

MR. HUFFMAN: Dale Huffman with AREVA.

And thank you for the opportunity to address some misinformation. I do not know where the numbers regarding Cluff Lake have come from, but I can elaborate on them.

I think the message that I'm getting from Mr. Natomagan's submission is that we, in some way, grossly under-estimated what it would cost for Cluff Lake.

In fact, if we go back to 1999 when we put a decommissioning and financial assurance in place for \$33.6 million, which is the highest financial assurance that Cluff has ever had, so 33.6 In 1999, we estimated that the physical decommissioning work would be about \$22 million, and then in 2004 to 2006, we embarked on that decommissioning work. And in that period, it cost us about \$25 million.

So about five years later, we have a marginal increase in -- or reasonable increase in cost.

And subsequent to the decommissioning period, 2004 to 2006, we've done a little bit of work in 2013 to tidy up the site, and we'll do a little bit more in 2018.

And so the total -- the total costs for the physical decommissioning of Cluff Lake is going to end up being about \$28 million.

So we have -- we have always had sufficient financial resources to decommission Cluff Lake and put it into a safe and stable state. And the decommissioning -- or the financial assurance of 33.6 persists to today, is still in place at this -- at this point.

Well, we may have under-estimated some costs associated with the ongoing monitoring and we may, as a company, have spent more at Cluff Lake by our own choosing because we chose to continue to maintain a camp there to support our exploration work and it was convenient to do monitoring, so we've spent on that over the years.

But the comparison that Mr. Natomagan has put forward is -- misrepresents the costs of clean-up at Cluff Lake.

So the -- in 2014, after we had a pretty good understanding of decommissioning costs and the cost of ongoing monitoring and maintenance and management and fees, we sat down with CNSC staff and Sask Environment staff and went through a pretty

thorough review of the costs to make sure that both agencies had pretty good visibility on what it cost to decommission a site. And it was at the time while we were updating the McLean Lake decommissioning plan, and we used that as a validation that we are able to predict -- we're reasonably good at predicting costs and had a full understanding of what it cost to decommissioning -- decommission a site, monitoring and maintenance and all items included.

So I think the -- if you want me to expand further on ongoing costs, I am happy to do so, but I think that addresses the primary comments of Mr. Natomagan that are -- misrepresent the situation.

THE PRESIDENT: Okay. Thank you.

MR. HUFFMAN: Thank you.

THE PRESIDENT: I want to hear from staff, particularly about the competency. I thought you had a very rigorous process to make sure that the numbers are correct.

Go ahead.

MS TADROS: Haidy Tadros, for the record.

That is correct, sir. For the record, we want to ensure that this intervention does not

leave the public or the Commission with the impression that we do not have competent staff.

I'll ask Ms Karine Glenn to walk you through our robust process and the expertise that we have internally that looks at both the decommissioning activities from an operational perspective and also the financial information that is looked at.

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

All of the financial guarantees that are accepted and approved by the Commission are based on a decommissioning plan. So it starts with the decommissioning plan that is submitted.

As part of that decommissioning plan, the licensees propose an end state, detail the steps that they're going to undertake to arrive at that end state and then do thorough cost estimates as to how that work will be costed out projected out in the future based on the timelines that they're projecting further decommissioning.

That must include any long-term monitoring and any maintenance of the site.

All the waste and decommissioning

staff as subject matter experts do review all of the decommissioning plans for all the CNSC regulated facilities, including all of the mines. Not just the ones in Saskatchewan, but also the ones that are in various states of decommissioning in -- such as Gunner, Laredo, as well as the Ontario sites.

So we have exposure to all of the ongoing costs that the licensees are encountering and the costs of real time recent remediation and decommissioning projects such as Cluff or the Gunner work and the Laredo work that have been ongoing.

So we have an ability to compare in between the different cost estimates that are provided by the licensees.

There is also CSA standards, CSA N-294, which deals with decommissioning, and details what must be included in that.

And there is the CNSC Regulatory Guide, G219.

