there are other ways that they would be able to provide us with information at the English River First Nation, we come from an oral tradition, from a community where information is shared orally, passed down and is better digested by the community members hearing it as opposed to receiving it in written form. Many of our members do not even speak English as their first language, if at all.

So I would suggest that -- and I hope that this would be one of the priorities in the engagement process with the CNSC specifically -- would be for us to sit down and possibly have the ability for somebody from the CNSC to come to our community or to hold a meeting, providing specific information of interest that we have identified prior to, maybe at an urban centre, where we can come together and provide that information specifically to us and consistent with our oral history and our oral tradition in our communities.

In addition to that, Mr. Mooney was also indicating that the CNSC site offices are a wealth of information. I can tell you that my granddad wouldn't find that a very inviting place to date. It may be. My new friend, Mr. Peter Fundarek, has graciously extended introductions to our community members as he goes to our

Saskatoon office next week, which I fully intend to take advantage of and hope he has coffee ready for me as I attend next week.

So that is another step that I'm happy to see that the CNSC is taking and showing their commitment to an engagement with the First Nation. So I gladly accept that opportunity to attend the office and understand that we can get information from the CNSC specifically at the office.

We want to be able to call them and get it the old-fashioned way. The Internet isn't an accessible information highway in the North, because it's still gravel road up there. Like it's not something that we have reliable access to. So for us to be able to call your office and say, Hey, there's something that's a concern to us; can you please provide us with a specific document, the old-fashioned way is sometimes the best way, as my dad likes to inform me over and over again.

THE PRESIDENT: Okay, thank you, Ms Campbell. And I think you've heard from CNSC staff a commitment for doing so. And we as a Commission certainly will be monitoring to make sure that this engagement is coming along well.

So thank you for the intervention.

And we will take a 10-minute break and

reconvene at 3:20. Thank you.

--- Upon recessing at 3:10 p.m. /

Suspension à 15 h 10

--- Upon resuming at 3:20 p.m. /

Reprise à 15 h 20

THE PRESIDENT: The next presentation is from the Ya'thi Néné Land and Resource Office, as outlined in CMD 18-M48.5.

I understand that Mr. Michael Dawe will be introducing this presentation. Over to you.

CMD 18-M48.5

Oral presentation by

Ya'thi Néné Land and Resource Office

MR. DAWE: Good afternoon. My name is Michael Dawe, for the record, and I'm the Environmental Consultant hired on behalf of the Ya'thi Néné Land and Resource Office. Today I'll be giving a verbal presentation.

Here with me today, hopefully joining shortly, is Fred Martin, Delbert Bouvier, and Paul Denechezhe, all of whom are representatives of their home

communities and leadership.

Seated in the audience just behind me are Ya'thi Néné members Linda McNabb and Mary Denechezhe.

I would like to start by thanking the Commission and the CNSC for hosting this event and allowing us the opportunity to present today.

In introduction, our presentation will include an outline of the Ya'thi Néné Land and Resource Office and a brief overview of the recommendations contained in our formal submission of the Regulatory Oversight Report for uranium mines, mills, historic and decommission sites in Canada, 2017.

Ya'thi Néné Land and Resource Office works to enhance the environmental, social, cultural, and economic health and wellbeing of the Black Lake, Fond du Lac and Hatchet Lake Denesuline First Nations, as well as the municipalities of Camsell Portage, Uranium City, Wollaston Lake, and Stony Rapids. All these communities are located within the Athabasca Basin Region in Northern Saskatchewan.

Our office works with industry, government organizations and local community groups on various environmental matters that occur within the Athabasca Basin Region.

We are the main point of contact between

government, industry, and the local residents. We have reviewed the Regulatory Oversight Report, have communicated with CNSC Staff and have been an active member of the Athabasca Joint Environment and Engagement Subcommittee, also known as AJES, which I'm sure you're familiar with.

The Ya'thi Néné is generally well-informed about the activities and undertakings of the uranium mining operations located in the Athabasca Basin and appreciate participating at events such as this. We acknowledge the participation of the CNSC in meetings and communications with both our organization and northern community members.

Ya'thi Néné highly values the beneficial relationships that have been created throughout this collaborative process. We highly value this collaborative process and working relationships with both the CNSC and the mining companies.

In order to continue down this path of best practices, Ya'thi Néné offers comments and recommendations for the CNSC's consideration.

At this time, I'd like to briefly outline the five recommendations contained within our formal submission: 1) continue efforts to engage community members on topics of interest and relevance; 2) evaluate the Regulatory Oversight Report timeframe; 3) share focused information on relevant environmental monitoring programs;

4) establish a process that shares existing information on spills with the Ya'thi Néné and the communities; and, 5) collaboratively develop an appropriate means to share technical information with communities.

At this time, I'll speak just in briefly greater detail to each of those recommendations.

Recommendation 1 which, again, continue efforts to engage community members on topics of interest and relevance. We want to ensure that community members are broadly informed about reclamation and decommissioning activities in relation to existing mining operations.

Previously, a one-day workshop on the topic of reclamation and decommissioning was organized and participants included Orano, Cameco, the AJES group and CNSC staff. This collaborative approach was beneficial to all involved. Ya'thi Néné recommend similar approaches when sharing knowledge and engaging with community members.

Recommendation 2, evaluate the Regulatory Oversight Report timeframe. Ya'thi Néné appreciates the opportunities to meet with CNSC staff to discuss operations, reporting, engagement, et cetera. The ROR review process by intervenors does not allow for a time period that would support advanced resolution of questions or issues. Ya'thi Néné would support an advanced process to allow for any questions or queries to be responded to in

a manner that promotes resolution of issues between CNSC staff and Ya'thi Néné.

Recommendation 3, share focused information on relevant environmental monitoring programs. Questions and concerns from community members include conversations regarding water, animals, air, and the way of life. We recommend that the CNSC and Ya'thi Néné work together to ensure that CNSC's independent monitoring program reports are made available for review by our organization. Additionally, Ya'thi Néné would like to remain engaged and notified of any updates regarding the Selenium Adaptive Management Plan as outlined on page 96 in Section 7.3.

Recommendation 4, establish a process that shares existing information on spills with Ya'thi Néné and the communities. Our organization is aware that companies are required to disclose information on their websites pertaining to spills or safety issues in accordance with their licence public disclosure protocol.

Ya'thi Néné suggests that the CNSC in cooperation with both Cameco and Orano work with Ya'thi Néné to establish additional means by which the information from the websites of the companies can be more broadly shared with Ya'thi Néné and potentially the communities.

The fifth and final recommendation,

collaboratively develop an appropriate means to share technical information with the communities. The information that is disseminated by the companies and the CNSC is often very technical in nature and challenging to convey to community members in a way that is both meaningfully and purposely understood.

Ya'thi Néné would like to discuss the merit with the CNSC of ensuring that future RORs have a plain-language summary included in front of the report and could then be more simply translated into Indigenous languages such as the traditional language of our First Nations, Denesuline.

In closing the presentation portion of this section, our office is very pleased with the level of communication between the CNSC and ourselves.

We view technical documents such as the ROR as knowledge pathways, as they allow Ya'thi Néné to pass information along from community members in a variety of ways. This transfer of knowledge is critical in ensuring that people of the Athabasca Basin are meaningfully informed with regards to ongoing operations within the region.

With any time remaining, I'd like to invite my colleagues to make any additional comments or remarks regarding our submission.

MR. DENECHZHE: Marsi, good afternoon.

My name is Paul Denechezhe, I'm with the Hatchet Lake Band, Band Councillor. In my community our population is almost 2,500 people in the Wollaston Lake area.

It's a remote community and the price of living is very high for food and groceries, and a lot of elders and members are concerned about the activity that's going on in the area, and also the trapping is still going on, hunting and fishing. In this area, N26, we have trappers. N26 is right along McArthur River, McArthur Mining and Cigar Lake area and McClean Lake, and there's trappers still trapping in this area, like Gabe Benone(ph) and the families from late William, late Jonas and late Tony, they still utilize that area.

A lot of the communities are concerned about the environmental issues when they hear about the activity that's going on on lakes like the A zones and B zones, and also the ore hauling 80 km from Cigar Lake to McClean Lake. Also when they're hauling yellowcake from the mines to southern communities, the road issues, they need to have better roads just in case there's environmental impact. A lot of the stuff from Cigar Lake, contaminated stuff, are hauled to Rabbit Lake to the tailing ponds.

These are the issues that have been raised

at the community level. Also a lot of the stuff like core storage that are left behind by excavation companies, that they need to do a cleanup.

So there's a lot of issues that have been raised. I'm glad that I'm here to represent my community on some of the issues that we deal with in our everyday lives. The monitoring groups, you know, we need to continue on with monitoring the air quality and the water. I've been hearing it for a long time, since the 1990s and the last couple years.

Like, we need to be consulted, we need to be -- duty to consult with the community when we're doing decommissioning on Rabbit Lake. Like we have experience at the uranium mines at Uranium City, what they have done with tailing ponds and what we have seen. We don't want to see those kinds of issues in our backyard now. We only live about 20 km from Rabbit Lake.

So when we hear things like when they're working at night shifts, when the wind comes from the east, all the activity that's going on, it's been -- they could hear it from the community, like trucks and blasting and stuff like that.

So it would be nice if, in that area, N26, if we do a co-management, you know, with the mines and also (indiscernible) like, you know, when they give out permits.

So a lot of issues that have been raised in my community, and that's what I'd like to stop at. So marsi.

THE PRESIDENT: Okay. Thank you very much. You were here for the first intervention that we had from the English River. Some of the concerns or comments that you raised around information sharing, there was a fairly extensive discussion, so hopefully those got addressed to your satisfaction, if not we can come back to those. But there were certainly some new ones that you have raised.

So opening up for questions, Dr. Demeter.

MEMBER DEMETER: Thank you very much. Thank you for your presentation. The comment raised about the condition of the roads for transport, what jurisdiction does that fall into as to whether the roads -- is that a Saskatchewan Ministry of Transport issue with regards to the type of vehicles that can go on the type of roads and what type of remediation they need?

From a safety factor, because they're carrying products we don't want to get spilled. Can someone maybe from CNSC comment or maybe from the licensee comment? I'm not sure who has jurisdiction over maintaining the roads appropriate to transport.

MS TADROS: Haidy Tadros, for the record. The Province of Saskatchewan would have that jurisdiction

in terms of roads. Perhaps we have individuals who can speak to sort of what their plans are for the roads in the north.

THE PRESIDENT: Anyone from the Province of Saskatchewan want to respond to that?

MR. MOULDING: Tim Moulding, Ministry of Environment, for the record. It would be the Ministry of Highways and Transportation that looks after maintenance of the highways for commercial travel and travel in the north, and to my knowledge we haven't had any major highway-related incidents in quite sometime on those northern roads related to mining operations.

THE PRESIDENT: Mr. Mooney.

MR. MOONEY: Liam Mooney, for the record. We do maintain the roads between our mine and mill sites, but also contribute to a heavy haul agreement to the maintenance of the roads by the Saskatchewan Ministry of Highways and Infrastructure.

So there is some funding that we've made available to the Ministry, and they are charged with building and maintaining roads in the north, as Mr. Moulding pointed out.

THE PRESIDENT: Okay. Mr. Berube.

MEMBER BERUBE: First of all, I thank you for your submission and thank you very much for coming to

see us. It's important that we see you and I think it's important that you have the opportunity to speak on behalf of your Nation, and we deeply appreciate your time and making the energy to come here and do this.

You listed a number of concerns. What would be your top concern in that list of things that you gave us that right now is pressing to you that you would like to see it, you know, taken care of or looked at anyhow?

MR. DENECHZHE: Better road to Wollaston. No, I'm just...

--- Laughter / Rires

MR. DENECHZHE: Just to have dialogue with the community and information if there's any activities that's going on in the area.

THE PRESIDENT: Well, we can get Mr. Levine to talk. Have you initiated any discussions on the engagement framework?

MR. LEVINE: Adam Levine, for the record. So we have a long-standing relationship with the Athabasca Dene communities. I know Paul very well and we have ongoing communications about a number of different things going on in their territory.

We're actually meeting with the Ya'thi Néné Land and Resource Office and their representatives

tomorrow and we're going to be talking about all the things that Mr. Dawe outlined in their presentation and start looking at how we can actually tackle some of these issues. I know they're long-standing, and each community has their preferences for communication and dissemination of that.

So we have all the tools I think available, all the information available, it's really just how do we package that, how do we provide that information to the community in an appropriate way to make sure it's disseminated throughout to the community members. So we really look forward to working with them collaboratively on that starting tomorrow.

THE PRESIDENT: Thank you.

MR. MOONEY: It's Liam Mooney again, I keep interjecting at my own peril I guess. On that, I did want to -- there was reference in Mr. Dawe's presentation to the Athabasca Joint Environmental Subcommittee and that you would be familiar with that.

I know that there's been a fair bit of change on the Commission Members, so I just wanted to touch on that briefly too because what Mr. Levine said I think is important, but that it's also integrated with some of the other pieces that are already in place.

So I'm going to ask Ms Switzer to expand on what AJES is and how that has been a vehicle for

communication in Northern Saskatchewan.

MS SWITZER: Thank you. Janna Switzer, for the record. Just to speak to the Athabasca Joint Engagement and Environmental Subcommittee. It was formed as part of the collaboration agreement that Cameco, Orano and the three First Nations in the Athabasca, as well as four municipalities, signed. The committee has agreed to a forum where we talk about activities that are happening at the mine sites with both Cameco and Orano. So any activities that are happening throughout the year we discuss.

We also have representatives. So we have a representative from each of the First Nations, and then one representative who's actually in the Saskatoon office right now, Denise Bougie, and she represents the four municipalities.

So we set an engagement plan for the year and then we meet four times, and that's quite a flexible plan where community members can bring forward concerns that are applicable to the mine sites. It allows for a transparent sort of open discussion with members sitting at the table.

I would also add that on that committee we do have the Executive Director of the Ya'thi Néné Land and Resource Office, so that's our connection back to Ya'thi

Néné, so we have a representative there as well.

THE PRESIDENT: Thank you.

MEMBER PENNEY: I had a question, a good follow-up on that around the monitoring plans. Because there's that group, the AJES group, and then there's the community-based environmental monitoring program. I'm not sure how that -- and that's mentioned in your submission. Then there's the EARMP, the Eastern Athabasca Regional Monitoring Program, and then of course there's the CNSC IEMP.

So I guess my question is, is how do they all overlap? How do they all communicate with the communities? Does, for instance, the CNSC sit on that Athabasca Joint Environment and Engagement Subcommittee? So I don't know who I'm asking that question to, but...

MR. MOONEY: I'll take a stab at it, and then I'm sure there are others who can add more. But on the community-based environmental monitoring program that comes out of the agreement, the collaboration agreement, that Ms Switzer just referred to. It builds on what was a monitoring program that had been in place since 2000 called the Athabasca Working Group.

So not to confuse you further, but there's another -- AWG was the other acronym that it was formerly referred to as under the IBA that was signed in 1999. So

in that space the community-based environmental program is evolving and focused on dietary surveys and focused on by community dietary surveys. So it's changing and it's doing so to reflect the requests made of the folks involved with it.

On the IEMP, I'll leave that to the CNSC because that's the CNSC's program.

But on the Eastern Athabasca Regional Monitoring Program we refer to as EARMP, that's a program that the Province of Saskatchewan developed. It's another output from the panel reviews that took place in the 1990s. What it recommended was a cumulative effects monitoring program, and under the Saskatchewan Government's Boreal Initiative it was reinvigorated, restyled as the Eastern Athabasca Regional Monitoring Program.

There's two components to it; there's a technical program that happens on a more spaced-out interval, but there's also country foods that are collected. In relation to the country foods, it's really a process where community members take what they hunt or fish and send it on to be tested and help confirm the safety of the food that they consume on the land.

I'm not sure if Dr. Irvine is on the phone, he's a provincial representative who has had some involvement with both EARMP and the Community Vitality

Monitoring Partnership.

THE PRESIDENT: So why don't we ask Dr. Irvine to comment before we go to the CNSC?

DR. IRVINE: Yes, for the record, I'm James Irvine, I'm a Public Health and Preventative Medicine Physician based in La Ronge, and I've been Medical Health Officer in the north since 1985.

So there's a number of different initiatives, and generally I think they're complimentary. There is the need for dietary survey information. We have the benefit of some work done in the past in Hatchet Lake First Nation, a detailed dietary survey. But it's great that that work is being updated in the Athabasca area.

Then the Eastern Athabasca Regional Monitoring Program, or EARMP, has environmental testing of air, water, soil, sediment, but also fish, moose and caribou, and there's been some development of that of late.

Then the CNSC is complimentary to that in terms of adding further information as it relates to environmental chemical constituents within country foods or traditional foods as well.

I'd be happy to answer any questions or there may be others in the CNSC who could add further information both on EARMP and for Independent Environmental Monitoring Program.

THE PRESIDENT: Mr. Huffman first, and then the CNSC.

MR. HUFFMAN: Thank you. Dale Huffman, for the record. Just so that we don't lose part of the thread of your question, the CNSC doesn't sit on the AJES. AJES is a product of the collaborative agreements between the companies and the communities. So I just wanted to clear that up before it gets passed on.

MS SAUVÉ: Kiza Sauvé, I'm the Director of Health Science and Environmental Compliance Division at the CNSC. So following from Mr. Huffman, the CNSC does partially fund the EARMP so we are involved in that program and setting the scope of that program.

But in terms of the CNSC Independent Environmental Monitoring Program, this is done in publicly accessible areas a little bit closer to the facilities. So the Eastern Athabasca Regional Monitoring Program, the EARMP, is done in the communities.

So you've got the communities and then you've got a little bit closer to facilities publicly accessible. There isn't necessarily a lot of public up there, although we do hear that there are probably trappers in the area and we do reach out and try to get that information.

Then we also can't forget the licensees'

environmental monitoring program. So if we go back to the last Commission Meeting, Dr. Lacroix, we might have more than suspenders, we have a belt and suspenders, and in Northern Saskatchewan the amount of environmental sampling that's done is quite extensive.

MEMBER PENNEY: I guess my question, to bring it back to communication, how are the results of all those various monitoring programs communicated to the communities, and is it satisfactory?

MS SAUVÉ: Kiza Sauvé, for the record. I'll start, and I can't answer why they're not at satisfactory, that's up to the community to answer that.

In terms of the Independent Monitoring Environmental Monitoring, we do post our information on our website. We also, in February 2018, were at the Northern Saskatchewan Environmental Quality Committee and did a presentation then, and that's in terms of the IEMP. The EARMP website is quite extensive as well and those reports are sent out to the communities.

And I think I would turn it over either to the licensee or the communities to add onto that.

MS SWITZER: Janice Switzer, for the record. As far as the community-based environmental monitoring program, I would emphasize that that is really driven by that age's group, so I'm what that program looks

like.

We also -- so we present the results to the community members. We have translators at those meetings for the community members. We also provide pamphlets annually and they are specific to the communities and I distributed as many copies as we need to distribute out to the community members.

MR. MOONEY: And finally on EARMP, there is a budget that is provided for the communication and the independent consultant that the province hires to carry out the analysis and develop the report. That's available, the raw data and the report itself is available on the EARMP website. And in that there is also very directed, targeted meetings in the communities to talk about the results. In some years that's the majority of the work that that group is doing is communicating what the findings were.

So there is a concerted effort beyond posting on a myriad of websites to communicate both through collaboration agreement documents, but also presentations to the Environmental Quality Committee that is formed under the Northern Mines Monitoring Secretariat and is directed by the province.

THE PRESIDENT: Okay. Anyone else?

One of the other concerns that has been raised, not only by this intervenor but by others, is the

timeframe for reviewing and submitting comments on the ROR.

Can staff comment on that and what can be done to address this.

MS TADROS: Haidy Tadros, for the record. So from staff's perspective the process that we currently use is the process that's established to ensure that there is at least a 30-day period to review the ROR so that staff would be in a position to disposition and respond to some of these comments. And recognizing that with more information on the website there's also a lot more need for time to review that information.

So part of what Mr. Jammal was indicating as our review of the ROR and the opportunities that that provides us, we will need to take a look at our experience and our lessons learned with regards to the timeframes that these reports offer. And in scope of what the reports contain, what they are tended to include in their scope and the frequency of these reports, we will have to look at all of that because in the end the commitment for meaningful engagement needs to address the timelines as well.

THE PRESIDENT: Very good. If no more questions from the Commission, over to you. Any final words?

MR. DAWE: Michael Dawe, for the record. Just in response to the CNSC's previous comment with

regards to timeframe, I mentioned earlier in my presentation that there's numerous both First Nations and municipal communities that fall within the region that we work within, so the 30-day window to be able to process information and reach out to all those different players and stakeholders and try to communicate back and forth, for have them to review the process and are there any additional comments, concerns, opinions, it really does take time.

So while we do try to be as flexible as possible being definitely cognizant of the timeframe that you guys are dealing with as well, it can definitely be a struggle to ensure that we've made every best attempt to reach out to as many people that fall within the region that we work within to ensure that they've had the time to review and comment back to us.

So it can be a bit of a blurry line there, but we definitely do appreciate the effort that both the CNSC and the Orano and Cameco put into to just trying to allow us those resources to try and reach out to everybody because it is -- it's quite a large area. When you look at it on a map you don't really get a prospect, but when you travel between the few, it takes a lot of time to cover all that ground and to interact with all those people, so timeframe is definitely something that we can find

restrictive when working with RORs and other documents of this nature.

THE PRESIDENT: Okay. Thank you. Thank you very much again for your intervention and coming here and making it orally.

So, moving on to our next intervention, the next presentation is from the Prince Albert Grand Council as outlined in CMD 18-M48.7 and 18-M48.7A.

