

Canadian Nuclear  
Safety Commission

Commission canadienne de  
sûreté nucléaire

Public hearing

Audience publique

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Le 30 septembre 2015

Public Hearing Room  
14<sup>th</sup> floor  
280 Slater Street  
Ottawa, Ontario

Salle des audiences publiques  
14<sup>e</sup> étage  
280, rue Slater  
Ottawa (Ontario)

Commission Members present

Commissaires présents

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

M. Michael Binder  
M. Dan Tolgyesi  
D<sup>r</sup> Sandy McEwan  
M<sup>me</sup> Rumina Velshi  
M. André Harvey

Secretary:

Secrétaire:

Mr. Marc Leblanc

M. Marc Leblanc

General Counsel:

Avocate générale :

Mr. Denis Saumure

M<sup>e</sup> Denis Saumure

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Ottawa, Ontario / Ottawa (Ontario)

--- Upon commencing on Wednesday, September 30, 2015  
at 4:02 p.m. / L'audience débute le mercredi  
30 septembre 2015 à 16 h 02

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

The public hearing this afternoon is  
regarding the application by the Saskatchewan Research  
Council, or SRC, for the release of a portion of the Gunnar  
Remediation Project Phase 2 hold point.

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

I would ask that you please keep the pace  
of speech relatively slow so that the translators are  
interpreters have a chance to keep up.

La transcription sera disponible sur le  
site Web de la Commission dès la semaine prochaine, and to  
make those transcripts as meaningful as possible we would  
ask everyone to identify themselves before speaking.

I would also like to note that this  
proceeding is being video webcast live and that the

proceeding is also archived on our website for a three-month period after the closure of the hearing.

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

Monsieur Binder, président et premier dirigeant de la CCSN, présidera les audiences publiques d'aujourd'hui.

Mr. President...?

**LE PRÉSIDENT** : Merci, Marc.

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

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

Je souhaite la bienvenue aux gens ici présents and welcome to all of you joining us via the webcast or participating by videoconference.

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

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

We have heard from our Secretary, Marc Leblanc. We also have with us Monsieur Denis Saumure, Senior Counsel to the Commission.

**CMD 15-H9.B**

**Adoption of Agenda**

**THE PRESIDENT:** I would like to start by calling for the adoption of the agenda as described in CMD 15-H9.B. Do we have concurrence?

**UNIDENTIFIED SPEAKER:** Yes.

**THE PRESIDENT:** For the record, the agenda is adopted.

**MR. LEBLANC:** The Notice of Public Hearing 2015-H-05 was published on July 8, 2015.

The submission from the SRC was filed on July 8th and the recommendations from CNSC staff were filed on September 2nd. SRC filed an updated submission on September 2nd.

The public was invited to participate by way of written submissions. August 19th was the deadline set for filing by intervenors and the Commission received five requests for intervention.

Participant funding was available to intervenors to prepare for and participate in this public hearing. The Commission received several requests for funding. A Funding Review Committee, independent of the Commission as it is made up of external members not related

to the CNSC, rendered its decision and provided funding to the four applicants. The decision is available on the CNSC website.

September 23rd was the deadline for filing of supplementary information and presentations and I note that supplementary submissions and presentations have been filed by CNSC staff, SRC and three intervenors.

We will begin with the presentations today by SRC and CNSC staff. The Members will then go through the interventions and then the floor will be open for questions on general issues to all the Members.

Mr. President...?

**THE PRESIDENT:** Thank you, Marc.

Okay. So let's start with the presentation from the Saskatchewan Research Council, as outlined in Commission Member Documents 15-H10.1A, 10.1B and 10.1C.

I understand that Mr. Muldoon will make the presentation. Please proceed.

**CMD 15-H10.1A/15-H10.1B/ 15-H10.1C**

**Oral presentation by Saskatchewan Research Council**

**MR. MULDOON:** Good afternoon. For the record my name is Joe Muldoon from Saskatchewan Research

Council. I am the Vice President of the Environment Division at SRC.

I have with me today the Manager of the Environmental Remediation Program, Ian Wilson, to my right; the Chief Scientist for the project, Dr. Alexey Klyashtorin, to my left; Chris Reid, the Tailings Operation Project Manager, to my right behind me; Kristie Bonstrom, Senior Geoscientist for our consultants O'Kane Associates; who are in partnership with EcoMetrix, represented by Dr. Sean Shaw, behind, to my right; and I have Hal Sanders, the Assistant Deputy Minister of Ministry of Economy, directly behind me.

I would like to play a very short video concerning the project that was -- much of which was gathered from the July Engineering Design Workshop. It will just be, with your permission, just a very short presentation.

**THE PRESIDENT:** Before you start, do we have anybody online? Were we supposed to have anybody online, Marc?

**MR. LEBLANC:** I think we're supposed to have Mr. George Bihun from the Saskatchewan Environment. Are you online, sir?

**MR. GROSKOPF:** This is Glenn Groskopf from the Saskatoon office. With me I have Tim Moulding of Sask

Environment.

**MR. LEBLANC:** It's Tim, okay.

**THE PRESIDENT:** Okay. I always like to test the technology beforehand. So welcome and please proceed.

**MR. MULDOON:**

--- Video presentation / Présentation vidéo

"On the rocky north shore of Lake Athabasca in far Northern Saskatchewan, Gunnar Mines Limited is rapidly expanding its mining and milling operations. An open pit mine, modern uranium mill and townsite where some 850 people now thrive, it is the first open pit uranium mine in the world."

"Back in the sixties we used to come here from Uranium City to go bowling here. They had a big mall here and we used to enjoy it and then sometimes they used to have dances at Gunnar. This was a great place, but you look at it now and it's so sad, it's been so badly destroyed."

"When the mine closed in 1964, their



decommissioning plan was very simple. They blasted a channel between Lake Athabasca and the open pit and flooded the mine workings and put a chain around the door of the mill. The tailings areas were left as is, as well as the waste rock, and over the years it has just degraded and become a fairly significant environmental hazard in the region."

"So this week up at Gunnar we brought in community representatives from the Athabasca region to discuss and talk about the issues of the site that are relevant to the community to make sure that our design engineers are apprised of these issues and they know what is important to the people of the region in the long term and in the short term and to help incorporate that feedback into their design."

"Well, I wanted to know what the impact was, the damage that was done, you know, so I can relate back to my

people back home."

"I'm just going to let my friends know what's happening up here and I hope to get good responses out of it. They just keep wondering what's the next phase and that, what they're going to do, and I try to explain to them that it's kind of a slow process because you have to research quite a bit of stuff."

"I know we have been trying to get this cleanup for a number of years and recently, you know, we have the environmental assessment and there's phases to the type of work that needs to be done."

"What we're hoping to move towards this summer is a Phase 2 licence which will allow us to do active remediation of these areas, of the tailings, of the waste rock, of the site itself, and so our work this summer at Gunnar is focused on putting the pieces in place to apply for a Phase 2 licence in October from

the Canadian Nuclear Safety Commission."

"I think it's opened up eyes for everyone at this meeting."

"You know, there's a long-term solution for minimizing more damage to the environment."

"They're not gonna make it better overnight, but it will take time, like they said."

"When people have an understanding of the situation, we can sleep a lot better at night."

"Yeah. (indiscernible) two days now (indiscernible)."

"To repair a lot of damage that's been done is going to take many years, but at least they're going to try and get it better."

"You know, one day I hope to be able at the end of this project to say, you know, I've seen the change, I've seen the impact that we can have in the area. It's exciting because people can see that the project is

moving forward."

"Take a look at that beautiful Lake Athabasca. How beautiful! All those beautiful trees, it's so special."

--- Pause

**MR. MULDOON:** Wow! I did it. We just thought that would be helpful in terms of giving a little bit of an overview. For the Commission Members that have not been to the site, it's an opportunity to have a look at it, a little bit about it. And I will just say that is a media tool that we use as well in terms of ensuring that we communicate as much as we can about the project to those interested and obviously the local communities.

**THE PRESIDENT:** Is it on your website?

**MR. MULDOON:** Yes, it is.

If I can go to the next slide I will start more the formal presentation.

As you know, SRC is here today applying for a licence hold point release which will allow the remediation of the tailings areas associated with the Gunnar mine site to begin.

SRC is confident that we have supplied CNSC with the appropriate information necessary to remove the licence hold point, allowing us to begin procurement later this year and early into next year. This will allow

remediation activities at the Gunnar site to begin in the 2016 field season. Any adverse delay in the hold point decision could produce a cascading project schedule and loss of the field season, which would increase project costs. So we are hopeful that we can provide any answers to any questions or anything that we can do today.

Having completed the Lorado remediation project this fall at sites adjacent to Uranium City, another fairly significant mine licensed by CNSC in terms of the remediation, we are hoping that we can transfer much of the local labour and equipment to the Gunnar mine site remediation activity so that as that project unwinds we are hoping to move some of that labour and equipment over to the other site.

Next slide. Some quick background.

In 2006, Saskatchewan and Canada signed a joint funding agreement for a number of sites in Northern Saskatchewan, which includes the Gunnar mine site. SRC was contracted by the Province of Saskatchewan to manage the decommissioning and reclamation of these sites.

Next slide. The purpose of the Gunnar project is to reduce the safety and environmental risks that the site poses to the public, utilizing sustainable remediation options that are both technically and economically feasible. It is to implement a long-term

environmental monitoring program and minimize long-term care and maintenance at the site as part of the eventual entry of the site into the provincial institutional controls program.

Next slide. So where are we in the process today? The environmental assessment process has been completed and approved and detailed engineering design is under way for the tailings portion of the site remediation. As mentioned earlier, we are hoping to start the field component of the tailings remediation in 2016.

I will now turn the detailed description of the project over to Ian Wilson, the Manager of the Environmental Remediation Program at SRC.

**MR. WILSON:** For the record, my name is Ian Wilson with the Saskatchewan Research Council.

Since coming for the Commission last November, SRC has conducted the following activities as part of the engineering design stage of the project.

During the winter of 2015, SRC held a public procurement for engineering services associated with the tailings cover system, with the award going to a collaboration between O'Kane Associates and EcoMetrix.

During the spring of 2015, the O'Kane team familiarized themselves with the project and conducted a GAP analysis of further information that would be required

to facilitate a tailings cover design.

To fill in the identified information gaps, SRC and the O'Kane team completed conceptual model verification, site investigation and option analysis, culminating in a preliminary cover system design during the summer of 2015.

The preliminary design was given to CNSC staff and Athabasca community representatives for their review and the recommendations and considerations incorporated into it, revised design report completed on August 17, 2015.

Next slide. The objectives that were used when designing a tailings cover system at Gunnar were to minimize human and ecological health risks posed by gamma dose rates, to eliminate inhalation and ingestion of tailings material and radon gas, to minimize release of contaminants of potential concern, or COPCs, from the tailings to Lake Athabasca, and to create a stable and sustainable landscape that is compatible with the natural surroundings and future use of the site.

The design criteria that were used for the tailings cover were:

1. Reduce gamma dose rate radiation to 1.14  $\mu\text{Sv}$  per hour, which is 1 mSv per hour above the local natural background, for the average of measurements taken

over a 1 ha area, and 2.6  $\mu\text{Sv}$  per hour, which is 2.5  $\mu\text{Sv}$  per hour above the local natural background as a maximum spot measurement.

2. Meet site-specific remedial objectives, or SSROs, in St. Mary's Channel and Langley Bay of Lake Athabasca.

3. Meet groundwater quality compared to 2010 interim Tier 2 commercial and industrial guidelines developed on behalf of Environment Canada and radionuclides compared to 2010 Alberta Tier 1 Soil and Groundwater Remediation Guidelines.

4. Keep concentrations of particulate matter below the Canada-wide standards.

Design criteria for the tailings.

The design criteria for the tailings were to:

1. Ensure traditional land use can occur on and adjacent to the site. Prevent the construction or operation of permanent or temporary residences on remediated mine waste deposits.