So that's from -- that's -- we review the decommissioning plan and the cost estimates. In addition, our colleagues from finance will review the financial assumptions that have been used such as the contingencies, any discount rates, escalation factors

that are being used, inflation, and to look at whether those cost estimates are reasonable.

In addition to CNSC staff reviewing this, in the cases of Saskatchewan mines, because the financial guarantee's actually payable to the government of Saskatchewan, not to the CNSC -- and this is only the exception with the case of the Saskatchewan facilities -- the government of Saskatchewan also reviews the cost estimates and proposed financial assurances.

So we have that added -- there's a sort of double review that takes place, and it's not until they are also in agreement with the proposed costs that have been projected that the financial guarantee can then proceed forward for the Commission's acceptance.

In addition, CNSC staff do collaborate internationally on various groups, the International Atomic Energy Agency, that deal with remediation and decommissioning work on mines, as well as the Nuclear Energy Agency. And there's a lot of information sharing that goes on at that level internationally with respect to cost estimates with respect to decommissioning.

THE PRESIDENT: But --

MS GLENN: Have I covered it?

THE PRESIDENT: Yeah.

In the NPP world, you also use a third party and you do every five years reassessment and an annual update. Is that the same process here, or not?

MS GLENN: So Karine Glenn, for the record.

There's no requirement on the licensees to use a third party to do their cost estimates. The NPPs do so and often use the same expert, but there is actually the same requirement for every five years the preliminary or decommissioning plan must be revised to reflect the current operations of the facility such as -- I'll give you an example.

The McLean Lake decommissioning plan and financial guarantee were just revised and the financial guarantee was accepted by the Commission in the hearing that took place in 2017, and that took -- was a sizeable increase in the amount of the financial guarantee because it took into account the expansion of the mill and changes in contingencies.

And so there was a number of changes that they had taken into account into the revision of

the decommissioning plan and cost estimates, and that was reflected in the financial guarantee.

So at a minimum, every five years or when there are changes that would affect that cost estimate requiring an increase in the financial guarantee.

THE PRESIDENT: So Saskatchewan government, the Ministry of Economic Development, you don't ask for a third party?

If you're the ultimate recipient here, are you not asking for third party attestation for the plan?

MR. MOULDING: For the record, Tim Moulding, Ministry of Environment.

We don't require any third party review of that documentation, either, but as previously stated, do have our own internal people go through those documents in detail, prove out the costs. And I'm quite confident that the amount that -- the amounts that we're currently carrying on those sites are reflective of the real decommissioning costs.

Thank you.

THE PRESIDENT: Okay. Thank you.

Any other question?

Okay. Thank you very much.

So we're now going to move to the general. Any question you want to ask on anything.

Dr. McEwan.

MEMBER MCEWAN: I will start with a great deal of hesitation because it's about a number.

Slide 29.

THE PRESIDENT: Whose?

MEMBER MCEWAN: CMD, so the staff -- page 29 of the staff presentation.

So under the mining sector, for the iron mining sector, you have the number of mines as eight, you have the number of mines out of compliance with at least one parameter as four, you have the number of mines for TSS as nine, and then you have eight out of compliance for pH.

Those numbers, to me, look wrong.

MS TADROS: Haidy Tadros, for the record.

Glenn Groskopf will answer that question.

MR. GROSKOPF: Thank you very much. Glenn Groskopf, for the record, in Saskatoon.

The reason that that appears to be incorrect is the fact that those mines are -- have to be out of compliance with at least one parameter over the course of the year, which is 12 months. You could be out of compliance one month or several months, and each of those months would add up as an out of compliance, for example, so out of eight mines, that would be -- represent 96 months' worth of data. Out of 96 months, nine times a mine was out of compliance.

And it was only four mines that were out of compliance in any time of the year.

So that's why, for example, if you look at pH, they weren't necessarily out of compliance even in the same month for pH versus suspended solvents.

MEMBER MCEWAN: Okay. So could I suggest you change the title of the individual elements? Number of mines out of compliance by parameter doesn't give any indication that it's once in the year. And again, as Dr. Demeter just said, this is prevalence, not incidence.

MS TADROS: Haidy Tadros for the record.