I understand that Mr. Abdullah Al Mamun will be presenting.

CMD 18-M48.7/M48.7A

Oral Presentation by

Prince Albert Grand Council

DR. MICHELL: Good afternoon, my name is Dr. Herman Michell. I'm an external consultant for the Prince Albert Grand Council.

First of all, I'd like to acknowledge the Algonquin Nation in the traditional territories that we're on. I bring greetings from our Grand Chief Brian Hardlotte, our Vice Chief Joseph Tsannie, our Vice Chief Chris Jobb.

I'm here today with Dr. Mamun Abdullah, my colleague, and Ronnie Augier from the Fond du Lac First

Nation.

We share the same concerns as the English River First Nation and the Ya'thi Néné.

We have reviewed the report. The majority of the uranium mines and mills and decommissioned sites in the report are located in the Prince Albert Grand Council region. We advocate on behalf of 12 First Nations and 28 northern reserve communities.

The Denesuline peoples in the Athabasca Region are directly within the mine sites and the decommissioned sites and the reclamation efforts. Many of our First Nations people as well beyond the Athabasca Region are also employed in the mines and the closures have affected the families that are already in a vulnerable state.

We thank the Commission for giving us the opportunity to speak today. Shortly my colleague will speak about the gaps in the report. The PAGC recommends First Nations representation on the panel itself.

We also strongly recommend First Nations -- priority be given northern First Nations when hiring for decommissioned sites and the remediation projects.

I also understand that there are approximately 35 abandoned uranium sites that are not in

the report and this is a concern to the people that we advocate for.

It is also important that the traditional ecological knowledge of the Dene peoples be taken into serious consideration in the reclamation of the sites, also very important in the environmental assessments.

We are available to answer any questions the panel may have after our presentation. I'll turn it over to Dr. Mamun Abdullah.

DR. AL MAMUN: My name is Abdullah Mamun, but you can call me shortly as Mamun.

And it is my opportunity to speak on behalf of Prince Albert Grand Council. And I was really enjoying the conversation that something happening with respect of the participation of the First Nation community and it is the example that they are invited here to speak on behalf of their problem.

So I'll discuss, like how can I come in here, I'm not a person born in here, I came from Bangladesh. I hit the road in 19 -- sorry, 2014, I have not seen anything. This was a road coming from Saskatoon to Prince Albert. I had the intention to make a little bit of change, hope my information I'm sharing is helpful to understand some of the problems I learned from the First Nation Elders across northern Saskatchewan.

So this is some sort of background information, you may already know that so I'm not going to go past on that. I already heard from my colleague, it is similar information I am going to share in here. These northern Saskatchewan 37 abandoned mines is a big issue in the sense that at that time this regulatory process was not that much stronger and also the environmental protection was not done. This is information I got.

So if you talk to any of the Elders in northern Saskatchewan they're really worried, like can I eat the fish, can I go to hunt an animal that is eatable without any concern? I talked to around like 135 Elders across northern Saskatchewan, so I always -- if I speak from my science, I have a social science background and I did most of my work with respect of traditional ecological knowledge system. I'm not the knowledge user in here and I'm not the knowledge holder but I analyze some of the information and basically I make some sort of interpretation based on my science understanding of health being a people connected to the land in my country.

So they would be very worried and they'd be very happy to know that, like what has happened in the past. This is the difference between pure science and the traditional ecological knowledge. That knowledge is still there, people has observed these changes after mining

operation in 1950, I believe that, I didn't go that much of this area, but I'll be very appreciative if this information is here that people has watched and detected this change during this mining operation. Maybe this knowledge can be used to understand the impact in the other mines upcoming in the decommissioning process out of that.

So that is my point to bring in here.

And also their tradition of ecological -- using traditional ecological knowledge, so we're glad that there are so many parameters included in this sampling process. So in that case like my concern is, like there should be some variation between labs. Like if you test one sample in one lab, I might be wrong you can correct that, then it will be one type of -- I mean result sometimes and if you verified this result, started sampling across labs, it might be kind of -- I mean close to accuracy I think. So that is my point to bring if it is possible.

I'm not an expert of the -- I mean this radioactive (indiscernible) but that is my point and I discussed this information with the leaders and Elders I could talk to. So they agreed on that point also.

So, and then we are worried about this traditional knowledge use. So please listen a little bit carefully. If they're participating in this process for

sampling collection what does it mean by that? It comes to me like they're (indiscernible) they're taking part in the science, we're very happy for that.

At the same time I would be very appreciative if there is a way that these traditional knowledge holder and these are the knowledge we have used from the traditional knowledge holder to analyze the impact of this mining. Is that clear a little bit?

So that is my point. Like, we are okay with the science, I have a science background that's all right, I told you. So that is my main concern, like how does their knowledge is used and what exactly is the contribution of the participating community could make in this process.

This is my understanding. Like CNSC members are here. How about we include one member they have an understanding with how this traditional knowledge, I mean like can be included or what are the contribution coming from the traditional knowledge to share with everybody in here.

So then this issue of flooding, if you look at these two pictures -- I didn't go there, but this elevation difference, like, between this tailings pond and the mine, I mean with Gunnar Mine site and (indiscernible) not very much. So in that case, like, if I take into

consideration of the warmer weather that can increase rainfall, we can believe on that. And in that case, like, if we compare the situation it is hard to determine how increased precipitation would affect this area. So if they have any information to share, we would be very glad to have this information that they can impart to us or to anybody interested as an intervenor.

It is kind of similar information and I referenced it because it is not my work. So this is exactly showing how the (indiscernible) would be looking like. So in that case like that's a very important question, I think. Like, climate change, we have had some time to know about this, but something happened that we're seeing; let's say there is increased precipitation. So in that case, like, my understanding, there should be a climate (indiscernible) preparedness focusing on the Black Lake and Athabasca area.

And in a similar sense I would say like does CNSC have any flood mapping with respect of -- as to targets of new uranium mines because then you can understand, okay there is a 10-foot increase of the water level, how many area will be flooded, whether this -- I mean inundated area also include some of our mines, so that would be a good thing to know.

I think some of -- well many of you know

about DEM, digital elevation models, so that can help you to -- help us to understand, okay, if there is a 10-foot elevation of water, these big area are going to go underneath the water. And there is very good information (indiscernible). So that would help you to collect this interpretation or taking some sort of estimation what are the area going to be affected at 10-foot high if it is the case.

We hope that this discussion is okay. Like we're trying to be like gender sensitive as well. So in that case like 50 per cent of the mining workforce are working they are women as opposed to 47 per cent of national average.

So in that case like if we say, like, mining is a man job, it would be a mess I think. So it is possible in I mean in consideration of this type of an issue women are facing. And also the fly-in/fly-out mode of jobs are generally considered as stressful for women in these cases. So if there are any program to improve the current working condition we'd be very happy to know that also.

MR. LEBLANC: So, if I may, Dr.

Abdullah --

DR. AL MAMUN: Yes.

MR. LEBLANC: -- we have allowed 10

minutes for oral presentations, it's been more than 12, so if you can take just a few minutes to summarize the key points that are remaining.

DR. AL MAMUN: Okay.

MR. LEBLANC: Because I know you're about halfway through your presentation. Thank you.

DR. AL MAMUN: So we are expecting that there should be long-term planning element with respect to aboriginal youth, so that is already discussed I think. And also we have some example about how the province is doing with respect of -- especially this program.

So in that case like if the CNSC can take an initiative to start this process we would be very happy to know that also. So this is -- the ecosystem is one of the main concerns for us. Like this is the area under cover now and in that case like if you take the broader picture of the bigger (indiscernible) of uranium mines or any type of mines, they don't know sometime, like it's all mine so in that case like how about like we extend the area from the present cover because these two ropes are also used for carrying goods or anything required for this mining operation.

And it is kind of summarizing everything, this is my last try. So I'm giving some sort of approach, like, what may be good for participation how many have you

got, (indiscernible) good co-operator.

So in that case like we're proposing like one landscape approach like consider this northern Saskatchewan one as one landscape and then higher a road north and everything should be considered like there as a disturbance. And the objective would be for this type of -- I mean a program, like, to detect the changes because they have a suspicion what scientists are doing, they don't really understand. So if they can start from their own maybe it is helpful to solve many problems they're suspicious about.

So this data would be saying like it can be used by anyone, but as an organization it's very interested to go with this type of program and we're proposing a partnership with the CNSC or the industry even. And the role of academia is very important so we have to start some sort of communication with University of Saskatchewan as well. So I hope that I could bring some information forward and thank you very much for listening to me.

THE PRESIDENT: Thank you. Thank you very much for your presentation. Let me open it up for questions.

Ms. Penny?

MEMBER PENNEY: Thank you for your

presentation. I had a question about caribou and it might be for the Saskatchewan government given the level of concern around barren land caribou in Canada in the north.

Who's monitoring, who's contributing to monitoring the caribou and looking at any impacts the mining activities in northern Saskatchewan might have on the caribou? Is it the Saskatchewan government, the proponents participating, if someone can answer those questions for me around the caribou.

MR. MOONEY: It's Liam Mooney and I'm just going to start by differentiating between woodland caribou and barren ground caribou. Barren ground caribou are the migratory species that you see in the herds of the tens of thousands or hundreds of thousands. Woodland caribou are much more broadly dispersed on the landscape and they tend to move in herds of six to eight to 10 animals.

In that space the focus of the National Recovery Strategy that was published by Environment and Climate Change Canada was in relation to woodland caribou.

And the area in which we operate is SK1 which was the only region where there was not a determination in that recovery strategy about the health of the population.

There was a series of studies that was directed in that recovery strategy and we worked to get

federal government funding, our own money with the province to develop the collaring program and the study results in that regard were completed, a three-year collaring program, there's a broader collaring program the province still has ongoing and perhaps Mr. Moulding has more to add on that.

But, nevertheless, that collaring program came back to say that the woodland caribou population in SK1 was not just sustainable but probably one of the most healthy populations of woodland caribou in Canada.

So that has to be rolled back into an update of the recovery strategy, that's on Environment and Climate Change Canada. Nevertheless, I think that there's been productive dialogue with Environment Climate Change Canada about what the recovery plan for woodland caribou, if in fact one is necessary, looks like for northern Saskatchewan.

So that's the -- from industry side we have invested millions of dollars both directly and in kind contributions to the production of that study research by Dr. McLoughlin but also a number of other studies that have been produced about the caribou's usage of what is largely a fire disturbed landscape in northern Saskatchewan. It's important when you see those maps up there, Mr. Dawe referenced the understanding on the distances and the northern administration district is bigger than New

Brunswick, it's about the size of Germany and that's the area -- the distance we're talking about.

So there is a great deal of variability in the landscape and there has been a number of mines, but it's important to understand the scope and scale about what you are talking when we are talking about the operations. So when we do our environmental assessments and we look at the effects, we have to cooperate with the Province and the federal government to make sure the studies are more broad than just around our operations.

THE PRESIDENT: I think we have Ms Ali from the federal Ministry of Environment and Climate Change on the line. Did you have anything to add to what Mr. Mooney has said?

MS ALI: Nardia Ali, Environment and Climate Change Canada, for the record.

So, as Mr. Mooney said, the University of Saskatchewan led the collection of information for SK1, that area, for caribou, and Environment Canada incorporated this information into their National Disturbance Models. Using that information, ECCC is currently working on identifying the critical habitat for SK1. Indigenous consultations are currently underway to the Draft Critical Habitat for SK1 and once those consultations are completed, there will be amendments to the 2012 Recovery Strategy that

will be posted publicly. We encourage all the indigenous communities to participate in these consultations. Thank you.

THE PRESIDENT: Thank you.

Any comment from CNSC staff?

MS CIANCI: Candida Cianci, for the record. I'm the Director of the Environmental Assessment Division.

I just wanted to complement Mr. Mooney and Ms Ali's answer just to say that, as Ms Ali indicated, there are currently indigenous consultations underway in terms of their critical habitat. So we really encourage Prince Albert Grand Council and other indigenous communities to participate in that, and if CNSC staff can facilitate who to get in contact with at Environment and Climate Change Canada to do that, we would be more than willing to do that and take that offline.

THE PRESIDENT: Okay. Thank you.

Mr. Berube.

MEMBER BERUBE: I think the most important thing I heard you say is to incorporate Indigenous traditional knowledge into the actual framework by which we evaluate, especially the environmental aspects of it, because our licensing does clearly cover that area.

So I'm going to ask the CNSC this. Who do

we send to talk to the local Indigenous people to say, okay, what are the things that you are seeing with respect to the environment in terms of shift over the last period of time, why do you think that's happening, and then help us categorize the variables that are related to those things that we can put into what we call our scientific model instead of the traditional knowledge model?

MS TADROS: Haidy Tadros, for the record.

So that job has been eloquently given to Mr. Adam Levine to touch base with the communities and find out what interest they have, what traditional knowledge pathways they look at and how do we engage with them. So perhaps he can describe his dealings.

MR. LEVINE: Adam Levine, for the record.

There has been a lot of work done over a number of years with the communities the PAGC represents, especially the Athabasca Dene communities, around gathering traditional knowledge for specific regulatory activities and projects. The Gunnar Mine Remediation, which there's a number of photos displayed in the presentation just given, there was a traditional knowledge study undertaken by the Saskatchewan Research Council specifically for that and that was done in conjunction with the Prince Albert Grand Council. They actually led that Indigenous knowledge study specifically for that and it's feeding into the remediation

activities and reclamation currently going on at that site. The SRC I believe in the Saskatoon office can speak more to that if you have questions.

As well, Cameco undertook an Indigenous knowledge study for the Beaverlodge sites in terms of activities going on around there for reclamation and looking at harvesting and traditional food practices in that area as well, which feeds into that reclamation activity.

And more broadly, as part of our ongoing engagement with the communities around environmental monitoring, it's something that we're actively seeking out, is to better understand what the traditional use is. I understand that CanNorth, which is the private company that typically does the sampling for the EARMP and also the IEMP, does seek out traditional knowledge feedback from the communities they work with.

So there's a number of inputs, but if there is additional knowledge needing to be gathered for a broader understanding of use and knowledge in the region, we do have a Participant Funding Program which can fund Indigenous knowledge studies and we would be happy to work with PAGC and the communities directly and any others in the region to do something collaborative if that's needed. Thank you.

THE PRESIDENT: Dr. Demeter.

MEMBER DEMETER: Thank you very much for your presentation. The one thing that really piqued my interest was the comment on fly in/fly out and you spoke about more an issue of whether it biased a gender, male versus female, but as a broader issue, and there's a lot of research on this, especially in Australia, Perth, Australia, on general impacts on families on fly in/fly out type operations. I didn't know if anyone from the PA Grand Council or the licensees have worked with the University of Saskatchewan -- Sociology, Psychology or Community Health -- on looking at studies in Saskatchewan on impacts on families and socioeconomics of fly in/fly out operations and in particular how that affects indigenous peoples.

MR. MOONEY: It's Liam Mooney, for the record.

I referred earlier to the Community Vitality Monitoring Partnership that came out of the Panel Review and there was a study on this in 2006 for Northern Saskatchewan on the impact of the fly in/fly out. One of the findings -- and Dr. Irvine, if he's still on the phone, can probably expand on that -- was that the fly in/fly out allowed First Nations members who wanted to practise a traditional lifestyle the opportunity to do that. So there was some positives associated with the fly in/fly out

piece.

I also was flagged that in 2019 that Community Vitality Monitoring Partnership is conducting a study to look at the effects of the uranium mining downturn in Northern Saskatchewan as well. So it does have a social mandate, it is focused on Northern Saskatchewan, and there is a relatively recent work in that regard. But Dr. Irvine probably has more to give on that.

DR. IRVINE: Okay. So this is James Irvine, for the record.

Through the Community Vitality Monitoring Project, which came about as a result of a 1990s Panel, there has been a number of studies that would assist in that area, one of which is a socioeconomic impact study on Northern Saskatchewan. The other is the fly in/fly out, and as Mr. Mooney mentioned, there's another one on how do we build sustainable communities within the North, sort of overcoming the ebb and flow of markets and economic change.

But just to give a little bit more detail in terms of the fly in/fly out, that study was initiated following consultation with communities in terms of the impact that it may have on miners, their families and communities as it relates to being at the mine site for a week and in the community for a week. So there's a steering committee that engaged miners, spouses of miners,

community members to help with the direction of this review and then there's extensive training of local community members to conduct some interviews. And following the results, it was found that one of the major benefits of fly in/fly out was to have that week off at home and that one of the disadvantages was to have a week away from home. There was questions such as were there better ways, would you prefer better locations, including things like two weeks in/two weeks out or even how you would prefer it compared to a 9-to-5 job, and it was clear that one week in/one week out seemed to be the best one.

There was some challenges as it relates to the person who stays at home in terms of the impact on sort of being a single parent for the week, with household responsibilities and child-rearing. I guess the other part for the miner themselves was it was a bit of a challenge as it relates in participating in some community activities such as being on a sports team that regularly played once a week or so. As it relates to traditional activities, that was a concern, is that was the fly in/fly out interfering with a person's capacity to get out to hunt and fish and be at the trapline. It was interesting to find that people felt that it was easier because they had the capacity, they had a salary by which they could pay for the gas, the snowmobile, et cetera, to get out on the land and then for

that week off they had that capacity of going out on the land as well.

Some of the challenges as it relates to communication between the mine site and the communities... This study was done in -- was written up and shared with communities in 2006 but the information was gathered in 2005, prior to which there was few communities in the North that had cell phone coverage, and they found that -- one of the recommendations from this report was to develop a mine's outside capacity by which they could communicate better with families at home. So the mine sites the Northwest Territories by which cell phone coverage was made available so that people could phone home during the lunch hour, during a coffee break or at various times of the day, that was sort of a positive thing to make a difference for successful relationships.

So this has been an ongoing challenge, I think, in a way. We did look as it relates to some of the challenges in Australia, the mine situation there, and it wasn't so much a different circumstance in terms of there wasn't quite the same supports available, it was more distance in terms of the travel, it was longer times and more irregular times in which the (indiscernible) occurred. And also, there wasn't the capacity for family members to have knowledge about the mine site. There wasn't sort of

open houses there. There wasn't community meetings regarding the mine site situation. So it was kind of a different circumstance when we look at the challenges that Australia has faced with their impact on families and the miners there.

And the recent one is really -- and this will be coming out over the next few weeks in Opportunities North. We shared it with the Environmental Quality Committee this past week, is how do we use the economic returns and benefits in mining to diversify, to build resiliency in communities and build sustainable communities despite the up and down of the markets and economies.

MEMBER DEMETER: Thank you.

DR. IRVINE: Thanks for that opportunity.

THE PRESIDENT: To sort of follow up on that -- and maybe it's to Dr. Irvine or to the licensees -- have these studies looked at maybe the unique impact on women's participation in the mining sector as a result of the fly in/fly out?

DR. IRVINE: James Irvine, for the record.

At that time we didn't do specific targeting of women miners at the site and certainly since that time there likely has been more female participation, but no, there wasn't a specific look at women at the mine site themselves. Probably there's more women who were

interviewed being in the community and being a spouse and staying at home at that time.

THE PRESIDENT: Thank you.

Anyone with any other questions?

Dr. Lacroix.

MEMBER LACROIX: Thank you.

The Prince Albert Grand Council written submission raises the issue of absenteeism among First Nation workers and I was wondering, is it a problem for mine operators, is it a safety issue? Mr. Mooney, could you comment on this?

MR. MOONEY: Liam Mooney, for the record.

No, I don't believe that that constitutes a safety issue. I think that our employees are well trained and qualified for the tasks that they have and we have the necessary staff to do the work that's scheduled for any particular shift.

MEMBER LACROIX: So why was it raised in the written submission? Why was the issue of absenteeism among the First Nation workers raised in the written submission?

DR. AL MAMUN: Actually, it was (off microphone) related to this. Absenteeism means like sometimes they might not have the, like, same understanding with the work happening with respect of mining or they

prefer -- let's say, in some cases, I have a friend, he says that, during October, I don't want to think anything other than hunting, because their genes are, like, responding to a different way than the present work environment is. So I try to understand their perspective, why they don't want to go back. If you look at the -- I forgot the uranium mine exact location but it is in southern Saskatchewan. So they're looking for the expert, like, if they have experience, previous experience. They're not getting this. At the same time there are so many workers that have experience. So somewhere there is a gap.

So it is not like, culturally, sometime appropriate to say this is the way I believe but I think there should be some sort of understanding, like, why -- their actions. That is a valid reason because (indiscernible) didn't come. If you see the situation with the youth, they have no work and so many -- there are so many incidents in the youth, like the suicides. So, you know, there are some gaps. So we have to find out why is this happening. So that was my -- I'm not -- I said that like I have a struggle. I have some misunderstandings because I have to read so many things. I started my work as a biologist. Then I did traditional knowledge study at the University of Manitoba. Then I did a PhD at the

University of Waterloo-Laurier graduate program. So my way is like we all have strengths and weaknesses. So we have to learn from each other. So that was my point to bring.

THE PRESIDENT: Okay.

DR. AL MAMUN: Thank you very much.

THE PRESIDENT: Thank you, Dr. Mamun.

Yes...?

DR. MICHELL: For the record, I think what we were looking at in the report was some specificity. You know, I know the importance of the engagement of Indigenous people, but in the report I think there was only one paragraph in reference to the participation of Indigenous people and it states that there were 2,400 employees in that industry, but how many of them are women and how many of these Indigenous people are from the North, how many of them are from the Athabasca region alone, how many of them are in administrative positions. That kind of specificity is what we were after in terms of our comment in the written submission.