2. Design landform to be water-shedding and increase the distance between the rooting zone and water table/capillary fringe to prevent contaminants of potential concern, or COPCs, effervescence and limit the effects of solute uptake.



3. Design surface water management system to handle a peak flow from the 1-in-200-year design storm event.

4. Establish a self-sustaining community of plant species native to the region.

Several options were considered for remediation of the primary or major tailings deposits, as well as the various secondary or minor tailings deposits at the Gunnar site. All of the remediation options considered in the study were previously identified in the 2013 Environmental Impact Statement, or EIS.

Preferred remediation options for each tailings deposit were selected based on the results of a contaminates loading assessment, preliminary remediation cost analysis, community input and a cost versus benefit analysis. Many of the options that were developed as part of the EIS and evaluated during the design process culminated from the community workshops held in the past.

Proposed tailings design for Gunnar main tailings.

The preferred option is to produce a water-shedding landform cover system using local building materials, which are soil, rock and waste rock, draining to the northern outlet leading to Gunnar Central. This continues the current surface drainage pattern at the site

and will eliminate standing bodies of water within the area.

A surface drainage swall with an average of 0.75 slope gradient is proposed through the middle of the landform to collect surface water from the reclaimed tailings and natural catchment areas, routing surface water to the northern outlet leading to Gunnar central.

The preferred landform and cover system design will require some regrading of the current tailings surface, including the southern dam. This dam is no longer in functional condition to contain saturated tailings and water.

The black arrow on the slide represents the relative location of the cross-sectional view presented in the insert diagram.

A 0.6-metre till cover system will be placed directly on the tailings to the east of the regrading extent in the areas with a minimum of 2 metres depth from the regraded tailings surface to the water table. This is expected to provide a minimum 2-metre separation between the base of the vegetation rooting zone and the water table.

In areas with less than 2-metre depth from the tailings water surface table, a minimum of a 1-metre thick cover system will be constructed comprising of a

1-metre layer of till material or a combination of 0.6-metre waste rock fill and/or overlying 0.6 metre of till materials.

The preferred remediation design for Gunnar main tailings was selected based on the advantages outlined as follows.

- The 2013 EIS recommended the creation of a water-shedding landform with a positive surface drainage to eliminate standing bodies of water on Gunnar main tailings.

- Due to the large area of Gunnar main, a substantial amount of fill will be required. Sufficient waste rock is available within close proximity and will be more easily sourced than local till material.

- Use of the northern outlet continues the current surface water drainage pattern that occurs presently. The northern outlet represents the lowest available outlet elevation, which minimizes the required fill to produce a water-shedding landform.

- A working platform of waste rock creates a coarser-textured material over the finer-textured tailings material, creating a capillary break and limiting the upward migration of tailings pore-waters and COPCs.

- A 0.6 metre till cover system will provide an adequate radiation shield and vegetation growth

media and is relatively easy to construct.

- And finally, limiting the till cover system to 0.6 metre over the majority of the landform greatly reduces the amount of till material that would be required and reduces the land disturbance from creating new borrow areas.

Two areas of the Gunnar main tailings that are not shown in either this diagram or the renderings on the next slide is the Gunnar Main back release and beaver pond tailings area.

The back release area is a portion of the tailings originally intended for disposal in Gunnar Main that migrated into a lower elevation pathway, heading eastward away from the facility. The preferred remediation method is to cover the tailings in place with a 1-metre till cover system. It is anticipated that a 0.6 thick cover system will not be adequate for this area given the wetter conditions and need to create additional separation between the rooting zone and local water table.

As part of the preferred remediation plan for the Beaver Dam area, the impounded water will be removed and the waste rock fill added to match the surface elevation of the area, the outlet elevation of Gunnar Main. A drainage channel will be constructed that will extend through Gunnar Central to Langley Bay. A minimum of 0.6

metres of till will be added within the area outside the extents of the channel to provide radiation shield and a growth media for vegetation.

The red arrow in this diagram is the relative location and orientation for the next set of renderings.

This slide pictures the current state of the Gunnar Main tailings, the conceptual image of the tailings area after the regrading, dewatering and cover placement and after revegetation. As noted in the images, the current beaver pond will be dewatered to accommodate the placement of a cover system.

A dense and sustainable vegetation canopy is necessary to ensure effective erosion control and high transpiration capacity of the final tailings cover system. The borrow material available around the site has acceptable physical mechanical properties to serve as a growth medium and generally sufficient calcium and potassium content to allow for growth.

Established along the periphery of the Gunnar mine strip in mid-June 2012 were field plots for revegetation. Details of the revegetation plots and plans for the Gunnar tailings cover system are based upon the preliminary findings of these field trials in 2012. A native legume/grass seed mixture is recommended to be

applied to the tailings cover system at the Gunnar mine.

Proposed tailings design for Gunnar Central.

Gunnar Central incorporates the same design principle of creating a water-shedding landform as proposed for the Gunnar Main. Slopes have a surface gradient range of 0.7 percent to 1 percent towards the drainage channel proposed between Gunnar Main and Langley Bay. The black arrow presents the relative location of a cross-sectional view presented in the insert diagram. Waste rock is the preferred material to create water-shedding landform. A cover system consisting of a 0.6 to 1 metre of till will be constructed on the landform. Minimum till thickness of 0.6 metre. The minimum total waste rock and till thickness will be 1.0 metre.

The preferred remediation design for Gunnar Central was selected based on advantages outlined as follows.

- The 2013 EIS recommended the creation of a water-shedding landform with positive surface drainage for Gunnar.

- Waste rock is the preferred fill material to create the cover for Gunnar Central landform. It is anticipated that the natural till will be located in closer proximity to Gunnar Central than waste rock.

However, due to the ease of its access to the waste rock and the cost and environmental impact of developing large till borrow areas, till is not recommended as the landform fill material. While outside the scope of the study, there are environmental benefits to relocating waste rock from its current position immediately adjacent to Zeemel Bay.

- A working platform of waste rock creates a coarser-textured material over the finer-textured material, creating a capillary break and limiting the upward migration of tailings pore-water and COPCs.

- A 0.6-metre to 1-metre till cover system will provide an adequate radiation shield and vegetation growth media and is relatively easy to construct.

The red arrow presents the relative location and orientation for the next set of renderings.

This slide pictures the current state of the Gunnar Central tailings, a conceptual image of the tailings area after regrading, dewatering and cover placement and after revegetation.

Proposed tailings design for Langley Bay.

The preferred remediation plan leaves the tailings in place and includes a minimum of 1-metre till cover system and defined shoreline in both Back Bay and Langley Bay with rock armour protection.

Till material and till gravel are the

preferred construction materials. Waste rock is not recommended for Langley Bay area given the proximity of the beach tailings to Langley Bay and potential additional contaminant source associated with the Gunnar waste rock materials at this location only.

The black arrow presents the relative location for the cross-sectional view presented in the insert diagram. The tailings landform is graded with a 0.3 slope from Back Bay and down towards Langley Bay. A channel that hydraulically connects Back Bay and Langley Bay runs across the middle of the landform. The inlet elevation of the channel is higher at Back Bay, ensuring one-way flow from Back Bay to Langley Bay. The cover system is thicker near Back Bay, so greater than 2 metres, and gradually thins to a minimum of 1 metre near Langley Bay.

The remediation design from Langley Bay was selected based on the following advantages.

- A minimum 1-metre till cover system provides adequate protection of the saturated tailings mass. Final elevation of surface is a minimum of 0.2 metres above the maximum historical water level, greatly diminishing the probability of flooding the entire landform.

- The use of till compared to waste rock



does not introduce an additional source of potential contaminants adjacent to Langley Bay.

- Creation of defined shorelines with riprap or large angular rock in Back Bay and Langley Bay allow protection of the tailings deposit across the entire range of historical lake water levels.

- Hydraulic connection between Back Bay and Langley Bay provides a long-term management of Back Bay water bodies.

The red arrow represents the relative location and orientation for the next set of renderings.

This slide pictures the current state of the Langley Bay tailings, a conceptual image of the tailings area after regrading, dewatering and cover placement and after revegetation. What is apparent on these renderings is the riprap or rock type armour that is present adjacent to Langley Bay for erosion and scour protection.

Proposed tailings design - borrow materials, rock and soil.

Physical properties of the borrow material will be the primary determinant of final cover system performance. A key constraint in the design and construction of tailings area cover systems will be the quantity and quality of borrow materials.

Primary sources for the data review of borrow material properties and volumes were the AECOM and Golder field investigations done in 2009 and 2011, augmented by test pitting activities during June 2015.

Waste rock was also investigated as a potential cover system borrow source as part of the Gunnar site characterization.

From these studies, borrow area 5, 6 and the airstrip have been found to contain sufficient quantity and quality of material for tailings cover construction.

Natural recovery is the primary suggested strategy for revegetation of borrow areas. Topsoil in the borrow areas would be stripped and stockpiled along the natural vegetation debris prior to excavation activities. Upon completion of the excavation, the topsoil and organic debris will be spread back across the disturbed areas to promote natural recovery. With a shallow or lack of topsoil, natural recovery at selected areas can be amended by low rates of seeding and fertilization application.

Total till borrow material requirements for the tailings remediation plan is estimated to be approximately 700,000 cubic metres. The total volume of waste rock and riprap are estimated at 910,000 cubic metres and I will point out a correction on the riprap volume at 16,000 m<sup>3</sup>, respectively.

Waste rock material will be sourced from both east and south waste rock piles. Detailed physical assessment of the waste rock materials shows the waste rock is coarser-textured material with approximately 80 percent of particle sizes greater than 4.75 metres. Material possessing higher gamma radiation levels would be placed in deeper parts of Mudford Lake or the Beaver Pond.

There is approximately 700,000 cubic metres of medium and coarse-textured materials combined available above the water table in the borrow areas based on field investigative work completed to date. If materials below the water table are considered, then approximately 960,000 m<sup>3</sup> of borrow material is available for the cover system.

Cover system performance metrics are based upon the EIS that was approved by Sask Ministry of Environment and CNSC.

A conceptual model of cover system performance has been developed as it relates to four critical aspects of performance; namely, radiation exposure protection, water balance fluxes, propensity for solute uptake, and anticipated reduction in COPC loadings to the aquatic receiving environment.

Proposed Tailings Design Performance:

This table provides a visual representation of the current

state of the various parameters at the Gunnar Site and the parameters post-remediation when compared against the criteria for the site. As you can see, from our modelling results, the tailings cover system is designed to meet all of the criteria presented in the EIS.

Monitoring: According to the Mine Environment Neutral Drainage (MEND), direct measurement of field performance is the preferred methodology for measuring performance of cover systems. With this in mind, a recommended minimum level of monitoring should be included -- climatic conditions (for determination of potential evaporation rates), site-specific precipitation, cover material moisture storage changes, watershed or catchment area surface runoff, vegetation success, and erosion.

Details related to monitoring locations, parameters that will be measured and their frequency will be outlined as part of the final monitoring and construction plan. The performance monitoring system will be dependent on the landform and a cover system for each tailings deposit.

As part of this engineering design process we have incorporated Aboriginal and community engagement.

Since the start of this project, SRC has conducted more than 125 formal meetings with community

members.

SRC continually communicates with community members and leadership through radio, print, SRC website, faxes, posters, fact sheets, teleconferences, direct email, email, text, Skype, Dene interpretation, and Facebook.

To provide a better framework for its interactions with community representatives and leadership, SRC has conducted multiple site tours.

As part of the previous Gunnar demolition and materials abatement activities SRC and its contractors have conducted asbestos abatement training, safety training and radiation training. As part of SRC's management of Project CLEANS, it has expanded this training to include essential skills training, driver's license training, and heavy equipment training, and will continue to expand its training program following input from community members.