I believe it should be number of out of compliances by parameter, not number of mines out of

compliance by parameter. So we will look at that. Thank you.

MEMBER DEMETER: In the document there is discussion that the mines are allowed to produce to a certain threshold and if they don't use that in one year that can be carried forward for future production cycles, but is there a caveat that says up to X? Because if they are down for two years, is there an upper threshold or do they get to carry the full capacity forward? Is there any concern with how to deal with this sort of -- without a caveat of what the upper threshold would be if they have a huge capacity that has been unused?

MR. LOJK: Bob Lojk for the record.

The capacities that we normally look at are the annual capacity, so they may within a certain total capacity be asked to accelerate production to make up for the shortfalls back and forth, but it's still within a set limit. So just because you didn't produce one year, you can't double the production next year.

MEMBER DEMETER: Okay. That aids my understanding, because as I read it I thought that they could just keep adding all their shortfalls to the next year, but it's to the limit of their annual capacity.

MR. LOJK: Yes.

MEMBER DEMETER: Okay, thank you.

MR. LOJK: Yes.

MR. MOONEY: It's Liam Mooney in that regard.

I guess the point there at Cigar Lake when we look at it is that production flexibility would take us up to 9.25 million kilograms of uranium. So the licence is for 7 million kilograms of uranium, but the maximum that we could recoup under that production shortfall provision is up to 9.25 million kilograms of uranium.

THE PRESIDENT: Thank you.

Mr. Seeley...?

MEMBER SEELEY: Yes. No, I like the report. I think overall the reports that we have seen today on the regulatory oversight, you are summarizing do these facilities meet the regulatory requirements. You have a checklist approach to doing it. I guess it's in the nuance where it may be more difficult. So it's one thing to say yes, they meet all of our requirements, our base requirements, but there is kind of then, okay, so what, so how are they doing, are they getting better, worse?

And maybe a few things that I see in the report that I think were very helpful.

The benchmarking piece that we just talked

about in environment was very good, so it gives you a sense that, you know, actually these facilities relative to other types of facilities are actually doing very well in terms of environmental performance when we look at the compliance numbers for example against some of their peers in other types of mining. It would be nice to see that possibly for the safety as well, because that was one of your three focal areas. You had safety, environment, you had radiation.

Now, radiation is going to be more difficult. That's when you are going to go to an international benchmark maybe and say, hey, how did we do against some of these other facilities in another country? It might also be helpful there. So we get a better sense of, yes, they passed and they are okay against regulatory requirements, but how are they doing really when you start benchmarking them to others? So that was very helpful. Maybe a little more of that would be good.

And then another comment would be around where the facilities are actually doing very well. I mean I saw a number of things in here that were extremely good news and so it would be to highlight, you know, somehow in the summary that these are the best practices that we are seeing in our industry in our facilities over the past year

and perhaps highlight those as well I think because then they could be translated to other facilities if you highlighted the best practices.

And then also in the report, maybe at the end also, you know, again, it's the so what, based on intervenors' comments and overall performance, what are the focus areas going forward, so where do the facilities or groups of facilities really need to focus to bring their performance up? Even though they are in compliance, where does the CNSC staff think they need to focus more energy to actually improve their performance? It might be useful to have that area for focus.

And I think all in with those sorts of broader parameters that might be -- the report gains more credibility I think in the public. Whether then it's just checking your boxes, you are fully satisfactory I think for a lot of people or satisfactory scores across all the board, it's difficult to interpret how are they really doing. Thanks.

THE PRESIDENT: Do you want to react to all of this?

MS TADROS: Haidy Tadros for the record.

Noted. I think you brought forward many good considerations to improve the report. Again, I go

back to the ultimate goal is to ensure regulatory requirements are met and performance is where we need it to be, and from a regulator's perspective satisfactory is not a bad thing, they are meeting regulatory requirements, but all of these points provide us with some considerations on how to turn this report into maybe something that is more of a messaging and provides the so what story behind the scenes. Thank you for that.

THE PRESIDENT: Thank you.

Dr. Soliman...?