THE PRESIDENT: So I can share with you that I know that the licensees do have that kind of information. It's just not something that the ROR, which looks at the mandate of the CNSC from a safety perspective, would necessarily address. So maybe through your community engagements, those kinds of questions, which are all

extremely valid, could be addressed.

Yes...?

MR. AUGIER: Hi. Ronnie Augier from Fond du Lac First Nation and also a leader for the community. I'd like to thank you for inviting us here to share comments and concerns about our areas, living in the Athabasca and the Saskatchewan areas.

A couple of points I'd like to put out here is, you know, what does Treaty 8 territory mean to CNSC and the Province and to other parties out there? What does Treaty 8 territory mean? You know, to me, it means that it was promised to us, the land was entitled to us and it was promised to us by the Queen, Her Majesty. And, you know, we extract all this uranium, we get all the minerals we want. You know, once this is all extracted, the mining industry is done. We're not going anywhere as people, as humans. We would like to see our lands back to its original state as much as they can. So, you know, these are things that we have to leave for the future generations to come and I hope that everybody here understands that this is where we stand up for our people and for our Nation, that things like this, I understand that it's a serious thing for the people and for the extraction of the minerals, and what's in it for the Province of Saskatchewan and our area as Treaty 8 territory and Treaty 6 as well.

There is very little revenue coming back to the northern communities, our roads. We talked about roads earlier. You know, there is very, very little infrastructure coming back to us in revenue and stuff like that, and yet this is all our territory. You know, this is something that I wanted to raised as a young leader and I will be here to stand for my people and I hope to hear answers from somebody soon because, you know, this has just been going on for too far and these are questions for Orano and Cameco.

These are issues that we deal with in our areas, where our cost of living is high. You've heard it from one of the members of Hatchet Lake. Our gas prices are high. Our living is high, you know, and our traditional areas are being somewhat destroyed to a content. And, you know, our main source of food is fishing, trapping, hunting. That was our employment, that was our life. Slowly it's vanishing. We talked about caribou earlier. I think it was referring to the "bareland" caribou, not the woodland. So our "bareland" migration is changing. Twenty years of climate change is affecting our migration of our caribou. In some areas we're getting no caribou; in some areas we're getting them. So it's hit and miss. Some people have to travel 16-18 hours just to get their source that they need for their

summer harvest and these are things that we deal with on a yearly basis as First Nations people in the Athabasca region. So I don't know what's going on or where it's happening, but it seems that we're slowly losing our animal source of food that we live off of our land.

And we talked about aboriginal elders that have been living off the land for years. Not once I have seen anybody have employment for aboriginal elders engaging in the studies of the land. You know, these are things that we are serious about in our areas. Sure, the whole province and the world is benefiting from our minerals and our land, and that's our territory as Treaty 8 and Treaty 6, and what do we get in return? After all these minerals are gone, we're going to be there suffering. What do we get in return? So I hope something really does come back to us for that. Thank you very much.

THE PRESIDENT: Thank you. Thanks for your comments.

So thank you for the presentation and we will now move on to our next intervention.

The next presentation is from the Sagamok Anishnawbek, as outlined in CMDs 18-M48.10 and 18-M48.10A.

I understand that Mr. Ross Assinewe will be presenting.

Whenever you are settled in, the floor is

yours.

--- Pause

CMD 18-M48.10/18-M48.10A

Oral presentation by the Sagamok Anishnawbek

MR. ASSINEWE: I want to acknowledge that we're in the traditional territory of the Algonquin Anishnaabeg people.

I also bring greetings from Sagamok Anishnawbek, Chief Nelson Toulouse, and our Council. As a matter of fact, our Council are meeting right now as we speak, so hopefully everything turns out good there and I'll report back on what happens here in a future meeting.

My name's Ross Assinewe. I'm the Director of Lands, Resources and Environment with Sagamok Anishnawbek, and my counterpart here with me here today is Derek Erickson.

I just want to briefly talk about -- I guess some of the background information that we have today, we're going to be -- we're going to be covering off both the reports on the regulatory oversight of uranium processing and nuclear processing facilities and that would be coming in from the Cameco plant at Blind River.

We also want to talk today as well with

report number 2, the regulatory oversight report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada, particularly Elliot Lake and Agnew Lake.

The background -- some of the background information -- I know we only have 10 minutes, so I'll just kind of go through, you know, what we did in Sagamok.

We held two meetings with our Anishnawbek Elders and Warriors Youth Council on November 15th and the 21st. Participants were participated with a pre-knowledge survey and post-presentation discussion and questions to commence dialogue and promote engagement and collect information.

So basically, what we did was we sat down with our Elders and we -- first thing that we do in order to engage our Elders is we provide them with a feast. I mean, that's the best way to get their attention and, you know, with a full stomach we -- they're ready to work.

So we started off with a feast and we -- and we provided them with information on the -- on the two reports. And then we issued them a questionnaire at the -- at the start, and then another questionnaire at the end.

And basically what we're going to do today is provide a report on those questionnaires that we submitted.

And highlights -- maybe I'll just go to

that.

The highlights of the questionnaire, close to 20 percent of the respondents had heard of CNSC. I can tell you Sagamok Anishnawbek were also involved with the NWMO and the Deep Geologic Repository.

There was a site -- there are actually three sites that were fairly close to our traditional territory. One in particular was the Mozhabong site, and that was right within our traditional territory.

The other two sites were fairly close to each other, but they were in the watersheds of the Spanish River or the Serpent River First Nation, and the third site was in the watershed of the Mississauga First Nation.

So we were the only ones that elected to continue going down that road to this learn more process with NWMO and our Mozhabong site.

So we've got -- we've had some preliminary information on CNSC, and that's why we're seeing that 20 percent of the people we work with had some knowledge.

Close to 50 percent of the respondents do not know the role of CNSC, so they -- some of them have heard of it, but they don't know what their roles are.

Sixty-five (65) percent of respondents have never heard of the annual CNSC regulatory oversight reports. It surprised me because 45 percent of them did

hear of it, so a little -- maybe there was a little game on words there, but I was surprised to see that one.

Over 40 percent of the respondents were aware of nuclear associated activities in their territory. And that's surprising because the uranium mines up in Elliot Lake and Agnew Lake were there since the early forties and fifties, and subsequently the Cameco refinery was established in the early eighties as well. So to hear that only 40 percent of the respondents knew of these activities was surprising.

Over 60 percent of the respondents did not feel nuclear industry provides opportunities and sufficiently informs indigenous peoples on industry practices.

Five percent of the respondents thought the nuclear industry is doing a good job as it relates to safety, protecting the environment and transparency, so we can see that there's a lot of work that needs to be done to bring that number up to, you know, what we'd like to see is over 90 percent.

Approximately 25 percent of respondents know someone that works in the nuclear industry. And I can tell you that, you know, when the mines were operating up in Elliot Lake and Agnew Lake and with the Cameco refinery, right now the Cameco refinery does not have any members

from Sagamok Anishnawbek working there.

And the Elliot Lake mines, there were three or four members from Sagamok working there, and in Agnew Lake -- I know my dad worked up in both mines, at -- in Elliot Lake and Agnew Lake, but we were poorly represented in terms of both operations. And they're right in our traditional territory.

I want to maybe have some discussion on the highlights of report 1. Members questioned why there was no Sagamok representation at any of the four CNSC inspections conducted at the Blind River refinery in 2017.

Members asked if these inspections were announced to licensees prior to facility visits, so did they have time to prepare for -- to have everything cleaned up prior to inspections.

Members requested inclusion in the CNSC independent environmental monitoring program associated with potential impacts.

Members were interested in learning more about the safety control areas rating of satisfactory for radiation protection and environmental protection at the Blind River refinery.

Members asked why a satisfactory SCA rating would be deemed acceptable.

And we had a lot of discussion on the

different ratings, and satisfactory just basically seems like the -- you know, it's the bare minimum. And we've got some concerns on that. We want to see a lot higher rating than satisfactory.

Members were concerned of cancer risk associated with ionizing radiation exposure pathways to workers, visitors and indigenous communities from the Blind River refinery.

Members raised concerns related to transportation of nuclear substances across their lands and communities from the Blind River refinery.

And I know back -- I believe it was about this time last year there was an accident where on the trucks hauling the refined materials from Blind River refinery, and it was just outside of Massey. Massey is about 60 kilometres east of Blind River. And Massey is just across the river from Sagamok Anishnawbek.

So we've got some concerns in regards to some of the -- how it's being transported and, you know, whether or not those -- the apparatus used for hauling is safe.

And I think basically what we're looking for is just a little bit more information in terms of the safety aspects of transportation.

That was the highlights of report 1. And

I want to go through also the highlights of report 2, which is the mining operations.

Members questioned why there was no Sagamok representation at any of the four CNSC on-site inspections completed in region in 2017, i.e. Agnew Lake, Elliot Lake, Denison and Stanrock sites.

Members asked if these inspections were announced to licensees prior to facility visits. Basically the same as Report 2. There's just a couple of differences here.

Members requested inclusion of CNSC Independent Environmental Monitoring Program associated with potential impacts.

I could also add a little bit to that, too. We feel in Sagamok Anishnawbek that we've got capacity within -- within the Lands, Resources and Environment to go out and do some environmental monitoring. We want to become part of that process.

So I just want to put that on the table now in case I do forget down the line.

Members expressed concern associated with Elliot Lake site and the SCA rating of "below expectations" for environmental protection, i.e. Stanleigh effluent treatment plant exceedance for radium). And that was -- that was just earlier this year.

Members expressed concerns associated with barium chloride used to treat uranium tailings effluents.

So basically, we need -- we need more information about the water treatment plant process and learning -- learn more about the different chemicals that are added during this treatment process and what kind of environmental impacts are there.

Is there a cumulative effect? As previous reports indicated, we hunt, we fish, we gather medicines and berries from our traditional lands, and we want to know if there's going to be cumulative effects down the line, you know, when we start consuming from our lands.

Members also expressed concern associated with Agnew Lake site and proximity to traditional lands, i.e. our fall harvest area. And when we talk about -- when we our mentioned our moose hunt, our fall harvest site isn't too far from the Agnew Lake site. And the waterways, the Spanish River and Sauble River.

Both -- actually, the Sauble flows into the Spanish River, and the Spanish River is adjacent to our First Nation. It's actually the northern border of Sagamok Anishnawbek.

So when we hear about any effluent that comes out down the -- down the Spanish River, which the Agnew Lake mine is located on, we have some concerns.

On top of that, I should also note, too, that Spanish River and the Vermilion River, there is effluent that comes from the mining operations in Sudbury with Glencor and now KGHM also opening up operations.

So we're exposed to a lot of the mining activities. Probably the highest in North American when it comes to base metals within our traditional territory.

We're also responding to a lot of the forestry operations that are going on within our traditional territory. We have a Domtar pulp and paper mill in Espanola, and that's located right on the Spanish River.

We have the ECOM sawmill in Arron Centre, and that's located right on the Spanish River.

There's also a number of power development dams on Spanish River, and Brookfield Power on the Sauble River, so a lot of development's going on with our traditional territory.

Sagamok Anishnawbek has slowly gained a lot of capacity needing to deal with these issues and responding to developments within our traditional territory, you know, and we've learned to develop partnerships with different consultants.

So we've -- we've got capacity in Sagamok. When we talk about being part of the monitoring and

evaluating of the -- particularly the waterways, we've got -- we've got very good insight in that and we want to be a part of that.

MR. LEBLANC: So I'll just remind you we gave -- allocated 10 minutes. It's been --

MR. ASSINEWE: Yeah.

MR. LEBLANC: -- a lot more.

MR. ASSINEWE: Okay.

MR. LEBLANC: So if you can just summarize and complete. Thanks.

MR. ASSINEWE: All right. Well, I'll just get into the recommendations, then, and that'll complete our report.

So our recommendations that came from our group, and we also worked with our lands committee in Sagamok called G'Daa Kiim-Non.

We want to present CNSC Report to Chief and Council and G'Daa Kiim-Non Committee and any relevant follow-up information provided or requested.

We want to improve the Indigenous community engagement and relationship building via formation of the Indigenous Citizens Committee. We find that this is a very good avenue for industry and First Nations to participate and get knowledge.

I think I can reference the forest

management plans that are being devised here in Ontario. They're 20-year plans now. And they have the -- they've created what's called the liaison citizens committee. And we think that -- we want one formation specifically for First Nations.

We want to provide community with up-dated environmental monitoring data of a Cameco Fuel Processing facility, Agnew Lake and Elliot Lake Decommissioned Mine sites.

We also want to look at providing Indigenous representatives the opportunity to be directly involved in CNSC inspection visits and participate in compliance verification activities at locations of interest to Indigenous communities.

We also want to create annual funding programs and scholarships for training opportunities for youth of Indigenous communities and programs that provide community members a chance to learn about nuclear industry practices.

Further to recommendations, we want to invite CNSC staff into community to enhance knowledge, promote transparency and discuss items of importance to indigenous peoples. We know that there's -- there's a willingness to do that, but we want to table it that it's something that we need and want.

We want to incorporate TEK, traditional ecological knowledge, sustainability, indigenous customs, traditions and beliefs into environmental assessment and performance evaluations of nuclear licensee holders. So this is something that we feel is very dear to our heart and -- in order for this to work and have the participation of First Nations.

This is something that needs to be included.

We want to provide opportunity for annual site visits/inspections at the Cameco Blind River refinery, the Elliot Lake and Agnew Lake decommissioned mine sites.

We also want to invite Transport Canada and MTO to community to share knowledge on hazardous materials, i.e. nuclear substances, being transported across Sagamok and other Indigenous territories.

So this is just sort of a -- you know, what I related to earlier about needing to get more information on the transportation and how that's happening.

So I just want to say miigwetch for giving this opportunity, but I also want to maybe pass this over to my colleague, Derek Erickson, if he has any additional comments to add.

MR. ERICKSON: For the record, Derek Erickson.

And to the President, to the Panel and Commission Panel, I will be brief.

One message I did want to sort of follow up on on Ross' presentation is some of the community members wanted to know if it was possible next year to schedule the meetings around the Ottawa Senators' hockey schedule.

I will report back, possible.

In all seriousness, though, I just wanted to -- I will be brief. I know we're on the clock.

The Youth Council were really adamant in sort of the learning opportunities and understanding the nuclear industry.

You know, science and technology for youth, it's hard to engage and get people in technology. I've done some career counselling and gone -- you know, this is from experience. I've been in the educational field as well.

And the Youth Council were very open to, obviously, interest and opportunities vis a vis -- Ross mentioned scholarships, training opportunities to, you know, perhaps, obviously -- these industries are on their doorstep and they wanted to be more engaged in the opportunities.

So that was brought forth by one of the

Chairs of the Youth Committee, and I just wanted to sort of, I guess, reinforce that, how important it is to the future generations of the Sagamok Anishnawbek community members.

One thing I'll add, and that'll be the end of it.

Ross alluded to talking about capacity, and the Sagamok is very progressive with respect to monitoring, whether it be ecological, biological, water quality. They've got a fair bit of equipment and resources.

And they've worked really well with some of the other, you know, mining resource companies on actually being involved in collecting data, participating in data, interpreting the data and sort of communicating that back to Indigenous members of the community.

So I think that's important, that we -- you know, we really close that gap. And Sagamok is definitely very progressive and wants to be more involved and wants to communicate that science and technical information to Elders and youth and members.

So I just wanted to speak to that. And again, it's an honour to be in support of Sagamok and attend the Commission meetings and listen to some of the other concerns and issues and really good points made by

other intervening participants here.

So thank you. Miigwetch.

THE PRESIDENT: Good. Thank you very much for -- thank you for the presentation.

And I don't know if you've had an opportunity to look at the CNSC staff's response to your recommendations in their presentation, so if the Commission doesn't ask all of the questions or recommendations that you have made, it's only because I think staff have done a very good job in addressing those recommendations. And they'll certainly be on the record for you to have a look at.

You've made life easy by being very systematic with your recommendations, so again, as I said, they have addressed those, but the Commission Members will certainly follow up with our questions on where we think further clarification is required.

So let me open up for questions.

Dr. Lacroix.

MR. LEBLANC: If I may first just for your reference, it's pages 150 and many following of the slide presentation from staff that is available, so you have all the disposition of comments therein.

Thank you.

MEMBER LACROIX: Well, first of all, thank

you for your oral presentation and also the written submission. I really enjoyed discovering your -- the First Nation, the Anishnawbek.

My question is mostly for my own education. What is barium chloride used for in the processing of the uranium ore and what is its toxicity?

MS TADROS: Haidy Tadros, for the record.

So I'd like to ask Dr. Karina Lange to explain to you how CNSC staff do their assessment and how we look at the barium component.

DR. LANGE: Dr. Lange, for the record.

Barium chloride is used to treat radium. It's a pretty common -- perhaps Liam Mooney can even comment on this -- at uranium mines for radium.

So basically, it forms a compound that absorbs radium into the complex and it's a very effective, well-known treatment.

In the case of the Elliot Lake, the intervenor did mention the treatment at that place where they had the exceedance, and so it appears that they have concerns about elevated barium chloride in the environment.

So CNSC staff do ensure that those constituents remain below water quality guidelines, and when you specifically asked about the toxicity of barium chloride, I will pass that to my colleague who has a

background in toxicology.

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

So to give you a bit of context, when Dr. Lange was just talking about what we're seeing from barium in receiving environment concentrations, water quality guidelines is 1,000 micrograms per litre and we're seeing about an order of magnitude below that.

From a human perspective, barium chloride can be more of an irritant to the eye, to mucus membranes, to those sorts of aspects. From a toxicological perspective on non-human biota, I'm not too sure if we have that information at hand. I'm not too sure if Dr. Goulet has anything to add.

But all to say is this goes back to the reasons for why they're using the barium chloride and some of the testing that's been done.

Whenever there's -- whenever there's an exceedance of something, we always take us back and look at what's the risk. And in this case with the exceedance of an effluent limit, we said what's -- what was going to be the impact downstream.

And so we did look at it from a radiological dose perspective, and so we actually took the information, ran the dose assessment models and refining

the values to aquatic receptors below those sort of radiological dose thresholds of concern.

So we have looked at it from sort of the radiological perspective. I don't know if Dr. Goulet has anything else to add.

DR. GOULET: So for the record, my name is Richard Goulet.

The only thing I want to clarify is just provide a bit of background on the environmental levels that we see during the quarterly monitoring program of the water that we get. So it ranges from we say 16 to 100 micrograms per litre. And so the level that is considered safe for the environment is 1,000. So we're like 10 times above that. So right now, like the environment is protected downstream of those facilities.

THE PRESIDENT: Go ahead.

MR. ASSINEWE: I'm wondering if there's a bio-accumulation effect. I mean, yeah, it's safe for now, but in 20 years or 40 years, after we've eaten the fish from the rivers and, you know, having some of the medicines in the plants, is there a bio-accumulation effect?

DR. GOULET: Again, Dr. Goulet, for the record.

The chemical barium that you're talking about is something that is -- that accumulates, but it's

like calcium. It's regulated in the fish. So it doesn't accumulate *per se*. It's a little bit like calcium. And so it gets highly regulated by the fish. And so I'm not seeing any concern on barium.

What we're more interested in is looking at radium and making sure it's safe to eat. And we've published some report in the past looking at that, consumption rates from food studies from Indigenous communities and the public general. So let's say you eat a certain quantity of fish. Are you going to have any health effects? And our conclusion was that the fish was safe to be eaten, so.

THE PRESIDENT: Thank you.

Ms Penney.

MEMBER PENNEY: Thank you for your presentation. I had a question, and I'm not sure again who it's from or for.

In northern Saskatchewan we see quite a few groups that have been organized around supporting the Indigenous communities and the other communities. And it seems really quite worthwhile. But what I hear you saying is that you don't have a similar -- one of your recommendations for both reports is that there needs to be an Indigenous citizens committee. And it sounds like you're in an area where there's quite a bit of mining

already.

Do you have a similar type of format for the existing mines in the area? Is there any Indigenous citizens committee in existence? I guess a question for Cameco, because you do have a facility that -- the fuel processing facility. You know, is there any -- do you have any plan to have any kind of an Indigenous citizens committee? And I'm not sure who's responsible for Agnew Lake and Elliot Lake, but who would those groups be and would they be looking at having an Indigenous citizens committee?

MR. MOONEY: It's Liam Mooney, for the record.

We have the Mississauga First Nation that are on the doorstep of our Blind River refinery. That refinery employs about 130 employees. Approximately 15 per cent of those employees are Indigenous, with the bulk of them from the Mississauga First Nation.

We focus our engagement efforts on the Mississauga First Nation. It is a very challenging economic environment for uranium and for that area of northern Ontario. And so when we do have an open position in relation to the Blind River refinery, we sometimes get in the neighbourhood of 200 applications. So there is a lot of pressure there with respect to employment

opportunities.

With respect to the intervenor, the Sagamok Anishnawbek, there was a request for a facility tour in 2017, and it was primarily seniors and Elders -- Elders and seniors who attended that. We didn't receive any follow-up questions.

But at this time, we don't have any intention to develop something along the lines of what we have in northern Saskatchewan, where we have four and sometimes five operations that are in relative close proximity to each other. That's a different space, and it's also complementary to the province and their Northern Mines Monitoring Secretariat and the environmental quality committees that they've created in that context.

MS PENNEY: So are there any existing mining Indigenous citizens committees that you participate in?

MR. ASSINEWE: We've got -- we work sort of independent when it comes to agreements with industry. But what we've actually done recently was we formed a protocol agreement between the Mississauga First Nation, the Serpent River First Nation, and Sagamok Anishnawbek, and we're also in the process of also bringing into the group the Atikameksheng Anishnawbek, which is a little closer to Sudbury.