Other ways in which SRC engages with community members in the Athabasca region includes:

Athabasca Sector Gathering representation;  
Capacity building or training initiatives  
partnered with the Prince Albert Grand Council;

Local site monitoring and monitors  
providing independent site auditing;

Inclusion of community members on public

procurement teams;

SRC participates and has participated and has funding for its engagement events which covers travel, accommodations and honorariums for community members;

Local Aboriginal labour inclusion on its projects which to date have been greater than 50 percent on all of its major projects;

And presentations at Environmental Quality Committee, or EQC;

And as you can see from the video, workshops both from remediation options stage and design stage.

From feedback received from private industry, First Nations, and government, SRC has been told that it has an industry-leading community engagement strategy. As part of this strategy, SRC has pushed the boundaries of public procurement to maximize local involvement and sustainable development opportunities. As such, SRC has been nominated for both the Government of Saskatchewan Premier's Award of Excellence and the Canadian Public Procurement Council Achievement of Excellence in Procurement Award.

As part of SRC's strategy to provide opportunities for community members to actively contribute to the Gunnar remediation design process, it held a site

tour and workshop in June of 2015 with both Elders and community representatives. This has not been the first workshop conducted with community members. The discussion of remedial options for Gunnar has been an ongoing part of the project. The remediation options have been discussed with community members since the inception of the Gunnar Project.

All of the meetings and workshops have contributed in defining feasible remedial options as part of both the EIS and the design processes. At all these workshops there has been a consistent theme from community members to "do a good job" when carrying out the remediation, which we listened to.

Recent site tours and workshops have explained how the discussions and input from previous meetings have influenced the current design being proposed for Gunnar. Some of the community input that has and will be specifically utilized as a part of the remediation plan and the project is organizing an Elder and youth workshop to gain traditional land use expertise for incorporation into the re-vegetation plan, local community environmental monitoring capacity building program, re-evaluation and adjustment to the July 15th preliminary tailings cover design report, and follow-up community workshop for input regarding other site aspects preferred remediation options.

As follow-up from its June 2015 Gunnar site tour and workshop, SRC and the CNSC staff conducted a complimentary workshop at the end of July in Saskatoon where presentations were made to community members and additional feedback received regarding the proposed remediation design for both the tailings and the other site aspects. Community input from both the June and July workshops were considered and addressed (where possible) at the workshops and incorporated into the August 17th Gunnar Tailings Cover Design Report.

As part of this process, tailings design, presentations, and minutes were made available to the both the attending community members and public through direct email and posting to SRC's public website. SRC has translated a number of documents into the Dene languages and offer translation services at these meetings. Throughout Project CLEANS, SRC has and will continue to translate documents and produce multimedia communications tools into Dene for the communities benefit.

Going forward, SRC will continue its community engagement strategy and look to bring new items online such as Community Environmental Monitoring Program; Aboriginal Site Supervisor Program.

SRC remains committed to trying to maximize the benefits its management of remediation



projects provide to the local communities.

This slide shows some of the major milestones that were associated with providing local community input into the preferred tailings remediation options found in the Gunnar EIS. During the initial workshop in June, SRC and the design consultants presented the design approach and options from the EIS decision tree and asked for community input.

Community input was incorporated into the cost-benefit analysis that was used to select the preferred remediation options. As an example, many community members provided their concern regarding relocations of the tailings in Langley Bay and the effect to the fish, water and the wildlife. This concern was confirmed using contaminated loading modeling and incorporated as a disadvantage for this option during a cost-benefit analysis.

As follow-up to the June workshop, a second workshop was organized for community members in late July to provide design updates and answer any questions, real time or concerns at this meeting. Any further input from community workshops were incorporated into the revised August 17<sup>th</sup> tailings remediation report.

Now, before closing SRC's presentation we would like to play Video 2 which is an example of the

Aboriginal Mentorship Program SRC has developed and would like to apply to this project specifically.

--- Video presentation

**MR. MULDOON:** And that concludes our presentation for SRC.

**CMD 15-H10/15-H10.A**

**Oral presentation by CNSC Staff**

**THE PRESIDENT:** Thank you.

I would like now to move to the presentation from CNSC staff as outlined in CMDs 15-H10 and 15-H10.A.

I understand Dr. Newland will make the presentation. Please proceed.

**DR. NEWLAND:** Thank you. Good afternoon, Mr. President and Members of the Commission.

My name is David Newland and I am the Acting Director General of the Directorate of Nuclear Cycle and Facilities Regulations. With me today are Ms. Karine Glenn, Director, Wastes and Decommissioning Division and Dr. Karina Lange, Senior Project Officer, also with the Wastes and Decommissioning Division. There are also several specialists here today who are available to answer any questions you may have.

The purpose of this presentation is to provide the Commission with CNSC staff's evaluation and recommendations regarding SRC's request to release the hold point for Phase 2 of the Gunnar remediation project and to allow for the remediation of the tailings area.

And with that I will pass the presentation to Karine.

**MS GLENN:** Thank you. Good afternoon, Mr. President and Members of the Commission. My name is Karine Glenn and I am the Director of the Wastes and Decommissioning Division at the Canadian Nuclear Safety Commission.

The Saskatchewan Research Council (SRC) is carrying out the remediation of the Gunnar site, which was authorized by the Commission in January of 2015. In this presentation we will provide you with some history on the file, discuss staff's assessment of SRC's remediation plan for the tailings area and provide summary of Aboriginal and public consultation.

Finally, we will present CNSC staff's conclusions and recommendations. SRC is carrying out the remediation of the Gunnar site in three phases. The subject of this hearing is on SRC's request to the Commission to proceed with remediation of the tailings area which are part of the Phase 2 activities at the site.

The Gunnar mine site is located approximately 600 kilometres north of Saskatoon on the north shore of Lake Athabasca. The Gunnar legacy site began operations in 1955 and was closed in 1963. The ownership of the site then reverted to the Province of Saskatchewan.

The site has several waste components that require remediation, as outlined in SRC's presentation.

These include exposed mine tailings that cover large parts of the site, waste rock piles, a flooded open pit with underground workings below it and a mine shaft.

Federal oversight of the site did not take begin until the year 2000 when the *Nuclear Safety and Control Act* came into force. During the early 2000s CNSC staff worked with Saskatchewan Environment to improve the conditions of the site. In 2006 the Saskatchewan Provincial Government signed a cost-sharing agreement with the federal government and named SRC to act as their agent for licensing and remediation of the site.

To address the hazards associated with the ongoing deterioration of the 50-year old buildings on the site, the Commission issued an order to SRC in 2010 to demolish all of the structures on the site. This order was completed by the end of 2011.

The Gunnar remediation project was subject to an environmental assessment under both the *Canadian Environmental Assessment Act* and the *Saskatchewan Environmental Assessment Act*.

The EA was conducted in a coordinated approach, with provincial and federal governments each making their own EA decision. The EA examined all potential remediation options for the main waste components of the site that include: the tailings area, the waste rock piles, the open pit, the mine shaft and the demolition debris.

CNSC staff concluded that no significant adverse environmental effects would result from the project, taking into account mitigation measures.

Overall, the EA demonstrated that environmental conditions at the site would improve over time following remediation. The EA identified several follow-up plans that involve additional groundwater characterization, wildlife studies such as caribou migration and vegetation studies in the area.

A public hearing was held on November 6, 2014 by the CNSC on the EA report and on SRC's licence application.

In 2015, The Commission accepted the EA and concluded that the proposed project is not likely to

cause significant adverse environmental effects, taking into account mitigation measures identified in the EA Report. In making its decision, the Commission considered information and submissions from SRC, written and oral interventions by Aboriginal groups and other stakeholders, as well as CNSC staff recommendations. The Commission further concluded that SRC is qualified to carry out the licensed authorized activities and that it will make adequate provisions for the protection of the health and safety of persons and the environment.

The Commission issued SRC a waste nuclear substance licence for the Gunnar Remediation Project in January of 2015.

I will now pass the presentation to Dr. Lange who will discuss SRC's request to proceed with the remediation of the tailings area.

**DR. LANGE:** Good afternoon, Mr. President and Commission Members

For the record, my name is Karina Lange and I am the Project Officer for the Gunnar Remediation Project.

The remediation work for the Gunnar Project is taking place in three phases. Phase 1 consists of care and maintenance of the site as well as additional characterization work for the development of remediation

plans. Phase 2 consists of remediation activities of the Gunnar site and Phase 3 consists of long-term monitoring and maintenance, leading to institutional control which is planned for the year 2030.

There is a regulatory hold point for Phase 2 of the project. The Commission, in its record of proceedings for the Gunnar Project, requested that SRC present plans for remediation of the site at a public hearing in the fall of 2015 and that Aboriginal communities and the public have the opportunity to review those plans and comment on those plans.

SRC has completed the Phase 1 of the work, and is here today requesting the Commission's approval to proceed with remediation of the tailings area which is part of Phase 2.

Preliminary plans for the other site have been submitted to CNSC by SRC. CNSC is currently reviewing those plans. SRC will request approval to remediate the other areas of the site at a later date.

To support their request the SRC submitted a document entitled "Gunnar Site Remediation Project: Tailings Remediation Plan" to the CNSC. This plan outlines SRC's plan for the Phase 2 work on the tailings area including the plan to cover the tailings using locally available rock and soil. The remediation plan was posted

on SRC's website on July 9th, 2015.

SRC has engaged interested Aboriginal and public groups on the tailings remediation plan over the past year and has incorporated feedback into those plans.

SRC's remediation plan for the tailings areas involves the placement of a cover to create a barrier between the environment and the tailings. This plan was designed to meet the objectives of the Environmental Assessment which are mainly to reduce dust emissions from the tailings, to reduce radiation exposure, to minimize contaminant loading to the environment and to promote vegetative growth at the site.

The cover design incorporates such features such as erosion control and water diversion which will help to ensure long-term protection and performance.

CNSC staff evaluated the plan in the following areas:

- geotechnical engineering and geological design;
- surface water hydrology and contaminant transport;
- radiation exposure including gamma and radon mitigation and;
- long-term stability and performance.

Staff evaluated the remediation plan



against the objectives outlined in the Environmental Assessment for compliance with CNSC standards and regulations as well as with international best practices for similar legacy mine sites.

CNSC staff conclude, based on their technical review that the remediation plan for the tailings area meets the objectives of the Environmental Assessment for the Gunnar Remediation Project, complies with CNSC regulatory requirements and standards and is consistent with industry best practice.

We will now discuss the Aboriginal and Public Consultation on the project.

Since the November 6, 2014 Commission hearing CNSC staff have been actively consulting on the project. These activities include:

Providing a copy of the Commission's Record of Proceedings on the environmental and licensing decision;

Participating in SRC's annual tour of Athabasca communities which took place from March 10 to 13 of 2015;

Sending information about the participant funding program and the Gunnar hearing on the hold point and sending SRC's remediation plans on the tailings -- for the tailings area.

An important part of the consultation process was SRC's coordination of a working group with representatives of interested communities. The working group meeting was held at the Gunnar site in June of 2015, and included a site familiarization tour.

As a follow-up to that June meeting, CNSC and SRC jointly organized a Gunnar remediations options workshop in July which took place in Saskatoon and brought together community representatives to discuss SRC's remediation plans for the tailings area.

What did we hear at that workshop? At the workshop, community representatives provided feedback on the tailings remediation plan to SRC. A number of items were identified such as the need for more information on the vegetation plan, providing materials -- providing meeting materials in Dene, and providing more details on the general cover design.

SRC responded to these requests at the workshop or shortly thereafter.

Although issues raised are important, CNSC staff have not identified any impediments to the remediation process for the tailings to move forward. CNSC staff will continue to consult with aboriginal groups and the general public as the project continues.

Based on recommendations from an

independent funding review committee, the CNSC awarded a total of \$47,790 in participant funding to the following recipients, who are also required to submit written intervention to the Commission.

The Athabasca Chipewyan First Nation and Mikisew Cree First Nation. Prince Albert Ground Council. Saskatchewan Environmental Society. And the Métis Nation Saskatchewan Northern Region.