MEMBER SOLIMAN: I agree with Mr. Seeley. It's very difficult to ask any questions after all of that, but anyway I have a general question about the radiation protection. Section 2.2 in M47 highlights two levels. One is the action level and the second one is the administrative level. And associated three actions with the administrative level, stay working, work with monitoring, leave and initiate investigations.

So how does the action level and three levels -- I mean the administrative has three actions -- act together? Now we have the threshold between stay working and work with monitoring, so that's one level. Another level is work with monitoring and leave and initiate investigation. And also we have the action level.

If you can give us an example where this action, when it can be done and where the action level with respect to all of these exists?

MR. McMANUS: John McManus, RP Specialist, for the record.

I will start with the action levels. So the action levels are dose-based and at McClean Lake, and actually Cameco facilities as well, we have two types. We have the 1 mSv per week, which is to address acute exposure situations, and we also have like the 5 mSv per quarter, which would address lower-level chronic. Both of those are designed especially to make sure that we don't have any dose limit exceedances. And that's a total dose. That's not an unplanned dose, that's a total dose for the week. So most workers at a mine or a mill would be there typically 26 weeks per year, because they are either a week on/a week off, or two weeks on/two weeks off. So that's the primary objective of the action levels. It gives them an indication of a loss of control, but primarily it's going to keep them from having a dose limit exceedance.

Below that they have a set of administrative levels. There's two parts to it. There's hazard-based administrative levels and there's also dose-based administrative levels.

They also have dose-based administrative levels that are actually set below the action levels. It's internal to their licensed activities and that will initiate additional notifications, reporting and sometimes even work restrictions for workers. They actually don't want to get to the action levels.

They also have a set of administrative levels that are hazard-based and they have those for every type of exposure situation, be it gamma, radon progeny or long-lived radioactive dust. And the workers all receive training on what these administrative levels are and what the associated protective actions are.

So initially when you see the prisms or the continuous -- what they call continuous working level monitors for radon progeny, when that prism is green it indicates that the radon progeny levels are very low, they can continue working as per normal. When you get a green/orange indication, it may mean that they can work for a period of time, maybe up to six hours -- that's an example, don't quote me on that -- and there should be some notification. As the lights go maybe yellow, the time shortens, the notifications eventually would get to a point where the work stops, you leave the area, you notify supervision.

So provided that the administrative levels are being detected, the hazards and the protective measures are being followed, you will never get to those action levels. So action levels are actually fairly rare at the mines and mills when you consider the number of activities and the number of workers.

MEMBER SOLIMAN: Thank you very much.
Very well explained.

THE PRESIDENT: Thank you. Back to Dr. Demeter.

MEMBER DEMETER: Thank you. This is my last question and I will really try hard to ask this question without introducing information.

So you have a number of graphs that deal with radon. The first one would be Figure 3.3 related to Cigar Lake, page 41, so they are all kind of similar, and you have a radon reference level of 60 Bq per metre cubed and you reference ICRP, 65 I believe -- yes, ICRP 65. Are you aware of any updates to the ICRP models for risk from radon and radiological protection guidelines that may have changed since ICRP 65?

MS PURVIS: Caroline Purvis for the record.

From a radiation protection point of view,

yes, we are aware that ICRP is in the process of making some updates to radon progeny in terms of dose coefficients for -- so the development of that through their publication process.

As it relates to radon and ambient air, I think one of our environmental folks should probably tackle that. Thank you.

MEMBER DEMETER: Maybe I will comment.

The ICRP changes to this model have been published a couple of years back and they changed their risk assessment for lung cancer and subsequently changed their reference levels for home occupancy, which is what this graph is sort of based on. So I would suggest that staff look at ICRP 115 and ICRP 126 which literally cut in half the home occupancy reference level which may have influence on your radon reference level here, because that's what it's based on. That's just a suggestion that you perhaps look at that and see if that may update your reference level.

MR. RINKER: Mike Rinker for the record.

So thank you for that, we will do so, and we are doing some work in general to look at what would be appropriate ambient air environmental reference level to consider safety of trappers or members of the public up in the North as opposed to using the Health Canada reference

level for occupancy, but I think the science behind those levels is the same. So thank you for that reference.