But I also just want to note that it was our understanding when we talk about the Cameco refinery and the area that, you know, there was expectations for consultations and accommodations, that Sagamok Anishnawbek is within that radius. We were to be included in those discussions. That's why we feel that to create this Indigenous citizens committee would benefit us in learning more on what's going on within the Cameco. And not too far from Blind River we have Elliot Lake and also with the Agnew Lake decommissioned site as well.

So I think it's -- you know, between the Cameco and Elliot Lake and Agnew Lake, those four First Nations need to be involved and need to be consulted and accommodated in terms of what's going and these reports that are coming out so that we can disseminate and dissect these reports within our communities and have a better understanding what's going on, and trying to also incorporate the traditional and ecological knowledge throughout these processes.

THE PRESIDENT: We can get staff to comment on this. Do you see opportunities for coordinating this engagement?

MR. LEVINE: Adam Levine, for the record. So based on what Ross is saying, we absolutely agree. And we actually met with Ross and some

of his members in October to talk about the potential engagement relationship that we're also talking about in northern Saskatchewan with communities who have interest in facilities we regulate.

So we were going to be meeting this morning, but Ross wasn't able to make it this morning. But probably in the New Year we're going to probably go to Sagamok and meet again, and start talking about the specific things in the intervention. Because it served as a blueprint for us to start working through a number of these areas and to work in a systematic way.

And obviously they talk a lot about environmental monitoring and the capacity they have. So I think it'd be great to maybe start with environmental monitoring as one of those topics of interest and bring our experts to talk about how we can collaborate together. So I think that we're starting that conversation.

And all those communities Ross mentioned are on our radar and ones we're wanting to engage with as well.

THE PRESIDENT: But here there's another overlay, that besides having the conversations with each community, try to see if you can bring them all together as well.

MR. LEVINE: Adam Levine, for the record.

Absolutely. We're always open to working with a number of Indigenous groups who would like to meet together. It's up to each community to decide how that works, but if that is something that Ross would like to do in collaboration with the other First Nations in the area, we'd be absolutely happy to do that with them.

THE PRESIDENT: Okay. Mr. Berube.

MEMBER BERUBE: Yeah, thank you for your presentation and thank you for coming. I know it's quite a stretch to get here and do this, and it's a little daunting sometimes to do this. So thank you very much for your effort and your energy here.

I love the survey. It gives us very tactile things to look at in terms of, you know, what your communities are seeing and thinking about the nuclear industry. And I think that's very valuable for everybody in this room to get that kind of feedback.

The other thing I wanted to ask you about is you mentioned something about the SCA rating system with the CNSC. And we've heard this before. And I just want to ask you, you know, what would bring more comfort to you in terms of a rating system than just satisfactory and fully satisfactory? What are you used to? What do you think people would accept within your communities? How would that be valuable to you?

MR. ASSINEWE: I think it's more of a comfort level for our people to see a higher rating than satisfactory. I know our Elders laughed when they heard "satisfactory" and, you know, made the comment that it sounds like the -- it was just a "barely passed" type of rating. So I think anything over 80, 90 per cent, I guess, would sort of be better for us to, you know, knowing that everything is being taken care of in a good way.

I think as Anishnawbek people we feel ourselves as being stewards of the land. And when we see something as just being satisfactory, it's not -- it's a hard pill for us to swallow.

THE PRESIDENT: Thank you.

So one just comment, because I too very much liked the survey results, though your sample size was kind of small. I think there were 21. Is there a reason why it was that small? And do you think that's representative of how the rest of your group feels?

MR. ASSINEWE: I can answer that. I think there was -- from our perspective, we felt that we didn't have a lot of time to respond to these reports. We submitted an application in August and we received confirmation of approvals in October.

And I mean, we did plan on engaging with the Elders committee and the youth committee, which is what

we've done. But I can tell you for the most part, our normal procedure is to call all the Elders together and deal with it. But I think it was, you know, based on the time frame that we just felt that in order to accommodate this process that we would deal with a small group setting. And not that we were wrong in what we did, but we did feel that we would have had a better engagement and consultation had we gathered all the Elders together.

THE PRESIDENT: Thank you.

MR. ASSINEWE: Yeah.

THE PRESIDENT: Again, thank you very much for your submission and coming here and making an oral presentation. Thank you.

The next presentation is from the Athabasca Chipewyan First Nation, as outlined in CMD 18-M48.11.

And I understand that Mr. Jack Flett will be presenting via teleconference from Saskatoon accompanied by Elder Wynn Wayne McNeil.

Good afternoon. The floor is yours.

CMD 18-M48.11

**Oral presentation by the
Athabasca Chipewyan First Nation**

MR. FLETT: Good afternoon. Yeah, I'm Jack Flett and I have with me Elder Wayne NcNeil. We're both from the Athabasca Chipewyan First Nation.

I'm working on contact with the DLRM, what is it, Dene Land Resource Management with the band.

First of all, we've got 10 minutes here, so I'm just happy that, you know, National Nuclear Safety Commission is cleaning up the abandoned mine sites and -- after all these years. And that's happening.

Third is Fort Chipewyan, it's all about water, really. And Fort Chipewyan is like a bit funnel, and it all flows down our way. And we have problems with the, of course, the Athabasca River with the tar sands and monitoring that. And also from Cluff Lake. You know, water flows from Cluff Lake into Douglas, Douglas into the Old Fort. It bypasses one of our reserves. It's borderline for the reserves. And it ends up in the funnel. And then we got this water from Gunnar and Lorado. You can see these are the concerns we have is where's that water coming from. The mines that are close to the Athabasca basin watershed, you know, it's right on the lakeside

there, and we're pretty concerned about that.

I guess I should talk about Gunnar mine. It's right on the lake. I talk of it. I've been dealing with Adam before, Adam Levine -- Hi Adam -- and Mark Calette two years ago. I did retire for a while, but that didn't work.

Those mines, I don't know what the status of those mines. They did some work on it, and I'm just hoping that what's coming out of there is good water. I think I got some assurance for that.

Lorado, the tailings pond, I think I talked to Mark about that and what's coming out of it when there's a big rain. And there might be other mine sites that may have tailings ponds. This is a real concern for us. Anything that percolates through, you know, any -- through alpha emitters, let's say, is a concern for us.

Of course, Cluff Lake is another thing with AREVA, now Orango [sic] or -- Orango, I think it's called. I'm not too sure what they're called. But that's another concern. And we're -- we like -- again, the water's a big concern. It's in the N22 area of Saskatchewan. We have a lot of our members from that area, and still we have people who have a trapline, Old Man Flett and I think Joey Flett took over that trapline, and Eddie are there, and a few other ones that hunt and fish. I know

Carswell is probably clean water, but it's -- it's the other lakes around Cluff Lake that's a concern and that runs into Douglas and of course up towards Fort Chip. And that's a real concern for us.

I think it's lastly is that we do have a CBM program, a community based monitoring. I have contacts. Yet we would certainly welcome some dollars into doing some monitoring down that area and seeing what's coming into our territories. That would be absolutely great. And certainly that worked out with -- I gave you contacts, phone numbers who you want to talk, and you can work out the funding and the sampling points, you know, with the government here.

I think I talked my five minutes here. I'm going to hand you over to Wayne.

ELDER McNEIL: Okay, my name is Wayne McNeil. I'm a member of the Athabasca Fort Chipewyan First Nation. I'm the Elder.

I've lived in the area. I've actually poisoned willows with my band. I've worked for the Canadian Wildlife Services. Mentioning caribou, I seen caribou by the thousands. I gave up counting. In two years, we poisoned 4,000 wolves. Since that time, the caribou has never come back. They keep blaming it on industry and this kind of stuff, but it's all the ecology.

And the water now, let's get back to the water. I have to explain to my colleagues, the other Elders, when is it going to be safe to drink the water from the Old Fort River and hunt and trap around the Cluff Lake area, which is in our territory. And will satisfactory be good enough or would it be on a scale from 1 to 10, or is it like a five star hotel? But satisfactory, I don't know. The fellow had just mentioned that they're -- like it's hard to swallow. And it's only one report here that says fully satisfied, you know, like that's -- that's what we like to see.

Who and when will someone come forward and say the water's fine, you can go back to your traditional land and collect your medicines and stuff? So this is all we're concerned about.

As a matter of fact, Cluff Lake, I was involved on a Cat. We made the trail from the Lake Athabasca to Cluff Lake, and Cluff Lake was just a tent camp. It was just an exploration camp. So I have that history behind me. I've seen it before, and then now I see it after. So who can -- you know.

And this summer I went to work for a contractor as an excavator operator, because a challenge at my age, there was a challenge. Somebody told me, he says, a young fellow says, "Wait a minute, at 75 years old, why

are you still working?" "Well," I said, "when you have to look after your grandchildren, and your pensions and stuff aren't there, and you live in the north, and you can't hunt because the water's contaminated and you can't drink it, you got to pay the price. So you have to go back to work."

So when I was working at Gunnar, firsthand, I'm very pleased of the way it's being done. I'm very pleased. Because I had part of it, not because I'm just a -- but I was a witness right there where -- but what I'm seeing is very, very, very, very, very good. Very -- I'm very pleased. I'm just -- I'm pleased, whatever we're doing is -- I'd like to live long enough to see the end result.

Thank you very much.

MR. FLETT: I just want to add here, we had an Elders meeting and there was a couple questions. I made this questionnaire. And question 1 is about living in N22 area in Saskatchewan, and how would you feel if you drink the water in Cluff Lake or Carswell Lake? How will you feel if you eat the berries or use the medicine plants and all this -- or eat the moose in that area.

ELDER McNEIL: [indiscernible - multiple speakers] chasing me with a Ski-Doo [indiscernible - multiple speakers]

MR. FLETT: And then question 8 is about

the Douglas or the Old Fort stuff like that. And question 3 was should we just leave where the water intake is and let's go from there.

And it came out pretty positive. The Elders were really positive. So I'm kind of glad that that's happened. So it's good news, you know. We ...

THE PRESIDENT: Well. thank you for that. And I'm sure, Mr. Wilson, you'll be glad to hear that strong endorsement for the Gunnar remediation project.

Open up for questions.

Mr. Demeter -- Dr. Demeter.

MEMBER DEMETER: Thank you very much. Thank you for your presentation.

I think what I'm hearing is the need for a statement that beyond the fence line of this remediation project that the water is safe to drink, the food is safe to eat, and the berries are safe to be harvested as well as medicinal plants. Is that a statement that can be made or are there some restrictions that need to be nuanced?

MR. HUFFMAN: I'd like to make that statement, if I could.

So Dale Huffman with Orano, for the record.

We're getting used to the Orano name as well, so thank you, Mr. Flett for the variation.

--- Laughter / Rires

And I would like to say to Mr. McNeil that the water quality at Cluff Lake is meeting the water quality objectives we set for the decommissioning project. It is meeting it at all the lakes on the site. It's going to -- it's meeting it now. It's going to continue to meet that long into the future. You can drink the water at Cluff Lake. People do. We have. The water is of good quality there. And we've ensured that it is.

And we've also looked at plants, animals, fish, flora, fauna, everything in that ecosystem to make sure that we are confident when we say that it is a site that's available for traditional uses. You can hunt, trap, fish, harvest, pick berries there. You can camp. You can use it for traditional purposes.

We've done a good job at Cluff Lake. We'll be in front of the Commission in mid-2019 to explain that further, but I think I can make that statement to you now.

MS TADROS: And Haidy Tadros, for the record.

From CNSC staff's perspective and as a regulator that trusts but verifies, I can also confirm that through the independent environmental monitoring program and the results of sampling of water, air, vegetation,

soil, the surrounding areas off site, based on the sample results that we have, the last campaign was in 2017. The data indicates that there are no effects to the environment or persons based on the information that we have.

And equally on the site, because of environmental monitoring programs that the licensees have, we conduct compliance verification activities. And equally we can confirm that there is safe levels on site from the water's perspective as well.

THE PRESIDENT: Thank you for that.

Any other questions? Ms Penney.

MEMBER PENNEY: I had a question for CNSC.

Many of the intervenors may have heard that the Saskatchewan government filed a claim on the 27th of November against the federal government with respect to funding for the Gunnar rehabilitation or remediation.

My question to CNSC is does this in any way jeopardize the ongoing progress at the site and ... yeah.

MR. JAMMAL: It's Ramzi Jammal, for the record, chief regulatory operations officer.

This matter is before the courts and it's beyond the mandate of the CNSC. The licensee will have to carry out their licence activity in accordance with our regulatory requirements, and financial debate is not the

mandate for us, between the province and federal. However, we make sure that the activity carried out by the licensee is safe and meets our requirement.

THE PRESIDENT: Okay, any other questions? No? Okay.

Well, this concludes the list of all the oral presentations. We'll now take a 10-minute break and reconvene at 5:35 p.m.

Thank you.

--- Upon recessing at 5:25 p.m. /

Suspension à 17 h 25

--- Upon resuming at 5:35 p.m. /

Reprise à 17 h 35

MR. LEBLANC: We are resuming. So in 30 seconds if you can get back to your seats. Thank you.

CMD 18-M48.1

**Written submission from
Athabasca Joint Engagement and
Environmental Subcommittee**

MR. LEBLANC: So we'll now be moving to the written submissions. So the first written submission

is from the Athabasca Joint Engagement and Environmental Subcommittee, as outlined in CMD 18-M48.1.

So are there any questions regarding this submission from the Members?

Yes?

MEMBER PENNEY: We had a good review earlier of the various monitoring programs and committees and how they all fit together. So this one, this submission actually has quite a bit of information about meetings and sharing of information.

So my question for the CNSC was with respect to these meetings and sharing of information, what is our involvement in those meetings?

MR. LEVINE: Adam Levine, for the record. So as was stated earlier by Mr. Huffman, is that the CNSC is not actually a part of the AJES committee, as it is an organization created under the collaboration agreements between the companies and the First Nations and municipalities in that region.

However, in discussions with the committee and with the industry partners, they have indicated a willingness to, in the future, invite CNSC staff to present to the committees and be involved. But we don't actually sit on the committees, but can provide information whenever reasonable.

MS TADROS: Haidy Tadros, for the record. If Commissioner Penney would like, we have Mr. Mark Langdon and Mr. Richard Snider in Saskatoon who can provide some detail as to sort of the tone of the meetings, what our presentation represents and some feed back on that.

So, with that, I'll hand it over to our colleagues in Saskatoon to provide a bit more detail.

MR. LANGDON: For the record, Mark Langdon. I'm the Supervisor in the Saskatoon office for Uranium Mines and Mills.

We attend quite a few meetings with a number of Aboriginal groups. One of the main ones that we do attend is the Environmental Quality Committee, which represents over 30 communities. They have usually two representatives from each community and they meet probably three or four times a year. This was developed by the province, and we've been invited to pretty much every meeting, we try to attend as many as possible.

Our participation is usually they ask us on certain topics that the committee members would like to hear us talk about. We talked recently on decommissioning and the whole CNSC process from when the mine or mill is originally created to the detail of all the plans and all the opportunities for engagement throughout the whole process right to the very end, and how the communities can

participate all along the way.

They've asked us to talk on radiation protection, environmental protection, lots of different topics. Cameco and Orano also set-up meetings I think with the AJES group as well there and other interested communities.

There was one less than half a year ago where English River First Nation Band was there and a number of other communities. We do the same sort of thing, they asked us to present on two or three topics.

We've also attended a couple of groups where certain Aboriginal groups decide they would like to come down and meet with us and discuss the ROR, what's going to be in it, what it all means. We give them a summary of everything that's going on at the five sites from our perspective and how the operations are going.

Generally, I think we've been well received. A few years ago Orano and Cameco used to do more, they called them community visits, and they'd go up and they'd visit for a week and go to four or five different communities. They would do presentations and we'd go up there.

Most of our involvement in those would be -- we'd set-up a booth and we'd answer all sorts of questions. People were presenting if we weren't

presenting, sometimes we did present. We would be there to answer questions from CNSC's perspective on what Cameco and Orano were presenting.

So I think over the years we've spent quite a lot of time participating. Although this year I think we're hearing they want more participation, more from us, maybe a better understanding, better ways of getting them information. We can look at all that to see how we can better do things.

English River was quite happy when we told them that they can phone us at anytime, come and visit us, and we're happy to provide information by telephone to them or send them in the mail, any way they want to receive the information.

Do you have anything to add there,
Richard?

MR. SNIDER: Richard Snider, for the record. Mark gave a fairly detailed answer here. Just to put a little bit of context, an example would be when we're invited to the workshop in May, was it? June of this year.

So we were asked to give some particular information. So we gave information on the decommissioning process, the approval of decommissioning plans and financial assurance associated with that, and also institutional control. So the attendees wanted to hear,

okay, we've heard from the companies, now we want to hear from the regulator on their perspective.

So I think we do provide some valuable insight and we're certainly more than willing to participate in these things in the future.

MEMBER PENNEY: Thank you.

MR. LEBLANC: Any other questions? Thank you. Yes, Mr. Berube.

MEMBER BERUBE: I was looking through the report here and there's something asking us to basically do something through the ROR, addressing flora and fauna issues.

We deal with a lot of human impacts with the ROR primarily, and we're hearing it throughout these presentations this afternoon that, you know, what does that really mean for the wildlife, what does it mean for the plant life, and is there a way that we can actually incorporate this into the ROR so that people that are concerned about these things can say, okay, I'm safe?

I don't know, CNSC, if you've got a way of doing that easily or what you would think would be a reasonable way to proceed on that?

MS TADROS: Haidy Tadros, for the record. So through our Independent Environmental Monitoring Program I think we are aware that vegetation and soils and other

sampling substances are used beyond just the dose rates and everything that we look at from a monitoring perspective. We will definitely look at that. I think there are multiple avenues to get the information in terms of the flora and the fauna and any impacts on flora and fauna.

So while it may be the ROR or it might be other mechanisms that we can use to bring that information forward, I think that's part of what we're hearing as well, to be able to promote more of a communication and hit those areas of interest of the different communities.

MR. LEBLANC: If there's not any other questions, I'll go to the next submission, which is from the --

MR. MOONEY: Liam Mooney, for the record. On that, we talked about the various complimentary programs that are out there, but the Eastern Athabasca Regional Monitoring Program is designed to answer that question. I'd similarly point to the community-based environmental monitoring program, again with its focus on dietary survey. So it's designed to provide that extra level of assurance.

So CNSC staff pointed out that we do have near-field monitoring that give us, you know, the hard scientific data about the water quality and the sediments and that sort of thing. Then we have the benefit of our far-field cumulative effects monitoring to give that

broader piece.

As Mr. Huffman responded in relation to Cluff Lake, that provides us the assurances in relation to the effects or that there are no effects further downstream of our facilities.

CMD 18-M48.2

**Written submission from
Métis Community of Pinehouse**

MR. LEBLANC: Thank you. So the next submission is from the Métis Community of Pinehouse, as outlined in CMD 18-M48.2.

Any questions regarding this submission?
Thank you.

CMD 18-M48.3

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

We will go to the next submission, which is from the Canadian Nuclear Workers' Council, as outlined in CMD 18-M48.3.

Any questions regarding this submission?
I'd just like to reiterate that all these

submissions have been addressed as part of the staff CMD and the comments have been dispositioned.

CMD 18-M48.6

Written submission from

Saskatchewan Environmental Society

The next submission is from the Saskatchewan Environmental Society, as outlined in CMD 18-M48.6. Questions regarding this submission?

President Velshi.

THE PRESIDENT: Again, I'd like to compliment staff for the disposition of the comments and the recommendations.

There was one here, and I can ask I guess someone from the province to address, where the Saskatchewan Environmental Society has requested membership in the Environmental Quality Committee. Can someone respond to that please?

MR. MOULDING: Tim Moulding, for the record. Ministry of Environment Saskatchewan. The Environmental Quality Committee was set-up for, again, communities in the north. I would, if the Saskatchewan Environment Society is interested in some sort of level of participation in that, then the avenue would be to contact

the Manager of the Northern Mines Monitoring Secretariat with our Ministry of Government Relations and have a conversation about that that way.

THE PRESIDENT: Thank you.

MR. LEBLANC: Ms Penney.

MEMBER PENNEY: From page 12 in their submission there's a question, and this is for staff, about the Elliot Lake licence, operating licence, being for an indefinite term. I guess they say it's also similarly for Denison and Stanrock properties.

So my question is why is it an indefinite term?

MS PANDOLFI: Dana Pandolfi, for the record. When the *Act* came into effect in 2000 a number of sites received indefinite licences; Elliot Lake, Stanrock and Denison were among three of them. As well, at the time, the offsite facilities for the Chalk River facilities, which would be G1, NPD and Douglas Point also received that indefinite licence.

It was determined at the time that because the sites had been decommissioned and were in a stable state that the Commission granted them, these licensees, indefinite licences.

MEMBER PENNEY: So is there an opportunity for the public to give input in the absence of a

relicensing effort?

MS TADROS: Haidy Tadros, for the record. So, yes, one such case is the Regulatory Oversight Reports and the information that staff present. But there is always opportunities for the public to engage in all activities in terms of where the CNSC is doing their regulatory oversight activities.

The one thing that I think needs to be underlined here is all these sites are licensed sites, so they are under regulatory oversight, they are required to have the programs in place. So irrespective, and maybe this is a bit of a sideline, but irrespective of the licence term, regulatory oversight for these sites will continue as well as information presented to the Commission and our websites regardless of the term of the licence.

MR. LEBLANC: Any further questions? Yes, Dr. Demeter.

MEMBER DEMETER: Thank you. This is just to help me understand something. For staff's slide presentation, slide 35, it's the radon and ambient air five-year trend, and the intervenor had raised some issues of radon.

So the red bar represents the radon level to reach an incremental dose of 1 mSv per year above background. But the background quoted in the CMD has a

range. I want to be clear if this is incremental dose for 24/7 exposure to a certain amount above average and which average was used. Because I've got a figure in my head from the ICRP of how many megabecquerels give you 1 mSv a year, and it doesn't quite add up.