All written interventions have been reviewed by CNSC staff.

That concludes my presentation, and I will now ask Dr. Newland to present staff's conclusions and recommendations.

**DR. NEWLAND:** CNSC staff conclude, based on their review, that the remediation plan for the tailings area complies with CNSC regulatory requirements and meets the objectives of the environmental assessment for the Gunnar remediation projection.

CNSC staff further conclude that SRC has carried out an effective aboriginal and public consultation program and that input from local communities is considered in the remediation plan.

In summary, CNSC staff conclude that SRC has met the Commission's requirements for removal of the hold point for Phase 2 remediation activities on the

tailings area.

CNSC staff recommend that the Commission consider removing the hold point for SRC to proceed with Phase 2 remediation activities of the tailings area at the Gunnar site. The hold point for remediation of the other site areas, including waste rock, the open pit and the mine shaft, should remain in place and be considered at a later date.

That completes staff's presentation, and we're available for any questions that the Commission Members may have . Thank you.

**THE PRESIDENT:** Thank you.

What we'd like to do now is start with the written interventions, and Marc Leblanc, our secretary of the Commission, will identify each intervention and the Commission Members will ask, you know, two questions until we exhaust the particular intervention and move on to the next one.

Okay, Marc. Over to you.

**CMD 15-H10.2/15-H10.2A**

**Written submission from the  
Saskatchewan Environmental Society**

**MR. LEBLANC:** Thank you.

So the first submission is from the Saskatchewan Environmental Society as outlined in CMDs 15-H10.2 and .2A. Are there any questions from the Members on this submission?

**MEMBER HARVEY:** Well, in the supplementary submission from the Saskatchewan, their conclusion, it seems to us that with these uncertainties, their remediation plan is still not ready for approval. They are talking about the other option that what has been presented today, like moving. There's not enough materials, and then you'd be obliged to go to other option and moving -- and be moving more waste rock and things like that.

So how can we interpret that, that position that it's not ready yet to go for -- to go to remediation phase?

I would like to have your comment from SRC and then the staff.

**MR. WILSON:** For the record, my name is Ian Wilson with SRC.

We feel that we are ready based on our assessment, both within the EIS and going through the engineering design process. We've done quite a bit and -- of test pitting of the area in 2009, 2011 and again this year to make sure that we have both quality and quantity of building materials such to allow this design.

So from our standpoint, we do feel we are ready to proceed based on the preferred engineering design options as presented.

**MEMBER HARVEY:** To what extent the -- to what has been presented today will be what will be done?

**MR. WILSON:** What has been presented as per our August 17th design report is the engineering design. That's correct.

There will be some slight modifications that are in the construction plan going forward, but the August 17th, 2015 plan that we submitted is our design plan going forward, yes.

**MEMBER HARVEY:** Staff?

**DR. NEWLAND:** Dr. Lange will respond.

**DR. LANGE:** Karina Lange, for the record.

As discussed in staff's CMD, staff carried out a technical review of SRC's plan for remediation of the tailings, and this was evaluated against the EA requirements, CNSC standards and requirements, and we -- also to ensure that it's consistent with international best practices.

And through carrying out an evaluation of the hydro geology, hydrology, geotechnical engineering and radiation protection, we found that it did, indeed, meet all of that criteria and that the plan had enough material

to be able to move forward.

Now, in their presentation, SRC mentioned that they are moving to the procurement stage. There will be a stage at procurement where details of the plan will need to be again reviewed and confirmed by CNSC staff engineers.

**MEMBER HARVEY:** For example, the availability of the -- of materials, have you been able to look at it and to verify, or this is -- this will come with more detail plans?

**DR. LANGE:** Karina Lange, for the record.

We have looked at the estimates for borrow material, and O'Kane Consultants has provided sufficient information to demonstrate that that material will be available and has also provided the lab tests on those material.

I will ask our geotechnical engineer, Dr. Grant Su, to expand on the answer with respect to the amount of borrow material available and being sufficient.

**DR. SU:** For the recording, my name is Grant Su.

The quantity and the quality of the borrow material is a key constituent in the design and the configuring of soil and cover for many, you know, and the reclamation site. However, currently, cover system and

land design will achieve the remediation objective in this area, so the licensee has made a significant effort by carrying out the site investigation to conform there are sufficiently -- borrow material is available and also suitable for the -- for the cover system design.

The most recent site investigation conducted by the O'Kane Consultant Incorporation, they are working for the SRC, has confirmed that there are about 425,000 cubic metre of coarser-textured soil material and also have about 503,025 cubic metre and medium texture soil material and, also, plus some additional, about 4 million cubic metre of the -- of fine grain material.

All of this material could be used for the cover design, so there are sufficiently material available for the cover design and the construction based on the current design.

**MEMBER HARVEY:** What will happen with those zones afterward when the material will be taken from those zones and those zones will be naturalized or how you will manage those zones?

**MR. WILSON:** For the record, Ian Wilson.

Once we extract the mineral materials from the zones, we plan on grading them to a standard such that it will minimize standing water as well as, as part of developing those borrow areas, we plan on removing a lot of



the natural soils so the non-mineral soils, the duff and/or growing media and setting that aside so we're just removing the mineral horizons of that.

And once we're done extraction and grading, we're going to place that material back onto the borrow area and then recede using materials that we know grow in the region and are natural plant species for that region.

**MEMBER HARVEY:** Thank you.

**THE PRESIDENT:** Anybody else in this?

Ms Velshi?

**MEMBER VELSHI:** The concerns that the Saskatchewan Environmental Society raises have been raised by many of the other intervenors, so I guess if you address them now, we'll probably flit through the others a lot more quicker.

So one of the questions they raise is the long-term stability. This is a question for staff first is around long-term stability. And I think the comment is that it should withstand -- it should be stable for thousands of years.

And I know staff has reviewed the proposed design for long-term stability.

What's your comment on that particular recommendation? Because then that leads to how thick the

cover should be.

**DR. NEWLAND:** Dr. Lange will respond, please.

**DR. LANGE:** Karina Lange, for the record. So your question about long-term assessment of the cover, as Dr. Su pointed out, we are constrained by the amount of borrow material available, so there -- there -- you know, we can't build the cover up to anything we want, so we do have to work within that material. But they are using local resources to do things that will help for long-term performance such as erosion control using some of the armouring that you saw in the pictures, water diversion to ensure that long-term -- that the cover will perform in the long term.

I'll ask Dr. Grant Su to elaborate on some of the ways that we use to ensure that long-term stability and performance of the cover is reached.

**MEMBER VELSHI:** And maybe in your response, you can also -- what does "long term" mean to you?

**DR. SU:** Grant Su, for the record.

So the long-term -- when you talk about the long-term stability of the cover, then there are several factors you have to take into account -- consideration.

First factor is a remediation objective, whether the cover design can achieve that objectives. And the second one, you have to looking into the -- the quantity and the quality of the material available locally. Otherwise, you -- if you are going to take a significant amount of the material outside, that is not feasible to do the work.

And the third factor you need to take into consideration is a very important one when you when you assess the long-term stability of the cover is in landform design. And the last factor -- last thing, but not least -- is the vegetation cover, so you have to take this -- this vegetation cover into consideration as well.

For this project and because the landform design is going to shed the water away from the site to protect the cover performance in long term, the landform design currently is about just a one percentage. It is a very gentle, flat landform, so with this gentle landform, so the site will be still technical stable for long term. With long terms in the geotechnical aspect, this could be thousands of years.

So -- but because you put in the new cover here before the vegetation is well established, there might have some erosion occur. That's for sure. And during the heavy precipitation and the -- and the, you know, snow

melting season, but after a couple years and -- but during this first couple years, because of this potential and the erosion, you need to have adequate monitoring and the maintenance program in place to -- to repair enough of the damage from the precipitation and the snow melting.

But after this several years with the vegetation, expect that the vegetation will be well established, so after that, the erosion wouldn't be as significant to be occurred at the site. It would be stable for very long term in -- even in thousands of years.

**MEMBER VELSHI:** So -- and I think we heard that 2030 was the approximate time when you expect to transfer it to institutional control. By then, if it's stable, I mean, because you would have -- you'd been monitoring closely and so on, then there is confidence that this would last -- be stable for the long term of thousands of years.

**DR. THOMPSON:** Patsy Thompson, for the record.

Perhaps Dr. Su may add a little bit of information, but one of the last things he mentioned was the regulatory oversight program and the inspection program.

Once CNSC staff is satisfied of this ability for the period of monitoring, then the plan is to

consider long-term institutional control.

Having said that, the expectation isn't that because it's under institutional control nobody ever looks at it again, so there are provisions to make sure that it is stable in long term and there are also provisions within the CNSC licensing and compliance program that if the -- the design and the construction doesn't behave as expected, that changes our -- can be requested then and the licensee would need to implement them.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Dr. McEwan?

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

In the fourth paragraph of the Environmental Society letter, they talk about the tailing volumes and the uncertainties associated with the calculation of the volumes.

How -- how uncertain is that uncertainty, and to what degree does a 10 percent variation or 110 percent variation mean that the design of the remediation plan would likely be unsuccessful?

**MR. WILSON:** And for the record, Ian Wilson.

Throughout the design process, we've looked at various potential failure modes and incorporated that into the design. So we have a very good idea, based

on those failure modes, what failures could occur and how to mitigate them as part of the cover design.

And so we have looked at that and we built our design around a lot of those failure modes.

The cover system itself isn't something that, you know, we've invented. We've used best practices from other sites, and so we know they are going to work.

Given the same type of building materials that we have at Gunnar, we looked at Cluff Lake as a part of the design, and the Cluff Lake design is operating quite successfully. So it's a combination of what is going to fail, mitigate them by engineering and -- within the engineering cover system and look to, I guess, examples of similar cover systems to see how they perform.

**MEMBER MCEWAN:** But is -- how -- so notes that tailing volume estimates have been revised, is that revision going to be revision of two percent, 20 percent, 80 percent?

**MS BONSTROM:** Christie Bonstrom from O'Kane Consultants.

In terms of the tailings volume and the landform design, even a 10 percent increase in volume wouldn't have an impact. What we're dealing with is, essentially, the footprint of the tailings facility. So while there is some uncertainty with some of the tailings

volumes, we actually did look at it a couple months ago and confirmed similar numbers with what I believe we were provided from SRC.

So having said that, with the options that we have on the table in terms of water shedding, landform and cover systems, the volumes don't really have much of a -- make a difference in what material volumes we need to close those facilities.

In terms of estimates for loadings, I'm not sure that they would have a significant impact because of some of the estimates used might be within the range of error of what was used for that assessment, but Shawn would be able to expand on that further.

But we don't see -- any increase in volume of the tailings material wouldn't significantly impact our design.

**THE PRESIDENT:** Monsieur Tolgyesi.

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

When you're looking at a staff recommendation, is that really is the regulatory hold point and the hold point for Phase 2 elimination of the other areas, including waste rock, et cetera. Now, one of concerns of the Saskatchewan Society is that on several occasions in this report we are talking about further

analysis, final detailed design and other studies which will be required, cover performance monitoring, et cetera.

So to what extent the present proposal to be approved by the Commission is the final version if there would be lots of details which would come eventually?

**MR. WILSON:** For the record, Ian Wilson.

We've presented the design or the preferred design that we're going to utilize. I did make mention both in our CMD and our presentation that we are going to put a forthcoming construction plan, but the construction plan is more filling in gaps on operation than it is actually increasing or providing more design information.

**MEMBER TOLGYESI:** And so once this hold point lifted, how and to what extent will CNSC be involved in approval of future analysis and this -- these eventual studies?

**DR. LANGE:** Karina Lange, for the record.

Just to clarify, so your question is how will CNSC continue to review the plans pertaining to the tailings area and oversee the work?