THE PRESIDENT: And since we are about -- I'm not going to repeat the need to clarify units and reference level, but I am still trying to understand what a provincial standard is, because many of those graphs use provincial standard and where did they come from and why don't they have a federal standard equivalent to that? So I don't know if you can give me an answer now or in the future.

MR. RINKER: Mike Rinker for the record.

So in some instances, you know, many things are directly under the jurisdiction of the province. So as an example, Health Canada provides objectives for drinking water, but it's the provinces who set the standards based on maybe some information from Health Canada. So drinking water, for tritium for example, Health Canada provides 7,000 as an objective, but the Province of Ontario has the standard. Similarly for uranium in air, it's the province who sets the standard. And I think that's appropriate, that's where the jurisdiction lies, and we often implement or rely on provincial standards for our regulation.

THE PRESIDENT: But even in that case I

still want to know what regulatory Health Canada kind of limit is rather than the standard which is an operational one. It's just that many -- like sulfur dioxide, I was surprised that there is no kind of a top-down from the feds telling the provinces what that number should be. I know they are going to do it on carbon dioxide. Anyhow I'm digressing here, but somewhere along the line you have to give us a hierarchy of who sets those limits.

So where am I now? Dr. McEwan...? Mr. Seeley...?

Okay. Well, just one last question on the Rio Algom where they are talking about -- this is on page 133. The long-term plan for the site, it says +200 years, is to reach a state where water treatment is no longer a requirement. So what I'm trying to understand is water treatment will continue there for the next 200 years, that's our current thinking?

DR. LANGE: Dr. Lange for the record.

It's a good question. The current estimate is that water treatment will continue in perpetuity. However, as technologies continue to change, et cetera, Rio Algom's goal is to eventually try to move to some passive treatment systems in order to -- based on the models and estimates, in order to achieve and to continue

to achieve below licence limits, the site does require water treatment for a very long period of time. The current estimate is up to 200 years.

If I can I would ask Rio Algom to comment on any plans they have to perhaps move to more passive treatment systems for some of their water treatment.

THE PRESIDENT: But is that more like a wishful thinking or is it based on some sort of a model that you think it will actually happen?

MR. RINKER: Mike Rinker for the record. So it's not --

THE PRESIDENT: Do you want to answer that?

M. LEBLANC : Et sentez-vous confortable de répondre dans la langue officielle de votre choix, Madame Blier.

MS BLIER: Yes, like you said, it's maybe like a wish, but now we are like doing some studies, like, say, for example like the panel, water treatment plant, now we actually like see a very good result. So we expect like within the next 10 years maybe we decide to move to a passive water treatment.

THE PRESIDENT: My last question, my very last question is on dam safety. Seven years, that's when

you do the kind of assessment. So every seven years one has to engage a qualified review engineer. I thought seven years is a long time. Is that the lesson we have learned from Mount Polley?

MS TADROS: So Haidy Tadros for the record. We will have our dam specialist Mr. Zheng answer that question.

DR. ZHENG: Dr. Qinghuai Zheng for the record.

Yes, in terms of the dam safety review it is conducted every seven years according to the dam safety guidelines, but between that, like for the Rio Algom, they have their geotechnical inspection program in place which includes a routine inspection every month or quarterly by the licensee staff of all dams, dikes and their apartment structures and there would be another annual inspection and a performance review by a third-party engineer. The CNSC staff has reviewed the inspection reports submitted by the licensee. Also the CNSC staff conducted a baseline compliance geotechnical inspection on all dams and their pertinent structures. This is our current practice we are doing.

In terms of the Mount Polley, Mount Polley dam breach, tailings dam breach, following that event the

CNSC has taken some actions, including the CNSC has requested the licensees to evaluate the safety of their dams. The CNSC staff has reviewed all the dam safety assessments submitted by the licensees and also the CNSC has carried out geotechnical inspections of all dams structures and to the licensed structures. The CNSC also carried out a systematic review of CNSC's regulations and guidance on dam safety.