So I'm just really confused with this. What's the average you're comparing this to to reach 1 mSv above that?

MR. MCKEE: Malcolm McKee, Lead Technical Advisor for Directorate of Environment and Radiation Protection and Assessment.

The upper bound is essentially the new ICRP with the 30 added, 30 -- what would represent 1 mSv dose in addition to the upper bound for the regional background. If we were to develop a lower bound number there and assume that background was zero, it would be somewhere around 30 becquerels, becquerels per metre cubed.

If we look at the results in general, regional background as an average would be approximate, somewhere around 10 becquerels per metre cubed for natural background, which is relatively consistent to what's predicted of about 13.5 becquerels per metre cubed for the major cities in Canada.

MEMBER DEMETER: So if 10 is the background, you'd add 30 to that to get 1 mSv?

MR. McKEE: If we adopted the more recent dose coefficient from ICRP for radon.

MEMBER DEMETER: Okay. Here you're adding about 45 above 10? You're up to 55 for the 1 mSv per year? Depending on what you start with?

MR. McKEE: Yeah. So this upper bound regional background, we can cross-check those numbers for you.

MEMBER DEMETER: The upper bound, okay.

MR. McKEE: Yeah, it's the upper bound.

MEMBER DEMETER: So you're adding it to the 28 or something -- okay, I'm just --

MR. McKEE: Yeah, we added it to the upper bound of 25.

MEMBER DEMETER: The methodology wasn't clear, that's why I was just really confused, I have to say.

MR. McKEE: Handling radon with respect to background is difficult.

MEMBER DEMETER: Then the other comment is this would be true for members of the general public. But anyone who is actually working and breathing harder in these regions, the ICRP has a different set of values. So was that taken into account or are there any workers in this environment that might be exposed?

MR. MCKEE: This is assuming a theoretical person at the end of the perimeter boundary --

MEMBER DEMETER: Okay, not a worker.

MR. MCKEE: -- breathing the air 365 days a year. So it's a theoretical exposure.

If we were using this for a worker, there's another different set of coefficients and everything else that are used.

MEMBER DEMETER: Okay. Thank you very much. Clarified.

MR. LEBLANC: Further questions, Members? Mr. Berube.

MEMBER BERUBE: This particular intervenor discusses ammonia releases here on page 8 of 16. I'm just curious as to does the CNSC actually look at physical maintenance of the site to periodically determine it for suitability or how is that done?

MS TADROS: Haidy Tadros, for the record. I'm sorry, can you just repeat the clarity that you'd like in your --

MEMBER BERUBE: The intervenor here actually says that there's common ammonia releases from some of the facilities. The question is, you know, what is causing that? Is this because of maintenance issues? So we actually inspect the site for physical fitness, for

purpose? I'm not sure exactly how deep we get into that when we're on site inspections.

MS TADROS: Thank you very much for that clarity. Haidy Tadros, for the record. I'd ask Mr. Gabriel Giobbe to answer that question. He's been looking at the interactions between the releases and the management system and the procedures in place at the facility.

MR. LAHAIE: Pierre Lahaie, for the record. Just to clarify the compliance oversight that's done by staff related to maintenance, and before I turn it over to Mr. Giobbe. Our oversight had to do with the management of the maintenance program and the implementation of the maintenance processes.

Now I'll turn it over to Gabriel.

MR. GIOBBE: Gabriel Giobbe, Management Systems Specialist, for the record. Let me just start off by saying that Cameco does have a preventative and maintenance program in place. The program is designed to maintain equipment, the maintenance of equipment is performed on a scheduled frequency, and the Maintenance Department tracks component issues and has the ability to change the frequency of maintenance for the components.

CNSC staff followed up on the ammonia spills during a January 2018 inspection. Cameco's Predictive and Preventative Maintenance Program was

evaluated and actions for improvement were issued, and all action notices have been closed. Thank you.

THE PRESIDENT: Like I said, I'll ask Cameco the question. So does this mean we're not going to get this high frequency of ammonia releases on site?

MR. MOONEY: Liam Mooney, for the record. I wanted to first start with a bit of an explanation on the reporting framework. In the new Saskatchewan Environmental Code a discharge of any amount at anytime of ammonia is reportable as a discharge.

So we're dealing with very small releases that did not pose a risk to the environment or to the workers, given that they were either occurring in an outside area, as relates to our freeze plants at McArthur or Key, are a very highly ventilated area.

There's additional safeguards in those highly-ventilated areas with monitors and those sorts of things. Staff has provided some background there that there was some confirmation about our maintenance and that it was satisfactory.

I think, to answer your question, I believe that we are on a path to addressing the issue of ammonia releases. I can say with some confidence that we're not going to be able to sit here next year talking about 2018 and say there were no releases. So that, again,

is one of those things where when we have one and we look at our handling practices we try to, as best as possible, identify corrective actions and implement them.

Staff also in the disposition of some of the comments talks about at Key Lake which is in care and maintenance in a three-phase plan to replace the ammonia tanks and refurbish that equipment. So there's some comprehensive pieces that were in place.

When we were in front of you previously we talked about Cigar Lake and a great deal of time and investment that was invested there to change out the condensers and move them to a different material because of some of the failures that we were seeing.

So although it involves ammonia, they're not like-for-like in the incidents that have occurred over the last several years along with the change in the reporting threshold. So I want to be able to put my hand on my heart and say that these are going to come to an end, but I know in 2018 we have had releases, the frequency is less but not that much less than what we had previously. But the causes are different, so we're continuing.

It's a focus and the operating site at Cigar Lake is being particularly diligent in trying to deal with these low-level releases.

MR. FUNDAREK: Peter Fundarek, for the

record. I just want to also point out that in addition to the inspection that CNSC staff did on site in regards to looking at the ammonia storage and situations there, we also do look at the event reports that are reported to us when there is an ammonia release.

We did an evaluation to look to see if there was a common cause associated with all of these ammonia releases, and we found no common cause, that it was just situations that did occur from time to time. There were very small amounts, but we were proactive in terms of evaluating the causes of these releases.

MR. LEBLANC: Further questions? Dr. Demeter.

MEMBER DEMETER: Thank you for clarifying that about the ammonia.

One thing that would be really helpful for me is when I first see anhydrous ammonia leak I worry about worker safety, and I had to look really hard in the CMD to find an area that actually said there was no adverse effect on the environment or the worker. It should be sort of upfront because, for me, that's the biggest concern I have is the toxicity of the release and if it says up front there was no adverse effect on human health or the worker then I know, you know, it's another issue. But it was actually buried in there somewhere, I had to try to find

it.

Thank you.

MR. LEBLANC: Any further questions? No?

So we'll go to the next submission which is from the Canadian Environmental Law Association or CELA as outlined in CMD 18-M48.8.

Any questions regarding this submission?

Ms Penney?

CMD 18-M48.8

**Written Submission from the
Canadian Environmental Law Association**

MEMBER PENNEY: I'm not sure if Environment Canada and Climate Change is still on the phone. Is Ms Ali still on the phone?

MR. KIM: Duck Kim. I'll be able to answer the question.

MEMBER PENNEY: Okay. It's a question about the NPRI. And so, from what I understand is CELA still is unhappy with the outcome of the review of whether the NPRI should include radioactive substances.

So I just wanted staff and ECCC to respond to this because they don't seem very happy about it.

MR. KIM: Shall I go first?

MR. McKEE: Actually, Malcolm McKee, for the record. I'll go first.

This is actually a good opportunity to update the Commission and inform the Commission of the initiatives related to the National Pollutant Release Inventory.

We were requested by Environment Canada to assist them in the initial review of the proposal that it be considered a reportable substance. The NPRI actually has a decision criteria tree for determining whether something is a reportable substance under the NPRI. Working through that decision tree radionuclides drop out of the process because one of the elements is, is the substance monitored and reported under another jurisdiction and the information available to the public.

Though while it dropped out based on that decision tree, the CNSC staff working on the project group had to admit that it was difficult to find some of the information that the proponents were looking for and that we had -- the CNSC had been inconsistent in the reporting format and so on for some of these.

So we've committed to work with NPRI to address this issue and make sure that anybody looking for information on radionuclide releases from nuclear facilities regulated in Canada by the CNSC could obtain

that information.

So what we've done is, just to briefly outline the process, we formed a formal terms of reference with NPRI technical specialist which has been very helpful to the CNSC because they were used to handling rather extensive databases and have a very good queryable visibility site on the web. We committed to phase 1 which was to show results immediately which was to put within the appendices of the RORs the total annual load of radionuclides released from facilities in a separate, independent appendices so that it would be there in clean format without any interpretation. That was one of the requests.

The other step was we are working on establishing links between the NPRI web page and the CNSC web page. The initial phases of those have just been developed and actually were reported to the NPRI working group yesterday in an update meeting. And what will happen is somebody visiting the NPRI for a facility that's -- a nuclear facility that's reporting to the NPRI will find linkages informing them that this is regulated by the CNSC and that there is additional information on releases and environmental aspects and on radiation science at the CNSC website. Each link will bring you to that facility specific web page on the CNSC site and we're standardizing

those web pages so that there will be links for the independent environmental monitoring program, the environmental risk assessment and the other core documents related to releases and environment. And we are now building the databases to add downloadable databases to those pages. That's the phase we're working on right now.

MEMBER PENNEY: Question. Timing for it to be online, comprehensive and searchable which...?

MR. MCKEE: We're working for 2018-'19 with the NPRI on having databases with the similar construction as theirs. We're going to make sure we're delivering in small achievable packets. So the first thing will be simple downloadable .csv files before we worry about queryable. And then once we've ensured that we have the downloadable .csv files, then we'll work on a queryable set which is easier now because we're doing this in conjunction with the NPRI database specialist.

MR. LEBLANC: Dr. Lacroix?

MEMBER LACROIX: Well, my question follows Kathy's question in a sense that, would it be possible to have an inventory where you have radioactive substances with chemicals substances from a jurisdiction point of view?

MR. MCKEE: Malcolm McKee, for the record. I'm quite excited at that possibility to be

honest. We in the Environmental Risk Assessment Division and our Directorate we receive a wealth of data that we require licensees to report on and monitor, far superior to any other regulatory agency in Canada.

The follow-on phase 3 that is being proposed internally to operations management committee is to then develop further on that aspect once we've delivered the radionuclides as we already -- because we have a formal commitment to do that, is to look at incorporating standard metals, the other regulatory elements that are monitored within in that.

We've already also had discussions with other governmental agencies that have their own monitoring activities and so on. So, for example, Health Canada with their fixed point monitoring program is interested in the concept of establishing a single source of information on radionuclides in Canada, but that will be first after we have delivered the NPRI commitment of radionuclide releases.

MEMBER LACROIX: Will you foresee problems with substances that are regulated with a concept that we call parallel on one hand and on the other hand chemical substances that are regulated with a threshold value; which one would prevail?

MR. MCKEE: If we're talking about a

release database, it's the quantity of releases of the concentrations and the total load and then also those can be put into perspective of what the actual regulatory limits are for those substances.

So while we've got substances that have a release limit, for example, there still, for us, whether that be a hazardous substance, we still expect to see the BATEA applied -- best available technology economically achievable -- and that's in fact why we see right now the metal mining effluent regulations have been modified with metal diamond mining and effluent regulations with the requirement in 2021 a number of the limits will be lowered and the mining sector is being given time to respond to those lowered limits.

Right now because of the nature of CNSC's regulatory approach the uranium mines and mills which are also regulated under that are already in full compliance with the new limits being proposed for 2021.

And then when it comes to radionuclides, it would again -- people are interested in the quantity, the total quantity released and then the trick there is trying to put that into a dose perspective for people because dose is really exposure scenario specific.

So that is going to be one -- that's always one of the communication challenges with

radionuclides.

MEMBER LACROIX: Yeah, this is a challenge because there's no dose -- there's no such concept as a dose as far as chemical substances are concerned.

MR. MCKEE: Yeah, there's somewhat different regulatory approaches, except the radionuclides from a human perspective especially are managed with the concept of there is an upper maximum unacceptable level which would be the radiation protection regulations and then ALARA is applied to drive the number to the release lower.

Hazardous substances tend to be more of the opposite with a lower bound number especially when it comes to a carcinogen. With a lower bound number almost often diminimus but the recognition that it is often not achievable and best available technology results in the number coming up.

So in the end the two different paradigms tend to meet in the middle in practicality.

MR. LEBLANC: Any further questions on this intervention? No?

So, the next submission is from Northwatch as outlined in CMD 18-M48.9, in fact .9A which was a revised submission.

Any questions regarding this submission?

Ms Penney?

CMD 18-M48.9A

Written submission from Northwatch

MEMBER PENNEY: Page 2, so this is the question for CNSC staff. Page 2 it says:

"Northwatch also has an interest in closed uranium mines and mine waste areas in northeastern Ontario that are not under licence by the CNSC."

So my question to staff is, how can there be uranium mines and mine waste areas that we are not licensing?

MS PANDOLFI: Dana Pandolfi, for the record. So the mines that Northwatch lists, a number of them, like Beaucage, were never uranium mines, they were never part of the fuel cycle, they were mined for niobium.

The other mines that were granted exemption by the Commission were either -- they didn't meet certain criteria, so they either didn't have tailings in the area or they were more exploratory kind of tunnels, there wasn't a lot of material there or the material had been moved to other mines and consolidated.

So that's the reason why those mines

aren't regulated by the CNSC.

MR. LEBLANC: Any further questions?

President Velshi?

THE PRESIDENT: One of the other comments made by the intervenor and I didn't see it in your disposition table was using annual averages for water quality and that that may not reflect seasonality.

What are your comments on that?

MS TADROS: Haidy Tadros, for the record. So, I believe Mr. Malcolm McKee will take an attempt in answering that.

Just with regards to the last question from Commissioner Penney, it's important to highlight as well that there is oversight of the mines at a provincial level though. So while it's not a federally regulated CNSC licensed mine there's always oversight that ensures safety of the area and what the activities are.

So with that, maybe Mr. Malcolm McKee has an answer for the question President Velshi had.

MR. MCKEE: Malcolm McKee, for the record. I believe the one we're discussing is why we're seeing annual means as the general reporting threshold within the regulatory oversight report.

The majority of these substances that are reported on in the annual report, in the regulatory

oversight report actually have limits based on monthly means except for the radionuclides which tend to be an annual restriction because you calculate it based on annual dose, an annual dose.

However, they are quite right. For simplicity sake, for comparing multiple sites together the ROR has presented the data as an annual mean for multiple sites because that conveniently fits within one figure and it doesn't make it too complex.

We do have monthly for substances that have licence limits based on monthly limits. Quite right, we do have monthly data and monthly reporting and, you know, there's the possibility of adding those things to the appendices or however the Commission would like to address that issue.

THE PRESIDENT: I want to make sure we're addressing the same issue. So this is on page 3 of Northwatch's submission, the second bullet, the first sub-bullet:

"Water quality is currently reported as annual averages with summary statistics which can mask the effect of seasonality."

MR. MCKEE: Malcolm McKee, for the record. Yes, we are reporting them as an annual. We will have

especially from an effluent perspective in most instances monthly data for that.

THE PRESIDENT: Okay. Thank you.

MR. LEBLANC: Dr. Demeter?

MEMBER DEMETER: Thank you. I have the same question about the data. From a statistical point of view, the easiest way -- the simplest way to get around that might be to say frequency of sampling, monthly, weekly, daily, whatever, the range, and then your average. So in one line someone gets a sense of there's not a lot of -- there is a lot of splay or there isn't a lot of splay, and in fact sometimes the average if you've got a really skewed distribution isn't the appropriate measure of central tendency, it might be a median or something.

So I think, you know, how often do we measure this, what's the range and what's the average, that one thing would help people feel comfortable that you're looking at variability.

MR. LEBLANC: Any further questions?

President Velshi?

THE PRESIDENT: I do. It's more a comment. I'll hear what your response is. So this is on the attachment, the consultant's report, page 2 and I'll read out the sentence. It says:

"Terms such as expectation, request

and recommendation to licensees from CNSC on apparent non-compliance issues gave the impression, whether correct or not, that some areas of concern were open to interpretation or voluntary compliance."

Your comments on that?

MS TADROS: Haidy Tadros, for the record. So yes, throughout the report these terms are found. The comment I would have or the response I would have to the comment is a non-compliance is a non-compliance, it is not something that is voluntary, it is something that needs to be addressed because it's non-compliance with the licensing basis.

So, CNSC staff do have expectations of the licensees and those expectations is that they meet regulatory requirements and based on those expectations -- and again this kind of brings us to a conversation where it really does depend on the level of granularity that we are looking at with regards to what fundamentally is the non-compliance with regards to the licensing documents.

So, requests are made of the licensees because these requests could be formal requests, we've noted it in our CNSC staff's slide. With regards to the *General Nuclear Safety and Control Regulations* there are

formal requests, letters that are sent to the licensees. And recommendations to the licensee are just that, they are recommendations, they do not come into this sphere of non-compliances, they are -- licensees have operations, CNSC staff share either opportunities that we've seen things done better differently somewhere else, we share those recommendations with the licensees.

Also with regards to recommendations, as the Commission is aware, in our regulatory documents we have recommendations and guidance information that the licensees may be in a position to look at and interpret and bring into their licensing activities. So those remain to be recommendations, it is not something that staff --

THE PRESIDENT: But I think this was getting more written on compliances in that compliance is not -- non-compliance is not an option and making it voluntary or requesting or expecting may just not be strong enough on exactly what the requirement is. I thought that's what this was alluding to.

So, and if that is indeed the case we may exactly want to revisit.

MS TADROS: Haidy Tadros, for the record. So, I think we'll have to look and see where those words are found and yes, I would agree, a non-compliance needs to be stronger and explained as such.

THE PRESIDENT: Thank you.

MR. LEBLANC: Any further questions on this submission? No?

So, the next submission is from the Algonquins of Ontario as outlined in CMD 18-M48.12.

Any questions regarding this submission? Ms Penney?

CMD 18-M48.12

**Written submission from the
Algonquins of Ontario**

MEMBER PENNEY: In the Algonquins of Ontario submission, Accommodation 1 -- which are the recommendations after a comment -- Accommodation 1, 5 and 9 all are recommending that the CNSC provide radiation dose exposure estimates for representative small mammals and ungulates with comparisons to exposure limits.

So, my question to staff, is this not covered in ERAs and would there not be -- an environmental risk assessment -- is there not an environmental risk assessment available for these sites?

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

So, the decommissioned sites in question

have various degrees of risk assessment work done. There had been work done in the early 2000s by then the Ministry of the Environment which helped set the stage for certain select decommissioned sites to do some further work.

So, for example, if we look at the Madawaska site in question it had an environmental risk assessment done in around 2012 I believe.

Looking at that from sort of an exposure perspective on things like ungulates, you know, the findings there were there could be localized effects on individuals, the potential existed but not from sort of a population perspective. But they also did look at it from a human health perspective and looking at what human receptors could be using the area and looked at things such as consumption of fish, berries, wild game and the findings there, there was no risks posed from this site to humans using the area.

So, there has been some risk assessment work that's been done and we use -- certainly as we look at the environmental monitoring information if something is not in alignment with what we have previously seen or it's trending we are certainly able to ask the licensee to do further risk assessment work and often times, as I mentioned in the case of the exceedance at Elliot Lake, you know, it was an effluent exceedance we did our own desktop

risk assessment from a dose perspective to confirm that the environment remained protected.

MR. LEBLANC: Mr. Jammal?

MEMBER PENNEY: So --

MR. JAMMAL: Sorry, Ms Penney, please go ahead. My response is not relating to the ERA, it's to the previous question asked by Madam President.

MEMBER PENNEY: So, you mentioned Madawasca. What about Bicroft and Dyno, did they have ERAs?

MR. McALLISTER: They don't -- they would have been informed by the work that the Ministry of Environment had done in the early 2000s. They don't have -- they haven't done site specific environmental risk assessments.

They do -- the Agnew Lake is, my understanding and I would look to the licensing, but my understanding is they've recently looked at a risk assessment for the perspective of that.

MR. JAMMAL: It's Ramzi Jammal, for the record. If I may, to complement Malcolm -- sorry, Mr. McAllister.

The key point here is: safety case is based -- even though there wasn't an entry, the ERA is based on the risk, radiological risk, and the risk of the

site itself, and we are going to keep this in mind.

But Madam President asked the question with respect to non-compliance issues and do we request or not request. I do not want to leave the answer hanging. The fact that every non-compliance findings that are in the inspection reports are tracked for closure. We have a regulatory information bank that keeps every and each one in compliance findings and we follow up the criteria for closure and that is accessible to anyone to look at.

With respect to recommendations, as it was mentioned, we look at the good -- best practices and we provide a recommendation for the licensee from that perspective. So the request is to be in full compliance, and the non-compliances found and listed in every inspection report are tracked and closed according to our requirement.

MR. LEBLANC: Questions from members?

President Velshi, you want to lead the general question period?

THE PRESIDENT: Okay. Thank you.

So we now open the floor to Commission Members for any unanswered questions that you have. Why don't I start with you, Mr. Berube.

MEMBER BERUBE: So the first question I have is it's right in the Executive Summary that you

basically focus on three SCAs as the basis for the RORs and I would just like to understand why those three SCAs are relevant and how they actually ensure that the safety and security of Canadians are being upheld.

MS TADROS: Haidy Tadros, for the record.

So those three SCAs -- radiation protection, environmental protection, and conventional health and safety -- provide key performance indicators from a data perspective that CNSC staff will look at to determine the performance of the licensees and are an aggregate of all performance of the programs that licensees have. So, for example, if there is a deficiency in the management system, the management system is there to look at adhering to procedures, to ensuring workers are trained.