**MEMBER TOLGYESI:** Yes. To what extent -- eventually, when the hold point is lift and the designs studies which will be done, to what extent you will be able to say no, it's not that. You should do something else



because of some reasons which you, after you analyze them -- to what extent you will analyze them?

You know, it's -- it is kind of -- I don't say it's -- it will be after it will become a rubber stamping.

**DR. LANGE:** I'll answer your question in two parts. First, I'll describe about how we would ensure that the work is done -- the quality work is done, and that it is meeting its objectives; and, second, I'll just talk about a similar site that is just finishing up, a very similar construction project.

So, first, we issued a licence to SRC, and there are a number of conditions in that licence that SRC has to meet. Some of those conditions pertain to exactly what you're talking about: ensuring that that work meets objectives.

So we have a number of conditions in the licence and a supporting Licence Conditions Handbook that has programs on quality control and quality assurance. So the management system program is evaluated by CNSC, and within that system we do verify that SRC is carrying out that work according to our standards.

We also conduct inspections to not just rubber stamp it, but to ensure that what we're reviewing is being carried out in the field. The number of inspections

during the remediation work by CNSC staff will be increased beyond the normal rate of inspections.

And, second, I'll just talk about the Lorado site, which is also being remediated by SRC. They've spent two years doing similar work, where they've covered uranium mine tailings with a soil cover. In that work they had a number of programs that needed to be approved by staff.

When we recently conducted a site visit, we verified that all of those programs were in place, right down to the person who was actually going and taking the depth of tailings every metre. We talked to him and looked at his records.

If I could, I would like to ask the lead inspector to comment on -- if you would like to hear them -- her findings of that inspection, and how SRC carried out that work.

Could I ask Ms Pandolfi to comment on the results of the inspection from SRC this fall?

**MS PANDOLFI:** Dana Pandolfi, for the record.

We had an inspection of the Lorado site in early September, and we found very good communication between the licensee and their numerous contractors on-site, as well as very good communications between the

contractors themselves. There are various contracting groups on site. Quality assurance was very strong at the site. Everyone had updated sampling results.

If there was any issues, if there was problems with certain areas, they made sure to -- the contractors would notify the licensee and modifications were made very quickly and seamlessly.

Overall, the site is very well maintained and the cover appears to be working as designed and they were able to answer all of our questions during the inspection.

**DR. NEWLAND:** Dave Newland, for the record.

I would just like to add that CNSC staff never, never rubber stamp things. We always take a risk-informed view in terms of our compliance activities.

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

I would also add that at the Lorado site the primary contractor carrying out the work is 100 percent aboriginal-owned, with local contractors, so been very successful in terms of utilizing local expertise in terms of delivering that, and we certainly plan on continuing along those lines.

**THE PRESIDENT:** Okay.

Ms Velshi.

**MEMBER VELSHI:** So again coming back to the Saskatchewan Environmental Society's submission, one of their other recommendations is assessing the use of permeable reactive barriers and phytoremediation.

Can you comment on what your thoughts on that are?

**MR. WILSON:** For the record, Ian Wilson.

Some of these permeable reactive barriers, or other such remediation techniques, aren't specific within the design, but throughout the workshops it's something that we've heard. It's something that that we, at SRC, are going to provide as value-added to the projects if we determine that they work in that instance.

You know, from our standpoint, as a research and technology development agency, it's a very good application for us to use some of the science and technology that we have. So we are, and are planning to use -- look for value-added studies that may incorporate or may be built as a part of the engineering design, although they are not a part of the engineering design as stated.

**MEMBER VELSHI:** So what would be the timing of making decisions on that or when would staff have a say in whether you should be doing more of that?

**MS GLENN:** Karine Glenn, for the record.

Let me start off by saying that the design

as proposed right now meets the objectives of the EA and meets the regulations. So the design proposed as it stands is adequate based on CNSC's staff's assessment.

Should the proponent decide to make any changes to the plan, the plan as submitted is referenced in their Licence Condition Handbook, and therefore any changes to those plans have to be reviewed by the CNSC. So if there is -- if the change is either neutral in effect on the project or has a positive impact on the safety or the protection of the environment, then the licensee, in this case SRC, would provide that assessment and justification along with their notification of change to the plan. CNSC staff would then review and determine whether they concur with that assessment.

If the change had a negative impact on the project, then they would have to come back to the Commission with a request for a change to their plan that would affect their overall safety basis, if you'd like.

**MEMBER VELSHI:** So I understand that the plan, as submitted, now meets the requirements. But isn't this part of best practice and isn't that something, rather than -- I mean, you know, sure enough they have said they're going to look at it and they see value in that.

It almost sounds like performance punishment then, that they have to then come to you say,

"Hey, guys, we want to do this, here's why," and then you then, you know, go through it and say yes or no.

Shouldn't that be part of the requirement: that you look and see what best practice is, and this, by the way, looks like something that should be incorporated?

**THE PRESIDENT:** While you're pondering the answer, I have no idea what PRB is, I don't know how you use it, and I thought all of these were discussed through the environmental assessment. I mean, in my opinion, this was studied enough. We've got to get moving on this.

We're talking about they're putting on some tailings. This is not that complicated. If there is some adjustment required during construction, you can actually measure them and adjust, and there's going to be a whole maintenance.

So what I would like to understand, they claim that you sort of agreed it's a good idea. Is it a good idea? Are you going to do it or aren't you going to do it? I just don't see how you -- somewhere down the road you'll decide to incorporate. Incorporate what? I have no idea how we incorporate.

What is PRB? Maybe we should start with that.

**MR. MULDOON:** Joe Muldoon, for the record. Just in terms of more of the general

discussion -- I'll get Ian to talk about the technical side of it -- it's SRC's intent to -- we're here in front of the Commission, we've laid our plans out seeking approval. If we obtain that approval, it's our intent to deliver the project as stated. I want to be really clear on that.

With respect to the barriers and any other types of technologies that may be -- that are out there, if we have the opportunity on the side -- as an experimental piece, if we're out on tailings, if there's something that we can do to advance that technology, we may do so, obviously in consultation and with approval of the CNSC.

Not in terms of changing the design, not in terms of changing anything in terms of the detailed plans that we've laid out here today, it was more in terms of: do we have an opportunity to try some different technologies strictly on the side -- almost on the side of the plate, in terms -- and if we do, as a research company we will do that if it meets from a cost side and from a technology side.

So the comments that the Environmental Society made, they're great, we welcome that kind of thing, and we certainly don't want to say that things can't -- that there's not opportunities for other technologies. But I want to be really clear that that's -- that we're not going to bend our project around those kinds of comments.

**THE PRESIDENT:** I understand that, but I just don't know how can you physically incorporate a new technology? And maybe I don't understand that this is, and how massive it is, and how, if you want to implement it, would require a completely new design?

Just somebody explain to me, if you wanted to do this, what would be the repercussions, and are there opportunities during the construction to implement something like that?

Anybody? Anybody can help me on this?

**DR. LANGE:** Karina Lange, for the record.

PRB stands for permeable reactive barrier. So just a very simple explanation: after the water is flowing, and in this case we're trying to use the -- or the soil cover is designed to reduce contaminant loading, so the water will be relatively cleaner after that remediation. But the permeable reactive barrier, just imagine it as a tertiary treatment, so as, let's say, water flowing through a filter, if you may. That's a real simplification.

So it's an additional added barrier where -- and the reason that they call it permeable and reactive, "permeable" means water can flow through it, and "reactive" means that in some cases you add things to the barrier.



Let's say you're trying to remove iron, you might add something that'll absorb that iron. So let's say that SRC remediates the water and they have, which could happen, a high amount of ammonia, or something like this. They might decide, okay, instead of building a water treatment plant, we're going to add a ditch and have it pass through some kind of micro-biological barrier or mineral barrier that'll remove the ammonia from the fertilizer, let's say.

So it's really a tertiary treatment that, in my opinion, would be used as a polishing step for the water.

CNSC does have a lot of experience with permeable reactor barrier technology, and I'll ask Dr. Patsy Thompson to provide some examples on that technology.

**THE PRESIDENT:** But it's not part of the cover? The tail --

**DR. LANGE:** It is not part of the cover.

**The PRESIDENT:** -- is not a top?

**DR. LANGE:** Water would flow through it and become cleaner. That would be its role.

**DR. THOMPSON:** Patsy Thompson, for the record.

So just to alleviate Ms Velshi's concerns, it wouldn't take months to review a proposal by SRC to put

in place permeable reactive barrier. THE CNSC has a lot of experience with those types of barriers in various sites. There is some at Chalk River, there's something similar that was contemplated for Cluff Lake and we have other places where there's groundwater contamination where essentially a trench was put in place with material that absorbs the contaminants and lets the water flow through.

So it's not high technology. It's not new technology. It's something that can be used, if needed, and would not require essentially months or review and would not be an impediment to improving environmental performance.

**THE PRESIDENT:** Was it done in Lorado?

**DR. THOMPSON:** To my knowledge, no.

**THE PRESIDENT:** Ms Velshi.

--- Off microphone / Sans microphone

**THE PRESIDENT:** Mr. Tolgyesi, anything else still on the Environmental Society?

--- Pause

**THE PRESIDENT:** Any questions on about that particular intervenor?

**MR. LEBLANC:** So shall we proceed, Mr. President, to the next intervention?

**THE PRESIDENT:** Just give me a minute. I want to....

--- Pause

**THE PRESIDENT:** One last question on them.

They are worried about the institutional control, the transfer to institutional control being too fast. I think we already had a semi-answer to that.

This 2030, that's kind of an objective, it is not necessarily the date it's going to happen. Right?

**DR. NEWLAND:** Dave Newland, for the record.

That is the case, yes, 2030 is a planning date. We wouldn't move into institutional control until all of the objectives were met and there was long-term stability.

**THE PRESIDENT:** Just so I understand it, I look at it as a double-key safety here. First, CNSC has to be happy that it can relinquish, and the Saskatchewan government has to be happy that they're willing to receive it, so I think it's kind of a double control. The Saskatchewan government will not accept it if they think there's going -- there's some more work for them to do on this. Did I get this right?

**DR. NEWLAND:** Agreed. Maybe three keys, because I think the Commission members have to be happy as well.

**THE PRESIDENT:** That goes without saying.

--- Laughter / Rires

**THE PRESIDENT:** Please.

**MR. SANDERS:** Hal Sanders, for the record.

One other item that was not specifically raised is that, when it does go into institutional control, there is an Unforeseen Events Fund that is created at the same time that it enters. It speaks to one of the earlier commissioner's comments about ensuring that if something happens in 50 years or 100 years or 200 years that there is money to be able to address an unforeseen event.

Just another mitigation step intended to protect the environment in the long-term care of the site.

Thank you.

**THE PRESIDENT:** So you raise a good question again: we're talking about, you know, if there is something that doesn't work, how difficult it would be to go in and remediate. Because the program, as I understand, at least for the next couple of decades, there's going to be some maintenance requirement.

So if something was miscalculated, how difficult would it be to go in and try to remediate this further?

**MR. SANDERS:** Again, Hal Sanders, for the record.

There's actually two funds initiated when

a site enters institutional control. The first is a maintenance and monitoring fund that essentially provides enough money in there to be able to -- essentially, is set aside and invested, and then the intent is that it would be available.

So it's essentially managed by a consultation group of industry and the provincial government to hopefully ensure that there is enough money there. It is actually monitored and over periods of time it will be assessed whether or not there is sufficient funds available in the case of even an unforeseen event where there's insufficient fund.

We would then look back towards the original funder, and, of course, in this case it is the Province of Saskatchewan.

**THE PRESIDENT:** Right now -- we didn't ask the question. We all believe that there is sufficient funds right now to do the job of remediation. I understand the intervenor talks about a plan to spend up to \$208.5 million.

Is there enough money to do the job?