THE PRESIDENT: Okay, thank you.

So Cameco and AREVA, do you actually systematically also verify the soundness of your tailing ponds?

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

We do. This has been covered a couple of times through the response to the Mount Polley incident and we emphasized in those exchanges that we do not have tailings actively -- we are not actively depositing tailings behind structures. So the two facilities that we have in Northern Saskatchewan that have a tailings dam, we are not actively using them for tailings deposition. So we do regularly inspect those, we have a geotechnical program that is comprehensive and we do so on a regular basis and CNSC reviews that report when it is submitted to them.

MR. HUFFMAN: Dale Huffman with AREVA.

Similarly, we have a routine of geotechnical inspections that are provided to the CNSC for their review for our man-made structures and, as Mr. Mooney pointed out, and it is similar at Cluff Lake, we had a tailings dam, we are no longer placing tailings, the site is closed and so it doesn't present the same issues that an active facility would. Thank you.

THE PRESIDENT: Thank you.

Last question. So Cameco, AREVA, any final comments you want to share with us?

MR. MOONEY: Yes. It's Liam Mooney for the record. I did want to just share some closing comments.

I appreciate the effort by staff who have stayed here and in Ottawa I see to prepare the report. It is very comprehensive and we appreciate the questions from the Commission.

I do want to come back to a question that was asked earlier in the day and that was in relation to what staff is trying to do with this Regulatory Oversight Report.

You know, it's not easy when you are looking at it, but I think we do have to have a very firm

statement about what we are trying to do with that and in this context we are not ask -- there is not a decision before the Commission, it's more of a look at the regulatory activities over the course of the year which is they provide assurances that the mines and mills in this case, but our other facilities, are being regulated and in compliance with the licences that the Commission grants. The more detailed reviews of course come with the relicensing proceedings and I am somewhat anxious, or apprehensive depending on the language, but on the direction in relation to this report that we continue to add more and more detail every year and there is a level of effort required by my staff to prepare for this report and make me look as good as I do in front of the Commission. So I do think that we have to be mindful of that and there are a lot of times where I have mused about it would be nice to see this or it would be nice to see that and then my staff goes often and does that when, you know, I didn't really mean it that way or I didn't take it that way.

So I was heartened to hear President Binder say at one point during the proceedings that we have to take a risk-based approach and we have to look at how -- he mentioned a document that was perhaps this thick, but in any event I think that's an important piece and I don't

want to close without saying that what's necessary versus what's nice to have is important to understand.

The last piece I do want to close is I want to thank the province, Ministry of Environment Tim Moulding here, Keith Cunningham from Ministry of Economy and Dr. Irvine who gave a full day for us again. I really do appreciate that.

And the last piece is this will be the last time we get to see you in these proceedings, President Binder, so I don't want to wax nostalgic over the past two terms with you but I do want to thank you for your service. We have always found you to be tough but fair, which I think is the highest compliment you can pay to a regulator. So thanks very much.

THE PRESIDENT: I didn't expect that.

Thank you.

MR. HUFFMAN: Dale Huffman with AREVA.

I have noted before that Mr. Mooney is a hard act to follow, so I won't attempt to. I appreciate the comments that he made and I would make similar.

There is the considerable effort on all parts to pull this together and appreciate everybody's contribution, both in putting the report together and around this table. We have seen the effort grow in the six

years that we have been doing this and I think many parties would identify that as a concern. It has been getting bigger and more effort required each year. That said, I do believe that the ROR is serving a good purpose and a good summary for the mine sites each year.

So again, thank you for the opportunity to speak directly to the issues that relate to our licensed sites, Cluff Lake and McClean Lake. Thank you.

THE PRESIDENT: Okay. Thank you. Thank you very much.

So I think this brings -- this concludes the public meeting for today and the meeting will resume tomorrow at 9:00 a.m. Thank you for your participation.

--- Whereupon the meeting adjourned at 6:28 p.m.,
to resume on Thursday, December 14, 2017
at 9:00 a.m. / La réunion est ajournée à 18 h 28
pour reprendre le jeudi 14 décembre 2017 à 9 h 00