In the end, safety of workers, the public and the environment are rated according to exposure, and exposure is brought forward with regards to radiation protection. Environmental impacts from work is also looked at using the environmental protection SCA. And again, worker safety is the conventional health and safety SCA.

This discussion had taken place a number of years back now, where the Commission had instructed staff to look at indicators that were meaningful to the objectives of ensuring health and safety to workers and the environment, and those were the three SCAs that were

focused on.

THE PRESIDENT: Can I just add to that? Because I know for DNSR they actually look at management system as another SCA, which actually gives you sort of the bigger picture and how that's being managed. Did you look at that as a possible one to add?

MS TADROS: Haidy Tadros, for the record. I should have included in my last answer that all SCAs are looked at. In terms of performance indicators, those three SCAs provide us the data to ensure the programs, all programs are effective. We can look at other SCAs depending on if there are activities or inspections that happen in those SCAs that indicate non-compliances with certain areas and we present those in our RORs, but in terms of performance indicators those are the three that we have data on.

THE PRESIDENT: Mr. Jammal.

MR. JAMMAL: Thank you, Madam Chair. Just to reiterate the fact that we are reviewing the ROR and its structure and its effectiveness as part of our consultation with the stakeholders and we will be coming back to the Commission with the final structure of the ROR and we will be addressing the elements accordingly.

THE PRESIDENT: Thank you.

Dr. Demeter.

MEMBER DEMETER: Thank you.

Just to see if there is a follow-up loop. The ROR covers a very broad swath of topics, many facilities, and it wouldn't be feasible to have the level of detail in that that many of the intervenors are looking for for their particular area of interest, right? So they didn't see their specific number they're looking for, but it would be impossible to be that comprehensive. I was wondering if there's a feedback loop from the CNSC that they look to the intervenors and say, that may not have been in the ROR but here's what we can give you to answer those specific questions. If there's sort of a post-mortem on the intervention, the questions, and if there's residual details that might benefit them, is there a way to communicate that to them, say, yes, it wasn't in the ROR because we couldn't include everything but here's the information you needed?

MS TADROS: Haidy Tadros for the record.

So I think this comes back to what Mr. Jammal was saying in terms of when we look at the ROR and what it means and what is its purpose, what does it serve and who does it serve, I think the opportunity will then play out in terms of all other information that we do have, what is the most appropriate mechanism to provide the

information to the different groups that are looking for it.

MR. JAMMAL: It's Ramzi Jammal for the record.

Dr. Demeter, if you allow me, the fact that when we provide PFP and in specific for -- let me give you an example -- Northwatch, they requested as part of the PFP every inspection report and these were provided. And my colleagues will have to correct me on this but we provided every inspection report that the staff has carried out. So what I'm trying to say here is, as we look towards improvements in the ROR, it does not mean the information is not available, especially when we are allowing the PFP and the interventions for the ROR for that purpose, to ensure transparency is maintained and we try to increase the public trust. So the fact is even though they have a special interest in the management system, the inspections that were provided to the intervenors addressed the management system findings, addressed the RP findings, addressed the global and each of the SCAs. So what you're seeing before you is a consolidation or concise performance indicators based on three SCAs but it encompasses all of them.

So when you're asking have we done the post-mortem or "postpartum", whatever you want to call it,

the key point here is the information request, in order for the intervenor to prepare their submission, is being provided. But again, we're going to look globally how the ROR can be a service to the Commission and to the public.

MEMBER DEMETER: Thank you.

THE PRESIDENT: Dr. Lacroix.

MEMBER LACROIX: Thank you, Mr. Jammal and Mrs. Tadros for answering some of my questions.

I do have a question concerning page 24 of the ROR, M48. You showed us Figure 2.6, 2.7 and 2.8 concerning the annual average concentration of molybdenum, selenium and uranium, and I was wondering, what is the uncertainty on these data?

MS TADROS: Haidy Tadros, for the record.

So the data that is used in our Regulatory Oversight Report actually, as mentioned previously, comes from the licensees' annual compliance reports and in those reports there are significant values that are given the plus and minuses for each of these. We have just not included them in our Regulatory Oversight Report here.

MEMBER LACROIX: That's naughty. This is not correct. I would have appreciated to see the confidence level.

Also, on page 22 you showed us a figure that represents the number of spills are uranium mines and

sites. What does it mean, is it a low spill, medium spill, large spill, and would it be better to present these results in terms of environmental footprint?

MS TADROS: Haidy Tadros, for the record.

So I believe as part of the complement to the table as well we've tried to give some measure of detail and explanation as to what the spills contained in appendices in the ROR. So from a large, medium, small spill, with regards to that information I think each spill has to be looked at as it occurs.

And I'm sorry, what was the second part of your question?

MEMBER LACROIX: What is the purpose of showing us this figure? In the sense that when I looked at it I couldn't extract any useful information as far as I'm concerned. Maybe I don't understand. What does it mean?

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

I think part of staff's effort in looking at the number of spills is, one, it's a numerical value, so what do the spills -- how many spills have occurred, how can we trend them. And again, there's trending information in terms of are they increasing, are they decreasing. There is a measure of understanding of what are the licensees doing to ensure spills are maintained

effectively, do they happen -- I suspect spills will always happen. And what are the corrective actions that the licensees take is also important in looking at some of the information behind the scenes of some of these numbers. So while the numbers at face value may not represent what should I do with them, I think the story behind the numbers is where the value added comes from, is what are these spills, how often do they occur, what corrective actions have taken place, what trends are we seeing. It is a measure of is there control over what the licensed activities are and are the licensees paying attention to that specific area. Spills also end up at one point impacting the environment. So this is another way of ensuring another threshold or defence of -- if the environment is important, we should be looking at what goes out into the environment at any time.

THE PRESIDENT: Okay, Ms Penney.

MEMBER PENNEY: I'm looking at our treatment of conventional health and safety, and in particular I'm looking at Table 4.3 but that's for McArthur River, but it could be for any of the facilities. I want to thank you for putting in the severity rate and the frequency rate -- I think that came out of an earlier request -- and that it's over five years, so you can see kind of the trending.

What I would say -- and I don't know, maybe you can think about it -- is this is about lost time injuries, and across many industries the more conservative parameter to use is a TRIFR, Total Recordable Incident Rate or Frequency, and it's again about the 200,000 person-hours but it's about anything that requires medical treatment and above. So it's a higher bar for reporting, meaning that you don't have to have someone off work, it's someone who has required medical treatment. So my question to staff is -- I think many in the mining industry for sure uses these TRIFR. So can we start reporting TRIFR instead of just lost time injuries?

MS TADROS: Haidy Tadros, for the record.

So maybe I'll start and ask Cameco or the industry to maybe take a stab at explaining sort of how the numbers come together and the extent that they need to look at providing those dates -- those numbers.

So similar to the data that we had provided on the releases, this data comes from the licensees. So really, what we would be looking at from a staff's perspective is the importance of what those numbers represent and how easily accessible those numbers can come together for us to really look at and any added value it would give to the already lost time injury information that we have.

So I'm not sure if Cameco would like to add anything to that.

MR. MOONEY: Sure. It's Liam Mooney, for the record.

And we are familiar with the recordable incident rate. We do measure that.

I think the backdrop to this also has to recognize the provincial jurisdiction in relation to conventional health and safety in relation to the northern mines and, in Ontario, the role of HRSDC in relation to conventional safety, too.

So there is a shift, I would say, towards the recordable incident rate. We found that there's a great deal of variation across different jurisdictions on -- in the U.S., for example, where we've been held to that for a long period of time, it's much more black and white. But it's presented a challenge in comparing the performance across different Canadian jurisdictions because some -- while they may have picked up some of the definition in relation to what a medical (indiscernible) is, they may have dropped some and so in that conversation it's not as, I would say, tried, tested and true as an LTI. But as far as for our own systems and improving performance, it's the driver right now for us, for sure.

So I wanted to provide the assurance, but

going back to the LTIs there's, I would suggest, a much broader agreement across Canada about what an LTI is. And it is a gross measurement recognizing, again, the interplay between the CNSC and some other regulators as well.

THE PRESIDENT: And on a similar note, I mean, I know there are issues around severity rate as well.

My experience has been that if you've got a lost time -- if you don't have a lost time injury, your severity rate for that year is zero. Here, because there's been days lost for an injury that occurred in a previous year, we show it in the subsequent years, but that's not a common practice, either, that if you've got -- it actually gets accounted back to the year the injury occurred in.

So again, I'm not sure if there's a common standard on how these things get measured and whether they vary from industry or province to province.

MR. MOONEY: I know we've had that discussion on the severity rate when we've had no lost time injuries and we show a severity rate.

When I went back and spoke to our safety professionals, they assured me that was the standard and that's how it should be reported, but I'm live to there being some -- once you move away, I would suggest, from the ones that are either statutorily required and mandated, you get to some qualitative aspects in relation to the safety,

statistics and performance.

And you know, one of the challenges that we have is we have remote mine sites, so the level of care that we provide through our medical health centres is really quite high. And in that space, that can carry with it on the recordable incident rate -- you can trip over particularly some of the thresholds in relation to over-the-counter medication and prescription strength, those sorts of things.

So there's some nuance there that not everyone follows the same rules because those rules aren't statutorily required in Canada. They are much more black and white when we're talking about OSHA in that regime, but the same goes for severity.

THE PRESIDENT: Okay. Mr. Berube.

MEMBER BERUBE: So I'm curious about security provisions as one of my favourite pet topics. And the SCAs here that are covered, I've noticed in the document there's less than a dozen references to security at any point in the document.

From the Commission's standpoint, our mandate is safety and security, and I'm not sure why we avoid that a bit. It could be because it requires a different forum to discuss that, but certainly I think there's some room for improvement in terms of transparency

and security in the RORs in terms of what we're doing.

Certainly I see the SCAs are saying satisfactory. That's about as far as the discussion goes.

So from my standpoint when I look at it, I'm not confident -- 100 percent confident that that is actually being tended to, so I'm not sure how to -- how we should proceed to accommodate that. But certainly I want to ensure that the mandate of the Commission is being followed here.

So I need to know more about this.

MS TADROS: So Haidy Tadros, for the record.

Maybe one thing I can try to assure Commissioner Berube is we equally take very strong measures to look at security, so it's not because you don't find it in the report that it's absent from what CNSC staff do on a -- on a day-to-day basis, and part of being on site and doing the inspections, you -- we, as staff, have the opportunity to see what security measures are in place, if there is an event, how does the licensee's corrective action plan address the event in terms of security.

Perhaps I can ask our colleagues from the Nuclear Security Division to give some insights as to how security is looked at from the mines and mills and decommissioned sites, recognizing that these sites are

pretty remote and these sites basically -- the people that are there are there to serve a purpose, so there isn't an entry type of security issues that are in play.

So maybe if Richard is -- Richard Tennant is available, he can -- all right. So I just found out he's not here.

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

It's not just a matter of Richard Tennant here. It's -- I'd like to confirm the fact that an assessment is being carried out from the time we issue the licence. Once the licence is issued, there is safety, security and protection of the environment.

So the verification by all our staff includes security, security inspections based on what the Commission has approved as a security program, and the findings are incorporated into inspection reports. And the majority of the findings of security reports are classified as secret.

So there is prescribed information associated with the specific findings.

Our safety inspectors who are in Saskatoon and inspectors, my colleagues who are on the bench here, can attest to the fact that there are -- they take training with respect to the security findings and if there are any

suspicious findings or even in the report, it's reported to our security division.

So the issue of giving you a summary, we take that into consideration. No debate.

With respect to carrying out our mandate in a deficient manner, the fact is, the licence itself will not be issued without a security requirement for every and each facility. The inspections are carried out to ensure that the assessment and the approval given by the Commission is looked after and the security regulations and the regulatory documents are incorporated into the licensee's oversight and they are inspected against.

MEMBER BERUBE: I had a comment on that. That's -- thank you for that, by the way. I'm well aware of that.

So the Commission, our responsibility is oversight. And right now, I don't have transparency to what's going on in that particular SCA.

So it would be very beneficial to us to have some understanding of -- broader understanding, more detailed understanding of what's being done.

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

Then if you -- the Commission is going to give us a direction to provide you with a special summary

report associated with the UMMD, I'll be more than happy to oblige.

THE PRESIDENT: Thank you.

Dr. Demeter.

MEMBER DEMETER: My last question.

So this has come up in previous hearings and meetings where an intervenor brings up the observation that the derived release limit or concentration is orders of magnitude above the actual. And the question raised is, well, why is the bar so high when our average or usual releases are so low, and why doesn't the bar come down.

So maybe for the record, anyway, someone could help respond to that observation by the intervenor about the magnitudes of order difference between the limit and the actual release levels, and why we don't bring it down.

MR. MCKEE: Malcolm McKee, for the record.

Such a scenario is generally found in two situations. It's where we have derived release limits as calculated for radio nuclide releases associated especially, say, with nuclear power plants and so on.

That is something that is actually being revisited right now in REGDOC 2.9.2 on development of release limits for nuclear facilities. The Commission has heard about this REGDOC before.

It is now going to be going through internal review, so we should be seeing that soon.

The approach that we're -- that is moving towards there is going to result in addressing some of this issue, especially for radio nuclide releases that are based on dose being orders -- multiple orders of magnitude above what is actually even possible for the facility to release.

So that is being addressed.

The other situation we have specific to maybe this ROR is the example where we have provincial limits that we're utilizing for comparison such as uranium where it's 2,500 micrograms per litre for -- under the Saskatchewan legislation.

We -- the CNSC, through the risk assessments and through work with the environment, Canada Climate Change toxic assessments has determined that such a limit is not protective enough and that's why we're currently using what we've described as the uranium objective.

Again, in REGDOC 2.9.2, we have written down now a standard procedure on how we will generate release limits in those scenarios where there either is not a release limit currently in legislation or where we have -- where it's been determined that it's inadequately protective for possibly a site-specific reason or one other

reason or another.

And the methodology is laid out and, that way, there will be clarity amongst all the different licensees and amongst stakeholders on how those numbers will be derived.

And we're not -- the approach is one that is generally used by the U.S. EPA, by the Ministry or Ontario. It's the standard approach utilized for hazardous substances across Canada for most instances, so it's coming.

MS SAUVE: Kiza Sauve, for the record.

I just want to confirm and make it clear, though, that the releases that are from these facilities are protective of the environment.

So while the limits might be higher right now, the releases themselves are protective of the environment.

MR. FUNDAREK: Peter Fundarek, for the record.

I just want to add on to what my colleagues have also advised. From a licensing and compliance verification perspective, if I -- if you refer back to slide 12 from the CNSC staff's presentation on the graph outlining the difference between the regulatory limit and the action levels, you can see that the regulatory

limit, that represents the unreasonable risk to persons or the environment. So that's where -- that's the line that can't be crossed.

But licensees will set action levels much lower than that so that when those get triggered, then they know that there's something that they're losing control over. And has requirements for reporting through the -- to the CNSC, so that's got a quasi-regulatory limit associated with it as well.

So there is a reporting mechanism there, and licensees will even then set lower administrative levels so that they can monitor these parameters even more closely and avoid having to get into a situation where they have to even file an event report because they want to try and control their processes much more closely. And that, in turn, then drives down.

So the regulatory limit is there, but the effect of the action levels and the administrative levels actually drives that reporting down and drives those levels down even further.

THE PRESIDENT: Okay. Dr. Lacroix.

MEMBER LACROIX: I'm going to ask my question first and then provide the explanation next.

In a sense that is the radiation measurement tailored according to the average ore grade?

The reason why I'm asking this question is that I've noticed in the report that you provide the origin of radiation to calculate the effective dose as a function of the average ore grade. And as the average ore grade diminishes, so the portion of gamma radiation, but on the other hand, the radon progeny increases.

In other words, does the measurement of radiation at Cigar Lake where the average ore grade is very high the same as at Rabbit Lake where the average ore grade is small?

Is my question clear?

My question is to the staff, of course.

MS TADROS: Haidy Tadros, for the record.

So if I may just maybe repeat what I've heard just to make sure I'm understanding the question.

So what you are looking for and your question is, does the measurement of radiation be impacted by the grade -- the ore grade found in the different --

MEMBER LACROIX: Correction. Is the emphasis of measurement. The emphasis. That's the key word here.

MR. McMANUS: John McManus, Radiation Protection Specialist with the CNSC, for the record.

Certainly as the ore grade -- excuse me. As the ore grade goes up, you'll have more radium-226,

which will then produce the radon and the radium-226 also again with source. But that doesn't necessarily transcribe to collective exposures or individual exposures at a mine site.

Often the mining method, the technology, the engineering controls are a bigger driver.

So it's -- it is -- yeah, the ore grade is higher, but that just goes to the effectiveness of the engineering controls at Cigar Lake with respect to that mining method.

MEMBER LACROIX: So in other words, at Cigar Lake you would be more concerned with gamma radiation as opposed to Rabbit Lake where you would be concerned with radon progeny. Is that what you're saying?

MR. McMANUS: John McManus, for the record.

Now, the concern would look at -- would change with respect to the type of exposure scenarios you're concerned about.

At Cigar Lake, because of the higher ore grade, you have to be very respectful of that source term and the potential for very quick releases of radon progeny. So from a dose preventive aspect, that might be the emphasis of that program to prevent an excursion of radon progeny.

So in the past, we've had action level exceedances at some sites. Certainly at Cigar Lake and McArthur with the higher grade ores, that radon progeny would be more of a concern for an acute exposure.

MEMBER LACROIX: I understand. Thank you.

THE PRESIDENT: Ms Penney.

MEMBER PENNEY: It's a quick question. I quite liked the use of the MMER, *Metal Mining Effluent Regulation*, discharge limits in the document and then the comparison of the mines to metal mines and that sort of thing.

My question to staff is, how does the *Fisheries Act* and MMER coincide with your regulatory oversight? Does DFO have a role in compliance?

MR. MCKEE: Malcolm McKee, for the record.

The MMER, the *Metal Mining Effluent Regulations*, are actually under section 36 of the *Fisheries Act*. However, that section of the *Fisheries Act* is actually managed by Environment and Climate Change Canada.

So the *Metal Mining Effluent Regulations* come through Environment -- so that section 36 is deleterious substance, and that's Environment and Climate Change Canada.

Uranium mines and mills are captured under

the *Metal Mining Effluent Regulations* or now the new Metal and *Diamond Mining Effluent Regulations*, and we work very closely with Environment Canada and we -- the CNSC combines the environmental monitoring programs and the effluent monitoring programs to make sure that the MM -- the regulations under the MMER are minimum requirements for the uranium mines and mills, and then the CNSC adds additional requirements as our regulations see fit and require.

For example, we have -- the CNSC has more extensive monitoring requirements and so on.

But we work very closely with Environment and Climate Change Canada on that.

THE PRESIDENT: So on page 32 of CMD 18-M48 where you do the comparison of the different mines with the MMER discharge limits -- I think that's an error there.

For number 2 where -- and Table 2.7 where you're comparing -- you say, "CNSC staff note that the base metal" and you say an iron mine effluent concentrations for radium-226 are comparative to uranium mines. Instead of "iron mine" I think you mean "precious metal" because they're all at 023 or 025.

Do you see that?

--- Off microphone / Hors microphone

THE PRESIDENT: Mr. Berube, any additional

questions?

MEMBER BERUBE: I've got a question about the actual action levels that are in the report.

CNSC sets the regulatory limits, of course, and I believe the operators actually set your respective actions. Is that correct?

So the action level is you're triggered to basically do something about a situation that's creeping up on you. Is that how you use this?

How do you actually use that, and how do you actually determine what your action levels are going to be?

MR. MOONEY: So it's Liam Mooney, for the record.

There's actually a CSA standard in relation to developing action levels in 288.8. And it sets out the methodology for setting action levels.

We use action levels, but we rely more on -- there's been reference to admin levels. Those are internal controls.

So we don't -- we don't ever want to have a limit exceedance, and we want to limit as much as possible the action level exceedances. That usually goes to your process control.

And the admin levels give us an indication

that there's a potential that you are creeping towards an action level, which an action level would be a loss of control or potential loss of control and they have to investigate.

So that's -- it's a CSA standard. That's how we set action levels. And then on the action levels and how we use them, we try not to use them. We try to be below those. But there are instances where we trip into them and then we take corrective actions when we do trip into them to make sure that we can prevent the recurrence and understand what happened that led us to that potential loss of control point.

MS SAUVE: Kiza Sauve, for the record.

I just want to confirm, though, that CNSC staff do have to accept those action levels. So the way you asked your question, it made it seem like the licensees set their action levels as they please.

CNSC staff do review and accept those action levels. And should an action level be met, it is reportable to the CNSC and then we look at what is done to bring things back under better control. But meeting an action level does not mean a loss of control. It's just a higher release.

But it is definitely accepted by CNSC, those action levels.

THE PRESIDENT: Dr. Lacroix.

MEMBER LACROIX: Yes. On page 43 of M-48, it is mentioned that at Cigar Lake they identify an increasing arsenic trend, and Cameco has created a working group to identify the causes of the elevated concentration.

Have they identified these causes?

MR. NAGY: Kevin Nagy, for the record.

We have. The treatment processes at Cigar Lake were designed for inorganic arsenic, which is the predominant form that we've seen at our other operations. And the testing we did when developing the Cigar Lake ore body led us to believe that was what we'd be dealing with with this facility as well.

The working group reformed and the extensive test program they put in place, what they discovered was that there's an organic form of methylated arsenic associated with the Cigar Lake ore body, which our treatment processes were less effective at removing, so that was why we saw that increasing trend I think we identified in 2016.