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

In terms of our discussions with the province, we feel that there are sufficient funds put aside to --

**THE PRESIDENT:** To implement your current plan.

**MR. MULDOON:** -- to implement the plan, yes.

**THE PRESIDENT:** Okay. Thank you.  
Any other questions to this intervenor?  
Okay, Marc.

**CMD 15-H10.3/15-H10.3A**

**Written submission from Athabasca Chipewyan First Nation**

**MR. LEBLANC:** So the next submission is from the Athabasca Chipewyan First Nation, as outlined in CMD 15-H10.3 and .3A.

Any question from the members on this submission?

Monsieur Harvey.

**MEMBER HARVEY:** Merci.

Well, there is many questions and many recommendations. Some have been already discussed. There is one about the area: once the work will be completed that people will be discouraged from frequenting the area.

What is the objective at the end? Is it that the area will be open to any use, like it'll be an open area, or that there'll be some restrictions or some parts that will be kept closed?

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

The objectives of the project are to ensure that traditional use will be able to be conducted adjacent to the sites. In the plans, we would not -- and as this project would go into the institutional controls program, the intent is that there would not be -- there would be certain land practices that would not be allowed on the tailings themselves and on the sites, you know, that we're doing the remediation work directly on.

The intent with the project is to isolate those contaminants, ensure that they don't leave the site, that they're there, and that they don't impact areas around the site.

So it would be -- and we've got a plan designed where traditional use would be able to be practised in areas surrounding the site, and in some cases certainly on the site, depending on what those practices are. But we will be -- we would certainly want to ensure, in working as we get this property into institutional controls, that there are land practices -- management practices are such that we don't have buildings going up in certain locations, that kind of thing.

**MEMBER HARVEY:** Thank you.

**THE PRESIDENT:** Ms Velshi.

**MEMBER VELSHI:** Similarly, on page 4 they

talk about the recommendation around fishing in the area, and putting up barriers to prevent that, or preventing fish from coming in the bay.

Any comments on that?

**MR. WILSON:** For the record, Ian Wilson.

Based on information gathered during a site assessment, both Langley Bay and Zeemel Bay are used as nursery areas for juvenile fish. Those fish that leave these areas accumulate contaminants, and only the fish that remain in these areas have potentially accumulated materials in their tissue, so SRC feels that a fish barrier may remove possible fish habitat utilization. And SRC feels that utilization of a very localized fish consumption advisory is a much better alternative and management tool.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Dr. McEwan.

**MEMBER MCEWAN:** Thank you.

I'm interested again, on page 4 and page 5, around execution of the plan, experience in being able to monitor the plan, and they reference back to a 2012 NRCan report that obviously isn't in these documents.

So my question, really, relating to that: Is there the necessary experience within the SRC and within CNSC to ensure that the plan is put in place in the way that it is intended, that it's monitored appropriately, and



that we have the ability to detect things going wrong early in the process of that, should it happen?

**DR. NEWLAND:** Dave Newland, for the record.

So the short answer is yes. We have experience with other sites. We have put in place our compliance activities for those sites. When it refers to senior staff, we always use staff of appropriate experience, senior inspectors.

So the short answer is yes.

**THE PRESIDENT:** But I guess the responsibility for delivering on this plan is SRC's. They're spending a lot of money putting in something that defines some targets for water quality, for contamination level, et cetera. Those things will be very viable and presumably they are going to hire -- I think we have some of them here -- consultants who know what they are doing and presumably they can deliver and if they don't deliver there are going to be consequences.

With staff, the way I see staff is to make sure that the plan is executed the way it was intended to be. Did I get the accountabilities here right?

**DR. NEWLAND:** Dave Newland for the record.

Yes, exactly. So we would look -- the licensee has the responsibility for carrying out the

activities in a safe and compliant way and we will oversee those, but ultimately the licensee is responsible. We will look to ensure that it's done in a manner that respects quality standards, safety management practices, et cetera, but ultimately the responsibility lies with the licensee.

**THE PRESIDENT:** Dr. McEwan, I interrupted you.

**MEMBER MCEWAN:** That was actually going to be my question. SRC needs now to comment.

**MR. MULDOON:** Joe Muldoon for the record.

SRC has put together a team, and has had a team together for a number of years, of experts in the field that have worked directly in these areas. I have staff to both my right and left and behind as well that have large, large numbers of projects under their belt in terms of these kinds of projects.

Saskatchewan being home to some of the most advanced uranium mines in the world and also remediation activities that are taking place, ongoing at those sites as well as Cluff Lake and others. We have some of the consulting companies that frequent and that are both housed in Saskatchewan and then also across the country.

We have at our disposal some, I would suggest, world leading experts in these types of technologies and the type of model that we have built is

that at SRC we have a group of very strong scientists, science-based approaches to everything that we do. We surround ourselves with very good scientists and we then reach out to the consulting and contracting community and have them help deliver those projects. So we are very confident that we do in fact have the expertise both within and out in the contracting consulting world as well at our disposal.

**LE PRÉSIDENT :** Monsieur Tolgyesi...?

**MEMBER TOLGYESI:** I have a question. The question is that on page 6 when you are looking at who will be a monitor and how it will be done, will northern or native people be involved eventually in the monitoring?

**MR. WILSON:** For the record, Ian Wilson.

I guess the short answer is yes, we do plan to have a program that will take individuals from the communities, primarily from some of the aboriginal communities, shadow us during operations, see what SRC staff does and our consultants do and provide a training program such that when SRC hands the site back to the ICP program, when SRC in essence is done with the program that there are people, local people and aboriginal people that have the capacity to monitor the program.

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

Any other questions?

Okay. Marc...?

**CMD 15-H10.4**

**Written submission from Métis Nation Saskatchewan**

**MR. LEBLANC:** So the next submission is from the Métis Nation Saskatchewan, as outlined in CMD 15-H10.4.

Any questions from the Members?

Madam Velshi...?

**MEMBER VELSHI:** So it's a very complimentary submission. There is one recommendation in here about two creeks that should be diverted. Can you comment on that, please?

**MR. WILSON:** For the record, Ian Wilson.

The two creeks that have I guess been referenced in that document are outside of the tailings area as it is now.

**MEMBER VELSHI:** I'm sorry, I didn't hear the tail end of it. They are...?

**MR. WILSON:** Outside of the tailings area footprint as they are now designed.

**MEMBER VELSHI:** So what does that mean?

**MR. WILSON:** There is no need, from our standpoint --

**MEMBER VELSHI:** Oh, okay.

**MR. WILSON:** -- and a design standpoint, to re-divert those streams as they lie outside of the footprint and are not contaminated per our assessment of the site.

**THE PRESIDENT:** But will they be in consideration for the next phase or they are totally out, they are not --

**MR. WILSON:** Once again, Ian Wilson for the record.

They would be monitored even though they don't seem to be contaminated and/or would not be, I guess, diverted as part of the design. They would be monitored both during operations, post-remediation operations, and possibly through ICP monitoring.

**THE PRESIDENT:** So if they are not contaminated now, why would this intervenor pick up on those two particular creeks? Any idea? Does anybody know?

**DR. LANGE:** Karina Lange for the record.

At the workshop that we attended in July, I did hear a representative from the Métis Nation discuss -- I'm not sure if it was exactly those two creeks but he did talk about creeks onsite. And it's a bit hard if you look at the presentation from SRC to understand exactly where the tailings are or aren't or where they stop

and end. So he did refer to some creeks. He might not have known that they are not necessarily near the tailings but he just wanted to maintain that.

But in my discussions with SRC, they did provide me information that those creeks aren't necessarily flowing all year. But I might, if I could, ask Mr. Levine to comment on his knowledge on the comments made by the Métis Nation at the workshop.

**MR. LEVINE:** Adam Levine for the record.

So the individual who submitted the comments, Allen Augier, he has had a lot of experience on the site, the Gunnar site. He grew up there and spent a lot of time on the site, so he does have some local knowledge of the site. But he may not be privy to all the detailed evaluations of the site in terms of where each creek leads and if it's part of the footprint of the tailings facility, the cover that will be going in.

So this is coming from his local knowledge and his experience historically on the site and it's important to take into account and I would like to ask the SRC just to elaborate on how they take these types of recommendations into account.

**THE PRESIDENT:** So would it be useful for the next time you meet with the communities to have not only what is required remediation but those areas which are

not contaminated. That may be a useful piece of information to share with the communities.

**MR. MULDOON:** Joe Muldoon for the record.

Certainly, we continually go out to the communities and have the discussions. Allen Augier has worked and does work periodically for SRC, so we are in constant communications with Allen and the Métis Nation. So we would certainly continue with those discussions.

**THE PRESIDENT:** Thank you.

Any other questions?

Marc...?

**CMD 15-H10.5/15-H10.5A**

**Written submission from the  
Prince Albert Grand Council**

**MR. LEBLANC:** The next submission is from the Prince Albert Grand Council, as outlined in CMDs 15-H10.5 and 15-H10.5A.

Questions from the Members?

Monsieur Harvey...?

**MEMBER HARVEY:** Just in the third paragraph:

"On behalf of the Prince Albert Grand Council, I also wish to express our

position that the consultation process is deficient, and we do not agree with the position taken by the Saskatchewan Research Council in its submission..."

Why? I mean there have been 125 meetings that have been mentioned in the presentation and when we receive such a comment it's difficult to understand why there is that margin. Who could...?

**MR. WILSON:** Ian Wilson for the record.

I'm not too sure what the context of their position is. We do meet very, very often with the PAGC and other members throughout the community and have verbally -- travelled up there this month and met with the Vice Chief there. And so, yes, I'm not too, too sure where that position is coming from, from our standpoint at SRC.

**MEMBER HARVEY:** You have read the --

**MR. WILSON:** Yes.

**THE PRESIDENT:** Did you make a presentation to the Grand Council?

**MR. MULDOON:** We have had members of the Grand Council out to site and meet with them on a regular basis along with the other communities. It's usually members of the Prince Albert Ground Council. We meet with them separately but we also meet with them out in the



community functions and the meetings.

And again, I mean we want to be really careful that we don't speak on their behalf and try to interpret what's here. It sounds to me that this is more around whether the project -- a remediation project and how it impacts aboriginal rights and I think that's one that I would not be comfortable in trying to interpret for them.

What I can say is that we continue to have discussions with them and will continue to do so as the project unfolds and listen to what they have to say and adjust as we can within the licence.

**THE PRESIDENT:** It's not the first time we've heard from the Council on items like that. But again, I know that they meet regularly. I don't know why you can't try to get on their agenda and try to explain, you know, what is it you are doing.

**MR. MULDOON:** Well, certainly we have done so and we have been on their agenda. We have gone up and have met --

**THE PRESIDENT:** To the Council meeting?

**MR. MULDOON:** -- with the Grand Chief and others. I know our aboriginal liaison is up there on a regular basis but we will certainly -- they are in the middle of an election right now and so once that has settled we will certainly put it on our list to -- on our

to-do list in terms of going up and having some discussions with them.

**THE PRESIDENT:** Mr. Sanders, you want --

**MR. SANDERS:** Hal Sanders for the record.

I might offer an observation that it is difficult for an individual First Nation or a Grand Council to offer a carte blanche "you have satisfied the duty to consult" when the province did adopt duty to consult measures that of course First Nations in Saskatchewan have not wholly adopted. So just as a matter of principle, I think it's fair to say that we would not receive, you know, an absolute acceptance of the duty to consult under most circumstances and I have had experience in hundreds of these situations where, you know, certainly we have satisfied what we believe to be the duty to consult in an ever-changing world of definition legally about what duty to consult in fact means.

**THE PRESIDENT:** Anybody? Dr. McEwan...?

**MEMBER MCEWAN:** Thank you.

So this is a comment that actually comes up in several parts. If I look at page 2, 4.1, 4.2 and 4.3, is that sort of fundamental to -- of the Prince Albert Grand Council? Sorry, the first document, 10.5, page 2.

**THE PRESIDENT:** There are two page 2. There is beginning, the introduction.

**MEMBER MCEWAN:** So it's comment 4.

**THE PRESIDENT:** It's the study by the University of Alberta people.

**MR. MCEWAN:** Yes. The waste rock on the pilings, the contamination of the waste rock and the exposure by the remediation process, as this is fundamental to what we are deciding today, is there something that needs to be considered, considered further or has it been shown to be not of concern?

**MR. MULDOON:** Joe Muldoon for the record. I'm just ensuring that technical staff have a look at exactly the wording in the intervenor's statement.

**DR. SHAW:** For the record, John Shaw from EcoMetrix.

Reading comment 4.1 here, "Waste rock on tailings," I just want to read this so it's clear for everyone:

"...concerns that the piling of tonnes of waste rock on the tailings will result in long-term problems of seepage and pollution into Langley Bay."

As part of our detailed modelling exercise, as part of the conceptual model developed for the

report before you that was submitted, sorry, I think we have clearly shown that the inclusion of waste rock on the tailings as part of the landform design does not result in an increase in the contaminant loading to Langley Bay. There is a contribution of loadings from that waste rock but it is offset by the reduction in loadings by actually covering the tailings, which right now is the main mechanism of loadings to Langley Bay.

So overall, the inclusion of waste rock as cover landform design actually does not increase from current levels contaminants to Langley Bay. Furthermore, modelling clearly shows that the waste rock is a finite source of loadings that you can consider from our calculations of about 50 years when it comes to uranium and probably a couple of hundred years in terms of other COPCs, and so those will act as pulses but will not be, in terms of hundreds of years, a long-term source of contaminant.

So I just want to be clear on that. Waste rock is not adding any additional loadings from current day.

**MEMBER MCEWAN:** (Off microphone).

**DR. SHAW:** The waste rock isn't contaminated. It is rock left over from the mining practice that has metals in it. Those metals will leach out just as a matter of because it's been broken down.

But again, the modelling clearly shows that any release of those metals, which is already currently ongoing in their current position, that will occur whether they remain in the piles or if they're used as a landform design, and again, it will not contribute any additional loadings than what is currently happening to Langley Bay.

**THE PRESIDENT:** So this report, I find it actually very useful to read what the people think about all of this, but at the end of the day they are opinions of people being summarized by the University of Alberta team. That is by itself interesting, that they went out of Saskatchewan to do this. So that's interesting all by itself.

But the bottom line of this conclusion is that most of the people are happy to move forward. So just to summarize, were you all -- after reading all those comments, did you take into account whether any of them may impact on your plan or have you already adjusted your plan where you got some useful comments, or did you get any useful comments?

**MR. WILSON:** For the record, Ian Wilson.

As part of my speaking notes in our presentation, some of the input that we received from community members, and it is at multiple workshops and at

multiple community meetings, one of the things that we heard from the majority of the community members giving input to us is do not move the tailings that are submerged in Langley Bay because you may reintroduce them to the water column and further affect fish, the water quality and the wildlife around there.

And we looked at that and part of -- as Sean had said, we have done quite a bit of modelling for loadings and the modellings for loadings pretty much summed up and substantiated some of the comments that the local members of the communities have given us over time.

So that's just an example, but we do listen and we do incorporate even small things, but they know the area very well and in many cases are able to provide very good input that we listen to and sometimes incorporate into our programs.

**THE PRESIDENT:** Okay.

Question?

So the one thing that appears throughout is again the employment, right? And I don't know, in some of the comments I read that there are some people who were not happy with the Lorado experience, whereas you mentioned that, you know, your principal contractor was aboriginal, et cetera. So why? Where did that come from? They claim that it didn't live up to the promise.

**MR. MULDOON:** Joe Muldoon for the record.

I believe we have done very well in terms of changing our procurement practices, and very significant changes to our procurement in terms of requiring local involvement, and direct contractor involvement in the projects and in sending contractors to do so and penalizing if not. So I think we have done very well on the Lorado project.

However, any project, especially a remediation project, they are short term, it's not like a producing mine that goes on for 20, 20-some, you know, 20-plus years and there are only so many people that are required to do the work onsite. So we try the best that we can in terms of making sure that the monies that are spent are spent locally and that the benefits and the training are there so that when Ian talked about in his speaking notes, training, lots of the training that we do for the people on our projects, they can then take that training and apply it in other mine sites and in other work areas.

So we have really expanded our training well beyond what would be required for the specific work that we do and we continue to do that in cooperation and in discussion with the northern people.

But it would be inaccurate to suggest that we could ever meet all of the needs that are there.

Certainly, there are competing interests from different communities and I would love to be able to say that we have satisfied all of the needs for everybody with this project but it's just not possible.

So we do the best that we can. We consult with the communities. We have contacts in the communities to make sure that the contractors have contacts in the communities to bring as many people online in an efficient manner in terms of an effective and cost-efficient manner in terms of doing the work.

So I guess it's one of those that we can't always please everybody but we try to deliver the projects in such a way that we spread the dollars locally as much as we can. So we will always -- there will never be enough I guess is probably the best way to end what I'm stating, is that there will never be enough. We do the best that we can.

**THE PRESIDENT:** They suggest -- on page 5, the intervenor suggests that -- this is 8.4 on page 5:

"SRC can also report to the IMA  
(Impact Management Benefit Agreement)  
Negotiating Team / soon to be Joint  
Implementation team, which represents  
7 communities..."

I have no idea what this is. Is that a



good vehicle to get involved with?

**MR. MULDOON:** Joe Muldoon for the record.

Many of the producing mines up in Saskatchewan, in Northern Saskatchewan, have impact agreements with the local communities. They are longstanding, producing mines that are privately owned and funded, not government dollars. I think the emphasis there is that they are producing monies, they are producing dollars, and they turn that money back into the community. Very, very successful, very positive thing to do.

This remediation project is very short term. Lorado took, the actual remediation piece took two years, maybe another six months of work left there but very minor relative to what's happened over the last two years. Gunnar certainly will take longer but it's still short term.

So what we have done is we look at the components of what those agreements are in terms of providing employment opportunities, training, those kinds of things, and we have taken those constituents that would be in those agreements without -- and tried to implement the project in such a way that we can still provide those benefits.

And, you know, we meet with the communities on a very regular basis in terms of trying to

improve, and we have. Over the last three years we have changed our procurement and increased the numbers and increased our targets every year and we certainly will continue to try and be best in the industry in terms of providing those kinds of benefits.

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

Any other questions?

Okay. Marc...?

**CMD 15-H10.6/15-H10.6A**

**Written submission from**

**Fond du Lac Denesuline First Nation**

**MR. LEBLANC:** The next submission is from the Fond du Lac Denesuline First Nation, as outlined in CMDs 15-H10.6 and 15-H10.6A.

Questions from the Members?

Monsieur Tolgyesi...?

**MEMBER TOLGYESI:** In 10.6A, page 5, there are some comments on cancer prevalence, specifically stomach cancer. Could you comment on that, staff? It's in the middle of the page.

**MS GLENN:** Karine Glenn for the record.

I will ask Ms Adelene Gaw, our radiation protection specialist, to speak to this.

**MS GAW:** Adelene Gaw for the record.

According to the environmental assessment that was discussed at the 2013 hearing, the dose estimates were carried out for members of the public that would occupy the site and carry out activities such as consuming the local food and water, and according to these dose estimates, the doses were much, much lower than levels at which you could see any health effects such as cancer.

**MEMBER TOLGYESI:** So did you discuss these conclusions with communities? Because what they are saying, there is -- the high rate of stomach cancer is not well understood by community members. So did you have a kind of exchange and communications, explanations to them about the conclusions of this study?

**DR. THOMPSON:** Patsy Thompson for the record.

Perhaps I could add that these are essentially public health issues that have been extensively studied in Northern Saskatchewan. You have had to the Commission Dr. Irvine speak to some of those studies and so he has been very active in terms of community engagement and providing information to community members, but we don't have that information with us today. But certainly, the community members have access to public health officials and this information is shared and discussed with

community members.

**THE PRESIDENT:** Correct me if I'm wrong, many times we have heard from this Dr. Irvine that there have been many studies done that did not detect any cause/effect relationship because of the uranium mining. I'm paraphrasing. Wasn't that the conclusion?

**DR. THOMPSON:** Patsy Thompson for the record.

It is the conclusion. I hesitated to say that because I don't remember the exact details about stomach cancer for example, but generally the findings are that cancer rates are not higher in Northern Saskatchewan than they are in the South and there is certainly no relationship between the health of northern communities and uranium mining or other mining activities.

**THE PRESIDENT:** Are such studies ongoing? You know, like are they sort of repeated now, you know, or monitored or any unusual patterns in any kind of health studies being done in Northern Saskatchewan?

**DR. THOMPSON:** Patsy Thompson for the record.

There are health surveillance programs where those types of studies are done on I would say a regular basis and if I'm not mistaken there was a report published, I think it's this year but I stand to be

corrected, but this work is ongoing. But it's not done annually because you need some time to see changes and patterns, but it is work that is ongoing.

**THE PRESIDENT:** Dr. McEwan...?

**MEMBER MCEWAN:** In, again, 6A, page 3, the discussion about archaeologically or culturally important borrow sites, is that again a relevant concern? Has it been evaluated? Have there been sort of appropriate surveys or consultations done?

**MR. WILSON:** For the record, Ian Wilson.

The answer is yes, it is important. It was important since the start of the project. We have done traditional land use and traditional knowledge studies for that site specifically. Any time we go to either test pit or investigate a borrow area, as part of our screening we do do an archaeological screening of that specific borrow area prior to doing any such work and clear it with the Saskatchewan authorities for that.

**LE PRÉSIDENT :** Monsieur Harvey...?

**MEMBER HARVEY:** On page 2 of the first document at 10.6, it's about the cabins. There are cabins close to the project side that may be negatively impacted. There are traditional uses close to the project site that may be negatively impacted. So can you comment on those two points?

**MR. WILSON:** Ian Wilson for the record.

From that statement, I have asked a couple of the local trappers that live in the area with regards to those cabins. They have told me that those cabins are actually owned by local members and haven't been used in some time, but as part of our protocol we always make sure that we communicate and find potential impacts if there are people in the area, talk to them, make sure that they are aware of the plan and continue to touch base and communicate with them.

**MEMBER HARVEY:** So they could use those cabins during the work --

**MR. WILSON:** For the record, Ian --

**MEMBER HARVEY:** -- if they want to use it?

**MR. WILSON:** Yes. From our standpoint, after speaking with them, they say -- the two local members that I did touch base with regards to those cabins said they are not in use as it is now.

**MEMBER HARVEY:** Okay. And what about the traditional uses? During the work, will those traditional activities around the site be impacted?

**MR. WILSON:** For the record, we would touch base with members that would possibly use adjacent properties. During the remediation itself there may be some safety and environmental factors that we would manage

as part of our management system. So there may be a small impact and very short-term impact during the work itself.

**MEMBER HARVEY:** Thank you.

**THE PRESIDENT:** Any other comments?

Comments?

I have just a general remark, that when you read all the measures that they are proposing here, it reads as if they are not connected to you. And again, I don't know if you know this intervenor, Mr. McDonald. So it reads as if many of your plans and many of the things you said in front of us, he's not aware of. Did I get this right?

**MR. MULDOON:** Joe Muldoon for the record.

Fond du Lac First Nation is a community that we meet with, is always on our list to meet. They are a relatively large First Nation in the area and we do go into the community, directly into the community. We have sat down with Mr. McDonald. When we have these meetings they are usually public meetings and everybody is invited and those that have interest and so on will attend. There is also lots of written material that we provide and translated material as well.

So we do sit down with the Fond du Lac First Nation as a regular part of our community consultations and will continue to do so and there is no

intent, you know, were to proceed with remediation with the hold point removed that we would stop any of our communications. We would continue with those communications and Fond du Lac would certainly be part of those engagement opportunities, absolutely front and centre.