I had discussions with CNSC staff in that regard and put in place an action plan. We put in place a number of measures, altering pH profiles primarily in our water management circuits and as well in our treatment circuit. What that did was it reduced immobilization of

this organic form of arsenic from the ore and it also enhanced the effectiveness of its removal in the treatment plants. So we have been successful in reducing the concentrations, stabilizing that increasing trend that we saw at the current levels.

And as well, we've -- through enhanced recycling process of water underground, we significantly reduced the loadings of arsenic as well in that regard. So we had been talking about the monitoring we've done in the environment and the ERA that we submitted this time last year.

So we believe at this point we're within the bounds predicted in that ERA and we'd be able to remain within the licensing basis.

MEMBER LACROIX: All right, thank you.

THE PRESIDENT: Thank you.

Ms Penney? Mr. Berube?

MEMBER BERUBE: Last one.

THE PRESIDENT: Last one.

MEMBER BERUBE: This is just for my edification. I'm trying to understand. How did INAC become a licensee?

MS PANDOLFI: So Dana Pandolfi, for the record.

So a number of mines, when they're

orphaned, have no other licensee to be found. And when there's no other licensee to be found, as in the case for Port Radium and Rayrock, a government entity takes over. So it's the same case for Agnew Lake. It's the same case for -- the Province had to take over Gunnar and Lorado. So there's a number of sites across Canada where because there's no licensee or no owner to be found, that the Province or the Federal Government have to take over.

MEMBER BERUBE: Okay, but why INAC?

MS PANDOLFI: Because the sites are located in the Northwest Territories, and because they're both located in territories that are Indigenous. There's treaties in those areas.

MS GLENN: Karine Glenn, for the record.

If I may add that with the provision of the financial guarantee requirement now, at least from a financial standpoint, the situation where these had to be picked up by government and funded, the remediation and the decommissioning funded by those entities, is not an issue any more.

THE PRESIDENT: I had a question around Agnew Lake mine. In 2016, you had given it a rating of below expectations for radiation protection. And it went to satisfactory in 2017 because they made a commitment to document their radiation protection program. And I just

wondered, wasn't that a bit premature to give that rating when they haven't actually delivered on that?

MS GLENN: Karine Glenn, for the record.

The licensee did do a lot of work at the site. They did a human dose estimate, a public dose estimate, and they have -- actually we have received their documentation, because they have submitted for a licence amendment. And so we have actually received their RP program.

We have also worked with the licensee and have witnessed the implementation of the program. And they have taken the concrete steps to document that program.

And so because of the requirement for them for that licence amendment to submit that radiation protection program and the fact that they did their public dose estimates, we are confident that they are back into satisfactory performance.

THE PRESIDENT: Good, well, thanks for that detail, because I didn't see that in the report, and it just seemed wishful thinking at that time. Thank you.

Last question for you, Dr. Lacroix.

MEMBER LACROIX: Okay, my last question concerns at page 151 concerning the Stanleigh effluent for Elliot Lake. Has Rio Algom Limited identified the cause of radium-226 exceedance?

DR. LANGE: Sorry, I was at the back.

Could you please repeat the question?

MEMBER LACROIX: The question concerns on page 151, concerning the Elliot Lake, the Stanleigh effluent. And it says that the Rio Algom Limited noticed an increase in radium-226. And have they identified the causes of this exceedance?

DR. LANGE: Dr. Lange, for the record.

They have narrowed it down. So I would say they haven't identified it exactly. They've conducted several studies to try to identify the form of radium.

The cause is clearly radium coming out of uranium mine tailings that were deposited there a long time ago, and water was put on them. So they know the radium is coming from the tailings.

They're not sure exactly what the release mechanism is, but they have identified the form of the radium, the concentration, and that's been enough to effectively treat the radium as per their new methods. And so currently the radium problem I guess you could say is under control.

If they are still on the line, I would ask that you ask the licensee about that.

--- Laughter / Rires

DR. LANGE: Oh, sorry, yes?

MR. LAMBERT: Tony Lambert with Rio Algom, for the record.

So the issue at Stanleigh is related to an interferant. The hypothesis is humic acid. And it's the traditional barium chloride process. When the barium combines with the sulfate, it doesn't form a particle that is of a size that'll precipitate -- or sorry, it'll precipitate, but it won't settle. So to address it in the process plant, we preform the barite particle and then that works effectively in the settling pond.

MEMBER LACROIX: Thank you.

THE PRESIDENT: Okay, well, thank you. Thank you to the licensees, to staff, to folks in the Saskatoon office as well as everyone on the line for your patience. This took a bit longer than we thought it would, but thank you.

And we'll give you a few minutes to rearrange yourselves in this room and get to our last item on the agenda for the day.

We'll take a five-minute break and resume at 10 after 7.

--- Upon recessing at 7:08 p.m. /

Suspension à 19 h 08

--- Upon resuming at 7:13 p.m. /

Reprise à 19 h 13

THE PRESIDENT: Okay, the next item is a decision item for establishing a new class of licence for the regulation of hadron therapy facilities, as outlined in CMDs 18-M64 and 18-M64.A.

Mr. Moses, the floor is yours.

CMD 18-M64/18M64.A

Oral presentation by CNSC staff

MR. MOSES: Thank you, and good evening, Madam President, Members of the Commission. I am Colin Moses, director general of Nuclear Substance Regulation. And with me to present are my colleagues Mr. Dave Whitby, project officer in the Accelerators and Class II Facilities Division, and Mr. Mark Broeders, director of the same division, as well as other CNSC staff involved in this file.

Before we begin, I would like to make one small correction to the text in CMD 18-M64. In the executive summary on page 1, we refer to:

"Hadron therapy accelerators operate with a beam current above the upper

threshold [of] Class II nuclear facilities"

and it should read:

"... beam energy above the upper threshold of Class II nuclear facilities."

So I apologize for any confusion that that might have caused.

So in order to ensure that the CNSC remains an effective regulator, it is important that we regularly review our regulatory practices and our approaches to ensure that they remain adequate and appropriate for emerging technologies.

As we will outline today, a new technology, hadron therapy, is on the horizon for implementation in Canada. Staff have conducted a risk analysis and have determined that the risk of these facilities are commensurate with other Class II nuclear facilities. However, the threshold embedded in the regulations defined hadron therapy facilities as a Class I nuclear facility.

CNSC staff are reviewing the regulations. However, in the interim, we are proposing measures to adopt a regulatory approach for these facilities that is consistent with other similar Class II nuclear facilities.

In order to implement the approach, we are requesting a decision from the Commission to establish new classes of licence for Class IB hadron therapy facilities and to extend the CNSC designated officer duties to encompass the licensing phases of these new classes of licence.

Our presentation will include a background on hadron therapy, describe the current regulatory approach and potential challenges with the status quo, summarize CNSC staff's risk analysis of these facilities, and conclude with a recommended interim approach to help ensure that the CNSC's approach is consistent with other similar risk facilities that are currently operating in Canada.

So I will now turn the presentation over to Mr. Mark Broeders.

MR. BROEDERS: Thank you. Good evening, Madam President, Members of the Commission. My name is Mark Broeders. I'm the director of the Accelerators and Class II Facilities Division.

Prior to providing a background, I would first like to define some terminology. Hadrons are subatomic particles, such as neutrons and protons. Hadron therapy uses these particles as well as ions for cancer treatment. Currently, protons are the most commonly used particle for hadron therapy and is the only form of hadron

therapy currently in use in North America.

Hadron therapy differs from convention radiotherapy where electron accelerators are used to create an X-ray beam. Hadron therapy, however, is not new. It has been in use worldwide for about 50 years. The technology used to create hadron beams, such as protons, is similar to existing Class II equipment such as isotope production accelerators or cyclotrons, which have been regulated by the CNSC for decades.

While hadron therapy is similar to existing cyclotrons, it is worth noting that they are not similar to existing Class I facilities, such as high-power research accelerators or reactors, and is not part of the fuel cycle.

Clinically, hadron therapy provides radiation oncologists with a treatment option in situations where high doses are required to meet the treatment objective but sensitivity of surrounding critical tissue prevents the use of conventional radiation therapy options.

This slide demonstrates that most of the proton energy is deposited at the treatment site, while the slide on the right shows the photon or X-ray beam passing through the patient. The relative amount of dose is represented with a heat scale, where red indicates the highest absorbed dose.

Hadron therapy provides a viable alternative to conventional radiotherapy where the tumour is adjacent to a critical organ. For example, it is particularly advantageous for tumour treatments in children, tumours adjacent to the spinal cord or brain, such as chordomas which is a type of bone cancer, cancers of the eye as well as head and neck cancers where the tissues adjacent to the tumour are very susceptible to radiation damage.

Hadron therapy's key advantage is the ability to more precisely control where the dose is deposited due to the rapid deposition of dose in a short range as a result of the Bragg peak.

The Bragg peak provides a distinct advantage for hadron therapy versus conventional radiation therapy in certain cases. In the illustration to the right, the grey area indicates conventional X-ray treatments, where the dose deposition in the patient gradually declines as the beam penetrates into the patient, whereas the hadron therapy dose deposition is characterized by a peak -- the Bragg peak -- or the rapid drop-off beyond the range of the hadron particles.

In this slide we provide some examples of what the resulting dose distributions look like. These are the plans that are used by the physician to determine the

best course of action for their patients. These dose distributions provide physicians with a heat-map-like representation of how dose will be deposited in a patient.

These three examples provide a side-by-side comparison of how hadron therapy compares to conventional X-ray therapy. In these examples, hadron therapy, specifically protons in these cases, are shown on the right with conventional radiotherapy shown on the left. Sorry, the other way around. My apologies. Protons on the left, conventional on the right.

In the left-most pair, a brain treatment is shown. The hadron therapy treats -- spares the healthy brain, the eyes, and the optic chiasm. The optic chiasm is a critical organ that, if compromised, results in blindness.

The centre pair shows the treatment of a chordoma, again, a type of bone cancer. In this case, the esophagus and lung are spared.

And finally, the last example on the right shows a treatment for left-sided breast treatment, where the heart can be better spared with the use of protons versus conventional X-ray treatment.

As mentioned earlier, hadron therapy is not new in North America. The above map illustrates the existing and proposed hadron therapy sites in North

America. At this time, all hadron therapy facilities in the continent are exclusively proton therapy facilities.

There is currently only one site in Canada capable of hadron therapy located within the TRIUMF facility in Vancouver. It offers very limited proton therapy treatments of only eye tumours, as it lacks the infrastructure for other applications for other body sites.

For other applications in Canada, provincial health care authorities send patients to the United States for proton therapy treatment where the clinical evidence warrants such an expenditure.

Turning our focus internationally, the above chart summarizes the current status of hadron therapy facilities worldwide. The two main forms of hadron therapy are proton beam and carbon ion beam, although others do exist and others are proposed. Worldwide, this is a growing technology, with 127 sites either in operation or being developed as of 2017.

For Canada, the justification for use of hadron therapy is increasing due to favourable results from clinical trials coupled with a reduction of capital costs to construct such a facility. By some estimates, the construction costs are approximately a third of the cost of the same facilities built a decade ago. As a result, a business case is now being made by proponents to

demonstrate that the construction and operation of a hadron therapy facility in Canada can be more economical than sending patients to United States or elsewhere for similar treatment.

The CNSC is aware of these trends and has been monitoring these developments, and is prepared to meet the expected demand.

To provide the Commission with a status update of application, it is worthwhile noting that CNSC has recently received an application from a proponent for a construction and site preparation licence of a proton therapy facility in the Montreal area. This demonstrates that there is a critical mass of clinical evidence and that the financial backing is available to proceed with building a proton therapy facility to the benefit of Canadians.

The Commission's decision on this proposal will dictate how this and subsequent hadron therapy facilities will be processed.

I'll now turn the presentation over to Mr. Whitby to discuss the current regulatory approach to these facilities.

MR. WHITBY: Good evening, Madam President, Members of the Commission. I'm Dave Whitby, project officer for ACFD.

The definition of a Class II prescribed

equipment in the regulations includes an upper beam energy threshold of 50 million electron volts or 50 MeV. A Class II nuclear facility is any facility containing Class II prescribed equipment. Therefore, a particle accelerator with a beam energy greater than 50 MeV threshold is categorized as a Class I nuclear facility and is regulated in accordance within the Class I regulatory framework. This threshold was established in 2000 as a reasonable demarcation between Class I and Class II for the facilities in use at the time.

Large, complex accelerator facilities were designated as Class I facilities while all medical electron accelerators or X-ray radiotherapy machines were designated as low-risk Class II facilities.

Since these hadron facilities typically operate with a beam energy greater than 200 MeV, they are categorized as Class IB facilities. However, staff suggests that this 50 MeV threshold is no longer an appropriate demarcation between Class I and II nuclear facilities or an appropriate measure of risk.

Staff put forward that the Class I level of regulatory oversight is not commensurate with the risk of a hadron therapy facility, and until the regulations are changed with a new threshold value, that hadron therapy facilities be regulated similar to comparable medical

accelerators.

Staff propose that hadron therapy facilities be regulated similar to conventional Class II medical accelerators. The proposed mechanism to do this is to establish classes of licence for hadron therapy facilities and to authorize the CNSC designated officers to licence these new classes of licence.

This CMD proposal includes an annex to CMD 01-M17, which establishes classes of licence, and an amendment to the authorized duties of designated officers in CMD 14-M24.B, to include hadron therapy facilities.

An international benchmarking exercise was conducted to determine who and how accelerator facilities are licensed. Based on international benchmarking, regulating hadron therapy facilities as a Class I facility is not consistent with international practice. If this proposal is not accepted, Canada would be unique in regulating this technology as Class I nuclear facilities.

A comparative risk analysis was conducted for each of the 14 safety and control areas. The risks associated with hadron therapy are equivalent to current medical accelerators. A detailed analysis by each SCA is contained in the CMD annex.

Similar to conventional radio therapy, the primary radiological risk is prompt radiation, or when the

beam is on. This risk is mitigated with defence in-depth engineered safety systems such as interlock doors, last-person-out switches, emergency shut-off buttons, and a shielded enclosure similar to existing Class II facilities. Experience indicates that doses to staff and the public are very low around conventional radiotherapy facilities. Hadron therapy facilities are comparable in all aspects to conventional medical electron accelerator facilities.

The detailed analysis of all 14 SCAs is included in the CMD annex, but here are some examples of how hadron therapy facilities compare with conventional medical electron accelerator facilities.

The radiation protection program for hadron therapy facilities will be similar to conventional medical accelerators in all respects. There will be processes and programs to ensure doses are ALARA.

The safety analysis and physical design for hadron therapy facilities will be similar to medical electron accelerators in all respects.

There are well-established processes and programs within the medical setting to ensure no deterioration of machine or safety system performance.

For hadron therapy facilities, staff conclude risks are equivalent to existing Class II medical facilities mitigation measures, including standardized

defence in-depth features similar to existing Class II facilities. The hazards and complexity are significantly less than existing Class IB accelerators, such as TRIUMF and CLS facilities.

Authorizing CNSC designated officers to issue licenses, who already have authority for Class II medical accelerator facilities, would be appropriate. With this proposal, hadron therapy facilities will remain as Class IB facilities, but by authorizing the designated officer the ability to license these facilities, it would enable expert risk-informed regulatory oversight to be applied parallel to the Class II regulating they currently do.

Staff suggest that beam power is a more appropriate measure of risk than beam energy, which is currently used to define the Class II upper threshold. To further explain why beam power is a more appropriate measure of overall risk, an analogy to water in a pipeline is used. Here the water pressure is equivalent to beam energy in MeV. The pipe diameter or volume is equivalent to current in amps. The total water flow, which is the pressure times volume in litres per second, is equivalent to beam power in watts.

Here the beam power is visually depicted as the water flow and pressure for the Class IB TRIUMF

cyclotron on the left, Class II medical electron accelerator in the middle, and a hadron or in this case a proton therapy accelerator on the right. Proton therapy on the right in comparison has a fraction of the Class I cyclotron beam power and even less than a conventional medical accelerator. The unit of measure is watts. Staff suggest that beam power shown as water flow is a more representative measure of risk than beam energy.

This chart further illustrates that a more accurate parameter for risk would be beam power as opposed to beam energy. Hadron therapy accelerators operate with a high-beam energy but with a low-beam power. Beam power, the product of the beam energy and current, is more representative of the overall risk. Risk is proportional to potential dose and the dose that can be delivered to any person correlates with beam power rather than simply with beam energy. Therefore, hadron therapy poses no more risk to people or the environment than conventional medical electron accelerators.

On this graphical display contained in the green portion on the left are the current Class II accelerator facilities, while in the red portion are the current Class IB facilities, with the exception of the circled item, proton therapy. As you can see, proton therapy has a lower beam power, the vertical axis, than any

of the listed Class II accelerators. A typical conventional medical accelerator is circled on the left as a comparison.

This concludes my portion of the presentation. I now turn it back to Colin Moses, the director general of DNSR.

MR. MOSES: Thank you.

So in conclusion, the risk assessment performed by CNSC staff has demonstrated that radiation -- that hadron therapy facilities pose a similar risk to existing low-risk Class II medical facilities that are currently operating in Canada.

While hadron therapy facilities are currently considered Class IB nuclear facilities, CNSC staff review has concluded that the existing requirements may be applied in a risk-informed manner.

And further, CNSC staff's proposal would help ensure that the CNSC applies a regulatory approach that is consistent with other low-risk licensing decisions currently being made by designated officers.

Notwithstanding as part of the ongoing regulatory review and amendment process, the demarcation between Class I and Class II particle accelerators may no longer be suitable for today's technology and should be reviewed when next the Class II facility and prescribed

equipment regulations are amended.

Therefore, as a result of CNSC staff's assessment and the adequacy of CNSC's regulatory framework to regulate this new emerging technology, CNSC staff are recommending that the Commission establish new classes of licence for hadron therapy and extend designated officer duties to include licensing of hadron therapy facilities.

Furthermore, CNSC staff have initiated a process to modernize the Class II nuclear facilities and prescribed equipment regulations. This review will include an assessment of the appropriate thresholds for Class II nuclear facilities, taking into account current and potential future technologies in order to help ensure that the CNSC continues to apply risk-informed and appropriate level of regulatory oversight in ensuring the health, safety, and security of Canadians and the protection of the environment.

This concludes CNSC staff's presentation and we remain available to answer any questions the Commission may have.

THE PRESIDENT: Thank you.

I'll open the floor for questions from Commission Members.

We'll start with you, Mr. Berube.

Dr. Demeter?

MEMBER DEMETER: I have a bunch of questions.

So relative to the insulation in vault and the operation, is there any difference in neutron flux between a proton accelerator and a LINAC? Like from a radiation protection point of view. I know the current's lower, but a lot of it is neutron-related shielding and ...

MR. BROEDERS: Mark Broeders, for the record.

So neutrons are present in conventional medical accelerators. Certainly when you get over 10 MeV in particular, it's more evident, but they can exist at lower energies.

Neutrons are also an area that we would monitor for to ensure the machines are safe for workers and the environment in the context of hadron therapy as well.

I'll ask Mr. Licea to provide some additional comments about that.

MEMBER DEMETER: I just wanted a relative answer, they -- is the neutron flux from operating this similar to a LINAC, more or less?

MR. LICEA: Angel Licea, for the record.

It depends on which type of treatment are we delivering. When we use the double scattering, yes, it can be a little bit more. But when we use the pencil beam,

it's very similar as we have in the LINAC -- medical LINAC accelerator. But at the end of the day, the shielding is considered the same. We take just the same precautions with all the safety systems of it.

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

It's very important to understand the fact that the -- your question on neutron fluxes is very valid, because when you are treating the patient, you have to take that into consideration. So there is a point where you cannot treat the patient medically when you have an "uncontrolled neutron flux."

So the shielding of the machine itself takes that into consideration, and the shielding in the design of the facility itself will take that into consideration.

What Mr. Licea is providing is we use Monte Carlo simulation in order to determine the neutron production arising from such units. So the concept of the unit itself take that into consideration, and the limitation of the neutron flux is limited based on the operation of the unit and the type of treatment. Because you really do not want to overexpose the patient from neutron perspective.

THE PRESIDENT: Dr. Lacroix.

MEMBER LACROIX: Could you put slide 22 please? Right, that's a good one.

This is confusing. The beam energy is in MeV and the current is in amps. MeV is a unit of energy, amps it's number of coulombs per second.

So it turns out that when you perform your calculation, you're right, but if you put the units in, you're wrong in a sense that you have to transform the megaelectron volts into joules, then you have to use the current as the number of electron charges per second, and not amps per second.

So you multiply by $1.6 \times 10^{-19} \times 1.6 \times 10^{19}$, so it cancels out and you get the right answer, but the wrong units.

It's the same for the total water flow pressure times the volume. It's not the volume, it's the volumetric rate, it must be expressed in terms of cubic metres per second. So I correct it because it's on the record, and I know that you know.

MR. MOSES: Thank you, and I appreciate that clarification.

MR. JAMMAL: But, Dr. Lacroix, if you'll allow me, sir. This is the challenge we face a lot of times on oversimplifying things for a representation. So it's Ramzi Jammal, for the record. We'll take that into

consideration.

What we'll do is we'll add a scientific slide associated with that.

THE PRESIDENT: Though, I must say, I really did like the analogy of the water pressure and -- but I hear you on the units and making sure they're consistent.

Ms Penney.

MEMBER PENNEY: So this is a bit of a challenge for me. So I'm looking at slide 17, the international regulatory approach. I think what you're trying to say is that a country that regulates at the state level is doing something similar to our federal Class 2. I think that's what you're saying, somehow less robust than a federal Class 1. To my mind, saying that it's regulated by the state doesn't make it less robust than being regulated by the feds.