**THE PRESIDENT:** So, you know, just as an example, they put in an Appendix A and all of a sudden it talks about dykes and putting all kinds of dykes, totally ignoring what you guys are saying. So I have no idea what the disconnect is.

Somebody is waving. Go ahead.

**DR. THOMPSON:** Patsy Thompson for the record.

Perhaps just to put these interventions and the information brought forward in context, during the environmental assessment process there were a number of options identified for potential remediation of the site.

A lot of the comments and suggestions brought forward were suggestions and options that were considered during the EA process and there was essentially a lot of analysis done to determine which options were moved forward and which weren't, and some were in terms of feasibility, environmental performance, long-term performance.



So there were reasons why certain options were not retained, and much of this information is coming back today for the hold point hearing. So these suggestions were taken into consideration. If you will recall, with the environmental assessment we had a table where we essentially addressed all the comments we received and some of these were considered at the time.

**THE PRESIDENT:** Okay.

Anybody else? Any other questions?

So if we are finished with the intervenors, I want to get a sense as to do we have many other questions, because if we have many other questions we may take a break.

Just a couple? Okay. So maybe we will try to --

**MR. LEBLANC:** Maybe ask them if they need a break.

**THE PRESIDENT:** Okay. So let's go into -- we are finished with the written. Let's go into our normal kind of question and let me start with Monsieur Tolgyesi.

**MEMBER TOLGYESI:** (Off microphone)

**THE PRESIDENT:** You don't have to.

**MEMBER TOLGYESI:** I just said that I have a question.

**THE PRESIDENT:** You can pass your turn.

**MEMBER TOLGYESI:** Yes.

**THE PRESIDENT:** You can pass your turn to the next one.

**MEMBER TOLGYESI:** Yes, that's what I will do.

**THE PRESIDENT:** Okay.

Monsieur Harvey...?

**MEMBRE HARVEY :** Pas de question.

**LE PRÉSIDENT :** Pas de question.

Dr. McEwan...?

**MEMBER MCEWAN:** So I have a question. When you showed your presentation, you showed the sort of deconstructed buildings. Were any of those buildings contaminated and do they actually create any risk, you know, radiation risk in terms of their disposal and how will they be disposed of?

**MR. WILSON:** For the record, Ian Wilson.

As part of our other aspects, engineering design process, we have gone through multiple options. I guess the short answer to your question is the preferred option that we are looking at right now is to make an engineered landfill on the site itself, using a footprint that best, I guess, protects and/or mitigates from radiation and/or other contaminants.

During the operations, as part of our

management system, we would take into consideration any hazards that would be associated with either cutting, moving or placement of that material. Once we found the hazard, we would find ways of mitigating it and I guess augment and/or make sure that it is a part of our either health and safety radiation program or the entire management system.

**MEMBER MCEWAN:** That wasn't clear to me from the map. As you do this first process, does it actually involve working with, near or through those demolished buildings?

**MR. MULDOON:** Joe Muldoon for the record. The intent is to focus on the tailings, getting the tailings piece done first, and we are currently working with CNSC staff to develop, as Ian talked about, the best options that would be available to deal with the other site aspects, which would include the debris. It has been left in its footprint when we took those down in 2010 and 2011 and we have made adjustments in terms of tarping and ensuring that if there is any contaminant risks that we have those managed until we find a final home.

**MEMBER MCEWAN:** And you don't have to disturb that area to do the tailings?

**MR. MULDOON:** No. No, we do not.

**MEMBER MCEWAN:** Thanks.

**MS GLENN:** Karine Glenn for the record.

If we can just add, as part of the EA report, as part of that demolition, over 50 percent of that hazardous material that had been taken down as part of the demolition were transported offsite in 2012 through the -- so the hazardous materials from the demolition and from those buildings.

**THE PRESIDENT:** But the asbestos is still onsite and they -- you have to find a place to -- how are you going to dispose of this?

**MR. WILSON:** For the record, Ian Wilson.

As part of our other aspects design, our preferred option is to leave the asbestos buried and/or entombed within an engineered site on the footprint of the Gunnar site as it is now.

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

Ms Velshi...?

**MEMBER VELSHI:** Thank you.

Staff, on slide 12 on the SRC request, the other two components that are under review by you folks, what is the expected timing to then decide what the next steps are on that?

**MS GLENN:** Karine Glenn for the record.

We have received the plans from SRC and those have also been posted for public review. We will be

soliciting written interventions on those plans as well and as part of the participant funding program included the review of all three plans, not just the tailings plan. So there is not going to be another offer for participant funding.

We have done a sort of cursory review of the plans and have found no significant areas of concern at this point in time. We expect to have those reviews completed before the end of this calendar year.

**MEMBER VELSHI:** And based on your interactions with the local community or through the EA process, were there concerns on those elements of the plan that were expressed? Like are you anticipating a lot of debate on that?

**MS GLENN:** I will ask Dr. Lange, who participated in the workshop in July, to expand on that.

**DR. LANGE:** Karina Lange for the record.

A number of these concerns were first expressed during the EA process. So yes, the community has expressed specific methods to deal with various parts of the site and, as Dr. Thompson said, a lot of the recommendations in these submissions were looked at during the EA option.

So what SRC has submitted now are basically a narrowed down set of options from the

environmental assessment. So we are down to a very narrow set of options.

So the community does continue to express some specific -- as you have read, some specific ways that they would like things dealt with, such as waste rock moved or dykes put into place, and as part of the participant funding program we are hoping to hear more on their view on those specific plans that have been now narrowed down and try to again show them from the environmental assessment how and why those plans, or some of them, didn't make it to the current submitted plans.

**MEMBER VELSHI:** Thank you.

**THE PRESIDENT:** Sorry, but until they start constructing and you start seeing some real shovel in the ground, all of this is a theoretical discussion here. So isn't it a bit premature to decide how you are going to do it with the remainder of the hold points at this stage?

Mr. Jammal, you want to say something about this?

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

Ms Velshi asked the question about the next steps and, Mr. President, you are asking about prematurity of approval, but, as we are before you today we are addressing the issue of your record of decision of the

November 6th hearing and you directed us to come to you for Phase 2 to establish the licensing basis and we are establishing, in our opinion, the licensing basis before you. As Ms Glenn mentioned, it includes the other phases within Phase 2 such as waste rock management and so on and so forth.

So for the way forward -- you are asking the question about potential opportunity for the intervenors to comment in the future -- what I would recommend is we will report to you, the Commission, on a yearly basis with respect to the implementation of the licensing basis and the bounding element from the EA to the licence itself, annually, to you and allowing the interveners an opportunity to intervene in writing as we have done today, in public proceedings, with respect to the hold points. The performance of Saskatchewan Research Council in implementing the licence requirement.

And if the Commission is satisfied, I will recommend for the Commission to delegate the consent for the removal of the hold point based on risk-informed decision-making for the Director General of the Directorate of Nuclear Fuel Cycle Regulation or the Executive Vice President of the Regulatory Operations Branch.

So in other words, we believe in our opinion that we have done enough work on concepts, on plan

and on models, and it's time to put the shovel in the ground in order to ensure implementation is being done according to the bounding element and the licensing basis approved by the Commission and we will report to you annually.

And if SRC at any point is not complying with the requirements established by the Commission, we have issued orders to SRC before, and we are willing to issue other orders if it is applicable to do so. So the point here is we will monitor the situation, we will report to you annually and that will be our recommendation to the Commission.

**MEMBER VELSHI:** Excellent. Thank you.

And my last question is to SRC and I don't know how different Gunnar is from the Lorado mine remediation, but were there any big surprises for you there or any key learnings from there that would apply to this particular project?

**MR. MULDOON:** Joe Muldoon for the record.

The Lorado is certainly very similar to the Gunnar. The Gunnar is a much more complex and a much bigger site. The tailings component of Lorado and Gunnar is similar, as I say, except for size.

There are always learnings to be had with any project of that scale and we were more construction



operational type things in terms of timing, in terms of ensuring that we have the building materials in place and available before we start the actual construction. Those kinds of learnings we will take to Gunnar. And I think it's very important that we continue with the community engagement and the consultations to keep everyone firmly involved.

The other piece that I would suggest is that the opportunity to have CNSC expertise when they come up and did the inspections and so on at Lorado and to be able to exchange to cull information back and forth was also very helpful for us.

**MEMBER VELSHI:** Thank you.

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

Mr. Tolgyesi...?

**MEMBER TOLGYESI:** I have -- this is very -- quite technical. If you go to slide 15 -- 10. I'm sorry, it's 10(1)(b). It's SRC's.

And you are talking about preferred design for Langley Bay. There, tailings between Back Bay and Langley Bay will be covered by fill, a till cover and they will be maintained by riprap rock. Okay.

Now, you have riprap rock at Langley Bay down even covering tailings but you don't have that in the Back Bay. Is there a specific reason you just forget it or

it's a specific reason that it should not be -- it not have to be maintained?

**MR. WILSON:** For the record, Ian Wilson.

Maybe just it's not clearly shown on the rendering but there will be an armoured riprap protection both on the surface adjacent to the water in Langley Bay and in Back Bay.

**MEMBER TOLGYESI:** Okay. And it will cover also the tailings?

**MR. WILSON:** It will not cover the entire length of the tailings in Langley Bay. It will just be in essence on the shore where the tailings are adjacent to Langley Bay water and Back Bay water.

**MEMBER TOLGYESI:** And I have one which is a little bit more philosophical. What is a reasonable climate change scenario for the site? It is on page 59 in the middle.

**MR. WILSON:** For the record, from a design engineering standpoint, we have gone to a one to 200 year storm event to, I guess, further be able to integrate changing climate in the region.

Years ago, I guess, the industry standard was going from a one to 100 year but we have found over time in various projects that climatic changes may have occurred such that we have had to increase to a one to

200-year storm event.

**MEMBER TOLGYESI:** And you think that it's enough?

**MR. WILSON:** Based on our assessments, yes.

**THE PRESIDENT:** What -- I noticed in one of your studies you actually calculated the one in 1,000 also and you chose the 200.

What I want to know is what's the difference if you were taking the one in 1,000; incrementally what's the difference? Is it cost? Is it thicker cover? What's the implication?

**MS BONSTROM:** Kristie Bonstrom, for the record.

The implication is a higher peak flow from the landform and that would have impacts on what the channel designs. So the channel that runs from Gunnar Main north to Langley Bay would likely require increased widths, depths and then riprap calculations. So like the rocky material that prevents erosion and allows the water to flow would probably need to be increased. And of course that would increase cost. But as it stands now, we believe the one in 200 year event -- and the one in 200 event, I will also add, incorporates the latest climate change models which increase the intensity of that event. So we based it

off the local climate, adapted a model to that and so we actually have higher peak flows from that.

And right now the channels are very robust, are quite wide, six metres wide. There is quite a lot of freeboard to allow more water to move than what we have actually used as a design event for. So we believe that it would be more than enough to carry the water. The one in 1,000 would probably result in almost an overdesign of the channel.

**THE PRESIDENT:** You are talking to the nuclear crowd. We are talking in one in a million as not being enough and we always look for the doomsday scenario.

**MS BONSTROM:** Right.

**THE PRESIDENT:** So let's assume you proceed with one in 200 and the one in 1,000 happens. What will happen then?

**MR. MULDOON:** If I can just state, as well, that we do have the institutional controls program in place as the backstop so that in the event that something like an occurrence like that does happen that we have got the ability to go in and make whatever adjustments are required from a regulatory side.

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

Anything else? Last chance. Okay, thank you. Thank you very much.

Anything else I need to do now?

**MR. LEBLANC:** What we will do is that the Commission will confer with regards to the information that it has considered today and will determine if further information is needed or if the Commission is ready to proceed with a decision. We will advise accordingly and as fast as we can.

Thank you.

**THE PRESIDENT:** Thank you. Thank you for your patience. We will reconvene tomorrow at nine o'clock. Thank you.

--- Whereupon the hearing concluded at 6:43 p.m. /

L'audience s'est terminée à 18 h 43