What would be informative is are they treating it like a Class 1 or a Class 2 in our system? That would be more informative to me versus they're regulating it at the state level. I don't know if you can comment on that?

MR. MOSES: Colin Moses, for the record. You're entirely right. We weren't meant to imply that a particular jurisdiction is more rigorous oversight or less

rigorous oversight. What we're attempting to communicate with this graph is that it's an equivalent regulatory approach across these different facilities in each of these countries.

Mr. Mark Broeders might want to add to that.

MR. BROEDERS: Well, I think you're referring perhaps the United States' role in particular, or maybe all of them, but certainly in the U.S. there's another entity involved, the Department of Energy, that tends to be involved with high-powered accelerators, like the Stanford accelerators and so on. It's similar to what TRIUMF and CLS are in Canada.

But in the United States they don't regulate the cyclotrons, they're regulated at the state level, same as medical accelerators.

So all we're saying here, I think, is that the groups that are regulating these facilities they group like facilities under the same jurisdiction, in this case the state level.

MEMBER PENNEY: Right. So in Australia is all nuclear facilities -- are they all at the state level or are some state and some are federal? Right? Like, it would be more helpful to know whether they treat them like we treat Class 1 or Class 2.

MR. JAMMAL: Ms Penney, it's Ramzi Jammal, for the record. Your question is very valid. I'd like to compliment Mr. Broeders' answer. The key point here is the level of oversight, especially I can speak of the U.S. where they have what we call a state agreement. So in other words the state will implement U.S. NRC requirements on their behalf.

So the requirements that U.S. NRC puts in place are being established and overseen by the state and they call it the state agreement. So they are implementing the requirements equal to a Class 2, but by the state.

I take your point, the intent here is the equivalency rather than who is regulating it. Australia has a similar system to Canada where they have federal authorities and local authorities. But the local authorities in some countries have their own infrastructure, but in the U.S. in specific they have a state agreement that they will regulate some equipment on behalf of the U.S. NRC.

THE PRESIDENT: Mr. Berube.

MEMBER BERUBE: So I'm curious to see, now are we talking about a canned solution here made by a manufacturer that's been employed in other places? Are we talking about doing domestic development on this? Because, obviously, that has a large impact on the decision we have

to make. If it is about development, then certainly we're going to have to talk about this more extensively. If it's a canned solution, then certainly there's a track record on this. So that is something that we have to consider in this process simply because of the MeV levels involved.

The other thing that has got me a little concerned is not the operation, day-to-day operation, I think that can be adequately taken care of. The issue here is maintenance because, again, you're talking energy levels that can do some serious damage, right?

So the interlocks, the shielding protection, training of the technicians, access to the actual accelerator itself, these kind of things are actually more critical simply because of the power levels involved.

Then I'm just wondering how you intend to deal with that stuff?

MR. MOSES: Colin Moses, for the record. So I'll let Mr. Broeders speak to your first question around what's being considered in Canada, is it a canned solution or a specific unique design?

With respect to your second question around some of the other risks, Class 2 facilities also have risks that need to be effectively managed, and that's why we regulate those facilities. They have electrical

hazards, they have radiation hazards, there's interlocks, there's worker protection. So we regulate those facilities.

What we're presenting here is that the hazards that these facilities present are very equivalent to the existing facilities that we're already regulating and the means or the mechanisms to manage those hazards are very equivalent to the existing facilities that we're regulating. But we don't mean to convey the message that there is no risk associated with these other facilities, otherwise there would be no need for our regulatory oversight.

MR. BROEDERS: Mark Broeders, for the record. So to answer your first question about whether this is effectively off the shelf or custom-designed equipment, this is more the former. These are -- our companies are well-established in this space, they develop this technology both for clinical applications and for isotope production, applications in many cases.

I should point out as well that in any event this facility will require Health Canada approval. In fact, Health Canada has already approved one proton therapy machine in Canada. That is a prerequisite before we'll even consider licensing for operation. Because Health Canada, of course, takes care to ensure that the

device is safe for use on humans, including neutron flux. So that is a key part of our expectation.

Also, because there was a proponent that came forward, we put together some guidance for them as to get started on preparing the application. One of the guides we provided to them was to address all the Class 2 requirements because it is a medical facility at the end of the day and there are some similarities between -- well various -- a lot of similarities between Class 2 -- existing Class 2 and proton.

Then we also referenced a current CSA Standard, or IEC Standard, it's a joint standard, 60601, that's specifically designed for safety systems for ion beam, therapy protons, hadrons, hadron therapy. So we're going to use industry standard as well to ensure that they comply or conform to industry best practices for the design of this equipment.

So I think that provides some evidence that this is -- it could not be -- it would be very difficult for this to be a custom-made one and to comply with a standard, and so it leads to some satisfaction, some comfort I hope that we're ensuring that they meet industry best practices.

MR. JAMMAL: Commissioner Berube, it's Ramzi Jammal, for the record. Your question is -- I think

we have to address this systematically, because you're asking the question. In fairness to you, you do not see the Class 2 requirements.

This is a Class 1, it's not going to change, it's just going to be the class of a licence.

You asked a question about servicing. Under Class 1 it requires a licensing for service, in other words, the servicing has to be done via a regulatory oversight by the CNSC. If you transform this over to existing practices, no medical accelerator or isotope production cyclotron will be serviced without a licence from the CNSC.

So we've been before you multiple times, either there was an installation of a machine that was not certified by the CNSC, so this unit will have to undergo certification by the CNSC. I know my colleagues are going to twitch a little bit, because under Class 1 there's no certification. But the design of the machine itself will undergo an assessment by Staff to make sure that the inherent safety shielding is in place.

Then you move over to the operation of the unit. Those are professional medical practitioners who will have to undergo multiple training from medical supervision to the operators or therapists and so on and so forth.

Then your question with respect to the service. Under Class 1 it requires servicing to be done through a licensed or authorized facility. So an operating licence will encompass all these requirements under Class 1 of a class of a licence.

So no unauthorized individual, that would be an operator or an engineer who's going to come and fix the machine, will be doing it without authorization of the CNSC.

THE PRESIDENT: So I'm really grappling with this. I totally get that there's lower risk and having it as a Class 1 is not appropriate.

What I'm grappling with is given our existing regulations, how do we manage the transition to when the regulations get changed, and what really is the difference of how this would be managed as a Class 2 versus a Class 1B? So there are a few factors, if you can shed some more light in.

What seems to be driving this is the timing so that one can deploy these much quicker. So give me a sense of what the difference time would be if this was a Class 1, under a Class 1 licence versus a Class 2. Whether there is difference around oversight, you know, why does it have to be a designated officer as opposed to a commission who grants the licence, what kind of public

participation would there be, and what's the difference? It's just not quite clear to me what the delta is between treating it differently.

MR. MOSES: Colin Moses, for the record. So, first of all, I'll just explain what we're proposing. Essentially, our proposal is that you delegate the authority to issue licences for these facilities to Staff consistent with other designated officer duties that we have right now.

In order to do so, it must be of a class that has been established by the Commission. So our first proposal is for you to establish a class of licence, and our second proposal is for you to then authorize CNSC designated officers to issues these classes of licence.

The delta has nothing to do with their technical assessment. It doesn't impact our expectations, it doesn't impact the robustness of our technical review. What it does impact is the authorization process. So, historically, medical facilities there has been very limited public interest in the proceedings, the Regulatory Oversight Reports are presented on an annual basis about the existing facilities that were regulated, very limited public interest in those.

That's why back in 2000 when we were establishing the regulations we proposed initially to the

Commission, which was accepted, to delegate the authority for those medical facilities down to CNSC Staff.

When we look at these facilities they're very similar facilities, and the same arguments apply in this case. The awkwardness is that the threshold that's built into the regulations make that a Class 1 nuclear facility.

So you asked about timing. The real timing is the difference between the Commission process and the designated officer process. So in our case in all cases we do -- CNSC Staff do a rigorous assessment across all our regulatory requirements across all 14 safety control areas, we review the needs for Aboriginal engagement, we review the needs for financial guarantees. None of that changes with this proposal. Once the assessment is complete, then a recommendation of CNSC Staff is prepared and presented.

In the case of designated officer decisions, that technical assessment is summarized and presented in a recommendation to the designated officer and they then make the decision.

In the case of Class 1 facilities, that proposal is presented in a CMD and then that initiates the public hearing process which has a minimum timeline of 120 days for public notification and then through a one-part

hearing there's delays with submissions of CMDs, et cetera.

So that's the big delta between the two proposals, it's just to streamline that, that latter process which has a net time savings of approximately four months, depending on the process the Commission chooses to use.

That doesn't preclude the need for a public hearing. So designated officers can hold public hearings if there is evident public interest. We can choose to conduct public hearings and invite public interventions. Although, typically and generally, that hasn't been the case in the past.

The other thing is if there is a significant amount of interest we can also, in all cases of designated officer decisions, refer the matter back to the Commission for consideration.

THE PRESIDENT: Thank you. Dr. Demeter.

MEMBER DEMETER: So the one scenario, I'm looking at your slide 27, which says longer term, revise the 50 MeV threshold to a combination probably of MeV and current, so that you take both into account.

But the scenario where you have a unit that's capable of a broader range of MeVs and current, like TRIUMF, I wouldn't want that sliding into a proton therapy unit. Because it can do proton therapy, but it's still a

Class 1 device or a Class 1 facility because it's...

So is the intent to say that the maximum current and the maximum MeV will drive it? Because a lot of these hybrid things can do the whole range. The risks with these research facilities, which are higher risk, versus a dedicated proton therapy unit. I know we're talking about one right now, but in the future this is going to set precedent.

MR. MOSES: Colin Moses, for the record. Certainly, I appreciate that consideration and, you're correct, with research facilities often they're designed for a whole variety of different operating modes which adds to the complexity that we need to consider.

When we look at thresholds like this that are embedded in regulations, we are looking at the maximum permissible amounts, and so that's the kind of threshold that we would use.

I'll let Mr. Mark Broeders provide some additional details.

MR. BROEDERS: Just a to compliment Mr. Moses' response. Indeed, the complexity is driven from the unique nature, I'll use TRIUMF as an example. By their very nature they're often developing new experiments, and so we regulate those.

The regulatory strategy is to regulate at

a programmatic level. So they specify how they're going to ensure that these experiments are done safely. We evaluate that and we hold them to that as part of our compliance program, then we let them run with that program.

The context of proton therapy, as you said, it's a dedicated facility; it does one thing and only one thing, and that's treat patients.

Whereas TRIUMF there's potentially dozens of various experiments scattered throughout a very large facility. So we believe that the relative risk is significantly less in the context of proton therapy, hence the proposal to create a new class for these hadron therapy facilities, and I emphasize the word "therapy," because it is a dedicated use facility versus TRIUMF which is a research mandate.

MR. JAMMAL: Dr. Demeter, it's Ramzi Jammal, for the record. The key point here is -- to compliment Mr. Moses and Mr. Broeders, this unit will have interlocks on it that will not exceed the maximum that we're presenting to you. So it's not a free A.M.U. or an accelerator that you can exceed. They are part of the design, part of the canned designed of this unit. Has interlocks that you cannot exceed what is being presented to you.

So no one's going to -- the only time

TRIUMF, in the future if they're going to slip into this, then they'll have to get rid of every accelerator they have and specifically put a unit equal to in energy to this.

So your question is very valid. Are we setting precedent? The answer is no. The machine, can operate at a higher level? The answer is no, because it has interlocks in place and interlocks are both physical and software that you cannot operate at the higher level.

THE PRESIDENT: Dr. Lacroix.

MEMBER LACROIX: Creating or establishing a new class of licence is a precedent, isn't it? No?

MR. MOSES: Colin Moses, for the record. Fair, yes. So establishing class of licence -- I mean, classes of licence have been established by the Commission, although this would be the first case where the Commission might establish a class of licence for a Class 1 nuclear facility. So with that respect, that's a true statement.

But I would add that any future classes of licence to be established would be a decision of the Commission and precedent would not weigh into that factor, that decision, or should not. They should look at those proposals on a case-by-case and make a decision on that.

MEMBER LACROIX: In other words, you foresee any problem in creating a new class of facilities?

MR. MOSES: Colin Moses, for the record.

So when we're analyzing the right approach to manage this interim period, because I think we have concluded that the ultimate solution is to update the regulations to better reflect the current technologies that are out there. We analyze a whole bunch of different solutions to manage these in a way that make sense and is appropriate to the level of risk that they present.

That included looking at potential exemptions by the Commission or requesting exemption from that. But the challenge with an exemption is you can't exempt and then apply these new requirements. The advantage that we have with the Class 1 nuclear facilities regulations is that they're drafted in such a way that allows us to apply them in a very risk-informed manner.

So the Class 1 regulations are designed to accommodate a whole bunch of different facilities and they have requirements. For example, you must demonstrate the safety of the facility, you must present to us the emergency preparedness measures. All of those things are things that we would look at, whether it was a Class 1 or Class 2 facility. It allows us to apply these requirements in a way that's consistent with Class 2, but still meets all the requirements of the Class 1 facility regulations.

So I hope that answered your question.

THE PRESIDENT: Ms Penney.

MEMBER PENNEY: Still struggling to -- so I'm looking at your Table 1 in the submission that we received, M64, and it's the safety control areas. Under safety analysis for hadron therapy accelerators it says, "Similar to medical electronic accelerators, but somewhat less standardized and more complex."

So, for me, I'm confused. I don't know what that means. I don't know if there's more risk associated with something that's less standardized and more complex, right? So I thought maybe you could help me understand what that means.

MR. MOSES: Colin Moses, for the record. I'll let Mr. Mark Broeders speak to the specifics around each of the SCAs and our conclusions for those.

MR. BROEDERS: Mark Broeders, for the record. So notwithstanding my earlier statement that protons have been in existence for 50 years, the industry's really evolved and matured to a great extent in the last 10, 15 years.

So what we meant by that statement was it's still an emerging technology in the sense that there's new entrants to the industry and there are new adaptations being made to proton therapy, which make them distinct between the different flavours of those machines.

Whereas in conventional radiotherapy

frankly there's three vendors that we deal with in Canada, and the machines are very similar. So if I use the analogy of a car, you know, you have a Ford truck and, you know, a GM truck, they're trucks, they're very similar in that sense.

Whereas in this context you might be more like, you know, a Tesla versus, you know, a fuel-powered cars. Slight differences, but the underlined technology and motivation for using them, and the use of that technology is the same the risk is the same.

Not sure if that metaphor helped or not, but...

MR. MOSES: I'd just add too. We will still be looking at these applications on a case-by-case basis. So as Mr. Jammal alluded to, while we don't intend to certify these designs, we rigorously review the physical design at the facility, we look at the safety analysis, we look at the potential malfunctions in reaching a conclusion on the adequacy of what's being proposed.

THE PRESIDENT: Mr. Berube.

MEMBER BERUBE: Yeah, I agree with the risk assessment upfront. When we do this the first time there's always a risk simply because we don't have experience, especially with something that's again this energetic. Certainly large-scale stuff, but we have people

pouring all over that.

In a smaller facility like this the requirement for attention to detail is there, especially when it's new. So if you could speak to the immediate oversight? Well, I guess we're through the learning curve on this, would be an interesting thing. Do you do anything different in that until you actually develop enough experience with this technology that you're confident that you can back off the inspections or back off the oversight a bit? Because we're talking about, you know, again, a medical piece of equipment that we don't have any real operating experience with.

MR. MOSES: Colin Moses, for the record.

So I'll have Mr. Mike Broeders provide some specifics on how we may manage these facilities in particular.

But the other thing we'll be doing also is looking at these facilities that are already installed and operating for many years in other countries and looking at the risks or the events that have been encountered and looking at the provisions or considerations that we need to take into account, and that will inform our particular regulatory oversight strategy that we develop for applicants when they do come in.

And Mr. Broeders can speak to our

oversight of decommissioning activities which we do for all Class II facilities as well.

MR. BROEDERS: So I'll provide three parts to my answer.

The first part, I'll follow Mr. Moses' lead and speak to the phases of licensing. So there are hold points in the licensing for Class II facilities. We would expect to use a similar strategy for Class IB medical facility. That is, after the construction phase there is a commissioning phase whereby the licensee is obligated to demonstrate to the CNSC that the facility operates and that the safety systems and so on perform as expected before they go to the next stage, which is full operation, treating patients and so on. So that's the first area that we would implement to ensure that the facility is safe.

The second part is, just again, we're not proposing this not be a Class IB. It will remain a Class IB accelerator and we will use a similar strategy as we do with our other Class IB accelerators, TRIUMF and CLS. What that means practically speaking is we extend our -- although the expertise for accelerator physics and design resides in one Division, my Division, arguably we will extend our request for assistance to a broader net than we normally would for a Class II facility. So, for example, we'll consult our RP colleagues and our environmental

colleagues and our aboriginal consultation colleagues. We wouldn't necessarily do that to the same extent with a Class II facility which is more mature and more established. Hence, the reason there are so many specialists here today. You wouldn't typically see that for a Class II facility.

The third aspect is the initial strategy is to assign this file to sort of more experienced staff, Mr. Licea for example, who has significant experience in isotope production accelerator, which has a similar technology, similar hazards but not exactly the same, whereas the longer-term view is we have a stratified workforce and this would gradually fall down to a level that's consistent with other Class II medical facilities, probably one or two levels lower than Mr. Licea. But for the initial instance it would be assigned to a senior staff that had experience in this area and experience with other complex and new technology.

THE PRESIDENT: Dr. Demeter.

MEMBER DEMETER: So these are, relative to size -- I visited a plan to look at medical cyclotrons where they were producing proton beams. Cyclotrons, they're huge. Like they're five times the size. By putting it from a IB to a II, are we changing the metrics of the financial guarantee and decommissioning plan? There

would be a lot more transformed metal in this than there would be in a small medical cyclotron or linac. Or is there a requirement for a financial guarantee at all in these kind of units for decommissioning?

MR. MOSES: Colin Moses, for the record.

Maybe I'll refer the question to Ms Karine Glenn, who can speak to a specific review we did for financial guarantee.

But just to kick that off, Class I facilities do require, it's imposed by the Commission, a financial guarantee. So do Class II facilities. The mechanisms that we use to require that or to implement that financial guarantee are different, but if it's not suitable for a proton therapy facility then that doesn't preclude us from applying one that is appropriate.

MR. JAMMAL: It's Ramzi Jammal for the record.

Dr. Demeter, I would like to give a precision. We're not moving from Class I to Class II. This will be applied as a Class I licence requirement, but we will take into consideration an equivalency to the Class II requirement. It's not going to change from Class I to Class II. It's going to remain as a Class IA facility.

Dr. Lacroix asked, have you created classes of licence before? Under the Class I Regulations,

you've got your MMD licence. That is a class of licence within the Class I Regulation. You've got processing facilities within the Class I Regulation. All we're saying here is treat it as a class of a licence -- if you accept our recommendation, you will create a class of a licence under Class IA that will be issued by a designated officer. So the requirements will have to meet the Class IA in a graduated approach equivalent to Class II. We are not saying we're going to take Class I and make it Class II. We can't do this.

MEMBER DEMETER: Okay. Well, that helps a lot. So you're -- I thought the problem with anything that was under Class I required the Commission to approve and that's why you wanted it equivalent to a Class II.

MR. MOSES: Colin Moses for the record. So maybe if I can just shed some clarity.

First of all, if it were to remain as is and -- or, sorry. It is a Class IB facility, not a Class IA facility, just for a point of clarification, but is 8 p.m., so I'll forgive that.

--- Laughter / Rires

MR. MOSES: So the proposal that we're proposing is that you delegate authority to licensees' facilities to CNSC staff. But in order to -- so you need to first create a class of licence because DOs cannot issue

licences that are not of a class established by the Commission. So that's why there's two separate decisions that we're asking for here. But again, this isn't seeking exemption from Class I, this isn't seeking to call these Class II facilities. They are Class IB facilities and will be regulated as such.

THE PRESIDENT: So, Colin, getting back to my earlier question, if it's still the timeline that's driving this recommendation, did you look at the option of having a written hearing, Commission Panel of one where you can -- and then if there is any public interest, you give them an opportunity to make any written interventions, but would that not address many of the concerns we've been talking about and yet meet the timeline considerations?

MR. MOSES: Colin Moses for the record.

There's a variety of different solutions we can take and ultimately the one we landed on is this one because that provides the most -- or the highest level of equivalency with facilities that we consider an equivalent level of risk. The Commission does have power to vary the Rules of Procedure to hold proceedings in expeditious manners. The reality is when it is a matter that we're bringing to the Commission there is a significant amount of work that goes by staff to prepare the material and present that to the Commission. There's requirements for

notification for public hearings, there's requirements for the provision of interventions, and the practice of the Commission has been to go through that full process, particularly for these facilities.

So yes, there are alternate solutions, but in our review of all the different options we felt that this one was the most appropriate because it was consistent with other equivalent facilities.

THE PRESIDENT: Okay. Anyone with any other questions?

Yes, Mr. Berube.

MEMBER BERUBE: What's the timeline on putting in a first accelerator of this type?

MR. MOSES: Colin Moses, for the record.

So there is currently a proponent who has submitted an application. It's undergoing preliminary review by staff. There's some outstanding material that we still need. Their stated intent is to commence construction in the spring of 2019, but I think that we'll see how that plays out. But their intent is to begin treating patients in 2020.

THE PRESIDENT: Okay. Well, thank you. Thanks very much for the presentation.

This concludes the public meeting for today and the meeting will resume tomorrow at 9:00 a.m. Thanks for your participation and have a great evening.

--- Whereupon the meeting adjourned at 8:09 p.m., to resume on Friday, December 13, 2018 at 9:00 a.m. / La reunion est ajournée à 20 h 09 pour reprendre le vendredi 13 décembre 2018 à 9 h 00